

POTENTIAL OF FORESTRY SECTOR IN ECONOMIC GROWTH AND DEVELOPMENT - SHORT CONCEPT NOTES ON FIVE THEMES



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Multi Stakeholder Forestry Programme (MSFP)

Services Support Unit (SSU)

Forestry Complex, Babarmahal, Nepal

Tel:977-1-4229669-70

Email: ssu@msfp.org.np

www.msfp.org.np

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Multi Stakeholder Forestry Programme (MSFP)

The MSFP aims to improve livelihoods and resilience of poor men and women and disadvantaged people in Nepal. It will also strengthen the contribution of Nepal's forestry sector to inclusive economic growth, poverty reduction and tackling climate change.

Disclaimer

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Authors:

Bhishma P. Subedi, Puspa L. Ghimire, Sudarshan C. Khanal, Sushil Gyawali, Prakash Katwal, Kabir R. Sthapit, and Kalyan Gauli

Preface

The Multi Stakeholder Forestry Programme (MSFP) commissioned a national level study to identify the status and prospects for private sector's involvement and investment in Nepal's forestry sector. This study was conducted by Asia Network for Sustainable Agriculture and Bioresources (ANSAB) and its consortium partners. As a part of this study, separate papers on five specific topics were prepared a) Improving Value Chain Governance for growth and equitable development from Forest Industry b) Scope for Private Forestry in Nepal c) Payment of Ecosystem Services in Nepal: Status, Prospects and Ways Forward d) Green and Fair Timber Value Chain Promotion in Nepal e) Most Promising Subsector Option for Forest-Based Enterprises in Nepal.

The findings are based on the national level study, that involved i) consultations and interviews with key stakeholders and experts at local, national and international levels, ii) focus group discussions, iii) surveys of domestic enterprises and financial institutions, iv) case studies, and v) review of literature and records.

Improving Value Chain Governance for Growth and Equitable Development from Forest Industry¹

1. Introduction

This paper briefly provides the situation and potential of forestry sector and its value chains in Nepal, and suggests interventions to achieve sustained growth of forest industry while promoting equitable distribution of benefits.

The value chain describes the full range of activities, which are required to bring a product or service from conception, through the different phases of production (involving a combination of physical transformation and the input of various producer services), delivery to final consumers, and final disposal after use (Kaplinsky and Morris 2001). Value chain analysis emphasizes not only on the range of activities but also on the dynamics and shifts in relationships among the actors, enablers and facilitators. Value chain governance refers to the relationships among the buyers, sellers, service providers and regulatory institutions that operate within or influence the range of activities in the value chain (USAID/Microlinks, 2014).

Value chain interventions are needed in order to generate better income or employment with dignity to a large number of people from forest-based enterprises. For better participation of local people in forest-based business, a shift is needed from traditional model of forest enterprises that exploit natural resources by mobilizing local communities as labourer to a new model that advocates local people's right over natural resources and suggest partnership between private and communities for development of sustainable and responsible enterprises and their value chains (see Figure). This concept paper assesses value chain of four major forest based subsectors, namely timber, NTFPs, ecosystem services (especially forest carbon and forest-based ecotourism) and forest bioenergy and suggests interventions for improved value chain governance for growth and equitable development from forest-based industries in Nepal. The interventions suggested here are mainly for forest-based enterprises and its associations, development agencies, and the government of Nepal.

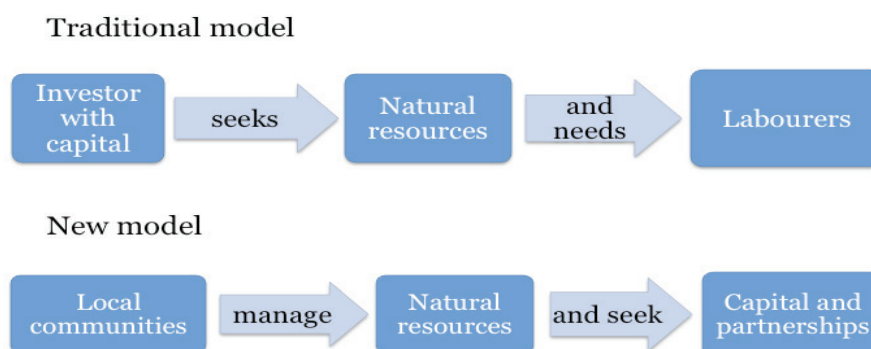


Figure: Traditional and new model of natural resource-based enterprises

Adapted from Elson 2012

1 This paper is prepared by Sushil Gyawali, Puspa L. Ghimire, Sudarshan C. Khanal and Bhishma P. Subedi.

2. Current Situation

Major Value Chain actors of Forest-based enterprises

Participation and investment of the commercial actors in the forest-based industries is found mainly in processing, manufacturing and trade with limited participation in production of forest products and services. Major commercial producers in Timber, NTFPs, Bioenergy, Ecotourism and Forest Carbon subsectors are government agencies, forest producer groups, and private companies and individuals (see Box). Mainly contractors and local collectors harvest timber, NTFPs and fuel wood. Likewise, the processing and manufacturing of timber products is carried out by saw millers, veneer producers, plywood producers, and furniture and handicraft makers that are mainly based in towns and cities. In case of NTFPs, the main actors for these functions are distillers, local processors (e.g., wild fibre, handmade paper), resin and kattha processors, herbal products manufacturers, and handicrafts makers. In bioenergy, char producers and briquette makers are involved.

For the trade of all products except ecosystem services, district level and national level traders, wholesalers, retailers, importers and exporters are the major actors. In case of forest carbon, these include packagers, product verifiers, distributors and buyers while in eco-tourism various combinations of local businesses, such as travel and tour operators, hotel and other accommodation providers, and restaurants and food providers are involved. In case of forest carbon, there is a lack of actors to serve as an aggregator or a common regulator to ensure that the conditions are met to implement a deal.

Inter-firm cooperation and coordination

In most of the subsectors, except for forest carbon, the firms are well organised horizontally into associations and networks, especially at processing, trading and manufacturing levels.

The main among these are Federation of Forest-based Industry and Trade (FenFIT) and commodity associations for veneer, plywood, furniture, NTFPs including herbs, herbal products and handmade paper, bio-briquette, trekking, travel, and hotel. For the forest producers, the Federation of Community Forest Users, Nepal (FECOFUN) is a strong and effective organisation for safeguarding rights of producers.

Box: Major value chain actors in forest-based enterprises in Nepal

Producers. Government, semi-government agencies, forest user groups, private companies and individuals contractors, local collectors/harvesters

Processors and Manufacturers. Local enterprises, district level traders

Sellers/Investors. National level traders, processors and manufacturers, wholesalers, retailers, importers and exporters, forest carbon packagers, product verifiers, distributors and buyers, Eco-tourism - travel and tour operators, hotel and other accommodation providers, and restaurants and food providers

International buyers and investors

The vertical integration, except in ecotourism, bio-briquette and few specific NTFPs, is weak. The value chain is dominated by a few big players based in major cities exhibiting an asymmetric power distribution. The limited access to information, technology, finance and market has created dependency of producers on buyers even when the profit distribution is skewed and trust among them is low. For example, the NTFP value chains that mainly involve trade of crude herbs mimic the vertical integration of the actors where the buyers determine the quantity, quality and price as well as investment in the form of advance payment through intermediaries to ensure the supply. Indian traders have been at the apex of crude herbs supply chain since long, whereas Tibetan traders have emerged to have a control over the business of few herbs, such as Yarsagumba, Satuwa and Chiraito. Another signifi-

cant gap in forest-based products value chains is the low profit margins for the producers as exhibited in timber and NTFPs. The following table presents an example of the prices, costs and gross margins of various actors of

Sal timber value chain. Actually the returns for many of the actors are low due to long trade chains and waste, product adulteration, costly transportation and “informal fee” paid along the way.

Table: Prices, Costs and Gross Margins of Various Actors of Sal Timber Value Chain

	Producer	Contractor (at local level)	Saw miller (at local level)	Saw miller (Kathmandu)	Sawn Timber Depot	Retailers of Builder's Joinery
Buying price		1,400	2,200	2,200	4,300	4,750
Additional costs		658 (187)	1,133	1,486 (40)	129	900
Selling price	1,400	2,200	3,800	4,300	4,750	6,000
Gross margin		142	467	615	322	351

Note: All values are in NRs/cft, numbers in parenthesis are informal costs. The values except for the last two columns are of logs.

Source: ANSAB field survey 2013

The best practices of vertical integration, especially balanced power relationship, transparency, fair benefit distribution and trust, are found in some value chains that are being developed by long-term committed lead firms having clearly stated value chain vision. For example, some notable lead firms linking community products to the markets include, HimalyanBio Trade (HBTL) for Forest Stewardship Council (FSC) certified essential oils and Lokta handmade paper, Himalayan Naturals for briquettes, and Alternative Herbs for Chiuri and natural juices. HBTL has been sourcing FSC certified handmade paper from the rural mountain communities with guaranteed buy back and increased stakeholder income, and selling the paper and paper products to the international markets. Himalayan Naturals has consolidated briquette-producing enterprises at community level as the shareholders and the company has been distributing the profit of the business.

For forest carbon value chain, as it is in nascent stage of development, the government

remains an important actor in promoting industry through policy including benefit-sharing mechanisms. The current development in the country shows that the government and civil society organisations are supportive in improving governance and institutional reforms - particularly decentralization, strengthening of Ministry of Forest and Soil Conservation (MFSC)'s institutional capacity, improvement of law enforcement and efforts to build confidence in government institutions – for the subsector promotion. These efforts are critical to the successful implementation of forest carbon projects in Nepal.

Potentials and challenges of responsible forest-based enterprises

There is a good market potential and a huge scope to expand businesses in forestry by increasing supply by sustainable harvesting of overstocked forests and using improved technologies available in the neighbouring countries, especially in timber, NTFPs and forest bioenergy. Considering the potential of sustainable harvesting practices even with the

present stock shows that Nepal can set a goal of increasing value of legally and sustainably produced and supplied forest products and services by 15-fold. In terms of economic value, forest-based enterprises could generate economic value worth about NRs 88 billion generating over 400,000 sustainable, full time equivalent jobs if the products and services are utilized with modest changes to the sector. It could go over NRs 370 million generating over 1,300,000 jobs if the forests are managed using science and at least some significant value chain improvements are made.

In terms of market, Nepal's forest-based enterprises, because of the nature of Nepal's forestry in terms of native species, community engagement and biodiversity conservation have prospect at international market. Nepal's unique, indigenous, and genetically superior NTFPs, especially grown in high-mountains, and the high value timber products, especially wood flooring with distinctive grains, furniture veneers and FSC certified hand-carved woodcrafts have comparative advantage in the world market. Nepal has an advantage for forest carbon and ecotourism with its unique biodiversity and community participation values.

In spite of the potential of increasing supply and good prospect at world market, Nepal's current business environment presents challenging situation for the enterprises to operate responsibly. Consultation with major forest-based enterprises shows that the current business environment is not even suitable to make investment in enterprises with long-term commitment. Currently, the powerful actors are those who are able to get license or permit of harvesting, transport and trade. There is increasing scope of higher benefits to those who are good in manipulation of access and authoritative power during political instability, and are not often practicing responsible business. These enterprises are not easily ready for responsible enterprise operation with equitable benefits among other actors. Other few actors that are struggling with

business environment but operating at modest scale are not in a position to promote responsible practice throughout the chain.

3. Interventions

The important value chain interventions for promoting growth of forestry business while creating equitable benefits to people require interventions at firm level and industry level. Because of scale of business and varied quality and type of products and services, joint collaborative efforts between value chain actors is required to understand unique strength of products and services. It also demands transparency of business to some extent and open communication between the actors.

Ultimate result through these interventions is to develop vibrant value chains that promote responsible business practices throughout the chain and achieve sustained growth of the industry. The suggested interventions are categorized into four broad categories and presented below:

a. Promote to adopt standards for sustainable forest management and responsible business practices

Nepal should take aggressive action to meet all regulations and use them as a market-driven requirement to enforce much needed laws and changes to improve overall forest production and sharing of benefits among the actors. One of the important areas is to provide support to attain strategic certification that will make Nepal's forestry products competitive. This will address the issue related to compliance with international forestry and trade regulations, which is the number one concern of responsible businesses when purchasing from Nepal and in considering investments in forestry. Ultimately, this will help improve social image of the forestry business as well as the investors and change public perception of forestry business as a clean one to attract more equity investment.

Almost all the managers of the forests are

not paid for the important ecosystem services. Certification and payment mechanisms demonstrating and capturing the full range of ecosystem services and their economic values over the long term would increase incentives for local community groups, community based forest enterprises, and governments for forest conservation. Application of such standards not only improves the forest management practices but also maintains the transparency in the value chain and promotes equitable benefit sharing. Details of role of forest certification, and how it can contribute to promote green and fair value chains and methods to adopt are discussed in other concept paper, and the suggested strategies for achieving this are the following:

- Expand strategic certification (forest management, Chain of Custody, organic, FairTrade, Wildlife Friendly) and provide government support for industries to gain certification and advertise certification
- Continue to build sustainable forestry and good business practice models in community forestry and in private and government lands
- Develop a strategic plan for attracting and approaching responsible investors
- Track and provide reliable information for the investors on supply and demand
- Target companies interested in corporate social responsibility for buying relationships and forestry investment
- Develop a model investment contract

b. Establish private sector support unit

A support unit should be established to provide information, advisory services, both legal and technical, to entrepreneurs and private investors. The unit can be established as a division under MFSC or

Department of Forests. This unit can also facilitate development of industry level standards and implement activities together with other actors to meet the standards. It can supervise or regulate market activities and promote professional business deal by discouraging irresponsible behaviour and promoting responsible behaviour. The unit will make a rigorous assessment together with associations on setting minimum prices at each level of value chain. The unit will promote contractual agreements between actors and protect value chain actors from exploitation.

c. Facilitate to develop responsible value chain

- To promote responsible business practices among value chain actors, the following interventions are suggested. Raise awareness of harvesters, collectors and local level enterprises to help them understand that long-term relationship with enterprises is critical for success of all enterprise activities.
- As local level enterprises have to convince its members and investors at community level on importance of long-term value chain linkages, their capacity has to be enhanced. The level of benefit depends on their capacity to demonstrate competency and commitment for long-term and effective business.
- Horizontal linkages among local level enterprises help to make their demand of inputs or business development services (BDS) attractive to input supplier or BDS providers. Similarly, their collaboration helps to lower the cost of transportation of products. Therefore, program can facilitate different form of horizontal linkages among harvesters/collectors and the enterprises. Similarly, it can facilitate linkages between harvesters/collectors or input suppliers or BDS supplier and

local level enterprises.

- Consolidation enterprises (CEs) are critical for coordination between value chain actors vertically. Therefore interventions for vertical coordination in value chain should focus on mobilizing CEs. Coordination activities include periodic meeting to discuss issues and identify solutions on defining quality of products or raw materials, minimum credit terms, issues on inventory control and other standards.
- Facilitate enterprises for defining standards of responsible practices and code of conduct. Communication between enterprises within the same value chain or similar value chains helps sharing of information and knowledge to facilitate development of standards and code of conduct in the business.
- Facilitate associations to develop code of conduct and support them to supervise the implementation of code of conduct.
- Identify and support responsible lead firms in the business.
- Development of BDS service market with sufficient emphasis on both demand and supply side. Provide support to get certification, product development, and promotion with social and environmental stories.

Provide marketing support to the responsible enterprises

If market is good enough to appreciate responsible practices in the chain, enterprises naturally follow market choices to get bigger share in market. But, mostly such demand is not big enough to encourage enterprises for

such practices. To provide marketing support to the responsible enterprises, the following interventions are suggested.

- Conduct a thorough market research involving targeted private sector to identify market potential and prepare guideline for designing interventions on market development.
- Together with private sector, identify most attractive products, which involve those attributes and activities that can help promotion of responsible enterprises in the sector. This should guide product development and production plan of the enterprises.
- Support enterprises to design marketing plan as well as entire business plan to capture market potential.
- Through a competitive process, prioritize enterprises to provide different business services including designing, packaging, market research, branding and promotion and make such services widely available to the enterprises.
- Support enterprises to organise or participate on visits, seminars, workshops, trade fair and exhibitions to present their product in markets.
- Support to organise buyers-sellers meetings between targeted enterprises. Such meetings facilitate sellers to understand buyer's requirements and buyers to understand supply situation.
- Support enterprises to prepare internal control system to acquire various certifications such as Organic, Fair Trade and International Organisation for Standardization (ISO).

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Scope for Private Forestry in Nepal²

Introduction

This paper presents the current status and future prospects of private forestry including the issues hindering the expansion of private forest and the areas of intervention for maximizing the potential of private forestry in Nepal.

All types of planted, nurtured or conserved forests in any private land that belong to an individual or corporation/institution as per the prevailing law are considered private forests (HMG/N 1993). Private forests are mainly maintained for the production of timber and non timber forest products (NTFPs) including fuel wood, fodder, fruits, and medicinal herbs. Private forests have played an important role in meeting the demand of the forest products as well as preserving biodiversity. In the context of recent endorsement of the long term vision of forestry sector as “Forestry for Prosperity” and a policy to increase the forest cover area to 40% by the Government of Nepal, the private forestry can play a major role in achieving this vision through expansion of forestry outside the presently existing forest through development of agro-forestry and farm forestry with support from farmers, landowners and communities.

The major target beneficiaries of this concept paper are the private sector and the government, and whoever wants invest in the private forestry. This paper will also be useful for developing plans, projects, programmes, and strategies for the government, private sector and non-governmental organisations (NGOs) in the area of private forestry.

Current status and future prospect

There are about 2,458 registered private forests in Nepal managing close to 2,400 ha or about 0.04% of Nepal’s forestland area (DoF 2012). In reality, majority of the trees grown in private lands have not been properly accounted for. Private plantations occur in farming areas in the Terai and mid-hills in the uplands, but not all private forests are registered as such because the forest products are either produced from agroforestry system or the unregistered private lands. Thus, the reported area under private forests may have been grossly underestimated.

We have estimated that the total investment by private forest owners and NTFP cultivators including those registered at Department of Industry (DoI) is around NRs 388 million (see the detail in Main report). Among those registered at DoI, twelve enterprises received foreign direct investment (FDI) - one in teak plantation (NRs 5.5 million) and the others in farming of NTFPs including organic herbs (NRs 79 million).

The supply demand analysis shows that the supply of forest products is very low as compared to the increasing demand. In 2011/12, the government record reveals the supply of timber from domestic source to be at 0.113 million m³ (DoF 2013); whereas, the domestic demand for timber is estimated to be 3.37 million m³ in 2011 (Kanel *et al.* 2012). The major end products that are in demand include furniture, veneer sheets, plywood, construction timber and builders’ joinery.

With the present trend of increasing demand and limited formal supply, the demand driven

2 This paper is prepared by Puspa L. Ghimire, Kabir. R. Sthapit and Bhishma P. Subedi, ANSAB

deforestation has led to the loss of forest cover at a rate of nearly 1.7% per annum over the past thirty years (GoN 2010). This value is even higher in Terai where the forest loss due to deforestation during 1991-2001 was 2.7% per annum (CBS 2008). It is important to note that even with this lowest level of formal supply, Nepal is losing its forest both in terms of area and standing stock.

In this context, the expansion of private forest through plantation of fast growing tree species in fallow land or integrating them within the existing farming system can be one of the best options to address the problem. This will help utilize the barren and unused land in the context of labour shortage due to increasing number of youth migrating to other countries every year. This will also help reduce pressure on natural forests, provide sustainable supply to forest based business, help substitute the imports, and address the issue of poverty and unemployment by creation of income and employment.

The formal supply trend of timber also reveals the importance of private forest for stable source of supply. Private forest and tree growers have emerged as the leading suppliers, who accounted for about 48% of the total sales during the past five years. The total supply from the government and the communities are 17% and 35% respectively. The supply of timber from private land has played an important role in providing raw materials to wood based industries particularly veneer, plywood and furniture enterprises. It also serves as an important source of fuel for most of the households using fuel wood.

The study estimates that with the scientific management and plantation of available forests, Nepal's forests can supply as much as 9.18 million m³ of timber out of which 1.6 million m³ can be supplied from private forest annually.

Likewise, volume of trade for most of the commercial NTFPs is increasing quite significantly. In 2012, the traded volume of NTFP was

about 11,680 tons (DoF 2013). The demand of Nepal's NTFPs is also expected to increase in future. Nepal Trade Integration Strategy (NTIS) 2010 has also identified some new markets, especially from the Middle East and Gulf regions as well as South Asian, South East Asian and East Asian regions for large cardamom, medicinal herbs, essential oils and handmade paper. The cultivation of NTFPs can play a significant role in meeting the growing demand. Apart from timber and NTFPs, there is a scope of getting benefit from carbon sequestration in private forest under Clean Development Mechanism (CDM) and production of bioenergy products from waste biomass from the forest.

Issues hindering for the expansion of private forestry

Some of the important issues that need to be addressed to harness the potential of the private forestry both in terms of production and market are listed below.

- Complexity and confusion in the process and steps of business registration and the lack of support in business registration and operation including market information and business promotion services for the investors in forestry.
- Complex procedures and high transaction costs in harvesting and utilization of forest products from private land and contradictory provisions that arise from multiple agencies and procedures.
- Irrational system of fixing and collecting royalties, prices and taxes on forest products, especially charging royalties on NTFPs and Value Added Tax (VAT) on timber grown in private land.
- Tariff and non-tariff barriers in trade, especially the hurdles in transportation.

- Tenure issue on non-forested public land, privately occupied non-registered land, and on ecosystem services, such as carbon and ecotourism.
- Unavailability of quality planting materials, especially for the preferred fast growing species suitable for private plantation forestry.
- Issue related to access to finance, especially due to long moratorium period of plantation causing banks to be hesitant for investment in plantation.
- Inadequate coordination between wood-based industries and producers, and low exchange of information and services among them.

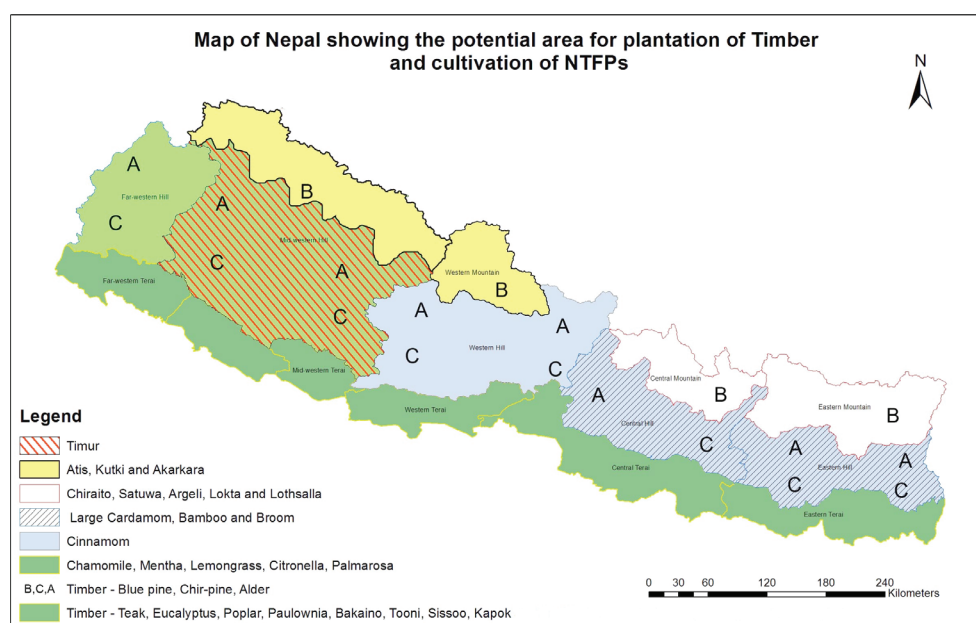
Areas of intervention for maximizing the potential of private forestry

Prioritize for primary production:

Nepal needs to prioritize greater investment in primary production of forest goods and services, since without increased supplies and better quality of supplies all other investment in the forestry sector will be constrained. Designating available land for commercial production of forest goods and services should

be a first step for Nepal. This would aim for plantation of most remunerative plants where appropriate, including rehabilitation of denuded lands, near easy transport, not in conflict with food production or community land rights. In this, the major actors for the production would be a private business entity either as an individual or a corporation. There is a vast scope to promote the plantation of commercially most important forest species, such as fast growing timber species in private lands, especially in Terai and mid hills.

Map and cluster for prioritized species: Specific support in mapping and clustering for prioritized commercially important species and products would provide a clear scope for private sector involvement in this lucrative business creating more employment and revenue for the country. The following list of most promising products and plant species from the plantations could be considered along with the continuous process and mechanism of identifying, assessing and prioritizing, which would be based on the emerging markets and technology of production and value addition. Preliminary list of commercially potential products from plantations are plotted in the map.



Rationalize harvesting and transit policy for the forest products grown in private land. There are some specific issues for timber and NTFPs grown in private land that should be resolved by revising policy provisions. Rationalization in the following three provisions and practices would improve the situation.

- First, the timber species, which are almost all grown in private land, e.g. eucalyptus, poplar and teak should be exempted from additional formalities in harvesting and trade.
- Second, the initiative for exemption of government royalty for the NTFPs such as chiuri, ritha, timur and lapsi, which are mostly grown in private land as agricultural commodities, should be expedited.
- Third, the provision of VAT on harvest in case of privately grown timber is irrational and should be removed.

Support to improve the access of private investors to land and forest resources: Support is needed in allocation of leasehold forests and use of non-forested public land.

- Revise current provision on leasing forest land to forest-based enterprises so that the private sector has access to lands that are accessible. Currently the leasehold forests available to the private sector are not appropriate, because either the land is located in too remote location or has tenure conflict.
- Clarify tenure issue on non-forested public land and privately occupied non-registered land. Due to the ownership conflicts of multiple agencies including district administration office, district development committee, and district forest office, the plantation on public land became uncertain. Similarly, the privately occupied non-registered land has a good scope of plantation of forest products while

there is no provision of harvesting and sales from such types of land.

Identify appropriate species for cultivation and ensure a reliable supply of quality planting materials: There is a need of identification of appropriate species (timber or NTFP) for various ecological regions, land types, and farming systems. The list of species suggested earlier in this paper can serve as a starting point. This can be refined more effectively in collaboration with Department of Forests, Department of Forest Research and Survey, Department of Plant Resources, and relevant departments of universities in Nepal. The selected species should be commercially important and provide benefit within comparatively a short time frame.

While producing planting materials, the private sector (especially private nursery and tissue culture laboratory owners) should be encouraged. In this intervention, the government can play a role of facilitator, especially providing technical backstopping and regulatory support on quality control of planting materials.

Strengthen access to inputs and technologies. Any investor, who wants to invest in forestry, needs inputs, such as quality planting materials, fertilizers and pesticides, and tools and equipment. The areas where the support is needed include research and development on tree improvement, introduction of new crops and resource nursery, domestication of NTFPs, improving regeneration, silvicultural practices, disease and pest management, soil nutrient management, harvesting and processing technologies, and product development and marketing.

Design diversified agro-forestry models: To reclaim various types of land and requirements of the producers diversified agro-forestry models can be researched and designed including appropriate intercropping species selection, cropping pattern, cultivation practices, thinning, pruning, disease and pest management. Model farms can be developed

in collaboration with research and development institutions and private entrepreneurs to exercise and demonstrate such agro-forestry models.

Improve business development services at local level: This can be done by capacitating local level government extension workers and developing local resource persons (*LRPs*) in private forestry. The *LRPs* can be selected from the area where private forestry is feasible. The *LRPs* and local level forestry staffs can be capacitated on various aspects of private forestry including nursery management, silviculture practices, disease and pest management, soil fertility and nutrient management, harvesting and post-harvest handling through trainings, visits and practical demonstration. Further, they can be trained on entrepreneurship development and business planning. Through the trained *LRPs* and local government staffs, the producers can get required services in nursery management, production, harvesting and post-harvest handling.

Information on market, inputs and technology, legal procedure for business registration and operation, including market infrastructure (market yards) are the critical services for forest producers. So support can be provided for developing a platform with adequate market information. The platform can also act as a helpline centre for providing required information as sought by producers. Similarly, facilitation can be done for the establishment of *mandis* (market yards) in major market centres where the produce from private forest can be sold. Furthermore, support can be provided to develop standards for forest certification systems as well as chain of custody certification that ensure that the products are harvested from sustainable and responsibly managed forest. Certification also helps secure fair benefits to the producers, reduce mistrust among the value-chain actors and contribute in solving the issue of illegality.

Increase access to finance: Collaboration with financial institutions can be established

to increase financial access of private tree producers. Nepal's forest-based industries are facing constraints in accessing finance due to their informal and unorganized nature of business; financial illiteracy and difficulty in ensuring credit worthiness; long moratorium period; inability to produce enough collateral; lack of appropriate insurance coverage; information management system; and the reputation of forestry sector in general. These industries can be supported by providing a service of linkage to finance. So, there is a need to develop business service provider in financial sector and link them with the entrepreneurs. Further, working together with Nepal Rastra Bank and Ministry of Finance, the financial schemes can be developed especially targeting private producers.

Create mass awareness on private forestry: There is a need of raising awareness among the potential forest producers about the scope of private forestry. Developing and broadcasting programs related to private forestry through radio (especially local *FMs*), television, and print media can be helpful to raise awareness of the general public for encouraging investment in private forestry.

Organize producers in groups and federation: There is no platform to share the experience including problems and successes in private forestry. Thus, there is a need of facilitation for forming producer groups. With the representation of different producer groups, a central level federation can be formed. The federation can raise issues and influence for needed policy reforms and safeguard the rights of private producers.

Develop a provision of incentives to private producers: As private forestry is not an established industry in Nepal, the entrepreneurs do not have much confidence to invest in this sector. So in the initial stage, some incentive system can attract the private sector to make investment in forestry. The incentives could be in the form of planting materials, technologies related to cultivation and harvesting, tax benefits and extension services.

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Payment of Ecosystem Services in Nepal: Status, Prospects and Ways Forward³

Introduction

This paper presents the current situation of Payment for Ecosystem Services (PES) in Nepal, PES market models and appropriateness, and suggested activities to promote PES in Nepal.

As Wunder (2005) defines, PES is a conditional agreement between at least one “seller” and one “buyer” over a well-defined ecosystem service. PES is an innovative market-based mechanism, which stand on twin principles: beneficiaries from ecosystem services should pay to those who provide ecosystem services (World Bank, 2007). PES programs aim at addressing ecosystem and natural resource management problems cost effectively, especially in the context of growing scarcity of ecosystem services and decreasing interest in conservation. This is possible through a mechanism that internalizes externalities by recognizing the trade-offs. In principle, PES schemes can make both sellers and buyers of ecosystem services better off and at the same time contribute to better protect and upholding of the ecosystem services.

Nepal has a very few cases of PES implementation, and those in practice are mostly localized and focus on self-organized private deals. Sustainability largely remains in question mainly due to inadequate policy, legislations and institutional capacity. There is a need for strengthening stakeholders’ capacity on implementing PES by integrating in market-based mechanism. Of the different ecosystem services, we suggest that forest carbon and ecotourism are attractive ecosystem

service options for investment and enterprise development in Nepal.

This concept paper will be useful for the national and local governments, international and national NGOs, private sector actors, universities and other forest stakeholders to develop plans, projects, programmes, and strategies in forest ecosystem services.

Situation analysis of PES in Nepal

Ecosystem services include carbon sequestration, biodiversity conservation, watershed protection and ecotourism, and are potential for PES at international or national or local level. Among these services, carbon sequestration and ecotourism are attractive ecosystem service options for investment and enterprise development in the country. Forest carbon has the unique selling position in international markets that could be emphasized in promoting and selling the services. Likewise, as protected areas scattered across the country are popular among foreign tourists, it is promising for making investment in ecotourism activities around these areas. Hence, strengths, weaknesses, opportunities and threats of forest carbon and ecotourism sectors are analysed and presented below to help understand the existing status.

Forest Carbon

Reducing emission from deforestation and forest degradation (REDD) process in Nepal has been owned by the government and is governed through the REDD Forestry and Climate Change Cell. The government is

³ This paper is prepared by Kalyan Gauli, Bishma P. Subedi, Sudarshan C. Khanal and Puspa L. Ghimire of ANSAB

developing the REDD strategy, and has developed REDD readiness preparedness plan (RPP) that is being implemented under the financial support of the World Bank. The strength of REDD process in Nepal from these efforts is further value added by few Reducing Emission from Conservation, Sustainable Management and Enhancement of Carbon Stocks (REDD+) pilot projects in Nepal. A pilot project implemented in Gorkha, Chitwan and Dolakha jointly by ANSAB, International Center for Integrated Mountain Development (ICIMOD) and Federation of Community Forestry Users, Nepal (FECOFUN) has generated field-based knowledge and information that is important for national REDD+ process. Increased stakeholder awareness including their commitments on REDD has created an enabling environment for REDD process in Nepal. Moreover, there is growing awareness among the producers on the importance of forest carbon as they have considered it as an additional income stream from forest management. Improved forest management, governance and benefit sharing are the other opportunities, the producers at community level have realized out of REDD+ as their forest management has to comply with international standards, such as Reducing Emission from Deforestation and forest Degradation Strategic Environmental and Social Assessment (REDD SESA) to secure carbon credit buyers. The producers are also aware of the growing carbon market. With respect to reforestation, afforestation and reduced deforestation, emission reductions through carbon sequestration in (forestry) ecosystems can at least be competitive in the voluntary market.

Despite the strength of the REDD process in Nepal, there are some limitations. The implementation of RPP is slower than planned. The government's policy document is silent on tenure rights of forest carbon. There exists a knowledge gap on appropriate institutional framework to cover multi-forest management regimes that exist in same landscape or juris-

dictional boundary. The government is undecided which market to target: fund based or market based or both. There is still low level of awareness among a significant portion of the producers at community level and investors at corporate level on carbon as the ecosystem services and on the benefits provided by these services. Among the investors who are well aware of the forest carbon issues and opportunities, are not sure about the profitability to invest in forest carbon unless there is a compliance market.

Nevertheless, there are few opportunities of REDD process in Nepal. Nepal can capture growing global carbon markets and earn additional revenue. As the Nepal's forest carbon is associated with many co-benefits such as biodiversity conservation, poverty reduction and community development, the country can bundle these co-benefits with forest carbon and position it in appropriate market. This unique product of forest carbon can be attractive for private sector if promoted effectively, where they could invest in buying the bundled forest carbon to meet their corporate social responsibility (CSR) along with reducing their carbon footprint. It will provide the private sector, the story of poverty reduction and community development in addition to carbon to achieve their CSR goals.

Along with these opportunities, REDD process in Nepal faces some challenges. One of the major challenges is to prove additionally of forest management, particularly in hilly areas being managed sustainably under community-based forest management approach, which is the major requirement for entering in the carbon market. The other challenge is the unpredictable carbon price in international market. With limited scope of additionally and decreasing market price, participating in REDD process for Nepal may not be beneficial unless co-benefits are bundled in REDD package. Another threat perceived by the stakeholders, is a fear of REDD process being more centralized and top-down.

Ecotourism

Tourism is one of the growing sectors in Nepal. Recently, the New York Times has listed Nepal as one of the 52 places in the world to visit in 2014. Nepal is known for nature, culture, and adventure based tourism and more than 50 per cent of tourists involve in some form of ecotourism (MoCTCA 2012). Nepal is bestowed with eight cultural and two natural heritage sites and unique topographical variation and rich biodiversity. Another strength of tourism sector in Nepal is legal provision for sharing the benefits from protected areas, which are largely visited by international tourists. According to National Parks and Wildlife Conservation Act (1973), 30 to 50 percent of the revenue collected from protected areas should be shared with the local communities and the remaining amount goes to the national treasury. Responsible tourists, who seek tourist destination practicing equity in benefit distribution, may find Nepal's efforts worthwhile.

There is growing trend of picnic and hiking activities. Community-based forest management units, particularly close to urban areas have considered forest-based ecotourism as one of the additional income generation sources. Increased income from increasing number of international tourists in protected areas provides an opportunity for the protected area management to increase the participation of local communities in conservation by sharing revenue with them.

However, Nepal's tourism activities are mostly confined to few places, such as Chitwan National Park, Annapurna Conservation Area, Sagarmatha Conservation Area and Kathmandu valley. Poor infrastructure and communication facilities limit the development of other potential places for ecotourism. Likewise, there is a focus on international tourists and comparatively less attention on domestic tourists is one of the reasons for slow development of tourism sector in Nepal. Nevertheless, Nepal has great advantage of

its position, as it is located between the two most populated and growing economies - India and China. As natural and cultural diversity can be found in entire length of Nepal, it has an opportunity to diversity tourism activities in different parts of the country. The major threats seen in tourism sectors are political instability in the country and uncertainty in the global economy.

PES marketmodels and appropriateness for Nepal

Two PES market models are found prevalent from the review of literature and practices -**private sector financing** and **public sector financing**. Private sector model is a voluntary model that is useful for business entities, such as hydropower company, drinking water company, trekking agencies, and hotels. Business entities can use this model as a means of fulfilling CSR. Hydropower and drinking water companies can use this model for reducing their dredging and treatment costs by maintaining good relations with upstream communities to practice better land use management ensuring lower sedimentation, consistent supply and quality of water. Likewise, business houses that emit carbon, such as brick and cement industries while performing their activities, can pay to forest user groups for forest conservation offsetting their carbon footprint. The private companies can collect additional sales tax to pay for the ecosystem services.

In public financing model, the government provides subsidy/incentive for managing ecosystem services. Provision for sharing revenue of protected area with community living in buffer zone is an example of public financing model. The incentive is not necessarily always in monetary form, it can also be in kind in the form of support on forest management and community development works.

Considering forest management regimes being practiced, capacity to access ecosystem service markets and existing policies; it may not be appropriate for Nepal to adopt any single model separately. Low participation

of private sector in forestry sector business, poor revenue mobilization and limited financial capacity of the government further possess challenges in selecting only one model. Therefore, mix model is recommended that (a) generate conservation finance through selling of ecosystem services, (b) establish regulatory body for administration and mobilization of fund, and (c) ensure equitable sharing of conservation finance while considering spatial scale and performance.

For the model, a central level regulatory body or trust fund is required to govern the PES activities at sub-national and national levels. The body with stake of different forest management regimes, civil society organizations and private sector will be responsible for exploring appropriate markets and trade the services. The trust fund develops a mechanism for benefit sharing and channel down the benefits through mechanism of respective forest management regimes in coordination with national registry body. The national registry body is an institution that keeps account of each PES project that has potential for trading or in trade.

Priority activities

Develop appropriate institutional framework for REDD+

Given the disintegrated nature of forests often characterized by different management regimes within a landscape, an appropriate institutional mechanism should be developed to incorporate these regimes and develop carbon projects. Furthermore, it is likely that the state would be the recipient of the financial rewards of any carbon credits issued under REDD, whether from a fund, a market or a hybrid mechanism. It becomes reasonable then, that all carbon payments be routed through a semi-autonomous National Trust Fund. In addition, there should be an entity at district level for implementation of REDD+ activities in the CFUGs and other forests including the measurement of carbon stocks, assessment of co-benefit, and delivery of the REDD+ mon-

ey to the forest owners.

Develop required legislation

Although a great deal of optimism has been expressed in various fora about the prospect of community forests of Nepal in REDD+, the prevailing land tenure right has not been to the advantage of local communities. Nepal's community forests and other community based forestry operations don't have sufficient legal land tenure right for effective REDD+ implementation, even though the prevailing law has devolved control of forest resources to the user groups at community level. The private investors and project developers will not invest in REDD+ activities unless clear land and carbon ownership systems are in place. So, it needs clarification whether the CFUGs and other community-based organizations entrusted with the long-term management of forests are actually the owners of carbon in their forests and soils. Such decision should be recognized in the Forest Act and other relevant laws. The government should make this decision taking into consideration the aspiration of forest user groups, local communities, local governments, and other stakeholders so that it would not invite unwarranted conflicts.

On the other hand, the government policies should encourage private sector for investing in PES. The government can make an arrangement for some sort of tax benefit for the private sector that invests in promoting conservation of ecosystem services and supporting livelihoods of forest managers.

Target appropriate market

Considering the success of community forestry in Nepal, large chunk of forestland is already being managed sustainably. Nepal may not get adequate benefit from REDD+ if it promotes only forest carbon. It has to bundle other co-benefits, such as biodiversity conservation, livelihood contribution, watershed protection and disaster risk reduction with forest carbon. Furthermore, as preparing

Nepal for compliance REDD+ market would take time, the Ministry of Forest and Soil Conservation (MFSC) could focus on sub-national projects targeting voluntary markets. Capitalizing the experiences of several pilot projects, such as the REDD+ pilot project, the Government should make adequate policy, legislative arrangements, and operational procedures for Monitoring, Reporting and Verification (MRV) and equitable sharing of benefits for these projects to go into voluntary markets. This will open up the avenues for private sector to participate in forest carbon trading.

For ecotourism, new products and sites have to be explored and developed. Currently, majority of the tourist activities are limited to Kathmandu, Chitwan and Pokhara triangle. The development of other alternative sites can break the triangle and divert the tourists to larger area. Upon certifying ecotourism sites, travel agencies and the tourism board can promote such sites in international markets to attract high-end responsible tourists. Likewise, Nepalese missions abroad could be involved in marketing tourist destinations through promotion campaigns.

Explore and expand the existing markets

To motivate private sector investment and involvement in carbon projects at scale, it is also necessary to explore and expand the existing markets. In addition to the voluntary markets, where the demand and price levels are not sufficient to drive private sector investment at scale, compliance-driven demand for carbon credits could be explored to incentivize large-scale private investment.

Certify ecosystem services

A study conducted by Center for International Forestry Research (CIFOR) shows that acceptance level and willingness to buy certified forest carbon is high compared to non-certified carbon in international market (Meijaard, 2013). As certification helps to build trust be-

tween forest managers (producers) and forest carbon buyers, getting market share for the certified forest carbon will be comparatively easy. Furthermore, choosing accredited and established third party standards/ certification can help to better position the carbon in international market. Plan Vivo and Verified Carbon Standard (VCS) with Climate Community and Biodiversity Alliance (CCBA), and Clean Development Mechanism (CDM) with Gold Standard are all well accredited mechanisms. Among these accredited standards, promising one could be selected for certifying ecosystem services taking into consideration their market acceptance and the cost of certification.

Likewise, the certification of ecotourism sites and products could lead to the increase in the high-end nature tourists to the country. The Tourism Board, hotels, trekking agencies, and protected area management committees can promote the certified sites using certification as a marketing tool. The potential sites for certification are national parks, protected areas and some of the community forests. For this, some examples of ecotourism certification from the governments of Australia and Costa Rica could be used as examples for developing certification system.

Raise awareness and build capacity

Banks and financial institutions should be made aware of the opportunities to provide long-term financing for carbon projects or offset their emissions and those of their clients. REDD+ and other carbon project opportunities could also be brought to the attention of large companies with a corporate social responsibility orientation. Furthermore, efforts should be made to further develop capacity of stakeholders for developing baselines, especially the carbon measurement, periodic monitoring and reporting, and developing mechanisms for benefit sharing. The experience of the REDD+ pilot project and other projects has produced a pool of trained individuals and capacitated organisations, and they can

act as trainers in new areas. Similarly, efforts should be made to develop the capacity of local institutions to act as internationally reliable independent verification bodies.

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Green and Fair Timber Value Chain Promotion in Nepal⁴

Introduction

This paper presents the current situation of timber value chain in Nepal, role of forest certification in timber value chain, application of forest certification timber value chain and suggested activities to promote green and fair timber value chain in Nepal.

Green and fair value chain approach ensures environmental friendly production and equity in benefit sharing among the value chain actors. In Nepal, timber value chain faces a number of challenges often leading to unsustainable timber business and unfair distribution of benefits. Forest certification is a market-based, non-regulatory forest conservation tool that addresses social and economic welfare as well as environmental protection, and could serve for the promotion of green and fair value chain in timber subsector, that can address some of the current challenges. However, there is limited understanding among the stakeholders on certification that could recognize and promote socially and environmentally responsible forestry.

This paper will be useful for the governments, international and national Non- Governmental Organisations(NGOs), private sector actors, universities and other forest stakeholders to develop plans, projects, programmes, and strategies in timber value chain.

Current situation of timber value chain in Nepal

The current timber value chain in Nepal is characterized by low technical capacity, weak

governance and unfair benefit sharing. Low technical capacity of the forest managers has limited the scope of timber as a commercial commodity from the sustainably managed forests. Forest managers, in general, either do not have science-based forest management plan or are often unable to implement such plans if it exists. As a result, forests are either underutilized or overharvested. The current protection-oriented management approach is also hindering the commercialization of timber value chain. Activities related to production-oriented forest management are often considered as means of forest degradation.

Low trust among the value chain actors is another issue with timber value chain. The lack of transparent mechanism for tracing the source of timber or timber based products leaves sufficient room for questioning its legality. Such mistrusts often end up banning the timber harvest that results in inconsistent supply of timber. Likewise, weak governance has fueled the intention of getting undue benefits among the value chain actors resulting into illegal harvesting, harvesting excess quantity than prescribed, tax manipulation, etc. Another significant gap in the timber value chain is the unfair distribution of benefit among the actors. It is exhibited in terms of price difference between consumer price and farm gate price. For example, the price that the consumers are currently paying for sawn timber is more than 300%of the farm gate price that include slow level of value addition in producing sawn timber and transportation cost. Hidden transaction costs starting right

⁴ This paper is prepared by Kalyan Gauli, Bishma P. Subedi, Puspa L. Ghimire and Sudarshan C. Khanal of ANSAB

from harvesting to the transport to final destination add up to increase the price of timber.

Regarding timber business, the demand and supply situation of timber shows that the subsector has unmet market demand. While 113,000 m³ of timber was formally supplied from Nepal's forests in 2011/12 fiscal year (DoF, 2012), the demand in 2011 was 3.37 million m³ which is estimated to reach to 4.8 million m³ in 2030 with increasing population and housing, urbanization and construction (Kanel *et al.*, 2012). The major traded primary products of timber are sawn wood, veneer and plywood while the secondary products include wooden furniture and parts, builders' joinery, construction timber, domestic/decorative products, packaging materials and tools. Furthermore, there is a good opportunity for Nepalese value added wood products in international niche markets, particularly wooden handicrafts.

Role of forest certification in timber value chain

The current challenges in timber value chain and the unmet market demand in Nepal have opened a new avenue for introducing forest management certification applying international forest management standards. Review of the forest management practices in Nepal and beyond shows that application of such standards can identify loopholes in the value chain and recommend revising management practices.

Certification is a market-based instrument that contributes to improve forest management system and can support the forest sector development. It is based on the assessment of the social, environmental and economic aspects of forest management as per the pre-determined set of standards. Globally, there are two most renowned certification systems: the FSC (Forest Stewardship Council) and PEFC (Program for Endorsement of Forest Certification); the former is already being practiced in Nepal.

Certification provides better opportunities to smallholders and communities to access timber markets in developing and developed countries. Forest certification allows producers to demonstrate that their forest management is responsible and they meet the market demands as well. Furthermore, forest management certification shows that the management of a specific area of forest meets the international standards as well as the products harvested are from sustainable and responsibly managed forests. Likewise, certification standards put considerable emphasis on ensuring that forest management brings social benefits to the people who own and rely on forests for their livelihoods. Local communities engaged with the certification process have been found to benefit in many parts of the world – including Brazil, Bolivia, Honduras, Mexico, Papua New Guinea, Zambia and South Africa.

Improvements in internal community structures as well as external relations can be observed as a result of FSC certification implemented in Nepal resulting into better governance. Likewise, to acquire the forest certificate, the forest/enterprise owner needs to make sure that forest managers and workers are well trained regarding sustainable forest management practices and value addition activities.

Similarly, chain of custody (CoC) certification helps track the forest products throughout the value chain so that retailers, consumers and verifying body know that the products sold and bought are sourced from a responsibly managed forest and are legally harvested. This helps to gain trust among the value chain actors and support from multiple stakeholders.

Way-forward and activities

Considering the benefits of forest certification, its application can bring win-win situation for conservation and utilization of forest resources. However, smallholders, communities and forest owners who practice low intensity management can find the forest man-

agement certification to be disproportionately expensive and complex. For any forest areas to be certified, forest managers must develop a sustainable forest management plan in compliance with the certification standards. With limited financial and capacitated human resources, application of the certification standards in the forests covering larger area and involving communities may not be pragmatic. Nevertheless, it can be achieved step by step. The first step would be piloting certification in timber value chain and the second step would be expanding certified area and its market.

Pilot forest certification

Firstly, the government can initiate the process by identifying the sites. For instance, the district that is already practicing FSC certification system with potential of timber export can be selected. Currently, Dolakha and Bajhang are the only two districts in Nepal that have experience of FSC certification and are exporting FSC certified NTFPs. However, none of these districts are able to explore the markets for its certified timber. Considering the market proximity and a number of value addition enterprises available in the district, Dolakha can be the most potential for certified timber production or timber based products, such as veneer and plywood. Currently, there are 18 FSC certified community forests (CF) covering 3,535 ha of forestland in Dolakha district. Adjoining CF can be brought under certification to ensure the minimum level of timber stock to meet the market need. Considering the fragmented nature of CF, group certification approach can be implemented.

Secondly, the forest certification is a complex process and its success, particularly in developing countries, very much depend on role played by the government and non-government organisations. Their roles are not only crucial in capacity building of forest managers, entrepreneurs and traders on certification but also to raise awareness among consumers on the importance of forest certification. Min-

istry of Forests and Soil Conservation should allocate regular budget for such activities. Moreover, the ministry should also suggest donors and NGOs working in forestry sectors to orient their program and project to support forest certification.

Thirdly, despite forest certification is a market led approach, it needs an enabling environment to groom. It may not function well in market failure situation where it has to compete with the products from unidentified sources. There should be some kind of incentive mechanisms for the certified products.

Expand certification

Based on the learning of piloting, the government can develop long-term strategy and plan to expand the forest area under certification and markets. However, initial investment required for certification for smallholders is one of the major challenges. Many smallholder forest managers perceive certification as prohibitive and inaccessible unless intermediate benefits are available along the path to certification that justifies the efforts and investments. FSC's Modular Approach to Forest Certification could be taken into account for the small community producers who require more support to reach full FSC certification when faced with development barriers, such as poverty, illiteracy, lack of market access, lack of financial resources or low business and entrepreneurial capacity. The Modular Approach Program (MAP) is an emerging initiative aimed at providing a structured path to achieve FSC certification by verifying defined steps, starting from the legal right to harvest to full FSC certification (Fig 1). MAP provides a lower entry level to the FSC system and allows for a more pro-poor approach to certification. Through the Modular Approach, full FSC certification is accomplished in three time-bound and independently verified steps, starting with legality verification, then Controlled Wood certification, and ending with full FSC certification within a five-year period.

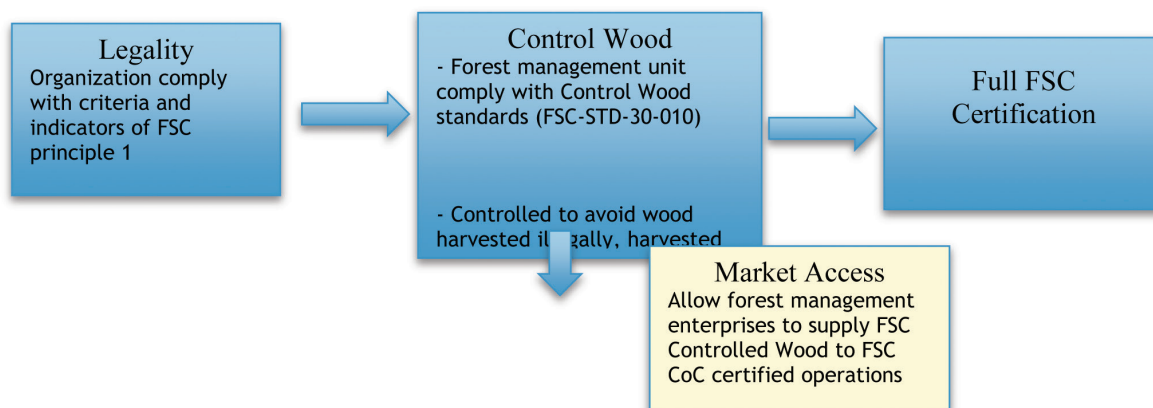


Fig. 1 Process of FSC modular approach to achieve full certification, adapted from FSC 2005

Establish effective and independent monitoring mechanism

Third party independent monitoring is an integral part of forest certification. The monitoring verifies whether or not the operations of value chain actors including forest managers, traders and entrepreneurs comply with the certification standards. Currently, there is no accredited organisation for monitoring in Nepal and hiring an international organisation could be costly at the initial stage of certification process. Nevertheless, the familiar organisations and those working with latest FSC standards can work as independent monitor. In due course of time, as more and more forestlands come under certification, the organisation can go for FSC accreditation to perform their certifying body.

Specific activities

Raise awareness on the benefits of forest certification. Many people understand that benefit from forest certification is only receiving premium price of the products. In fact, certification is a tool for ensuring sustainable forest management and equitable benefit distribution. The aggregated benefit from sustainable forest management is far greater than the premium price of certified products. The forestry stakeholders need to be aware of the

benefits of forest certification.

Build capacity of value chain actors. Forest certification is a complex mechanism and requires knowledge and capacity to implement. Thus, all the actors in the value chain need to be capacitated to understand the standards and know the process of complying the standards. The capacity building includes, but is not limited to, sustainable forest management, equitable benefit sharing, forest governance, book-keeping and product handling.

Develop enabling policy environment. The green and fair value chain products cannot compete with the products of open market when consumers are not aware on benefits of forest certification and are not ready to pay the premium price. In such condition, the government should develop such policies that promote green and fair forest products. For instance, the government needs to develop a policy to give priority for green and fair forest products in their procurement process irrespective of its marginal high price.

Invest on certified products as a part of Corporate Social Responsibility (CSR). Many corporate houses have expressed their commitments towards society through CSR. Private sector need to be oriented to invest on green and fair forest products while doing procurement. Such actions support forest

conservation and livelihood improvement of forest dependent community and meet the CSR goals.

Include forest certification as an integral part of forest management plan. As forest certification is a means of achieving sustainable forest management, which is one of the

forest management objectives, the government should give priority to forest certification in its plan and allocate enough funds for forest certification. Additionally, the government should suggest donors and NGOs working in forestry sector to orient their programs and projects inline of forest certification.

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Most Promising Subsector Options for Forest-based Enterprises in Nepal⁵

Introduction

The objective of this concept paper is to assess the most promising subsector options for the forest-based enterprises in Nepal that are economically viable and socially and environmentally responsible.

Nepal offers a unique opportunity for sustainable management and utilization of natural products, as the country has rich biodiversity while there is increasing demand of the forest-based natural products in the country and abroad. This shows a high prospect of forest-based enterprises for economic growth and employment generation. The national level study shows that the forest-based industries can generate economic value worth about NRs 88 billion taking into account the recent positive trends in four subsectors, whereas it could go over NRs 370 billion if the forests are managed using science and at least some significant value-chain improvements are made. The study estimated that forest-based industries can generate over 400,000 sustainable, full time jobs that can go up to 1.38 million depending upon the performance. However, there is no clear understanding and evidence on how to achieve the potentials. Furthermore, investment in forestry sector has not been sufficiently made, as the demand, supply and consumption status of forest products is not available.

This concept paper will assess major forest subsectors and help the private sector and other interested actors identify the subsectors and enterprises that they can focus on. It will also be useful for the national and lo-

cal governments, international and national non-governmental organisations (NGOs), private sector actors, universities and other forest stakeholders to develop plans, projects, programmes, and strategies for forest-based enterprises and value-chain promotion ensuring that the conservation and poverty reduction goals expected from forest resources are achieved.

Assessment of major forest subsectors

The diversity of Nepal's forest resource provides the opportunity for supply of multiple products and services as a base for four main promising industrial subsectors, namely timber, non timber forest products (NTFPs), ecosystem services (especially forest carbon and forest-based ecotourism) and forest bio-energy. Following sections will present the assessment of these four forest-based subsectors on the basis of current demand and supply, and supply potential. The current demand and supply include the trend of the products and services of each subsector over past few years. The supply potential of each subsector is estimated for two different scenarios - conservative and optimistic. The assumptions for both the scenarios for each subsector have been presented in the study report itself. In general, the conservative scenario assumes that the products and services are utilized with modest changes in the sector, taking into account the recent positive trends in investment. The optimistic scenario assumes that Nepal's forests are managed using science and with at least some significant value-chain improvements.

⁵ This paper is prepared by Sudarshan C. Khanal, Bishma P. Subedi and Puspa L. Ghimire, ANSAB.

Timber: Both supply and demand potential of timber is very high in comparison to the present situation. Demand of timber in 2011 was 3.37 million m³ and it is estimated to reach to 4.8 million m³ in 2030 with increasing population and housing, urbanization and construction (See Figure 1). In Nepal, major traded primary products of timber are sawn wood, veneer and plywood while the secondary products include wooden furniture and parts, builders' joinery, construction timber, domestic/decorative products, packaging materials and tools. The major timber products imported in Nepal are veneer, plywood, and furniture; about 60% of the furniture demand is met through import.

Supply of timber varies from year to year based on bans on wood removal and sales. Available government data over the past ten years shows that supply ranges from 50,000 m³ to 280,000m³. In fiscal year 2011/12 113,000 m³ of timber was formally supplied from Nepal's forests. During 2007/08 to 2011/12, an average of about 160,000 m³ of timber, was supplied each year from various forest regimes through formal channels to the market. This volume is very low compared to the current demand. At the same time, it is far lower than its potential. There is thus a huge scope to increase productivity and production through scientific management.

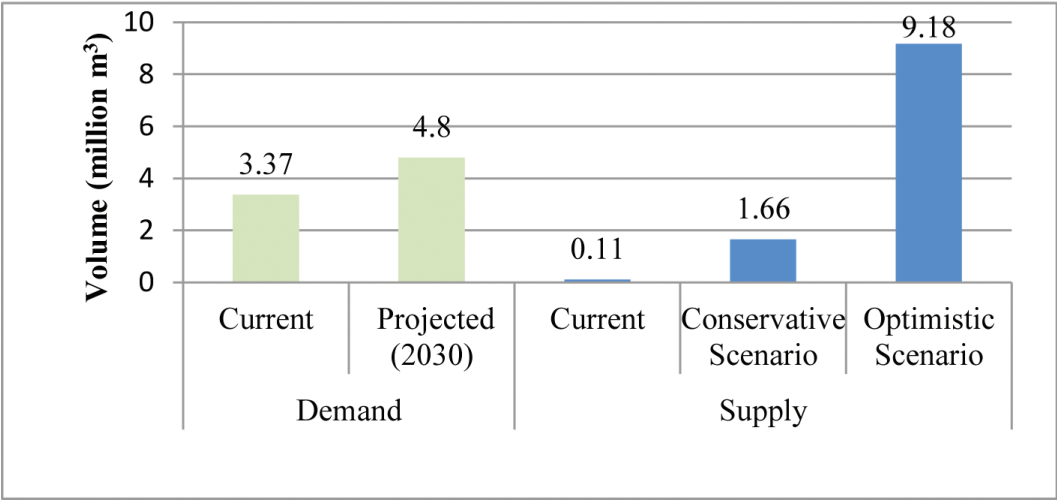


Figure 1: Current and Potential Demand and Supply of Timber in Nepal

Source: Demand data from Kanel et. al 2012; current supply data from DoF 2012

A conservative estimate from the present forest stock shows that Nepal's forest has a potential to supply 1.7 million m³ with sustainable harvesting practices. Through improved management practices in existing forests and plantation in public and private land, this could easily be increased to 9.18 million m³ (Figure 1). This shows that Nepal can produce surplus timber meeting the domestic demand, substituting imports and exporting to international markets if proper steps are taken.

NTFPs: There has been an increase in NTFP business volume and value in the country in

recent years. The government records show that about 12,000 tons of NTFPs were traded in 2012 (DoF 2013), which was 3,350 tons in 1990 (DoF records). The trade volume included in government records, however, is only a portion of NTFP traded, as informal transactions are common and the record keeping system is poor. For example, the annual harvesting and trading of NTFPs was 10,000 to 15,000 tons in early 1990s (Edwards 1996) and 20,000 tons in late 1990s (Kanel 1999).

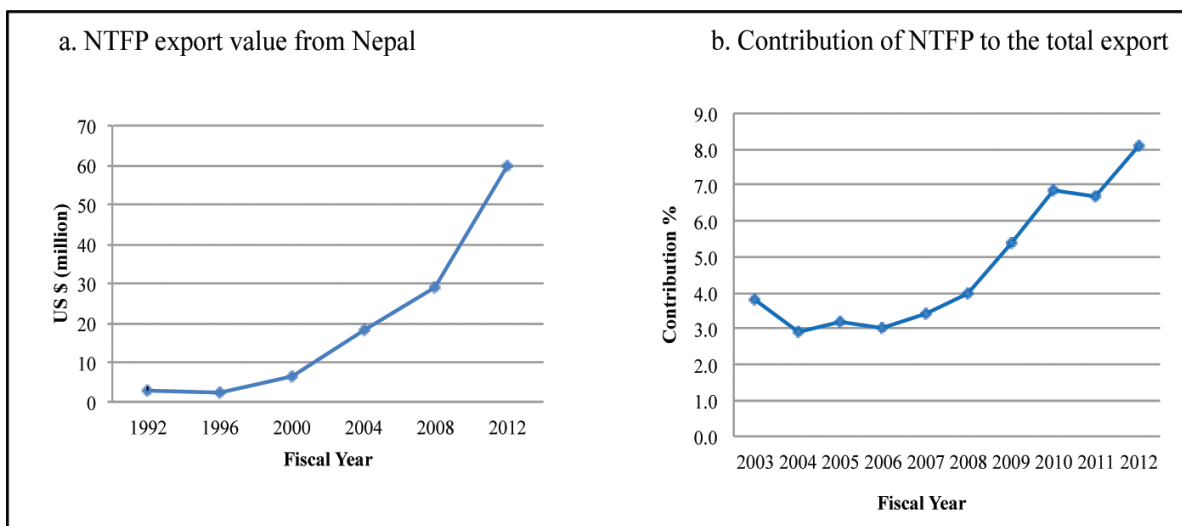


Figure 2: NTFP Export Value from Nepal and Its Contribution to the Total Export

Source: Data from MoF 2002 and MoF 2013

The increased NTFP business is also demonstrated by the NTFP export value during the past two decades. Figure 2 shows that NTFP export from Nepal increased significantly to US \$59 million in 2012 from US \$2.76 million in 1992, and its contribution to the total export from Nepal has doubled in the last decade with a contribution of about 4% in 2003. The data indicates a sign of positive growth in Nepal.

It has been shown that 161 NTFP species are commercially traded in Nepal (Subedi 2006). Analysis of annual supply and market price of the twenty species, that cover about 90% of the total traded volume and value show that the supply of large cardamom, chiraito, chamomile, tejpat/dalchini, lemongrass, mentha, rudrakshya, timur, yarsagumba, satuwa, plant fibre (allo, lokta and argeli) and bamboo is in increasing trend over the past ten years. While most of the NTFP trade is with India, export of high value crude herbs (yarsagumba, chiraito, ritha, satuwa and rudrakshya) is increasing to China during past few years. Similarly, the export of essential oils has been increasing mainly to European and North American markets over the past few years.

Nepal has good prospects in terms of NTFP production and supply and it offers oppor-

tunity for income generation to a significant number of people. Successful cultivation of atis, chiraito, satuwa, timur, ritha, rudraksha, tejpat, chamomile, lemongrass and mentha has already been practiced over past decade in various altitudinal zones. There is also a good prospect for increasing production of some valuable NTFPs, such as large cardamom and plant fibre by improving production techniques. There is also a possibility to increase supply by promoting emerging crops, such as Shiitake mushroom.

Under conservative scenario, where the products are utilized without much effort in increasing production and productivity, the annual sustainable supply volume of NTFPs could be increased by twofold. Under optimistic scenario, which involves using science and at least some significant value chain improvements, the supply could be increased by more than five times.

Forest Carbon: Forest carbon value-chain is in infant stage in Nepal. Consumption and trade of carbon is not well developed. It is limited to very few voluntary transactions by some private actors and donor funded projects in Nepal. There are few initiatives from the private sector in enhancing forest carbon and buying emission credits that has involved

a low volume of transaction. Our consultation with forest carbon buyers at international markets indicates that they are interested in forest carbon of Nepal, as the country provides a great story to tell on community forestry, poverty alleviation, reforestation, food security, biodiversity, women in forestry, etc. in favour of their Corporate Social Responsibility (CSR) goal. It makes Nepal's potential forest carbon a strong competitor in the markets indicating its demand will increase in the coming years.

Nepal has the total forest carbon pool of about 920 million tCO₂e (Subedi and Singh 2008). Long-term data and trend on carbon storage in Nepal's forests is unavailable. The forest carbon is expected to increase, because of the increase in forest cover on previously degraded land through community forestry and undisturbed forests in protected areas. It is estimated that about 55 million tCO₂e is sequestered annually by Nepal's forest (Subedi and Singh 2008). With the existing stock and the potential for plantation, Nepal has potential for increasing carbon stock and generating carbon credits. While Nepal's forests including community forests and some national forests have significant potential to implement REDD+ projects, considerable area of barren lands or grasslands with scattered trees that cover about 1.6 million ha area are ideal for afforestation and reforestation activities. Our estimates show that Nepal would be able to sell about 8.25 million tCO₂e per annum under conservative scenario and 19.5 million tCO₂e under optimistic scenario.

Forest-based Ecotourism: The number of tourists visiting Nepal over the last decade has grown steadily, since the country returned to peace and relative stability after the Maoist insurgency. More than 800,000 tourists came to Nepal in 2012 and recently the World Travel and Tourism Council has projected 1,318,000 tourists will come to Nepal in 2023. Although the total number of tourists coming for ecotourism activities has not been calculated, it is estimated that more than half

of the tourists are coming to Nepal for recreation purpose. For example, analysis over last decade of tourism data shows that protected areas involve more than 60% of the total foreign tourists in Nepal, and buffer-zone forests in the protected areas involve more than 50% of the total foreign tourists in Nepal.

The rich biodiversity associated with forest ecosystem gives Nepal a comparative advantage in terms of quality ecotourism resources. Nepal's protected areas, which include ten National Parks, three wildlife reserves, six conservation areas, a hunting reserve and twelve buffer zones around National Parks and wildlife reserves, cover 23% of the total area of the country and are the prime sources of tourist (both domestic and international) attraction. Over the past decades, community forest user groups have also developed infrastructure and they provide good resource base for ecotourism in Nepal. Furthermore, Nepal presents an excellent example of a destination where forest based ecotourism overlaps with cultural and adventure tourism (hiking, mountaineering and trekking) as the culture and adventure tourists are attracted to landscape and biodiversity, and natural tourists are wandering through mountains and hills.

There is good scope of expanding ecotourism activities and increasing tourist arrival, both in number and value, in the country. Ecotourism activities could be explored in community forests and forest-based recreation sites identified by associations and organisations working in the tourism sector. These sites should not be limited to the areas of the current tourism triangle - Kathmandu, Chitwan and Pokhara. There are less explored protected areas with full of ecotourism potential. For example, Khaptad National Park and adjoining areas are full of potential tourist activities, such as camping, village walks, cultural visits, rafting, bird watching, skiing, horse riding, trekking, historical tours, and the area could be developed as a tourist destination with minimal interventions. Our estimates show that the number of eco-tourists could

be increased by at least 1.5 times under conservative scenario while 3 times in optimistic scenario.

Forest Bioenergy: Forest bioenergy include fuelwood and improved bioenergy products, such as bio-briquettes and pellets. While a significant volume of fuel wood is consumed at domestic level, the improved bioenergy products are commercialized and are used by consumers in urban areas in small volume. The demand for fuel wood is expected to decrease with availability of energy substitutes, while the demand for improved bioenergy products is expected to increase.

As estimated by Water and Energy Commission Secretariat (WESC, 2010), the annual sustainable fuel wood supplied in 2008/9 was 12.5 million tons, of which 7.14 million tons can be sustainably harvested from the community forest alone. The fuel wood is also collected in the form of by-products of wood processing industries as the estimated residue recovery rate is about 40 to 50% for saw milling and plywood production. The supply of fuel wood through formal channel has been decreasing in recent years. Bio-char is usually produced from the forest based biomass residues, such as twigs, branches, invasive plants, or by-products of saw mills, furniture factories, etc. as well as from agriculture residues. The biomass obtained during regular forest operation can also be utilized to make pellets.

Regarding the supply potential, the annual sustainable fuel wood supply from forests is increasing although the demand of the fuel wood is in decreasing trend. WECS (2010) reported the sustainable supply of fuel wood increased from 7 million tons in 1978/79 to 12.5 million tons in 2008/09. An increase of fuel wood supply to 16.1 million tons is projected in 2030 (Kanel *et al.* 2012). Similarly, bio-char and wood pellets have very good growth prospect. Our study shows that 34,764 tons and 75,000 tons of bio-char and wood pellets respectively could be supplied from community and private forests alone under conservative scenario, and it would go to

89,284 tons and 375,000 tons respectively in optimistic scenario.

Conclusion and way-forward

This concept paper showed that Nepal possesses significant supply potential for the forest based industries and they can outweigh the demand. Thus, Nepal can set a goal of increasing the value of legally and sustainably produced and supplied forest products and services by fifteen fold. This can fulfill one of the very first prerequisite for the establishment and operation of enterprises. As Nepal's forest based enterprises can create additional sustainable jobs that range from 3 to 10 times higher than the present level depending upon the performance, the Government of Nepal can also design programs in line with its vision of "Forestry for Prosperity" by promoting forest-based enterprise that would improve livelihood of the people and generate employment in the country.

Based on the supply potential and the emerging markets, the private sector could consider a list of products and services. While the study report has prioritized the enterprises under four major subsectors in detail in terms of natural and plantation forests and different geographical regions of the country, this paper has provided the list of potential product and services that the private sector could consider along with the continuous process and mechanism of identifying, assessing and prioritizing products and services. The most promising forest products and services in the domestic market include:

- **Timber:** Hard-wood for builders' wood work, furniture esp. for frames: sal, sisoo, karma, jamun, teak, saj; Soft-wood for builders' wood work, furniture, handicrafts, parquet, packaging materials: chir pine, alder, chilaune, katus, blue pine, fir, eucalyptus, deodar pangar, simal, mango, kapok and tooni; Handicrafts and wood carving: asna, sissoo, satsal, teak, karma, jamun, bijayasal,

okhar, fir, raj sallo, deodar and pangar

- **NTFPs:** Medicinal herbs: yarshagumba, kutki, chiraito, atis, satuwa; Essential oils: jatamansi, sugandhawal, wintergreen, chamomile, mentha, lemongrass, citronella, palmarosa; Natural fibers: lokta, argeli, allo; Spices: large cardamom, cinnamom, timur; Others: morel mushroom, bamboo, resin, kattha and broom grass
- **Ecosystem Services:** Forest carbon; and Ecotourism: trekking, forest walk, bird watching, jungle safari, picnic and homestay
- **Bioenergy:** Fuel-wood, briquettes, pellets and biomass-based electricity.

In terms of international markets, as Nepal has a unique selling position (USP) for carbon, Forest Stewardship Council (FSC) certified NTFPs and hand-carved woodcrafts, which could be emphasized in promoting and selling the products.

Based on the dynamics of the value-chains, domestically and globally of each subsector – timber, NTFPs, ecosystem services (carbon and ecotourism), and forest bioenergy, the government and other organisations working in the sector could focus on the following value-chain specific strategies in the beginning:

Timber: For timber, the emphasis should be on plantations and land management models that allow for private sector investment and cultivation of key species rather than overall biodiversity. With science based management and sustainable harvesting of natural forest, there is ample scope to expand the timber industry of Nepal as well as develop plantations in appropriate denuded areas. But, there needs support to producers and forest managers for enterprise oriented forest management

planning. Upgraded harvesting and processing along with policy changes and improved marketing will increase the quality of Nepal's timber products and lead to expanded employment and income.

NTFPs: For NTFPs, emphasis should be on sustainable harvesting from natural forests and commercial cultivation in private lands and non-forested public land. Value addition through processing and product development and diversification of markets are the much-needed areas of interventions in this subsector.

Forest Carbon: In early stages of the carbon market, developing appropriate institutional mechanism, capturing the insights and expectations of the stakeholders and building their capacity on carbon value-chain functions are important. Significant interventions are needed for setting up the governance structure and market promotion.

Forest-based Ecotourism: Nepal's tourism activities are confined to certain areas and the current ecotourism practice is not well differentiated from conventional or mass tourism around protected areas. Development of ecotourism products and their advertisement for the emerging markets, promotion of new touristic area and targeting of new market segment are needed.

Forest Bioenergy: In the present global context and national capacity in bioenergy subsector, Nepal should focus on proven solid biofuel technologies – bio-char and wood pellets, to generate energy from forest biomass. Most importantly, with the proper resource management, harvesting and utilization, there is an ample scope to increase production and energy efficiency of fuel wood used in cooking.

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For more information:

Multi Stakeholder Forestry Programme

Programme Coordinator's Office (PCO)
Forestry Complex, Babarmahal, Kathmandu
Tel: 977-1-4239531

Services Support Unit (SSU)
Forestry Complex, Babarmahal, Kathmandu
Tel: 977-1-4229669-70

P.O. Box 12095, Kathmandu, Nepal Email: ssu@msfp.org.np Website: www.msfp.org.np