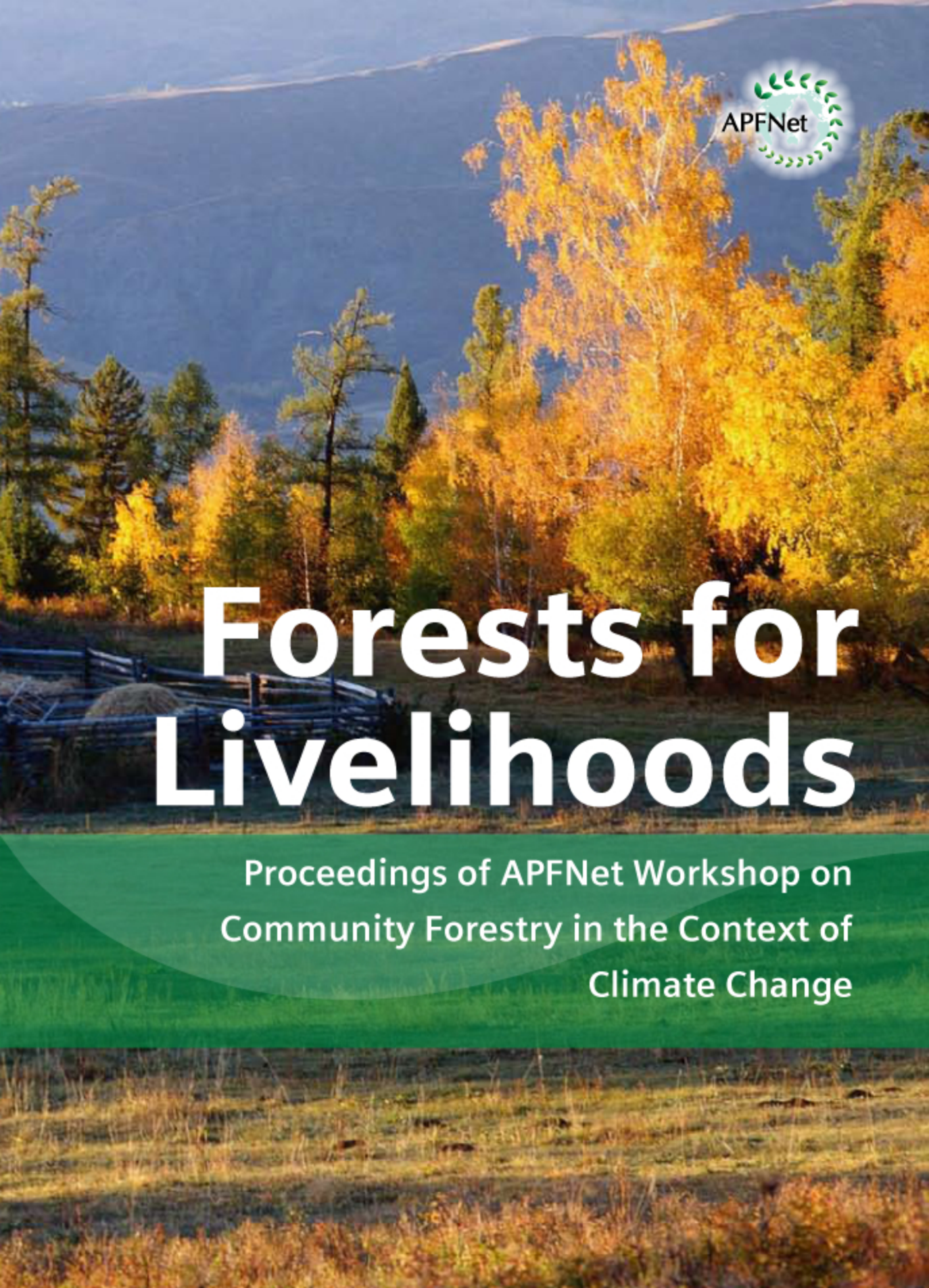

Forests for Livelihoods

Proceedings of APFNet Workshop on Community Forestry in the Context of Climate Change

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content

Preface

As part of its capacity building program, the Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet) sponsored its 3rd workshop under the theme "forestry and rural development" which took place in Kunming, China in June 2011. Senior officials from 15 economies exchanged views about the challenges and opportunities associated with community forestry in the region, including in the context of climate change. In this regard, they not only identified the uncertainties but also the potential benefits of emerging mechanisms such as Reducing Emissions from Deforestation and Forest Degradation (REDD) and broader approaches which encompass forest conservation, sustainable management and enhancement of carbon stocks (REDD+).

Although community forestry has been practiced for many generations, government involvement is more recent and the concept is gaining in popularity partly because authorities now recognize that they cannot effectively oversee vast expanses of forests on their own. The call for social justice has also influenced its development, as has the belief that local people and local knowledge are prerequisites to sound forest management. The goals of community forestry have changed as well, with focus shifting from the exclusive production of fuelwood to the rehabilitation of degraded land as a means to increase food security and reduce poverty.

Workshop attendees provided many valuable insights during discussions which APFNet is pleased to share by making this compilation of reports available. We hope that readers will find the information helpful in terms of assisting with efforts to improve the situation of their own economy. Last but not least, we would like to thank all participants for their important contributions. Their willingness to recount experiences and draw on lessons learned made this publication possible.

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Development of Community Forestry in Bangladesh

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1. Introduction

Community forestry is any activity that provides forest goods and services to rural populations. In 1978, the Food and Agriculture Organization of the United Nations defined the term as any situation which intimately involves local people but excludes large scale industrial and other forms of forestry that contribute to development solely through employment and wages. However, community forestry does include the activities of enterprises and governments that encourage and assist communities to benefit from the management and sustainable use of forest resources (Mahat and Amin, 1993). Other terms used interchangeably are social forestry and participatory forestry, all of which involve local people, aim to meet their basic needs, and encourage self-reliance. The main objective of community forestry is to improve the socio-economic well-being of rural people. Other objectives are to:

- plant more trees or manage forests through the participation of stakeholders
- reduce forest depletion
- maximize land productivity
- enhance ecological and environmental stability.

2. Drivers of Community Forestry

The factors described below are responsible for the shift from traditional forestry to community forestry in Bangladesh.

Demand for forest products: Population growth continues to place pressure on forests and is resulting in the over exploitation of government managed resources. Due to high demand, the rate of forest depletion exceeds natural regeneration and afforestation as well as efforts to rehabilitate degraded forestland. In 2002, demand for timber and fuelwood was an estimated 3.2 and 8.7 million m3 respectively, versus a supply of 1.2 and 3.5 million m3.

Deforestation: Most natural forests in the hills are over exploited or cleared, and encroached in some parts. Forests on state land have been particularly subjected to illicit commercial logging, unplanned and abrupt conversion to agriculture and other uses, fire, grazing and other anthropogenic activities. In the 1980s, annual deforestation was an estimated 8,000 ha, a rate of about 3.3%. More than a 50% loss of forest cover over the past few decades has seen forest area per capita decline from 0.035 ha in 1969 to 0.02 ha in 1990 (BBS 1991).

Uneven distribution of natural forests: Almost 48% of Bangladesh's forests are in the

eastern region, along its borders (hill forests) and another 23% are in the southwestern corner, along the Bay of Bengal (mangrove forests). The vast flat countryside where most population lives has only about 2% tree cover. Of the country's 64 districts, 28 have no public forests at all.

A remedy to encroachment: Encroachment on most forestland occurred when thousands of homeless people settled there after river banks became seriously eroded. At the same time, forest cover decreased as a result of the growing population of traditional forest dwellers, the conversion to farmland and the establishment of horticultural plantations to improve the economic situation of farmers and other settlers. At one point, an estimated 35-45 percent of forest area was encroached (Lai and Khan 1990) and all attempts to evict the illegal inhabitants failed. Thus, joint ownership and management of forests by government and communities are now seen as the best means to protect and sustainably utilize resources and to arrest their destruction and degradation.

An approach to poverty reduction: Since the early 1980s, the government of Bangladesh has been allocating more money to community forestry as part of wider efforts to diversify the economy, improve the environment and reduce poverty in rural areas by increasing productivity, creating jobs, and promoting self reliance.

People's participation in forestry: The World Conference on Agrarian Reforms and Rural Development which took place in Rome (Italy) in 1978 and the 8th World Forestry Congress on "forests for people" in Jakarta (Indonesia) the same year, brought international acceptance of the need to involve local people in forest management. Outcomes thus prompted the government of Bangladesh to emphasize community forestry.

Other drivers of community forestry are the need to:

- setup planned homestead forestry
- use marginal lands
- provide an alternative to traditional forest management
- harmonize and solve conflicts, violence and litigation over land rights
- develop a new strategy for joint forest management and expansion of forest cover.

3. Development of Community Forestry

After introduction of the taungya method in Burma in 1856 and its replication elsewhere on the sub-continent, Bangladesh adopted its first intercropping system in Chittagong in 1871 and Sylhet in 1886. It was not until 1912 that communities planted Teak (Tectona grandis) as part of this system, especially in the Chittagong Hill Tracts. Although the growth of trees

was not satisfactory, the area was suitable for slash and burn agriculture (Jhum cultivation) - a practice which helped to control the nomadic way of life of the tribal people (Huq & Alim 1995).

Social forestry has been institutionalized since the Forest Department created two forest extension divisions, one at Rajshahi and other at Dhaka, in June 1962. Responsibility for the production and distribution of seedlings gradually expanded in the early 1980s and four new extension divisions were created. In 1999, the FD reorganized and established a Social Forestry Wing headed by a Deputy Chief Conservator of Forests, 3 Social Forestry Circles, 13 Social Forestry Divisions, 98 Social Forestry Nursery and Training Centers and 341 Social Forestry Plantation Centers. Their role is to implement and administer social forestry programs, in accordance with National Forestry Policy (1994) objectives.

Bangladesh's first attempt at community forestry can be traced back to 1979 in Chittagong, led by Prof. A. Alim - renowned forester, Mahbubul Alam Chasi - founder of Swanirvar (self reliance) and Prof. Dr. Mohammed Yunus - founder of Grameen Bank. At that time, foresters were generally not disposed to people-oriented programs because they felt that government would ultimately allocate forestland to private individuals - an approach which differed from traditional custodial management. To reduce opposition, this innovative program was started on Khas land or non forestland owned by the revenue department. At first, the project covered 160 ha of degraded hilly land in Betagi where 101 landless farmers from the adjacent community were given land. One year later, 205 ha of degraded hilly land in Pomora were given to 243 landless families. Each participant was provided 1.62 ha to grow tree and horticultural crops, with technical and financial assistance from the Forest Department. Despite successful outcomes, the government has not extended this approach to other areas.

The Forest Department in the Hill Tracts was also involved in a 1980 project to establish plantations as an alternative to slash and burn practices. Each family was allocated 2.20 ha: 1.20 to grow agricultural crops, 0.80 to plant trees and 0.20 to build a house. Participants were given land use rights, kept 100% of benefits accrued and were provided with support to carry out activities. Although this program operated for some time, it ultimately failed because nomadic families were resettled in villages, a move which compromised their cultural and religious values. Moreover, the approach did not respond to the needs of people living in the hills, other than for plantations.

Participatory forestry in Bangladesh got a real start when the Asian Development Bank financed a project from 1982 to 1987 in 7 districts in the northwest - an environmentally degraded zone. However, in the absence of written assurances of the right to benefit from the land and from forest products once trees matured, farmers were suspicions of government intentions until they signed a Participatory Benefit Sharing Agreement (PBSA). Rules governing social forestry were then developed in 2004. The success of this key

community forestry project encouraged government to initiate others across the country.

4. Supportive Government Policies

The National Forest Policy (1979) calls for a participatory approach on government forestland and plantations on marginal land. The revised policy of 1994 gives clear guidelines on social forestry and has paved the way for closer collaboration between non-government organizations (NGOs) and government agencies. It also takes into account the role of the sector in national socio-economic development and the health of the environment as well as the outcomes of the 1992 Earth Summit, including Agenda 21.

Of the 29 statements contained in the National Forest Policy (1994), the following provisions relate to participatory forestry, institutional reform, legal reform and capacity building.

- Local people will participate in massive afforestation along roads, railways, embankments and khas land.
- Local people will participate in the afforestation of reserved forests which have been degraded or encroached upon and agroforestry will be encouraged in these areas.
- The capacity of the Forest Department will be enhanced to achieve policy objectives and a new Department of Social Forestry will be established.
- Implementation requires strong educational, training and research organizations - all of which will contribute to the sector's development.
- Forest laws, rules and regulations will be amended and, if necessary, new provisions that are consistent with the objectives of the policy will be promulgated.

The National Forestry Policy (1994) seeks to achieve 20% forest cover through a massive plantation program on both government and private land, with the active involvement of the Bangladeshi people. The policy also aims to increase the sector's contributions to economic development and poverty reduction. Under the Forestry Sector Master Plan, approval has been given to invest Taka 80,000 million between 1995 and 2015 to help reach goals.

5. Successful Practices

As noted earlier, the success of the community forestry projects in Betagi and Pomora prompted the Forest Department and NGOs to initiate similar practices in other regions of the country, as described in the following examples.

Strip-plantations along roads, highways and railways: The Authority of Roads and

Highways, the Bangladesh Water Development Board and the Bangladesh Railway allot strips of land to the Forest Department which then forms groups of 10-15 landless people and assigns them specific areas. Under FD guidance, they establish plantations interspersed with agricultural crops. The FD also provides seeds, seedlings, fertilizers and daily wages at the time of planting. The groups are then responsible for maintenance and management activities, including supervision, and are allowed to keep 100 percent of the crops and pruning materials. A formal agreement with the FD sets out the terms for sharing the yield from the plantations: 65 percent to farmer groups, 20 percent to FD, 10 percent to the agency owning the land and 5 percent to the Union Council. In the case of the Union Council for roads, 80 percent of the harvest goes to the groups and 20 percent to the Council.

Ago-forestry on forestland: The FD gives landless farmers, especially encroachers, 1.2 ha of degraded forestland in the plain land Sal (Shorea robusta) area in the north. They are granted usufruct rights initially for one year but the duration can be extended up to the rotation period of the trees, subject to satisfactory performance. As in the previous model, agricultural crops are planted between the trees which, in this case, are fast-growing exotic and indigenous species. In the first year, farmers receive seeds, fertilizers, and insecticides free of charge. The agreement they sign with the FD provides for them to retain the entire agricultural yield and all fallen trees, leaves, twigs and other pruning materials. However, 50 percent of the timber or the proceeds from timber sales go to the FD. The FD also provides training during which time farmers are paid an allowance that exceeds their normal daily wage.

Woodlot/block fuel-wood plantations: Local poor people and encroachers are allocated 1 ha per family and, because the space between trees must be 2mx2m, only 2500 trees are planted. The FD supplies seedlings and other planting materials for the 1st rotation and pays participants a wage. They are also allowed to grow crops in the space between trees for the first and second years.

6. Initiatives

The following initiatives are helping to make community forestry successful.

Tree Planting: Tree planting programs have grown into a national movement. Initial campaigns lasted a day but later extended to a week, a month, and then three months. Each year, the FD organizes the Tree Plantation Movement at national and local levels. It chooses a specific theme or slogan to encourage public participation - aspects which make the event unique.

Prime Minister's Tree Plantation Award: In 1993, the Government of Bangladesh introduced the Prime Minister's Tree Plantation Award to encourage public participation in

tree planting and social forestry. It is given to those who make the Tree Planting Movement a permanent, continuous and spontaneous social event. Activities are categorized into 16 classes, each with a 1st, 2nd and 3rd prize which comes with money. Generally, the Prime Minister personally bestows the awards to winners.

Tree Fair: The FD organizes annual tree fairs at national, divisional, district and Upazilla (sub-district) levels to encourage people to plant trees and become involved in conservation. The Prime Minister inaugurates the national gathering. Tree fairs are an important venue to sell and purchase various types of plants and technology in Bangladesh. They also raise awareness of the usefulness of trees and the ways in which their conservation and sustainable utilization contribute to economic development. For a century, people from across the country come to Gurpukur of Satkhira District to buy and sell plants at the fair. Here, they can easily collect the varieties they are looking for from one place.

Training: To increase awareness among stakeholders and transfer technology related to social forestry, different projects and schemes offered a large number of training programs. With time, training, media coverage and benefit sharing, local participation grew significantly compared with when it was first introduced. From community forestry projects (1981 to 1987) to forestry sector projects (1997 to 2006), 306,120 people have been trained, including beneficiaries, local leaders and NGOs.

7. Achievements

Participation: Given that forest management without the involvement of local people would not arrest deforestation or prevent encroachment, participatory forestry is becoming a common practice. Production from plantations can be increased through better management and the use of fast growing species.

Incremental Resources: The National Forest and Tree Resources Assessment (2005-2007) shows that almost 50% of the country is under some sort of tree cover, largely as a result of social forestry.

Employment: Employment opportunities in Bangladesh's forestry sector is significant and about 0.335 million rural poor people are engaged in social forestry.

Poverty Alleviation: Poor people in remote areas are improving their socio-economic situation by taking part in social forestry. The sector contributes 4% to GDP, a figure which highlights its importance. Since 1982, some community forestry programs have successfully been completed and new ones are being mounted. Mature plantations have been felled and shares distributed according to terms set out in formal agreements. So far, 85,610 participants have received US$203.6 million from the sale of forest products.

Biodiversity Conservation: Trees planted on degraded forestland and in marginal areas

are also conserving soil, water and biodiversity. With the introduction of co-management in protected areas, the non-consumptive benefits are helping to reduce poverty and conserve biodiversity.

8. Lesson Learned

- People must participate in all stages of program development - conceptualization, planning, implementation, monitoring and evaluation.
- Participatory forestry requires continuous political commitment, social cohesion and the full involvement of all stakeholders at all levels.
- Encroached, degraded and marginal lands can only be rehabilitated by focusing on the needs of the people who create the problems.
- Without local participation, new forests cannot be established or existing ones preserved.
- The granting of tenure or usufruct rights is a prerequisite to the success of community forestry.
- Participatory approaches improve socio-economic conditions, generate income, maximize land use and alleviate poverty.

9. Challenges

Climate change: Bangladesh is one of the most vulnerable countries to climate change. Many of its ecosystems, including mangrove forests along the coast, are already affected and will likely suffer heavier damage as a result of increased floods, drought, salinity, and river erosion. High population density, recent famine, and dependency on agriculture make Bangladesh even more susceptible to the potential impacts of climate change such as a rise in sea level, increased storm surges and cyclones, higher evaporation, changes in river flow across borders, more landslides, too much rain during monsoons (more flooding) and less rain during the dry season (prolonged drought).

Forest degradation and encroachment: A 1-meter rise in sea level would inundate 15% of Bangladesh, particularly low-lying floodplains and coastal areas. More people would become landless, fragmentation would make land use less efficient and conflicts would threaten the availability of forest resources. Greater pressure on forest reserves (national parks and wildlife sanctuaries) and on homestead forests will reduce tree cover, increase encroachment and lead to unsustainable exploitation. Inappropriate land use devastates coastal mangroves, including the Sundarbans, and the conversion of forestland to agriculture is a major threat to ecological stability.

Loss of Biodiversity: Floods, cyclones, tidal surges and drought in winter are recurrent phenomena due to climate change. Moreover, wildlife species are becoming extinct and the list of threatened and endangered species of flora and fauna is growing. Much damage will be done to wildlife and vegetation covers in coastal areas as well as in homesteads and forest reserves. Other impacts include less availability of water, congestion in surface drainage, plant diseases and harmful insect infestations.

Adaptation: Exposure to natural disasters over time, especially floods and cyclones, has prompted Bangladesh to design and implement a range of adaptation measures in terms of both policies and capital investment. In the past three decades, the government has invested more than US$10 billion (at constant 2007 prices) to make the country more resilient to changes in climate and less vulnerable to natural disasters. Since the 1970s, with the support of development partners, it has invested in:

- flood management schemes to raise agricultural productivity in low lying areas
- flood protection and drainage in urban areas
- coastal embankment projects to prevent tidal flooding and incursions of saline water
- cyclone shelters
- disaster management
- irrigation to grow crops in the dry season
- research to develop crop varieties that withstand saline water, drought and flooding
- projects to green coastal areas
- afforestation.on char land (riverine sand and silt landmasses)

Mitigation: The government of Bangladesh has allocated US$45 million of its own money to establish a Climate Change Fund. To complement this initiative and to harmonize donor efforts, development partners have agreed set up a Multi Donor Trust Fund for Climate Change that the World Bank will administer. Initial contributions are expected to be about US$100 million.

10. Opportunities

Land: As the table below shows, about 4.65 million hectares (31% of the country's land area) are available for social forestry. Given the size of Bangladesh and its forest area, this amount is significant.

No.	Available Land	Area (million hectares)
i)	Degraded unclassified state forestland	1.00
ii)	Khas land	0.56
iii)	Other degraded state forestland	0.27
iv)	Marginal strip land	0.08
v)	Homestead marginal land	0.27
vi)	Degraded tea garden land	0.06
vii)	Degraded private forestland	0.05
viii)	Cropland agroforestry on private agricultural land*	2.36
Total		4.65

** 29% of the total agricultural land is above normal flood levels and suitable for cropland agroforestry*

Social Forestry Rules 2004: According to the Indian Forest Act (1927) which is in force in Bangladesh and amended from time to time, section 28 of Chapter III provides for government to assign but also cancel the rights it gives to communities over a reserved forest. It also regulates and oversees the management of these resources. All forests so assigned are called village forests.

When the Forest Act was last revised in April 2000, it made provisions for social forestry programs and empowered government to make rules and set standards for their implementation - changes which the country considers a milestone. Accordingly, government issued Social Forestry Rules in 2004 and subsequently modified them in 2010 to elaborate the rights and responsibilities of participants, organizations and committees with regard to a range of activities, from site selection to harvesting.

Benefit sharing agreements: The Social Forestry Rules call for the proceeds from the sale of harvested forest products to be shared among stakeholders as follows:

Strip plantations

Participants	55%
Tree Farming Fund	10%
Land owner	20%
Local Union Parishad	05%
Forest Department	10%
Total	100%

Woodlots and Agro-forestry on forestland

Participants	45%
Tree Farming Fund	10%
Forest Department	45%
Total	100%

Char lands and foreshore *(the area above water at low tide and under water at high tide)*

Participants	45%
Tree Farming Fund	10%
Land owner	20%
Forest Department	25%
Total	100%

Tree Farming Fund (TFF): The Tree Farming Fund is a recent initiative, the purpose of which is to reduce dependency on donor funds to increase tree cover, including through plantations. In all cases, 10% of the sale of forest products must be deposited in the fund. Guidelines for its use have been developed and a management committee has been set up to supervise spending.

Participatory Benefit Sharing Agreement: As noted earlier, the Forest Department, NGOs, agencies which own the land and the participants who depend on the land where the project is implemented sign an agreement which sets out the terms for sharing benefits. This arrangement promotes the involvement of local people over the long term and provides secure tenure of the trees planted during projects.

11. Future Trend

Co-management: To arrest deforestation and conserve biodiversity, the government designated some forests or parts of forests as protected, using IUCN's protected area management categories. In 2004, it also initiated a co-management scheme both to involve local user groups in forest protection and to improve their livelihoods. After piloting the concept in 5 protected areas, co-management was expanded to other regions, including the mangrove forest in Sunderbans. This approach is also an effective way to address the threats associated with climate change in Bangladesh in terms of adaptation as well as reduction of carbon emissions.

12. Conclusion

Traditional and custodial forest management in Bangladesh has changed considerably in recent times, making way for people to be an integral part of protection measures,

sustainable utilization, and economic development. Social forestry has increasingly become the tool to establish multipurpose plantations and to maximize returns from forestry as a land use. Forest communities are the most marginalized and vulnerable to climate change and their capacity to adapt depends not merely on limited benefits or livelihood options but on secure access to resources, participatory decision making, institutional support and market access. Community forest management can reduce the vulnerability of forest communities by offering them the means to earn a living as well as increase carbon sequestration through forest protection.

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Development of Community Forestry in Brunei Darussalam

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1. Overview

Brunei Darussalam is situated on the north-west side of the island of Borneo on the coast of the South China Sea. It covers 5765 km², and shares a 381 km border with the Malaysian state of Sarawak. The Limbang district of Sarawak splits Brunei into two parts: the districts of Brunei-Muara, Tutong and Belait in the west and Temburong in the east. Population in 2010 was estimated at 401,980. Population density is 67.3 people per km² and, between 2005 and 2010, annual growth rate was 1.90%.

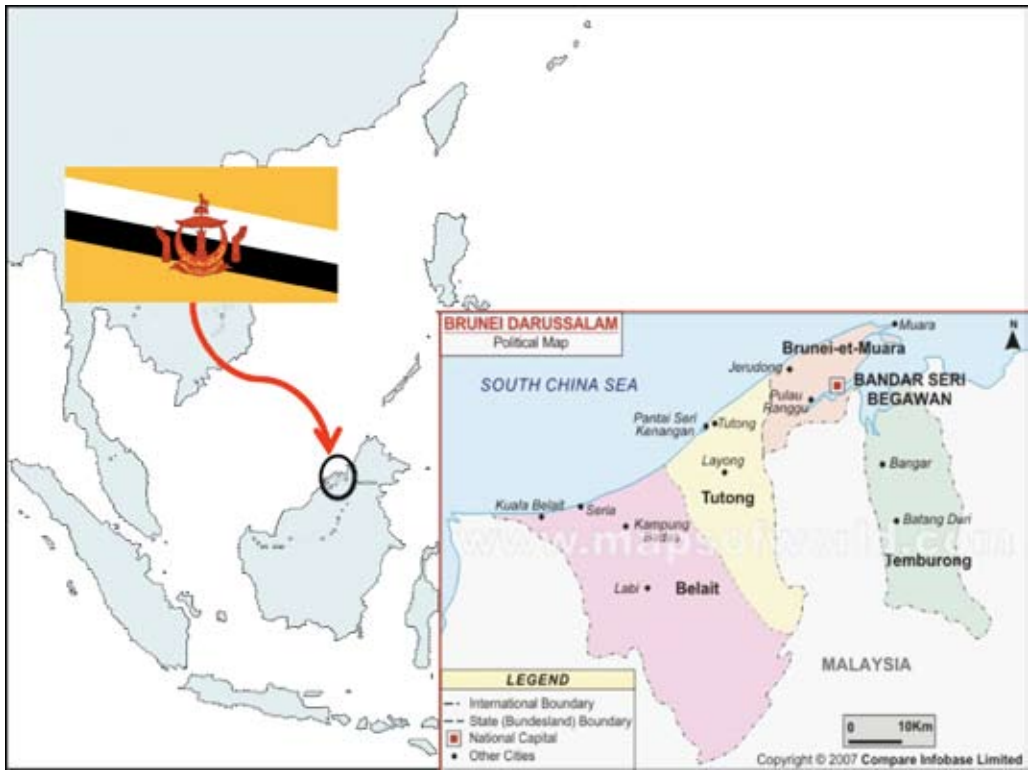

Figure 1: Map of Brunei Darussalam

Almost 83% of people live in urban centres which stretch along the coast, 69% of whom reside in the district of Brunei-Muara, the country's smallest but most populated area. Approximately 16% live in Belait, 12% live in Tutong and close to 3% live in Temburong where Bangar is the district's main city and administrative centre. With an estimated urbanization rate of 2.6% between 2005 and 2010, hinterland forests in the southern parts of the country remained largely undisturbed.

Since 1929, the production of oil and gas dominates Brunei's economy and is responsible for its continuous prosperity. The sector accounts for about 88% of export earnings, 71% of GDP and 80% of tax revenue. Today, the country is the 3rd largest oil producer in Southeast

Asia, averaging about 219,000 barrels a day. It is also 4th largest producer of liquefied natural gas in the world, averaging 1.2 billion cubic feet daily.

With one of the highest standards of living in the world, its citizens enjoy high literacy rates, long life expectancy, low unemployment, and low crime rates - benefits which were barely conceivable just 25 years ago. In 2010, GDP purchasing power parity [PPP] was US$ 20,382 billion and per capita income was US$ 48,891, figures which make Brunei the 5th richest nation in the world and the 3rd richest in Asia. Although a developing nation, its human development index of 0.805 in 2010 ranked it 37th of 168 countries.

2. Forest Resources Management

The Government of Brunei Darussalam owns the country's forests and, since 1933, accorded the Forestry Department jurisdiction over forest reserves or permanent forest estates (PFE). The management of non-PFE statelands are vested in other government agencies to which the land has been gazetted or allocated but harvesting and utilization of forest resources in these areas remain the responsibility of the Forestry Department.

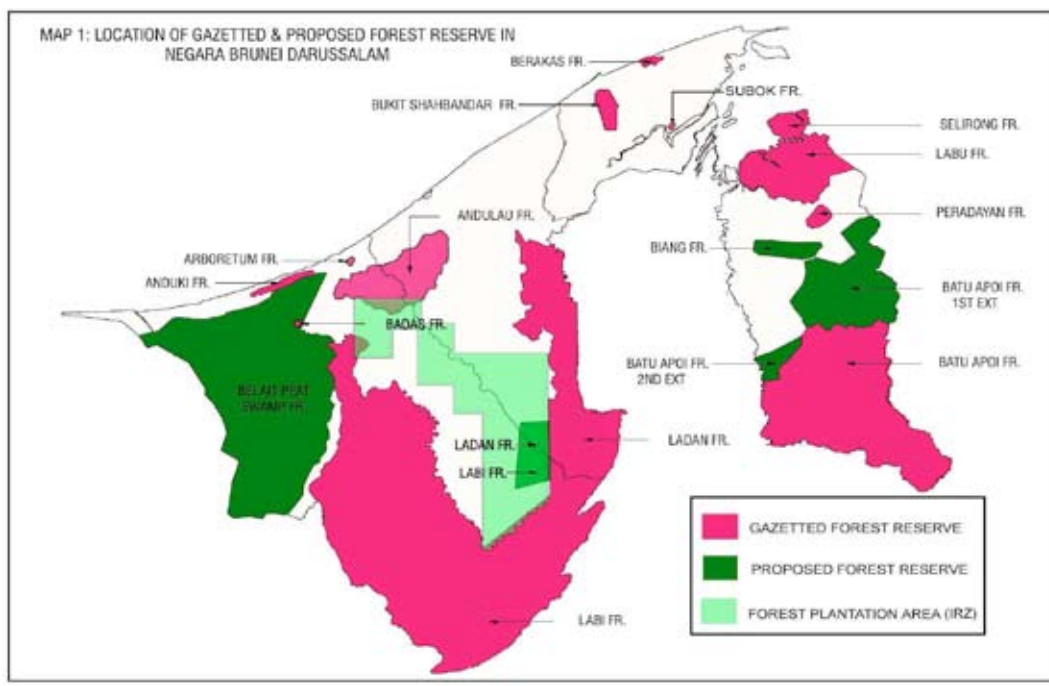

Figure 2: Location of gazetted & proposed forest reserves

FAO's global Forest Resources Assessment, published in 2010, estimates that Brunei's forests cover 75% of land area: 262,000 ha of primary forests and 168,000 ha of undisturbed forests, for a total of 430,000 ha. The forest reserve comprises 235,520 ha and accounts for almost 41% of land area. It is classified into 5 functional categories, as noted in Table 1.

Table 1: Classification and functional description of the forest reserve

Forest Classification	Functional Description
Protection Forests	Preserved forests to protect critical soil and water resources; keep the country green and the climate invigorating; prevent or minimize floods, droughts, erosion, pollution, and similar environmental problems; and contribute to the ecological stability of the country.
Production Forests	Natural and planted forests, including non-timber plantations, for a sustained supply of products and services.
Recreational Forests	Forested areas with natural features, developed to promote social, psychological, physical, and economic well-being.
Conservation Forests	Undisturbed forests set aside to preserve and conserve biodiversity for scientific, educational and related purposes.
National Parks	Areas with distinctive geological, topographic and other features of special interest, reserved to maintain diverse plant and animal communities for the benefit of present and future generations.

Table 2: Area and percentage of forest reserve by classification

Forest Classification	Gazetted Area (Ha)	% of Land Area
Protection Forest	18,562	3%
Conservation Forest	28,511	5%
National Park	46,210	8%
Production Forest	138,026	23%
Recreation Forest	4,211	1%
TOTAL	235,520	40%

The vision of the Forestry Department is “excellence in tropical forest management” while its mission is “to develop, conserve, and manage the forest for social, economic, and environmental benefits for the people through sustainable forest management”. Both statements aim to accomplish the objectives referred to in Table 3 as the 5-Star Excellence Approach.

Table 3: 5-Star Excellence Approach

Mission	Objectives
1. Forest for Posterity and Prosperity	
- Perpetuate the pristine forests... our national heritage ... the key to our prosperity.	• Preserve all forest bio-ecosystems of Brunei (designate at least 55% of land area as forest reserve). • Develop the Brunei Tropical Biodiversity Centre (TBC) which includes the Botanical Garden and Wildlife Refuge. • Develop the Royal Brunei Herbarium, including the Forestry Museum.
2. Forest for Sustainable Production	
- Attain meaningful provision for forest products for the country	• Optimize the outputs of production forests. • Establish forest plantations..
3. Forest for Economic Strength	
- Maximize the contribution of the forestry sector to GDP	• Develop forest industries, including ecotourism and biotechnology to their full potential. • Develop a market niche for "Made in Brunei" forest products.
4. Forest for Public Involvement & Enjoyment	
- Provide facilities and opportunities for outdoor recreation and for scientific endeavours - Keep Brunei green - Instill social consciousness of our natural heritage	• Develop the Ulu Temburong National Park. • Develop sufficient forested recreational parks. • Restore degraded lands. • Intensify forestry extension and nature education. • Promote the National Tree of Brunei. • Involve the public, particularly youth, in mass planting activities.
5. Forest for International Prestige	
- Establish the reputation of Brunei Darussalam as practitioner of world-class forestry	• Develop Brunei as the model of tropical forestry excellence • Establish regional and international cooperation through initiatives such as the Heart of Borneo. • Project Brunei as an active participant and leader in regional and international forestry.

The Forest Act (Chapter 46, Laws of Brunei) has undergone several revisions, most recently in 2007, to provide clear guidelines on forest management. Provisions of the Act include forest administration, reservation of forest lands, the harvest of forest products, customary gratuitous rights to forest inhabitants, penalties for violations, and prescription of forest royalties. Other relevant legislation that strengthens the management of forest reserves and forested statelands are the Land Code & Land Acquisition Act; Wildlife Act; Town and Country Planning Act; Antiquities and Treasure Trove Act; and Wild Flora and Fauna Order of 2007.

3. The Development of Community Forestry

A vast number of people in both developed and developing countries depend on forests for their livelihoods and well-being, from forest dwellers who rely on them for food, fuel, shelter and medicine to urban residents who occasionally use them for recreational purposes.

The pressure to exploit Brunei's forest resources is low, partly because of the focus on petroleum production and the country's low population. In addition and, as noted earlier, most people live in urban areas, a pattern which leaves the hinterland forests undisturbed on the steep slopes in the southern parts of the country.

Prior to the discovery of oil in 1929, non-timber products from natural forests dominated exports and, from the early 1920s to 1940s, generated revenue ranging between 8% and 35% of GDP. Products included jelutong (Dyera costulata), latex and cutch used in tanning leather. When commercial production of oil began in 1932, many forestry workers shifted to this sector. Although three quarters of the country is still covered in forests, the sector's annual contribution to GDP is only 0.12%, mainly based on revenue from royalties, premiums, administrative charges, licenses, suspension accounts and tender-to-bid payments.

The extent to which people depend on forests for subsistence is unknown because this aspect is not documented. Most working-age members of indigenous groups are employed in development programs and, since the Forest Act grants tribes the right to access and use forest products, the country is not faced with court challenges on such matters.

Public awareness of forestry issues is high, as is support for sustainable forest management. In this regard, the Forestry Department coordinates its activities with other government agencies and consults other stakeholders - non-government organizations, the private sector, and local communities - on their needs through council meetings, dialogues and development projects, for example. These mechanisms also help to achieve consensus on cross-cutting issues.

Although community forestry is not a recent development, it has gained formal government recognition in the past few years. Some of the drivers and enabling conditions for this change are:

- The need to comply with the norms and standards associated with the ASEAN Criteria and Indicators (C&I) for Sustainable Management of Tropical Forests which Brunei and other countries in the region adopted in 2007. At present, the Forestry Department is conducting tests to determine the applicability of the given C&I parameters to the country.
- Revisions to the 1989 National Forest Policy to incorporate the 3 pillars of sustainable forest management: environmental, economic and social.
- A nationwide project of 'One Village, One Product' which the Ministry of Home Affairs launched in 2008 to empower local communities in all 4 districts to choose the forest goods and services they wish to produce, based on traditional knowledge. This new concept plays an increasing role in economic diversification, while preserving cultural heritage and creating jobs.

4. Effective Modes, Practices and Experience

Brunei's strong forest management and enforcement policies, in addition to its commitment to preserving large tracks of pristine primary rainforest can serve as a model to other countries in the region. Its efforts to achieve sustainable forest management reflect the concern and value its people place on the protection of forest resources, the potential of which is largely unexplored at this stage. Although the forestry sector is not driving Brunei's economic agenda, a key government priority is to encourage its development based on minimal impact on the environment.

The Tourism Development Department promotes tourism as a means to diversify the national economy and different jurisdictions are managing a number of ecotourism sites: the Forestry Department (Ulu Temburong National Park and the 7 recreational parks within the forest reserve); the Museums Department (Tasek Merimbun Heritage Park and wildlife sanctuaries on forested stateland); and the Department of Environment, Parks and Recreation (parks outside the forest reserve). In addition, ecotourism sites, often within the village boundary of forested stateland, are a new venture and part of the 'One Village, One Product' initiative noted above.

Village	Products & Services
Belimbing, Brunei-Muara	Tasik Sarubing Recreational Park
Subok, Brunei-Muara	Bukit Markucing Recreational Park
Bukit Udal, Tutong	Nak Pulau Recreational Park

Pad Nunok, Tutong	Wasai Batu Mapan Recreational Park
Kiudang, Tutong	Wasai Bedanu Recreational Park
Merimbun, Tutong	Tour guides - Tasek Merimbun Heritage Park
Amo, Temburong	Tour guides & transportation to Ulu Temburong National Park

Success in the booming ecotourism industry undoubtedly is due to promoting the country's rich flora and fauna and intact tropical rainforest under the motto "the Green Heart of Borneo". Other notable examples of 'One Village, One Product' are:

Village	Products
Lumapas, Brunei-Muara	Herbal and medicinal
Pengkalan Batu, Brunei-Muara	Gaharu [Aquilaria spp] derivatives and herbal
Tanjong Maya, Tutong	Gaharu [Aquilaria spp] derivatives
Bukit, Tutong	Handicrafts
Sungai Liang, Belait	Handicrafts
Bukok, Temburong	Handicrafts

5. Challenges and Issues

Given the country's declining dependence on oil and natural gas, Brunei is taking a close look at the wide array of socioeconomic and environmental benefits that forests provide. Strong support from all stakeholders to achieve sustainable forest management will ensure that the development of its vast forest resources will not jeopardize the health of the environment. A challenge for the Forestry Department and community forestry is to show how the preservation of Brunei's forests is explicitly linked to long-term national interests, including the country's ambitious economic diversification program to offset falling revenues from oil and gas.

Rising global temperatures associated with alarming forest depletion and increasing greenhouse gas emissions from various sources, forest conservation, including through community management is timely and relevant.

6. Future Trend

The Forestry Department is committed to improve governance, build technical capacity, increase stakeholder participation at district and village levels, and draw on the expertise of local communities to conserve and protect the country's valuable forest resources.

As a forest-rich nation in a climate conscious world, new and emerging mechanisms that

are placing a monetary value on carbon stocks provide incentives to countries such as Brunei to keep forests intact. Negotiations to set the parameters for reducing emissions from deforestation and forest degradation (REDD+) will help to finance sustainable forest management and diversify sources of income of forest-dependent people, as will community-based ecotourism and payment for ecosystem services.

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Community Forestry Development in Cambodia

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Cambodia

1. Country Profile

1.1 Physical and Demographic Features

Cambodia is located in Indochina and shares borders with Thailand, Lao and Viet Nam. Its climate is tropical: monsoon season from May to November and dry season from December to April. Land area is 181,035 km², divided into 24 provinces, 185 districts, 1,621 communes and 14,073 villages. In 2008, population numbered 14 million and, between 1997 and 2003, annual growth averaged 2.9%. In 2003, density was 75 people per km², more than 84% of whom live in rural areas. Approximately 51.4% of Cambodians are female.

Life expectancy at birth increased from 39 years in 1980 to 50 years in 2001. The adult illiteracy rate decreased from 45.5% in 1980 to 31.3% in 2001. Despite these positive developments, Cambodia still faces many challenges in achieving the same level of socio-economic development as other ASEAN countries. Some 36% of its citizens live below the poverty line, earning US$0.46-0.63/day. GDP per capita was $310 in 2003, the second lowest among members of ASEAN. About 30% of the population has access to clean water, far below the average of 75% in other low income countries in 2002. Infant mortality is 96 per 1000 live births, one of the highest in the region.

1.2 Socio-economic Conditions

Cambodia is recovering from a prolonged civil war and political turmoil which began in the 1970s and lasted more than 20 years. During that time, basic infrastructure such as roads, bridges, irrigation systems, schools, health centers, and water supply systems were destroyed. The judicial, legislative, and administrative systems were devastated as well, in addition to extensive loss of human life. When peace returned in 1998, Cambodia held its first general election and the new democratic government is now pursuing economic development in an open market. The country joined ASEAN in 1999 and the World Trade Organization in 2004.

1.3 The Economy

The level of Cambodia's development has risen over the last two decades, although it suffered setbacks during the regional economic crisis and domestic political turbulence in 1997-1998. GDP rapidly increased from US$2.5 billion in 1993 to US$4.4 billion in 2003. From 1993 to 2003, annual growth in GDP averaged 6.5%. The manufacturing and industrial sector's share of GDP went from 12.9% in 1993 to 28% in 2002. Major industries are textiles and garments, beverages, food processing, and wood processing. Major exports are garments, textiles, sawn products, wood furniture, and rubber.

1.4 The Forestry Sector

The Kingdom of Cambodia is known as a country with rich forests and natural resources. According to the Food and Agriculture Organization of the United Nations, forests totaled more than 13 million hectares in the 1960s, more than 70% of Cambodia's land area of about 18 million ha. However, over the past 40 years - especially after the civil war - deforestation and forest degradation have been ongoing. Forests covered an estimated 10.6 million hectares in 1997 (about 60% of land area). It increased to 61% in 2002 and stood at 10.73 million ha (59.09%) in 2006. The main causes of deforestation and forest degradation are illegal logging, activities in economic land concessions, and expansion of agricultural land due to population growth and economic development.

Forests are critical for the ecological functions they perform (ecosystem preservation, biodiversity conservation, and protection of soil and water) and for their contributions to the socio-economic development of the country. Of the more than 84% of Cambodians who live in rural areas, 91% depend on these resources for both consumption and income generation.

The second Socio-Economic Development Plan (SEDP II) - the framework for poverty reduction and growth in Cambodia - provides a mechanism to involve relevant and interested stakeholders in the sustainable development and use of natural resources, in social and cultural preservation, and in environmental protection. In institutional terms, the forest sector comprises different actors, offers incentives to behave in responsible ways, and determines the form that policy takes on the ground. The Royal Government of Cambodia (RGC) has declared its intention to increase reforestation by increasing the participation of the private sector, local communities, armed forces and all levels of authority (RGC, 2003). It supports community forestry which local communities initiate, with assistance from non-government organizations.

Under the new forest law, permanent forest reserves are classified into (1) production forests, (2) protection forests, and (3) converted forestland for other development purposes. Protection forests cover 43.84% of Cambodia's total forest area, the highest percentage among countries in the region. They are maintained primarily to protect forest ecosystems and their functions include:

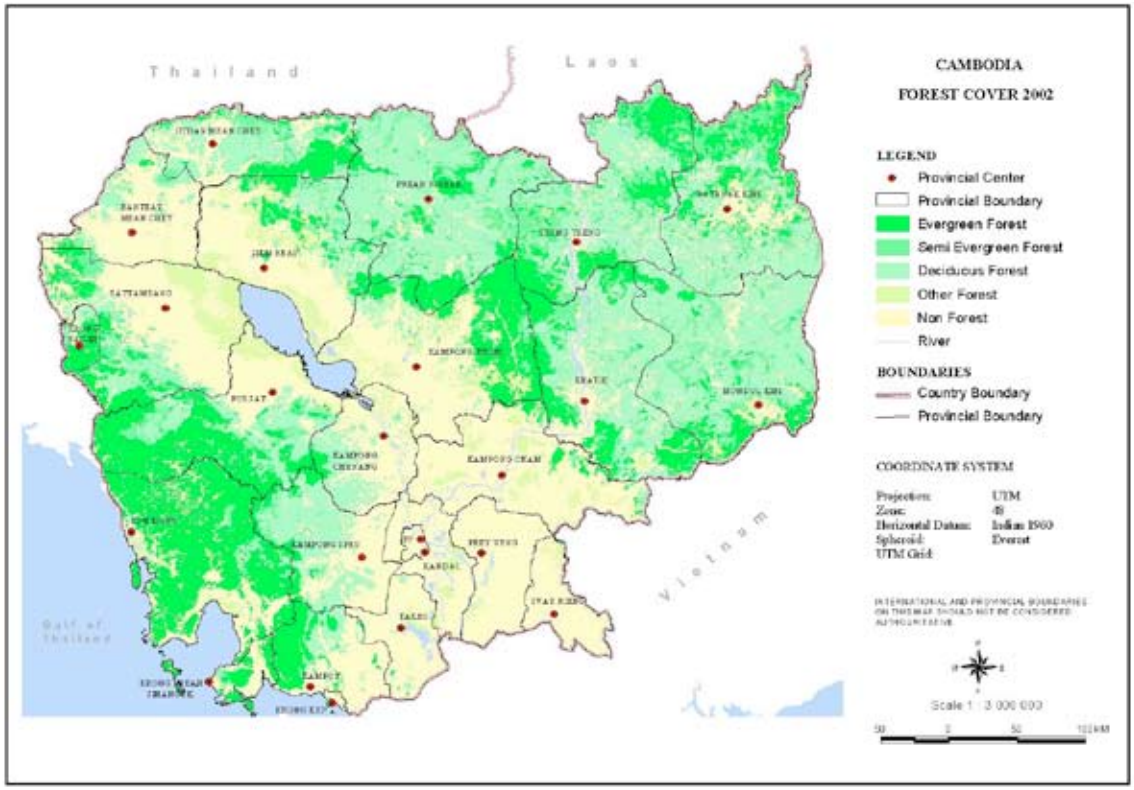
- the management of special ecosystems
- research
- regulation of water
- watershed management
- recreation

- botanical gardens
- religion purposes

Table 1: Forest Cover in Cambodia, 2002

No.	Forest Type	Area (ha)	%
I.	FOREST	11,104,293	61.15
1	Evergreen	3,720,493	20.49
2	Semi-Evergreen	1,455,183	8.01
3	Deciduous	4,833,890	26.62
4	Other Forest	1,094,728	6.03
II.	NON-FOREST	7,056,383	38.85
Total		18,160,677	100

Source: FA, 2004, Forest Cover in Cambodia



Source: FA, 2004, Forest Cover in Cambodia

Table 2. Forest Allocation in Cambodia, 2007

Types of Forests	Area (ha)	Percentage[1]
Forest protection[2]	4,704,500.00	43.84
Community forests[3] (264)	179,019.80	1.67
Forest concessions[4]	3,374,328.00	31.45
Economic land concessions	773,877.00	7.21
Other	1,699,056.20	15.83
Total	10,730,781.00	100 %

Table 3. Estimated Forest Cover 1965-2006

Year	Land				Total Area(Ha)
	Forest		Non-forest		
	Ha	%	Ha	%	
1965	13,227,100	73.04	4,883,400	26.96	18,110,500
1992/93	10,859,695	59.82	7,293,290	40.18	18,152,985
1996/97	10,638,209	58.60	7,514,776	41.40	18,152,985
2002	11,104,293	61.15	7,056,383	38.85	18,160,677
2005/06	10,730,781	59.09	7,429,893	40.91	18,160,674

2. Community Forestry in Cambodia

2.1 Historical Development

Traditional use of forest resources has been practiced in Cambodia for decades, especially by hill tribes in the uplands. Since 1990, the Department of Forestry and Wildlife has been collaborating with international organizations to implement community forestry in various provinces such as Takeo, Kampong Chhnang, Pursat and Siem Reap. Efforts focused on the development of guidelines, a program, and an information system. Small pilot projects demonstrated the considerable potential of community forestry to protect forests, enhance their productivity and support rural livelihoods while stabilizing critical watersheds and ecosystems at the same time.

[1] Percentage of total forest cover

[2] Includes protected forests (1,490,500 ha) and protected areas (3,214,000 ha) under FA and MOE respectively

[3] Source: Forestry Statistic in Cambodia, 2007

[4] Source: Forest Management Office

In 1996, the Department submitted a sub-degree on community forestry to the Ministry of Agriculture, Forestry and Fisheries (MAFF). Approval was then sought from Council Ministers who asked that it be revised.

In 1998, a project focusing on sustainable management of resources in the Lower Mekong Basin (SMRP-MRC/GTZ) established a working group to facilitate the implementation of community forestry. Its tasks included improving coordination among the institutions and organizations involved, assisting with the development of policy, technical and legal support, and providing a venue for stakeholders to address issues and exchange information. From 1998 to 2001, a Cambodia Community Forestry Training Team composed of staff from the Ministry of Environment, MAFF, Royal University of Agriculture and CONCERN World Wide strengthened the capacity of practitioners and government employees to engage in community forestry.

The Forest Law of 2002 (RGC 2004) gives the Forestry Administration (FA) the authority to grant areas of production forests in the permanent forest estate to local communities in order for them to manage and benefit from the resources found therein. In December 2003, the RGC approved the sub-decree noted above - a historic move which saw community forestry shift from informal projects to a formally adopted national strategy.

In 2006, the National Forest Program (NFP) called for the decentralization of four types of forest management: community forestry; community conservation forestry in protected forests; partnership forestry where commune councils are closely involved; and community-based production forestry in areas that have commercial potential.

Community forestry in Cambodia now rests with the Community Forestry Office (CFO) of the FA which is under the Ministry of Agriculture, Forestry and Fisheries (MAFF). As of April 2011, its database shows that 430 community forests are spread over 377,502.6 hectares - 3% of total forest area. Some 710 villages, 215 communes, 87 districts, 20 provinces and 107,125 households are involved. So far, MAFF has issued proclamations (prakas) for 261 sites (226,126.6 ha) in 18 provinces, 115 of which have signed agreements covering 138,824.61 ha.

Table 4: Community Forests by Province, April 2011

No.	Provinces	No.	CF Area	Approved by MAFF	CF Area	Forest Cover (ha)	
		of CF	(ha)	No. of CF	(ha)	2005-2006	CF (%)
1	Banteay Meanchey	11	4,970	11	4,970	102,965	5%
2	Battambong	17	5,415	13	3,531	535,647	1%
3	Kampong Cham	10	3,480	5	1,783	161,478	2%

4	Kampong Chhnang	33	10,910	15	6,715	207,891	5%
5	Kampong Speu	22	12,563	15	5,678	410,857	3%
6	Kampong Thom	82	80,908	57	48,479	618,694	13%
7	Kampot	27	12,530	8	3,815	618,694	13%
8	Kohkong	2	3,638	2	3,638	970,490	0%
9	Kratie	35	54,357	11	21,558	935,464	6%
10	Mundulkiri	4	4,176	0	0	1,240,937	0%
11	Preah Vihea	21	45,344	18	37,063	1,309,210	3%
12	Pursat	56	7,286	38	2,783	885,440	1%
13	Ratanakiri	31	20,699	9	908	948,754	2%
14	Siem Reap	37	18,122	37	18,122	476,824	4%
15	Stung Treng	6	14,838	0	0	1,046,172	1%
16	Svay Rieng	2	504	2	504	11,931	4%
17	Takeo	13	10,791	1	557	15,327	70%
18	Oddar Meanchey	14	65,105	14	65,105	457,131	16%
19	Kep	3	1,009	1	60	3,165	32%
20	Pailin	4	858	4	858	53,112	2%
Total		**430**	**377,502.6**	**261**	**226,126.6**	**11010183**	**3%**

Source: CFO/FA, 2011

2.2 Policy and Legal Framework

2.2.1 National Legal Framework

To ensure sustainable forest management, measures must be taken to protect forest resources, especially the permanent forest estate, from encroachment and people who depend on them for subsistence must be involved. In Cambodia, both legislative and executive bodies have adopted and promulgated the Statement of Forest Sector Policies, Laws, and Regulations to manage the permanent forest estate, production and protection forests, and other forestlands. Some of the most important laws and regulations are summarized below.

Sub-decree on Forest Concession Management (February 2000) is the first to provide both the legal and technical base for the management of forest concessions in Cambodia.

Statement of the Royal Government on National Forest Sector Policy (July 2002) outlines commitments related to conservation, good governance, socio-economic development, poverty

reduction and sustainable management of the country's unique forest resources. This policy takes into account the results and follow up to the United Nations Conference on Environment and Development which was held in Rio de Janeiro in 1992.

Forestry Law (August 2002), promulgated by the King, mandates the Forestry Administration to manage forest resources from national down to local levels. It was developed in a participatory manner by all stakeholders interested in forestry.

Sub-decree on Community Forestry (November 2003) was also developed through a nationwide participatory process, led by a task force on community forestry.

Proclamation (Prakas) on Community Forestry, promulgated by MAFF at the end of 2005, outlines the rules for establishing and operating community forestry throughout the Kingdom of Cambodia. It also provides guidelines to 1) promote the effective participation of local communities in sustainable forest management; 2) help communities to develop plans for implementing this approach and for monitoring and evaluating progress; 3) determine roles, duties, organizational structure and communication strategies for good coordination and cooperation; 4) enhance techniques to better manage community forests; and 5) disseminate information on community forestry to increase understanding of activities.

2.2.2 The Rectangular Strategy for Growth, Employment, Equity and Efficiency

The Rectangular Strategy is the framework for Cambodia's socio-economic development. With regard to forestry, the document notes the need for:

- a clear forest management policy and strict control of logging activities, in accordance with accepted international standards
- a system to protect natural resources and to conserve biodiversity and rare species
- the further development of community forestry which ensures the participation of local communities in reforestation.

2.2.3 National Forest Policy

Based on the goals of environmental protection, biodiversity conservation, poverty reduction, socio-economic development, and good governance, the Statement of the Royal Government on National Forest Sector Policy commits to the conservation and sustainable management of the country's forest resources. It is consistent with the Rectangular Strategy, Forestry Law, relevant regulations, and the National Forest Program. More specifically, the policy contains the following provisions:

- The conservation and sustainable management of forest resources shall provide a maximum contribution to the sustainable socio-economic development of the

Kingdom of Cambodia.

- The country's remaining forest resources shall be considered as a permanent forest estate and their conservation and sustainable management shall contribute to the rehabilitation and conservation of a maximum stock of forested land and forest resources.
- The private sector and the local population shall be involved in conservation and sustainable forest management initiatives to the maximum extent possible in order to achieve food security, poverty reduction and socio-economic development.
- A wide range of coordinated multi-stakeholder processes shall be implemented to harmonize the different perceptions, interests and objectives of forest groups at all levels.
- Support will continue for the reforestation of arable land as well as for the protection and development of forest resources.

2.2.4 National Forest Programs

The Royal Government of Cambodia acknowledges the international issues, processes, commitments, and follow-up processes which arose from the United Nations Conference on Environment and Development and are relevant to the country's forest resources. In particular, it envisions the implementation of a long term National Forest Program, consistent with outcomes of the Intergovernmental Panel on Forests, the Intergovernmental Forum on Forests, and the United Nations Forum on Forests.

Working closely with development partners through the Technical Working Group on Forests and the Environment (TWG-F&E) and with appropriate government institutions, civil society, and the private sector, the Forestry Administration has developed its own national forest programs, all of which contribute to combating desertification. Among the most relevant are forest law enforcement, forest management, and reforestation. As noted previously, the major cause of deforestation is the conversion of forestland to other uses through clearing and encroachment - activities that leave the affected areas unprotected and subject to soil depletion. Such occurences have prompted the RCG, as a matter of priority, to protect forest ecosystems from environmental degradation, to engage in reforestation, to plant trees on bare land, and to rehabilitate degraded forests through afforestation.

2.3 Community Forestry and REDD

Cambodia has been working on REDD+ since the 13th Conference of the Parties to the United Nations Framework Convention on Climate Change decided to include it in the Bali Roadmap in December 2007. Early in 2008, Prime Minister Akka Moha Sena Padei Techo HUN SEN approved a pilot project and, by the end of 2009, an inter-ministerial committee

completed the REDD+ Roadmap. At present, the country is member of the REDD+ Partnership, the Forest Carbon Partnership Facility and the UN-REDD Programme.

In November 2007, Community Forestry International submitted a REDD project to the TWG-F&E for 64,255 hectares of community forestland in the province of Oddar Meanchey. The proposal involves 13 groups in 52 villages and expects to sequester 7.1 million metric tons of CO^2 over 30 years to show how developing countries can generate income from the carbon market and mitigate climate change.

Activities support sustainable forest management and improve livelihoods by selling carbon credits from forest protection and regeneration. The project not only assists rural people in gaining legal tenure rights over local forests, but its 30-year duration will ensure capacity is built to effectively manage natural resources. Maintaining or increasing carbon stocks in these areas will enhance the hydrology in the upland watersheds of the Tonle Sap Basin, conserve biodiversity, and reduce threats to endangered species. Revenue from carbon sequestration will support rural communities to diversify sources of income, including through the establishment of enterprises for non-timber forest products, community-based ecotourism, and water resource development. The project will work with the Forestry Administration and the commune, district and provincial governments to formulate plans for the sustainable management of natural resources as a means to foster economic growth.

Success depends on strengthening community capacity to protect forests and, in this regard, the institutional, technical, and political support of the Forestry Administration is essential. Other planned activities include assisted natural regeneration and enrichment planting to enhance carbon sequestration in degraded forests and to reduce soil erosion. Long-term goals are to improve livelihoods, create employment, help to devolve forest management rights to poor people, alleviate poverty, and demonstrate the viability of utilizing carbon offset credits to finance community forestry.

The Forestry Administration is implementing the project, in collaboration with Pact Cambodia, Children's Development Association, the Buddhist Monk's Association, and the communities of Oddar Meanchey Province. Terra Global Capital is the marketing agent and is responsible for development of the methodology. It has also invested its own resources.

DANIDA, DFID, NZAID, through the TWG-F&E, assisted with project preparation and the Clinton Climate Initiative provided additional support. An American law firm voluntarily provided advice on the project agreement and developed the Emission Reductions Purchase Agreement. Oxfam (Great Britain) also provided funds to the Children's Development Association to work with community forestry.

Figure 2. Forest Cover in 2006 and Site of REDD in Oddar Meanchey

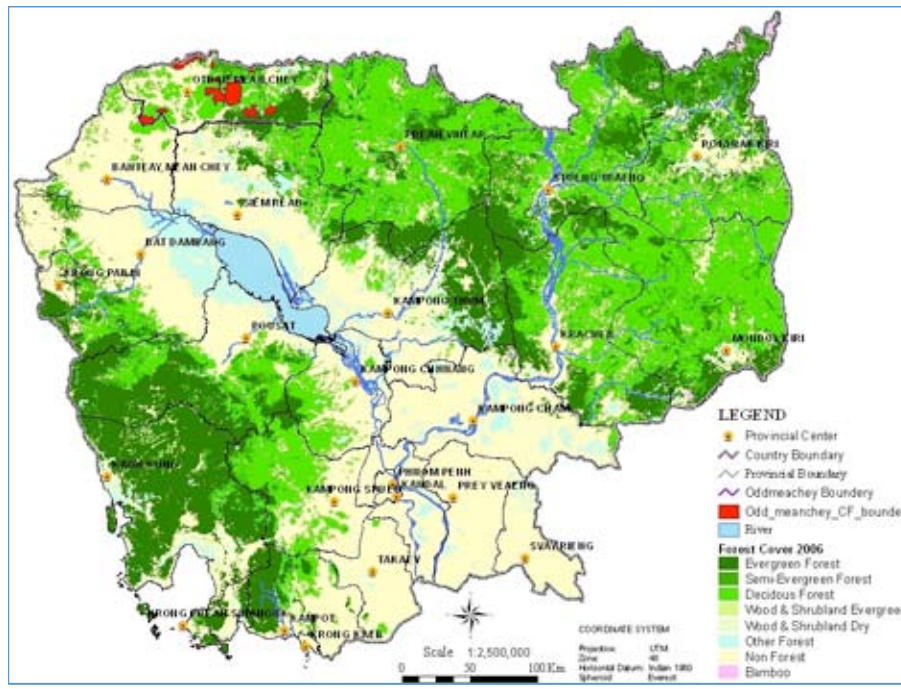
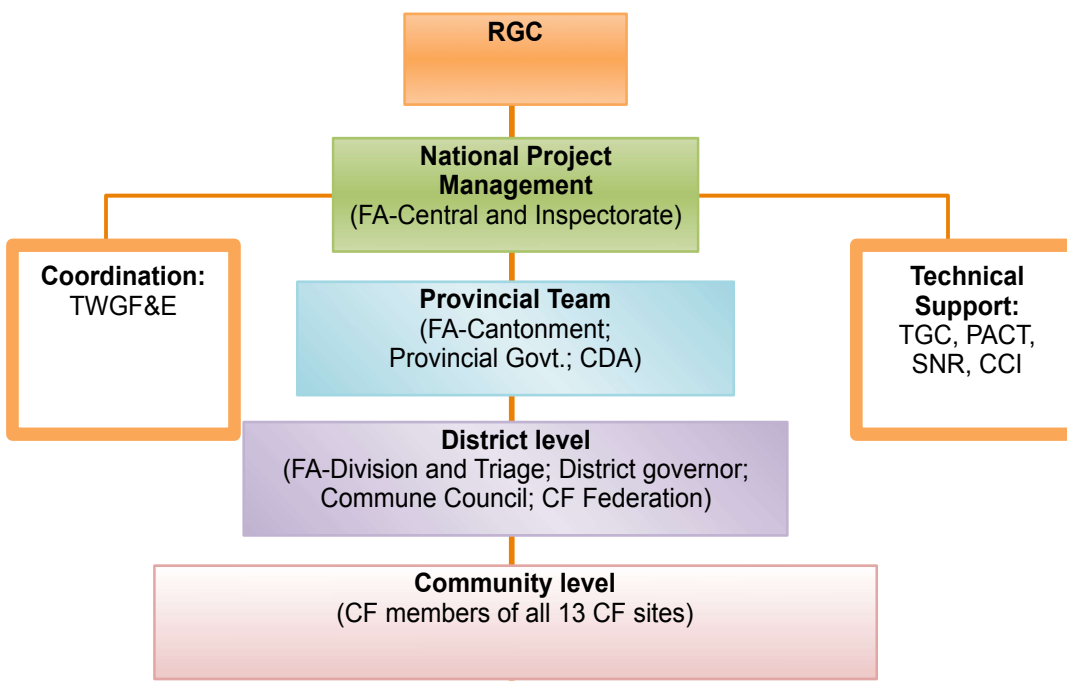


Figure 3: Management Structure for the Community Forestry REDD Project



3. Best Practices and Lessons Learned

The success of community forestry in Cambodia is attributed to 4 main factors:

Forestland Tenure

- Approved by MAFF
- Agreements signed between communities and the Forestry Administration
- Clear boundaries demarcated with poles
- Secure tenure granted with the establishment of the community forest

Forest Quality:

- Number of trees
- Standing volume
- Forest cover
- Wildlife

Participation:

- Local community
- Inclusion of women
- Positive influence of monks
- Community forest initiated by commune
- Support from Forestry Administration

Benefits:

- NTFPs for household consumption
- Protection against erosion
- Clean source of water.

The lesson learned from the development of community forestry are:

- Technical support from FA is essential.
- Support and participation of the commune, district and province are key.

- Only one community should manage one forest.
- Participation should be voluntary.
- Community forestry increases income and improves livelihoods.

4. Issues and Challenges

4.1 Issues

Regulatory Framework

- Access to forest resources by forest-dependent communities and other stakeholders is still limited. In addition, the absence of clear guidelines and criteria make it difficult to identify the potential location of community forests in areas where forest concessions and economic land concessions have been suspended.
- Secure tenure is not guaranteed after the 15-year community forestry agreement expires and the criteria for assessing management performance are uncertain - problems which reduce the incentive to invest time and money.
- The rate of taxation/royalties fluctuates and economic uncertainty makes investment risky.
- The legal framework is not only complicated but it only grants limited power to community management committees to impose sanctions on outside perpetrators for illegal activities. Moreover, there is no legal basis to allow communities to benefit from commercializing products from their forests. Conflicting land uses associated with forest concessions, economic land concessions, plantations, agriculture, and mining, for example, need to be solved urgently.
- Communes are not currently responsible for forest management (Article 45 of the Law on Commune/ Sangkat Administrative Management, RGC 2001) - a situation which must change if partnership forestry is to be mainstreamed.

Institutional Framework

- Tenure is not secure because government still does not recognize many community forestry organizations and areas. Thus, communities have little motivation and incentive to invest time, effort and resources. Delays in obtaining official status also discourages participation and communities often choose to engage in alternative land uses because they consider community forestry too heavy a burden.
- The FA lacks dedicated, trained and motivated staff to support the development of

community forestry.

- Insufficient attention is paid to community forestry and stakeholders have little knowledge of basic silvicultural techniques to increase growth and quality of desired products, whether in natural or in planted forests.
- Participation of communities and user groups in the design of projects and in forest management is relatively new and limited.

Socio-economic

- Community forestry and the aspirations of indigenous people are not always recognized and prioritized, thus do not provide the incentive to invest in sustainable forest management.
- Limited technologies, skills, and access to capital reduce opportunities to improve livelihoods in community forestry areas.
- The development of community forestry is under-funded and done principally through donor supported short-term projects. Sustainable funding mechanisms need to be developed and made available to communities, including a system to generate revenue from carbon trading.

Environmental

- Deforestation and large-scale conversion to farming and commercial plantations continue to threaten natural forests.
- Agriculture remains the main source of livelihood in rural areas. Proper cost-benefit analysis is usually not undertaken before making decisions to convert forestland to other uses which are seen as more economically attractive, despite the critical role that forests play in mitigating climate change.

Costs

- The costs associated with the establishment of community forests are high.

4.2 Challenges

- Forests are converted to other land uses or forest management and the development of community forestry is not prioritized.
- Costs outweigh benefits and other land uses are more profitable.
- Community capacity to protect and manage forests is weak, as is the capacity and motivation of FA staff to support such efforts.

- Technical know-how and equipment to process non-timber forest products is insufficient.
- A plan for the development of community forestry has not been formulated.
- Community forests do not yet response to local needs.
- Funding is inadequate.
- Collaboration among local authorities, communities and other government agencies needs to be strengthened.
- The process to delegate forest management to communities is unclear and the framework to address the problems identified above needs to be revised.
- Cambodia is expected to suffer serious consequences if appropriate measures are not taken to mitigate climate change.
- The volatility of carbon markets to pay developing countries to reduce emissions from avoiding deforestation and forest degradation could affect the viability of community forestry.

5. Future Outlook

At the end of 2010, the RGC issued a revised NFP for the period 2010-2029 which reflects its commitment to sustainable management, economic development, a healthy environment and livelihood improvement. The document describes a vision for sustainable forest management which aims to provide a continuous flow of benefits to Cambodians. It also states the government's intention to implement a cross-sectoral approach to address issues - one which involves communities, the private sector, civil society, and development partners - and it lists planned activities to reduce carbon emissions from deforestation and forest degradation.

5.1. Forest Demarcation, Classification and Registration

As part of efforts to slow the rate of forest loss, improve livelihoods, reduce threats to the environment, and strengthen governance, the NFP calls for the demarcation, classification and registration of the country's permanent forest estate. Plans are to develop a systematic, transparent and participatory approach which is harmonized with other legal frameworks so that conflicts surrounding ownership and user rights are minimized. Activities include:

- Demarcation and registration of the permanent forest estate
- Mapping and registration of the permanent forest reserve

- Forest classification according to function
- Update of the forest cover map.

5.2. Conservation and Development of Forest Resources and Biodiversity

In line with NFP objectives, the sustainable management and conservation of forest resources focus on the implementation of current and emerging models and on ways to add value to forest products to increase the sector's contributions to poverty alleviation, livelihoods, and economic development while safeguarding the environment. Activities include:

- The development of forest management plans
- The development and management of production forests
- Monitoring, assessment and reporting on sustainable forest management
- Conservation of biodiversity and wildlife
- Conservation and development of genetic resources and seed sources
- Tree planting and establishment of forest plantations
- Development of forest products and market promotion
- Development of wood technology and processing methodologies
- Forest certification.

5.3. Forest Law Enforcement and Governance

Sustainable forest management calls for strong law enforcement and governance based on domestically driven verification systems. It also requires national and regional coalitions, as well as government commitment to the process. In this regard, Cambodia has been working with other ASEAN countries to counter further forest degradation and loss of biodiversity. Agreements to curb illegal cross-border trade in timber and endangered wildlife have been signed at the prime ministerial and ministerial levels with Lao, PDR, Thailand, and Viet Nam. Priority actions include:

- Legal and administrative reform
- Law enforcement
- The monitoring of and reporting on crime
- Rapid response to information on forest crime

- Conflict resolution

5.4. Community Forestry

During the past five years, the FA has established a coherent community forestry program in Cambodia which comprises a clear policy, a sub-decree, guidelines, a functional mapping/ GIS unit, training materials, and a National Community Forestry Coordination Committee. The program is an integral part of the NFP to achieve good governance and sustainable forest management. It will also help to reach the target of 60% forest cover by 2015, as stipulated in the Cambodian Millennium Development Goals.

Main achievements are:

- Decentralized management of community forestry, community-based production forestry, partnership forestry, community conservation forestry
- Identification and formalization of community forests
- Development of communities, institutions and livelihoods
- Services to support the development of community forestry.

5.5. Development of Capacity and Research

Assistance to develop the capacity of the forest sector has been received over the past years but several gaps still need attention to advance the FA into a full-fledged contemporary forest authority.

- Human resource development
- Education and institutional development
- Forestry extension and public awareness
- Research.

5.6. Sustainable Forest Financing

Sustainable sources of funding forest management include:

- Government financing
- Investment from the forest sector, the private sector and community forestry
- Donor assistance - as long as it is ongoing
- Payment for environmental services and carbon credits.

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Community Forestry Development in Lao PDR

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1. Historical Developments and Drivers of Change

The evolution of forest management in Lao PDR took place in three stages: (i) from under the rule of local lords to open access; (ii) state consolidation; and (iii) decentralization.

Prior to the establishment of Lao PDR in 1975, people had open access to forest land and resources, mostly for household consumption and wood processing on a small scale. Forest management was weak, and had no basis in law. During this period, forest change caused by human activities was low, except during the war between the United States of America and Viet Nam when large portions of the country's forests were heavily damaged, especially along the Ho Chi Minh Trail. In addition, unexploded ordinances made access dangerous and hindered forest management.

In the 1980s, economic restrictions were relaxed and efforts focused on recovery and reconstruction. At this time, forests were either heavily logged for export or converted into agriculture land. The main objectives of the sector were to utilize forest resources for the welfare and development of the population and to create capital. Between 1975 and 1980, nine state forest enterprises were established with domestic and foreign funds, many of which were equipped with state-of-the-art heavy logging machinery and large-scale wood processing capability. Each enterprise was given 200,000 to 300,000 ha of production forests to manage - activities which involved planning, harvesting, planting, protection, processing, and product export (MAF, 2004). However, their management generally concentrated on logging and wood processing rather than on sustainability or environmental considerations. Villagers were hired as unskilled labourers, for example, to act as forest guides, clear lines, and provide food for other workers. Although regeneration and reforestation formed part of management plans, these aspects were given little attention. Ultimately, the enterprises proved to be inefficient and were dismantled by 1991.

In May 1989, the first national conference on forestry highlighted growing concern over deforestation. The event signalled the beginning of efforts to achieve sustainable forest management and highlighted the importance of involving local people. It also pointed the way for a new direction in forest policy in Lao PDR which called for the conservation of biological diversity through better management, the wise use of forests for the country's economic development, and the improvement of livelihoods, especially in the upland area.

Rural communities have been practicing community forestry for centuries but government programs only began in the early 1990s, mainly to alleviate poverty. The first project called "Joint Forest Management," in the Dong Khapo State Production Forest was funded by the Lao-Swedish Forestry Program in 1993. The Forest Management and Conservation Project (FOMACOP) in Savannakhet and Khammouane provinces followed 2 years later, with support from the World Bank, the Finnish International Development Agency, and the Global Environmental Facility. Other projects since then include the Forest Conservation

and Afforestation Project in Vang Vieng, funded by the Japanese International Cooperation Agency; the Industrial Tree Plantation Project of the Asia Development Bank; and the Training and Model Forest in Vientiane, funded by GTZ. As of 2010, community forests covered 150,000 ha or about 1.3% of total forest cover (Braeutigam 2003:63).

2. Supportive Policies

Community forestry is based in law and backed by government as well as national and international organizations. Its stated purpose is to improve livelihoods and forest resource management. Despite these common goals, practices, institutional structures, forest conditions, and outcomes differ widely within the Mekong region.

Production forests and the sharing of timber revenue with villages are the primary focus, although some reforestation is undertaken. Unlike in Cambodia, the promotion and administration of community forestry is vested in central authorities from the Ministry of Agriculture and Forestry (MAF) and the National Agriculture and Forestry Extension Service (NAFES). The Department of Forestry (DoF), the National Agriculture and Forestry Research Institute (NAFRI) and the Department for Land Planning and Management play a supporting role.

Lao PDR has no formal policy for the forestry sector. Rather, guidance is given through such means as occasional statements, objectives in plans and programs, and declarations at national events. This approach leads to wide interpretation of intent, variations in stated priorities and general confusion.

As noted earlier, the first national forestry conference in 1989 emphasized the importance of healthy and productive forests to rural livelihoods and set forth the three policy directions noted above. These were reflected in the 1990 National Forestry Action Plan (NFAP) which the government approved the following year. Donors assisted with implementation of six major programs that, for the first time, called for the participation of stakeholders. In addition, the adoption of recommendations of the Tropical Forest Action Plan led to the formulation of forest decrees and laws. For example, the Prime Minister's Decree No.169 acknowledged the rights of villagers to use forests and non-timber forest products (NTFPs) in accordance with village regulations. This decree was replaced by the Forestry Law in 1996.

The development and promulgation of several legal instruments provided the framework to implement NFAP programs and support community participation in forest management. The most relevant are the Council of Minister's Decree No. 117 (1989); Prime Minister's Decree No. 169 (1993); Prime Minister's Decree No. 186 (1994); and the Forestry Law (1996). Interpretation of their provisions is found in a number of ministerial instructions, orders, and guidelines.

The 2004 National Growth and Poverty Eradication Strategy stresses the importance of forest resources for poverty eradication and highlights the need for community participation in the planning and management of natural resources, as well as in the preservation of culture.

The Forest Strategy 2020, adopted in 2005, recognizes the significance of forest resources for the improvement of local livelihoods and community-based forest management figures prominently as a major thrust. The document also provides clear objectives and targets to achieve sustainable forest development by 2020. Its objectives are to (i) maintain a healthy and extensive forest cover as an essential support to rural livelihoods, including to provide a stable water supply and mitigate natural disasters; (ii) generate a sustainable stream of forest products for domestic processing and consumption, increase exports, and create employment; and (iii) preserve threatened species and unique habitats.

More specifically, government recognizes the following rights and duties of villages with regard to land and forest resources: (i) as an implementing unit of government; (ii) ownership; (iii) customary use; (iv) management; (v) monitoring, control and enforcement; and (vi) resolution of disputes.

3. Successful Practices and Experiences

The Forest Management and Conservation Programme (FOMACOP) has received much attention both at home and internationally because it occupied two thirds of the total area dedicated to community forestry in Lao PDR and because of the controversy surrounding its termination. During the implementation phase (1995-2000), forest management plans were prepared and executed in approximately 100,000 ha of production forests in 41 villages in the provinces of Savannakhet and Khammouane. According to the chief technical advisor of the project, each village received a net revenue of US$ 3,400 from the harvesting and sale of timber on a low-intensity and sustainable basis. Approximately one quarter of this amount was channelled back into sustainable forest management and divided among 33 village forestry associations. The rest was allocated to village development.

Again according to the advisor, even though the proportion of money that went to villagers seemed modest, it was relatively high compared with the general income level in the region (Katila 2000:3). However, the government did not view the FOMACOP experiment favourably because, among other reasons, it believed timber wealth should be distributed evenly among the national population, not only people living in the midst of abundant forests. After reviewing other models, authorities decided not proceed with the planned extension of the project. Instead it adopted a similar approach in 2003 under an initiative supported by the World Bank, entitled Sustainable Forestry and Rural Development (SUFORD). It now serves as the basis for introducing community forestry to production

forests nationwide. The goals are to institutionalize the management of production forests, alleviate rural poverty, contribute to socio-economic development, and protect biodiversity.

4. Lessons Learned

One of the main challenges to alleviating poverty through community forestry in Lao PDR is the absence of a benefit sharing mechanism that, on one hand, provides sufficient economic incentives to villages and, on the other hand, distributes timber wealth in an equitable way to non-local stakeholders. Another problem is the country's system of land use planning and allocation. Although its aim is to provide secure tenure to rural households, encourage private investment, reduce shifting cultivation by promoting sedentary agriculture, and conserve forest resources, only about 5,400 villages - half the villages in Lao PDR - have completed the process. Moreover, flawed implementation resulted in land not being redistributed to disadvantaged groups and the area for agricultural production being reduced in some rural communities - factors which have had a negative impact, especially on ethnic minorities (Braeutigam 2003:49). Chamberlain (2002:1) attributes a major cause of poverty in Lao PDR to the government's relocation program and land-forest allocation system because they deprive some people of their land and customary practices. Therefore, reform in these areas would improve the implementation of SUFORD and other community forestry initiatives. Weak capacity of government to deliver services is another obstacle.

Some proponents argue that community forestry in Lao PDR should pay more attention to non-timber forest products (NTFP). Foppes & Kethpanh (no date) point out that the policy to alleviate poverty focuses on production forests, in spite of the fact that they are accessible to far fewer villages than those which can be used to collect NTFPs - an important source of income. MAF supports this is position as well.

Experiences have also shown that:

- Involving local people in forest management is a long-term process, multidisciplinary in terms of subject areas, and needs continuous government support.
- The level of participation affects the extent to which communities contribute to forest management but does not guarantee social acceptance.
- The preference of partners and the type of resources available influence the kind of management schemes that are applied. For example, collaborative forest management is more popular than participatory forest management in state production forests, regardless of the level of participation.
- Expansion has been slow due to several reasons, including insufficient budgets

and human capacity, lack of supporting legal instruments, weak enforcement, and ineffective dissemination. The lack of technical instructions and guidelines hinder progress as well.

- Because donor funded projects are the main vehicle for expanding community-based forest management, the approach has not been streamlined into regular government programs. In spite of increasing efforts, appropriate institutional arrangements are not developed and the roles and responsibilities of stakeholders are not clear.
- The integration of forest management systems into those pertaining to land use would result in a more holistic approach to planning.
- Raising awareness would ensure initiatives continue over the long term.
- Local leadership is a decisive factor in the success of community-based forest management.

5. Challenges and Opportunities

Consolidating, documenting and sharing lessons that have come out of community-based forest management would speed up its wider application but these aspects remain a key challenge. Firm commitment from all stakeholders, strong capacity at the grassroots level and sufficient resources - both human and financial - are also required. Finally, while the development of legal instruments is a difficult task, their enforcement is much more challenging, as is the dissemination of information to the local level.

Strengthening the legal framework entails carrying out the following activities:

- Development and issuance of regulations on the management of protection and regeneration forests
- Clarification of the definition and status of village forests in the Forest Law
- Preparation of technical instructions and guidelines to implement relevant decrees and regulations
- Wider dissemination of legislation to all stakeholders
- Simplifying regulations governing plantations, from establishment to harvest, transport and export
- Establishment of procedures to convert temporary land use certificates to long-term rights (land titles) without undue burden on small holders
- Participatory planning at the village level which reflects actual land and forest use

- Training of MAF staff to draft and enforce legal documents
- Establishment of committees or working groups in different forestry sub-sectors
- Consultation among multi-institutional teams to draft key legislation.

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Community Forestry in Malaysia

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1. Introduction

Malaysia is strongly committed to the implementation of sustainable forest management (SFM), as enshrined in the outcomes of the 1992 United Nations Conference on Environment and Development and the 2002 World Summit on Sustainable Development. The government recognizes that SFM is a means to achieve sustainable development and the Millennium Development Goals, including to eradicate poverty.

SFM is also in line with the Global Objectives on Forests which call for enhancing the livelihoods of forest-dependent people. In this regard, Malaysia has been taking action since the 1950s through projects and initiatives under its Five-Year Development Plan. In the 2005-2010 plan, efforts focused on increasing incomes and involving local communities in the development of forest resources.

The country's legal framework clearly defines the customary rights and tenure of indigenous and local communities in such instruments as the Aboriginal Peoples Act (1954), the Sabah Land Ordinance (1930), and the Sarawak Land Code (1958). In addition, Malaysia has established government agencies specifically to look after their welfare, social rights and development.

Given the importance of forests for economic, social and environmental stability, Malaysia has committed to keep a minimum of 50 percent of land area under tree and forest cover. Currently, the figure is about 56.4 percent. To achieve SFM and ensure that resources continue to perform multiple functions, Malaysia will put in place and review legislation and mechanisms pertaining to the sector, including the Malaysian Timber Certification Scheme which incorporates the principles of tenure and use rights as well as the rights of indigenous people, among others.

2. Protection and Conservation

Up to now, 2.15 million hectares of conservation areas (national parks, wildlife reserves, nature parks, bird sanctuaries and marine parks) have been established outside permanent reserve forests and are fully protected by legislation. In addition, a network of 139 virgin jungle reserves cover 114,237 hectares. They serve as permanent nature reserves and natural arboreta, as control sites to compare harvested and silviculturally treated forests, and as undisturbed natural forests for ecological and botanical studies. With the inclusion of protection forests in permanent reserve forests, estimated area for the conservation of biological diversity in Malaysia is 5.04 million hectares, (25.9% of forested land) or 15.3% of total land area.

Malaysia has also drawn up a comprehensive list of plants and animals to be protected under law, such as the tiger, rhinoceros, slow loris and the bird-wing butterfly. Its 1998

National Policy on Biological Diversity identifies and outlines measures to protect hotspots of high conservation value and the National Bio-Diversity and Bio-Technology Council, established in 2001, provides strategic direction for the conservation of biological diversity and the development of bio-technology in the country.

3. Forest Management

To ensure a continuous supply of wood for timber production, harvesting is regulated by area and/or volume, as prescribed in management plans. The National Land Council allocates an annual felling coupe to each state based on forest inventory data, net area of production forest, and the silvicultural practices in place. Each state must then report to the Council on compliance.

Selective logging of natural inland forests ensures that the trees which remain reach commercial size in 25 to 55 years - when the process is then repeated. In fact, this practice is a form of silvicultural treatment because the gaps which are left after felling promote natural regeneration, as several studies have shown. Logged over forests are silviculturally treated to aid in their rehabilitation only when necessary.

Licences to log in permanent reserve forests are granted exclusively in areas designated as production forests. Protection forests, however, are managed for conservation purposes. Under section 10 (1) of the National Forestry Act (1984), they are classified according to one or more of the functions listed below.

- Soil protection forest
- Soil reclamation forest
- Flood control forest
- Water catchment forest
- Forest sanctuary for wildlife
- Virgin jungle reserve forest
- Amenity forest
- Education forest
- Research forest
- State park

These practices and other administrative policies and institutions are revised from time to

time to meet prevailing challenges and requirements and to improve the management, conservation and sustainable development of Malaysia's natural forest.

4. Forest for People

Forests play a significant role in the socio-economic development of the country. As such, it is in its best interest to conserve and manage forest resources on a sustainable basis. In this regard, Malaysia is strongly committed to bring development to the people, in particular to eradicate poverty, by involving local and forest-dependent communities in government development projects and activities. This approach will ensure they benefit from the country's development and prosperity.

Malaysia has been taking action to improve livelihoods and eradicate poverty of forest-dependent people for decades, incorporating various initiatives in its five-year development plans. In the previous plan (2005-2010), two strategies were implemented to increase incomes: job creation and involvement of local communities in forest development.

5. Tree Planting Along Coastlines

The role of mangroves in protecting coasts against strong waves, wind and currents is well known. On the northwest coast of Peninsular Malaysia, where mangrove forests are intact, the loss of life and damage as a result of tsunamis were less than in areas that were exposed to the open sea. Noting the need to take preventative action to minimize destruction in the future, the Prime Minister called for mangroves to be planted along several coastlines of the country.

In response to this directive, the Ministry of Natural Resources and Environment (NRE) formed a national task force, headed by its Secretary General, to take charge of the program. Since several agencies, both at federal and state levels, share jurisdiction over coastal areas, this committee mainly coordinate activities, provides advice and monitors implementation. Its first meeting in February 2005 was attended by federal and state officials, the private sector and non-governmental organizations.

Three technical committees were established to assist with the work: the Planning and Implementation Committee, chaired by the Director General of the Forestry Department in Peninsular Malaysia; the Research and Development Technical Committee, chaired by the Director General of Forest Research Institute of Malaysia; and the Monitoring Committee, chaired by the Under Secretary of the Biodiversity and Forestry Management Division, NRE.

As of 2010, 5.87 million trees (Rhizophora apiculata, Rhizophora mucronata, Avicennia spp., Bruguiera parviflora, Bruguiera cylindrical, Sonneratia caseolaris, Ceriops tagal, Casuarina equisetifolia) have been planted on 2,260 hectares of coastline.

6. Fish Farming in Valley Ponds

Fish farming is a popular choice among communities in Sabah and Sarawak to satisfy their needs for protein and earn additional cash income. Because red tilapia (Oreochromis sp.) can grow to marketable size in just 6 months under the right conditions, it was introduced as an alternative to indigenous species such as "ikan semah" (Tor douronensis) which take several years to mature.

Fish farming must involve an entire longhouse community due to the high cost of constructing valley ponds - the preferred option over concrete tanks because fish grow faster in running water.

Local participants help to select suitable rivers or streams and are responsible for collecting stones and sand from the waterbed. The Malaysian government and the funding organization estimate, acquire and transport the materials required - cement, iron netting and poly pipes. Experienced staffs from the Forest Department supervise the construction and provide on-site training. Initially, fish fries and feeds are free.

Longhouses participating in these ventures must sign a memorandum of understanding which commits them to look after the fish. A member who fails to do so, when assigned, will pay a fine which is then deposited into a joint bank account. Half the proceeds from the sale of the fish is also deposited in the account: 25% is spent on maintenance and the purchase of fish fry and feeds and the remaining 25% is shared among participants.

To date, 29 fish ponds have been constructed for 27 communities in Lanjak Entimau Wildlife Sanctuary in Sarawak and two schools have been built in the districts of Julau and Kanowit. Fish culture was also introduced to communities in Bario and Ba' Kelalan under the Pulong Tau National Park project.

7. Success and Sustainability

In spite of assistance from the Malaysian government and other organizations such as ITTO, not all initiatives produce the desired results. Success is possible only with effective community leadership, integrity, good planning, stakeholder involvement, and willingness to work on a collaborative basis that puts community interest above self interest. Participants must also be determined to continue activities after project funding terminates.

Other essential elements to ensure success and sustainability include training, awareness/ education and knowledge sharing. Hence, much information and lessons learned have been exchanged among forest managers, rangers and communities - activities which have increased understanding of the government's policy on forest management, nature conversation, and their associated benefits. Hence, many communities have come to realize that sustainable forest management and nature conservation provide clean water, a healthy

environment and, above all, mitigate the impacts of climate change.

8. Challenges

The introduction of community-based activities has not been easy, even though the aim is to help develop entrepreneurial skills to improve livelihoods. Regular field visits and dialogue are necessary to explain the project's objectives and win the trust and cooperation of the people.

Another challenge is to address issues related to poverty, sustainable forest management and climate change in a balanced way, in line with Vision 2020 and new economic models which are being introduced to cope with emerging trends such as globalization. Although the development of community forestry remains a priority, it will never take precedence over sustainable forest management and climate change mitigation.

The need to increase the extension and communication skills of forest managers is also urgent so that they not only act as project managers, but also are an integral part of community efforts to explore, better understand and help to resolve issues.

9. Way Forward

High priority is accorded to training and education to build the capacity of communities to participate in the implementation of Malaysia's Five-Year Development Plan. The current plan provides for these efforts to continue and also promotes the establishment of small-scale enterprises to generate income by processing products derived from herbal plants and other high value resources found in forests. Tree planting and maintenance as well as rubber tapping, for example, also create local jobs.

The establishment of the National Working Group for Social Forestry - led by NRE, with support from forestry departments, other agencies/departments, academicians, researchers, and NGOs - has given new impetus to the development of community forestry. Its main goal is to co-ordinate activities, raise awareness, build capacity and conduct scientific training.

10. Conclusion

Malaysia will continue its commitment to achieve the sustainable management of its natural resources to ensure environmental stability, in particular climate change mitigation and socio-economic development. In recognition of the challenges associated with enforcement and capacity building, it will continue to forge greater cooperation with the international community and civil society.

Community Forestry Development in Mongolia

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1. Overview of the Forestry Sector in Mongolia

Following the dissolution of the Soviet Union in the late 1980s, Mongolia undertook one of the most aggressive transformations to a market economy of any of the previous soviet republics. Not surprisingly, changes have resulted in some, hopefully temporary, socio-economic dislocations that have had serious environmental implications.

Mongolia is situated in Central Asia, bordered to the north by Russian Siberia, to the east and south by the Chinese territory of Nei Mongolia and to the west by the Chinese province of Xinjiang. With a land area of 1.565 million km2, Mongolia is about six times the size of Great Britain and about the same size as Alaska in the United States of America. It spans the major transition zone between the deserts of Central Asia and the Boreal Taiga of Siberia. Its six biogeoclimatic zones listed below run from dry and warm at lower elevations in the south to moist and cold at higher elevations in the north.

- Desert (largely un-vegetated)
- Desert steppe (short-grass prairie with sparse shrubs and scattered small trees)
- Steppe (tall-grass prairie with a significant forb component)
- Forest steppe (mixed forests on northerly slopes and grassland on southerly slopes)
- Boreal forest (coniferous with a variable broad-leafed component)
- Montane (mixed sub-alpine coniferous, krummholz, alpine meadows and tundra)

The last three zones all exhibit varying depths and distribution of permafrost. The table below shows the area of each zone.

Biogeoclimatic Zones of Mongolia

Zone	Area (million km^2)	% of total area
Desert	0.297	19
Desert steppe	0.329	21
Steppe	0.407	26
Forest steppe	0.125	8
Boreal forest	0.063	4
Montane	0.344	22

Source: UNEP and MNE (2002)

Most forests are located within the northern Khangai and Khentii ranges and near Khovsgol lake, in the transition zones of the Siberian Taiga and the Central Asian steppe. Due to the harsh conditions, natural regeneration is difficult and growth is slow. Moreover, these forests are sensitive to fire, insects and anthropological activities.

Forest land in Mongolia is an estimated 18.29 million ha, only 8.1 percent of the territory. Thus, by international definition, it is considered a low forest cover country. Forests consist of 140 species of trees, shrubs and woody plants. Coniferous and deciduous forests constitute 84 percent and saxaul (Haloxylon ammodendron) forests make up the remaining 16 percent, as shown in the table below.

Distribution of Mongolia's forest species

1. Larch	60.7%
2. Saxaul	16.0%
3. Siberian pine (cedar)	7.8%
4. Scotch pine	4.0%
5. Birch	7.3%
6. Others/ Shrubs	4.2%

The new Law on Forests establishes three forest zones: strict zone, protected zone and utilization zone. All activities are prohibited in the first category, apart from conservation measures and from gathering dead wood and approved non-wood forest products such as mushrooms, berries, and pine nuts. In protected zones, action is taken against fire, diseases and insects, and to ensure normal growth. In these areas, it is prohibited to cut young trees and certain species of rare trees and shrubs. Cedar, spruce and elm can only be harvested by permit from the Ministry of Nature and Environment. The law also bans hay-making and grazing in certain forests or where seedlings are planted. Timber contracts must stipulate reforestation arrangements and clear cutting is not allowed.

In response to the need for better forest management in a market economy, Mongolia adopted its first National Forestry Program in 1998 which was later revised in 2001. It provides the framework for implementing the state forest policy and achieving sustainable forest resource management.

2. Current Situation

There are considerable human influences on forest ecosystems, including timber cutting, livestock grazing and burning. Mongolians traditionally used wood for making frames for their dwellings, furniture, fences and sheds for animals. However, industrial development

during the past several decades has increased wood consumption for other purposes, including export.

During the last 30 to 40 years, unsustainable logging was responsible for 250,000 ha of forest being improperly cut. In addition, vast amounts are destroyed by fire every year. According to recent data, particularly during 1996-1997, more than 5 million ha of forest were damaged, 500,000 of which were completely lost. During the past 60 years, poor quality seedlings were used to reforest only about 30 percent of the area and, in the past 10 years, forests are under increasing threat as a result of illegal logging, rising unemployment and poverty.

Although the Ministry of Nature and Environment has banned the export of logs, between 600 and 700 thousand m3 of forest are harvested each year to supply domestic needs. In 1989, prior to the transition to a market economy, the forest sector contributed 4.7 percent to gross domestic product. By 1998, its share fell to 0.25 percent. After more than 80 years of continuous development, consumption of forest products is experiencing recent growth.

3. Poverty and Forests

Poverty has increased dramatically over the past 10 years due to the collapse of state subsidized enterprises and the consequent loss of many jobs. Drought and harsh winters (dzud) are also contributing factors, made worse by the significant loss of livestock.

With support from the World Bank, the government is implementing its Poverty Alleviation Program, one of the goals of which is to help finance small-scale production projects that employ local communities. It also provides assistance to herdsmen to replace lost livestock.

Under the National Action Plan on Employment Encouragement, adopted in 2002, the government is retraining people who lost their jobs in forestry. In addition, it is encouraging local people to participate in the protection and restoration of nature, and is helping them to establish sustainable resource-based businesses. In 2009, more than 1,000 people were involved in forest clean-up, landscape restoration, reforestation and protection against fire and insects. This number increased to 1,700 in 2010.

4. Drivers of Change and Their Impacts

Of the following drivers of change in Mongolian forestry, this reports addresses the first and the fourth:

1. Institutional, legal and structural reforms
2. Climate change and desertification
3. Economic development and population growth

4. Community-based forest resource management.

Institutional, legal and structural reforms

With the adoption of the Forest Law in 2007, significant reforms were and are being undertaken.

- Establishment of the Forest Agency of Mongolia in June 2008 under the Ministry for Nature, Environment and Tourism
- Plans for new forest bureaus in Aimag and Ulaanbaatar and new forest divisions in districts
- Development of 14 new procedures, 3 of which require government approval, 6 of which require approval by both the Ministry of Finance and the Ministry of Nature and Environment, and 5 of which require approval of the Ministry of Nature and Environment alone.

One of the most important legislative change is the move to community-based forest management. Rights and responsibilities under the new law are outlined in Box 1.

Box 1. Allocation and Ownership of Forests to Communities and their Rights and Obligations – Selected Sections of the Forest Law (2007)

4.5 stipulates the duration of contracts with communities, economic entities and organizations: a one-year preparatory phase, followed by between 10 and 60 years, based on the public proposals of the local assembly and on the resolutions of citizen representatives at the Sum or district level.
4.6 gives ownership of the allocated portion of the forest reserve to communities, economic entities and organizations.
4.7 grants rights to utilize trees and non-timber forest products, to rehabilitate the forest and conduct thinning operations according to an approved management plan.
18.1 calls for communities to have programs and management plans for the protection, utilization and rehabilitation of forests, in accordance with paragraph 3, article 9.
18.2 calls on communities to develop rules to ensure its activities conform to the legislation.
18.3 requires that, before authorities sign a contract with a community, they consider its size and management capacity, the forest area and resources to be allocated, and the ecological features of the land.
18.4 requires that communities submit annual reports to the local assembly at the Sum or district level.
18.5 allows a community to employ volunteer rangers to patrol the forest reserve allocated to it, in accordance with paragraph 8, article 25 of the Law on Protection of Nature and Environment.
18.11 defines the rights of a community with regard to the utilization and ownership of forests, in accordance with legislation and contract provisions.

Community-based forest management

The main objective of the new Forest Law is to allocate forest area, including all tree species, scrub replanted forests and saxauls to local communities. Expected benefits of community involvement are:

- Better protection against illegal activities: logging, hunting, and arson
- Restoration of degraded land and sustainable use
- Better understanding of the need to protect and use forest resources wisely as well as new initiatives to achieve these goals

Community development

- In 2006, the Ministry of Nature and Environment approved a procedure to allocate forests and other natural resources to communities. This process forms the basis for forestry development in Mongolia.
- In 2004, 25 communities were leasing about 270,000 ha of forest but the area has significantly expanded since then.

Sustainable management of forest and natural resources

A move towards sustainable forest management entails the development and implementation of management plans; agriculture practices which alternate pastures and rotate grazing areas; and measures for the protection of water, plants and wildlife resources.

Incentives for community-based forest management

- Private ownership of forests
- Allocation of forest resources to communities
- Improved system of fees for resource use
- Domestic costs and prices which reflect international norms
- A forest resources accounting system
- Compensation on the basis of ecological and economic value
- Different forest financing schemes.

5. Successful Experiences

So far, two projects have been implemented successfully in Mongolia, one of which was entitled "Community-based conservation of biological diversity in the mountain landscapes of Mongolia's Altai Sayan eco-region ASP". It took place from 2006 to 2007 and focused on encouraging sustainable resource use by empowering herder communities to resolve conflicts over the management of forests and grassland and by improving livelihoods through partnerships with government and non-government organizations (NGOs).

Partners consisted of the United Nations Development Programme (UNDP), the Food and Agriculture Organization of the United Nations (FAO), NGOs (two local and one national), and rural communities of the region. The project was based in Ulaanbaatar and had provincial offices in Khovd, Bayan-Olgii, Uvs (Western aimag), and Khovsgol Aimag (North Central).

Specifically, the project aimed to:

- integrate biodiversity conservation into sustainable natural resource use, practices, institutions and policies (financed and co-financed by the Global Environment Facility)
- expand traditional approaches used in protected areas to include the landscape around them and increase cross-border cooperation
- demonstrate how to integrate biodiversity conservation into resource management and economic development (with assistance from the Global Environment Facility)
- share lessons and best practices to facilitate the replication of successful aspects on a broader scale.

FAO provided training to herders and other members of the community to establish viable micro enterprises. The 3-phased approach, called Market, Analysis and Development (MA&D), not only improves livelihoods but also provides incentives to conserve biodiversity and sustainably use natural resources.

The main points and issues that surfaced during the last phase of the MA&D training were:

- the need to use simple language to promote understanding and to select products based on project objectives
- the need for future businesses to prepare enterprise development plans that incorporate market/economical, social/institutional, environmental and technical aspects as a condition of support
- a few individuals withheld information from other members of the group, preventing them from formulating sound development plans and creating unfair advantage in

terms of choosing a leader

- enterprise development plans form the basis for implementing the business strategy, monitoring progress and providing appropriate support to small-scale entrepreneurs.

The MA&D approach shows that the rehabilitation of degraded land and conservation of biodiversity cannot be achieved without the involvement of people who live in forested areas and depend on these resources for their basic needs and livelihoods. It also offers evidence that populations in ecologically threatened areas will not contribute to conservation efforts unless they benefit, especially through increased income from well managed resources.

6. Probable Scenarios for Development

The following objectives will shape the development of Mongolia's forests by 2021. They are based on the drivers of change and the goals of relevant national policies and legislation.

1. National and local structures for the management of forest resource will be developed. Local communities will lease about 50 percent of forests by 2015 and about 80 percent by 2021.

2. Effective measures will be put in place to significantly reduce the forest area damaged by fire and insect infestations due to climate change and desertification.

3. Harvesting according to well developed management plans will reduce illegal logging and sound technologies will increase harvest volumes two to threefold by 2021.

4. Reforestation will be stepped up and construction of the "Green Wall" will proceed according to plan.

The extent to which these activities can be carried out will determine how forests and forestry in Mongolia will evolve to 2020. Other scenarios can then be developed based on progress made.

7. Forest Ownership and Employment

State ownership of all forests and land in Mongolia will continue until 2020. By 2021, 1-2 percent of forests will likely be under private ownership and more than 50 percent will be under community management. In 2012, more than 20 percent will be allocated to communities and companies through management contracts which define associated rights and responsibilities. The table below estimates employment in the sector to 2021.

	2000	2003	2006	2010	2015	2021
Forest industry	1000	2500	4000	5000	5200	5500
Forestry rangers	300	500	800	1200	1800	2000
Management and service	28	32	36	40	160	200

8. Expected Changes to 2020

- The sector's contribution to GDP is expected to increase from 0.26 percent in 2006 to 2 percent by 2015.
- The price of finished wood products and furniture for both domestic and foreign consumption will grow at a steady pace.
- Forest managers at all levels - local, district and national - will have formal management plans in place to guide their activities.

9. Priorities and Strategies

The goal of the Government of Mongolia is to implement its economic policy while ensuring ecological sustainability. Priorities include the protection and wise use of forest resources, forest restoration, the prevention of further desertification and overgrazing, and participatory forest management.

Medium-term objectives (2006-2015)

- Objective 1: Build a "Green Wall" by planting trees in the Gobi and steppe regions to mitigate the effects of desert climate and protect against desertification, soil deterioration, dust storms and sand encroachment.
- Objective 2: Protect forests against and reduce damage from fire, harmful insect infestations, and diseases as well as strengthen capacities to deal with these issues.
- Objective 3: Establish forest and tree databases; develop mapping capacities based on geographic data systems and inventories; and use remote sensing to better define forest cover, structure and components.
- Objective 4: Carry out field activities, including collection of tree and shrub seeds; intensified tree and shrub breeding; afforestation of watersheds and river and stream catchments; rehabilitation of areas affected by forest fire, harmful insects and diseases; construction of forest protection lines, groves and the Green Wall in the steppe, Gobi and desert areas.

- Objective 5: Reduce the negative impacts of human intervention, especially illegal forest activities.

Long-term objectives (2011-2021)

Efforts will be made to rehabilitate and improve the quality of forests; enhance management and technologies to protect forests; and allocate management rights and responsibilities to local communities and citizens.

Objective 1: Implement community-based approaches for the management, use, protection and rehabilitation of forests (2007-2015). Restoration and natural regeneration is expected to establish more than 15,000 hectares each year, between 2015 and 2021

Objective 2: Establish comprehensive forest management (medium capacity by 2015 and higher capacity by 2021) with permanent capacity to protect against forest fire, harmful insects and diseases.

Objective 3: Implement a system to select superior forest trees as a basis for a high-quality tree-breeding program.

10. Conclusions

1. Following its transition from a planned to a market economy, Mongolia has made significant progress towards economic recovery, stabilization and growth. In the next 10-15 years, a higher rate of economic growth is expected.

2. Mongolia's forest area is likely to decrease and the impacts of forest fire and insect infestations will make matters worse unless interventions are made to encourage sustainable forest management.

3. Structural reform will increase community participation in forest management, including decision-making, and will reduce illegal logging.

4. Timber harvesting levels can be increased from the current 700 000 m3 per annum to 0.8-1.2 million m3 by managing more intensively, regenerating cut-over and burned areas more effectively, reducing waste and building/upgrading roads to open new areas for development. However, these activities must be regulated by forest management plans.

5. Forest lands used for grazing – especially buffer zones between forest and steppe ecosystems – should mainly be for cattle and horses because these animals have less impact on forests than goats and sheep.

Development of Community Forestry in the Context of Climate Change in Myanmar

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1. Introduction

Location

Myanmar, a tropical country in continental southeast Asia, lies between latitudes 9° 58' and 28° 29' north and between longitudes 92° 10 ' and 101° 10' east. Land area totals 676,577 km2, spanning about 2,090 km from north to south and about 805 km from east to west. Four major river systems traverse the country, flowing from north to south. The Ayeyawady river, the main waterway, is navigable for about 1,450 km.

Figure 1. Topographic map of Myanmar

Population

Myanmar's population in 2001 was an estimated 47.25 million (50.34 percent women) and reached 52 million in 2003. The projected annual growth rate between 1995 and 2020 is about 1.7 percent. Almost 71 percent of citizens live in rural and remote areas where poverty is greatest. It is also prevalent among a large segment of the urban population due to earnings being eroded by inflation. A census conducted in 1983 found that the literacy

rate of people 10 years old and above was 79 percent. A 1988 survey revealed that life expectancy was 58 years.

Economy

Myanmar is shifting to a market economy and a system of free enterprise. During the transition, it is providing support to vulnerable groups. Positive economic growth, as measured by GDP, has been recorded in certain sectors. However, neither the rate of social decline and inequity, nor the deterioration of natural resources usually associated with economic growth, have been satisfactorily studied or reported. Continued challenges are macroeconomic instability, volatile foreign exchange earnings, unstable exchange rates, low level of savings, large deficits, distortions in the price and incentive system, indiscriminate land use and ecosystem instability. In 1995, per capita GDP was US$250 at constant prices. However, because of abundant natural resources, Myanmar has great potential for economic development.

2. Climate

Myanmar has three distinct seasons: rainy, winter and summer. The rainy season experiences south-west monsoon winds from early May to October, followed by north-east monsoon winds in winter (November to February) and summer (March and April). During the rainy season, weather is humid, wet and warm. Occasional rainfall occurs in winter and summer when northern parts and hilly regions experience extreme cold weather. Annual rainfall is about 5,000 mm in coastal regions and less than 750mm in the central dry zone.

Between 1961 and 1990, the lowest mean annual temperature was 15.8°C in the northwest mountainous region of Chin State. The highest temperature was above 40oC in Magway Division and mean annual rainfall ranged from about 500 mm in the Lower Sagaing Division to about 5,000 mm in the Tanintharyi Division (DMH 2009).

Observed Changes

Temperature

From 1951 to 2007, annual mean temperatures increased in Chin, Kachin, Kayin, Mon, Rakhine, northern and southern parts of Shan States and lower Sagaing and Mandalay Divisions. The townships of Paan in Karen State and Monywa in Sagaing Division experienced the highest temperature over a decade (0.32°C). In addition, colder temperatures were observed in Magwe (-0.23°C) and Bago (-0.16°C). Between 1951 and 2000, annual heat waves numbered five in Kachin State, two each in Northern Shan State and the Divisions of Magwe, Mandalay and Lower Sagaing, and one each in Bago Division and Mon State. The longest duration of a heat wave (12 days) occurred in Yangon and

episodes of El Nino were felt in 1957, 1958, 1983, 1986, 1988, 1998 and 2009.

Precipitation

From 1991 to 2004, high extreme rainfall occurred five times in Nyaung-U and four times in the townships of Myitkyina, Magway, Mawlamyine and Hpa-an. In 1994, Mawlamyine experienced a 51.2% departure from the norm. Low extreme rainfall occurred five times in Monywa, four times in Mandalay, three times in Falam and Magway, and twice in each of Taungyi, Lashio, Nyaung-U, Loikaw and Pathein. A strong El Nino in 1998 delivered low extremes to much of Myanmar, except Rakhine, Kachin, Northern Shan States and Upper Sagaing Division.

Cyclones

Between 1887 and 2005, 80 of the 1,248 tropical cyclones which originated in the Bay of Bengal, crossed Myanmar's coast - less than one per year. Between 1947 and 2008, 35 cyclones, accompanied by strong winds, storm surges, heavy rains and floods, hit the country. An increase in the frequency of cyclones forming over the Bay of Bengal from May to November (the principal cyclone months) was observed.

The Department of Meteorology and Hydrology's (DMH) Climate Research Unit predicts that, in the 21st century:

- temperatures in April and May will increase
- rainfall during the SW monsoon season will increase
- monsoons will arrive later in the deltaic area, central Myanmar and northern Myanmar and will withdraw sooner from whole country
- the rainy season will be shorter than normal (144 days)
- monsoons will be generally moderate along the coast
- increases in rainfall and shorter seasons of low rainfall will bring heavy rain over short periods and flooding
- temperature increases may lead to more dryness and shortage of water
- the impact of El Nino and La Nina will again be evident.

Extreme Temperatures (summer 2010)

- Prolonged extreme temperatures during the day were recorded from 9-17 May.

- Records were set once in March, 4 times in April and 27 times in May.
- The highest ever day temperature in Myanmar/ASEAN (47.2°C) was recorded on 14 May at Myinmu station.

Impacts of Climate Change in Myanmar

Observations of the Department of Meteorology and Hydrology show that Myanmar has been experiencing a warming trend, especially since 1979 (Htay Aung 1998). The average temperature increased by 0.7°C over the last two decades and the rise is in line with both global and Southeast Asia trends (Tun Lwin 2002). Since 1978, the onset of monsoons has been later than normal and withdrawal has been earlier. Prior to 1977, rainy days per annum averaged around 144 but dropped to 103 in 1997. From 1988 to 2000, monsoons lasted about three weeks less in the north and one week less in other parts of Myanmar, compared with the average from 1951 to 2000.

While 1979 and 1980 were characterized by prolonged warm and dry periods, 1983, 1986, 1988, 1989, 1995, 1998, 2000, 2005, 2007 and 2009 had higher than normal temperatures.

The El Nino in 2009 decreased rainfall, with heavy rains in some areas and drought in others. Off-season rains in the coastal areas of Ayeyarwady Division the last week of March 2009 caused widespread damage to salt industries.

Cold fronts crossed parts of the country at the beginning of 2010, including in the Divisions of Mandalay, Magway and Yangon. Moreover, tropical depressions in South China Sea on 26 January resulted in unusual rains at Nay Pyi Taw Pyinmana, Western Bago Division, Southern Shan State and Ayeyarwady Division. High temperature extremes during summer months (March through May), led to severe heat and water shortages throughout the country.

3. Impacts of Climate Change on Communities

According to experts, climate change will affect communities (especially poor rural communities) in Myanmar and Southeast Asia in the following ways:

- Crop yield could drop and demand for irrigation could increase.
- Sea level could rise, leading to greater saline areas in the delta and less land for rice and crops.
- The duration and intensity of floods, drought and cyclones could increase and cause widespread damage.
- Less food will be available.

- Malnutrition, poor health and sanitation, and poverty will increase.
- People will depend more on natural resources, a situation which could lead to degradation, particularly of soil, water and forests.
- Land for grazing will be lost and animal breeding will yield poor results.

Although uncertainties surrounding climate change and associated scenarios predict the impacts will have different magnitudes, most trends point in the same direction.

The Most Vulnerable Areas

As a least developing nation with a weak economy, infrastructure and preparedness, the impacts of climate changes will be felt throughout Myanmar. However, those working in disaster management and relief efforts agree that the most vulnerable areas are the central dry zone, the eastern Shan plateau and the Ayeyarwaddy delta.

The Central Dry Zone

The Dry Zone in central Myanmar covers parts of the Divisions of Magway, Mandalay and Sagaing. Compared with other regions, its climate is harsh - low rainfall and high temperatures. Average annual rainfall from 1987 to 1998 was only about 23 inches (586 mm) and unevenly distributed. During the dry season (December to April), daytime temperatures exceed 42°C and drop to about 12°C at night (FREDA, 2005). This area is home to nearly one third of population, 80% of which lives in rural areas. Population density is 120 per km2, much more than the country's average of 77 per km2 (Department of Labour/UNFPA, 2004). It is an area which produces major cash crops such as sesame, bean, pea and ground nut. Traditional toddy farming is also commonly practiced and provides a source of regular and significant income. The Dry Zone also supports about half the country's cattle which numbered 7,356,000 in 2000 (Myanmar facts and figures, 2002). Despite low productivity in this zone, residents occupy most arable land, including more than 50 percent original forest land, for agriculture, toddy farming and grazing.

The Eastern Shan Plateau

Shan State is located in east Myanmar and has a land area of 155,801 km2. The main ethnic tribe is Shan. Others are Kachin, Ko-kunt, Taung-yo, Danu, Palaung, Pa-ein, Bamar, Lisu, Wa, Ah-kha and Inn-thar. Population is an estimated 5,464,070 and density averages 35 per km2. Most of the State is situated on a plateau of high hills which run from north to south. Elevation averages 1,000 m but some mountains are more than 2,300 m high. Towns and villages are found in narrow valleys and have poor transportation and access to education and healthcare. The great Than Lwin River and tributaries run north to south through

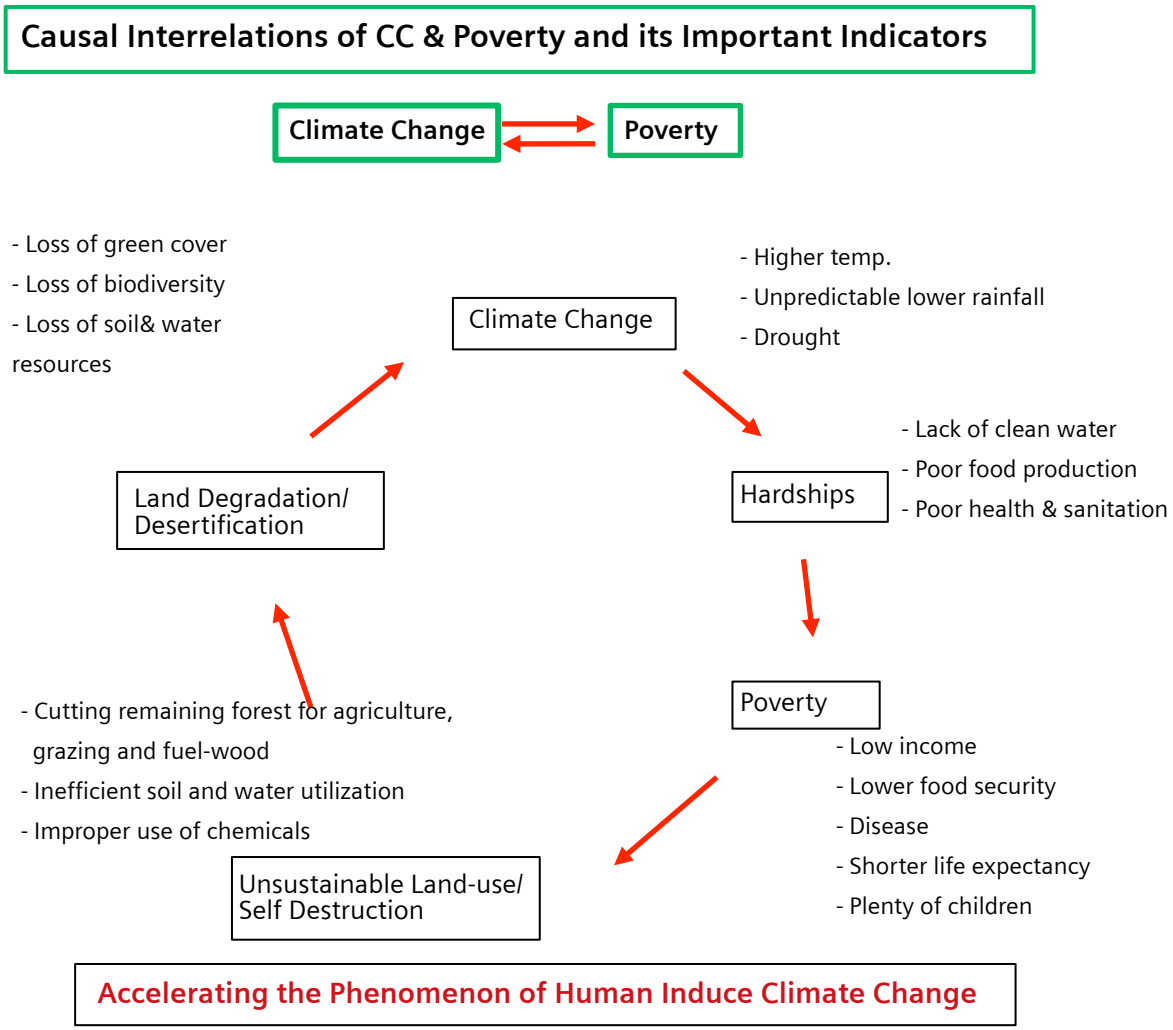
this State and enter the Andaman Sea near the town of Mawlamyine in Mon State. Most residents are subsistence farmers who face problems of soil erosion, forest depletion and poor crop and animal yields.

Ayeyarwaddy Delta

The Ayeyarwaddy delta is about 160 by 240 km wide and forms a flat and featureless plain. Administratively, this area constitutes the major portion of the Ayeyarwaddy Division which covers 35,138 km2. Estimated population is 7,862,628, mostly Bamar, Kayin, and Rakhine. Density averages 72.5 persons per km2. The Ayeyarwaddy river is about 2000 km long and allows easy transportation of goods up and down the country. It empties through a nine-armed delta (Nga-wun, Bassein, Thetketaug, Ywe, Pyamalaw, Pyinzalu, Ayeyarwaddy, Bogale, Thande) into the Indian Ocean. Most residents depend on fishing and subsistence farming. Major problems they face include cyclones, floods and the intrusion of sea water into paddy fields.

4. Environmentally-threatened Communities

The figure below shows the causal relationship between climate change and poverty, linkages which make it difficult for rural communities to improve their socio-economic situation. For this reason, significant efforts are required to help them overcome problems associated with climate change.



5. Community Forestry Development

Myanmar's history of forest management dates back to the mid 19th century but deforestation and forest degradation only began in late 20th century. Many professionals agree that one of the reasons is lack of participation and understanding, especially of forest dwellers, about conservation, management and benefit sharing. To address this problem, the Forest Department (FD) issued Community Forestry Instructions (CFI) in 1995, prior to the formal enactment of the Community Forestry Rules (CFR).

Main purposes of the CFI are to:

- engage the rural population in tree planting on barren lands and to reforest degraded areas
- meet the basic needs of communities

- support national economic development and restore environmental stability.

Foresters and other professionals, both domestic and foreign, consider CFI as a major breakthrough which shifted forest management from a centralized police-style to a decentralized community-based approach. Since then, community forests have been established throughout the country in one of three ways: initiated by the Forest Department or the Dry Zone Greening Department of the Ministry of Forestry (MoF); jointly initiated by MoF and national/international organizations such as United Nations Development Programme (UNDP) and Japan International Cooperation Agency (JICA); and transferred to communities by MoF in the case of fuelwood plantations.

Under CFI, community forests can be established on degraded reserved forests, protected public forests, and on land at the disposal of government. They can also be established on private land, with the permission of owners. Initial duration of leases is 30 years but can be extended if the Forest Department judges performance to be adequate and user groups agree. In addition, if users comply with the CFI, they can pass on their rights to the land upon death.

To raise awareness of CFI and speed up the establishment of community forests across the country, the Community Forestry Training and Extension Project in Dry Zone (COMFORT) has been providing training on community forestry and extension services as well as organizing excursions for local people and MoF staff since 2003. Other types of support from government and non-government organizations include:

- awareness raising
- free seeds and seedlings for the first rotation
- technical assistance
- cost of land preparation, planting and maintenance
- monitoring and evaluation.

As of December 2005, the table below shows that there are 81,733 acres (33,076 hectares) of community forests in Myanmar, 91% of which are in areas especially vulnerable to climate change. By 2009-10, 29,648 users groups owned 46,661 ha of forest plantations.

No.	State/ Division	1988	2005
1	Kachin	-	780
2	Kayah	-	100
3	Kayin	-	485

4	Chin	-	465
5	Sagaine	-	995
6	Bago (East)	-	1,043
7	Bago (West)	-	2,645
8	Magway	-	750
9	Mandalay	-	8,193
10	Mon	-	165
11	Rakine	-	1,612
12	Yangon	-	400
13	Shan	-	43,469
14	Ayeyarwaddy	-	20,631
	Total	-	81,733 (33,076 ha)

Source: The New Light of Myanmar, (December 2005)

Rather than harvest timber on a commercial basis, community forests are established in critical areas mainly to restore the health of the environment, improve the quality of soil and water, and supply rural poor people with basic needs, particularly fuelwood and fodder. This approach rehabilitates degraded landscapes as well as increases agriculture productivity by improving soil and water conditions. Although communities and outside practitioners did not consider climate change issues at the onset, many stakeholders now view community forests as a practical means to mitigate and adapt to climate change.

6. Success Stories

The community forest in Kan-tha-lay in the central dry zone is one of many success stories in Myanmar. About 20 ha of eucalyptus were planted in 1995, with support from UNDP and FD. The village consists of about 80 households which collectively own the forest and members received training, seedlings, rice and wages.

In 2003 and 2004, mechanical thinning under supervision of the Magwe township FD produced 300 poles and posts which were used to construct a school and library. Residents also gathered about 150 cow carts of good quality fuelwood which they sold to buy additional materials needed for the two buildings. Up to 2005, 200 more cow carts of pruned branches and dry twigs were collected.

The main reason for the success of this community forest is good control and management. Up to two years after planting, the project helped to cover maintenance costs, particularly to keep a watchman. When villagers could no longer follow their management plan after funding terminated, they applied their own traditional but practical management system, as described in the box below.

Traditional Management System of Kan-tha-lay village in Magwe Township

The village council appointed a disabled resident as guardian of the community forest. He and his family live inside the area and he takes care of the trees. Every year, he is allowed to collect Zi fruit. In 2004, he filled 70 baskets, worth 850 Kyats each. He is also allowed to fish in the village pond close to the forest and to gather mushrooms and small pieces of fuelwood. These rewards not only earn his family a good living but also ensure the protection and sustainable use of resources.

7. Problems Encountered in Community Forestry

Problems, constraints and setbacks encountered after more than 15 years of experience with community forestry in Myanmar are summarized below. Changes required to current processes are shown in figure 1.

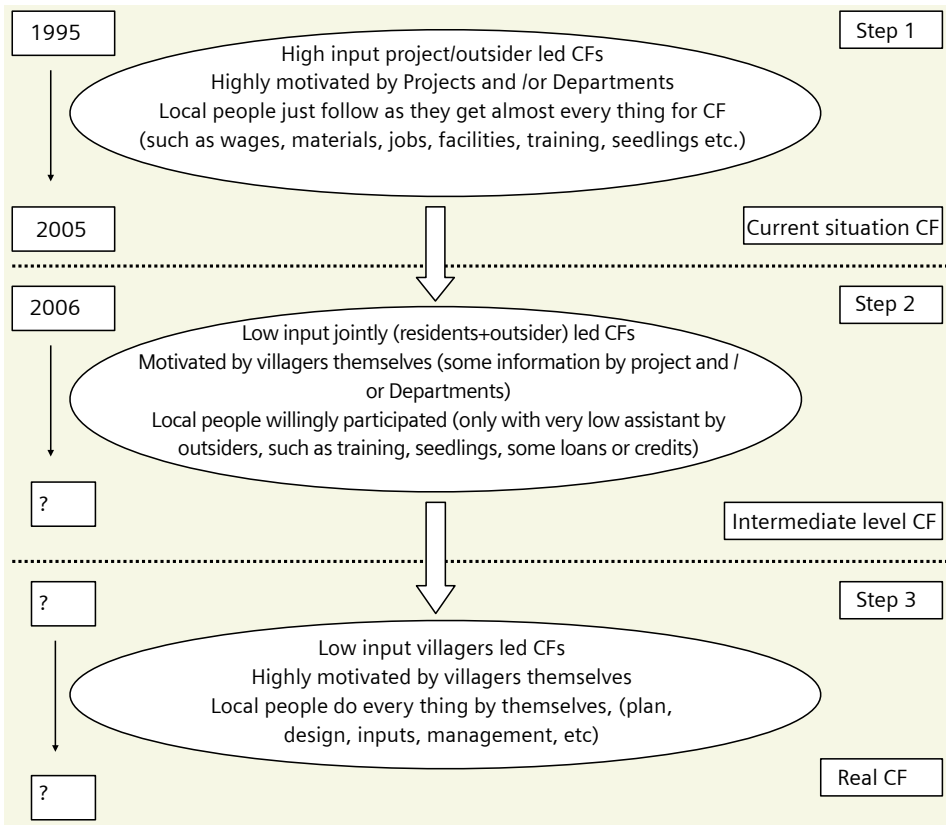
- **Sustainability:** In many cases, the push to establish community forests comes from external sources rather than from villages. Consequently, when assistance ends, local people are reluctant to take responsibility for maintenance until the original goals are realized.
- **Lack of trust:** The Community Forestry Instructions stipulate that certificates for community forests can only be issued under renewable land lease agreement, usually for 30 years. No other legally binding instrument is available. In some cases, land is taken back for other purposes such as road construction and urban development. Consequently, the interests and trust of communities are seriously undermined.
- **High expectations:** When community forests are first established, potential benefits are often exaggerated and challenges are underestimated. Investments and hard work during the start-up phase also discourage many because of the time it takes to receive benefits.
- **Complex management plans:** In general, management plans do not reflect the real capacity, skills and indigenous knowledge of communities. Often, they are developed

or imposed by outsiders and include formal and theoretical management techniques. As a result, communities do not understand how to manage the forest when they are left on their own, usually shortly after the forest is established.

- **Change in land use:** Some communities apply for certificates for the sole purpose of acquiring land use rights. They then engage in other activities such as paddy farming or fish/crab farming. This shift leads to further deterioration rather than rehabilitation of forest land.
- **Poor quality of allocated land:** At times, communities are given infertile and bare land, without proper consultation. Such decisions only place an extra burden on communities. Even with strong support from NGOs and international partners, these lands cannot yield benefits on a sustainable basis.

Although the Community Forestry Instructions serve a useful purpose, they are more than 15 years old and require urgent modification. Regulations and additional instructions are also needed to implement CFI in specific regions and to provide communities more flexibility to tailor interventions to local conditions. Such changes are underway and will allow a significant move beyond step 1 to steps 2 and 3 in the establishment of community forests.

Figure 1: Steps to be changed in the development of community forestry in Myanmar



8. Future Trends

Supply of Fuelwood and Basic Needs

Fuelwood is the most important source of energy in Myanmar and, in 2005, relevant ministries developed a national strategy for the sustainable supply of bio-mass based on projected requirements and potential sources, as noted in the tables below.

Fuelwood requirements (2001-2031)

Year	Quantity (Million cu. ton)		
	Rural	Urban	Total
2001-02	14.89	2.63	17.52
2014-15	12.27	3.04	20.31
2030-31	14.05	2.48	16.53

Fuelwood supply by potential source

No.	Source	Quantity(Million cu. ton)	Percentage
1	Government plantations	0.70	4
2	Residential areas	4.13	25
3	Community forests	4.13	25
4	Natural forests	7.57	46
		16.53	100

Source: The national strategy for the integration of energy and rural development policies and programs, 2005

Although natural forests will remain the primary source of fuelwood, the importance of community forests to meet future demand is expected to grow. Tree planting in agro-forestry systems, home gardens and community farms will also become a major sustainable supply for rural communities.

Community forests will also meet the basic needs of local people for fodder, poles and posts, leaves, fruit, medicine, bush meat and bamboo. If well managed, these products will significantly contribute to their wellbeing.

Community Forests to Mitigate and Adapt to Climate Change

Many government departments, international organizations and NGOs working in rural

development in Myanmar are using community forestry to address climate change. In the central dry zone where drought is expected to become more severe, the number of villages planting trees and establishing community forests is rising. In hilly Shan State, efforts are made to combat soil erosion, drought and deforestation as a means to green the environment, increase soil fertility and improve water quality.

After the devastating cyclone in May 2008 in the delta area, residents are more aware of the importance of trees in saving lives. They are now using community forestry to restore mangroves along the coast and along major rivers and streams, in the belief that such action will greatly reduce damage from future cyclones. They also expect it will significantly increase yields from fishing and farming, thereby improving livelihoods. More than 100 agencies and organizations are helping them to reach their goals.

9. Conclusion

The development of community forestry in Myanmar looks promising, particularly in the central dry zone, Shan plateau and delta areas which are viewed as the most vulnerable to climate change. Amendments to CFI are underway that will allow communities to adopt a flexible approach, tailored to local conditions. Although, some community forests are still project-driven and externally funded, stakeholders are taking collective action and management by local people is gradually taking hold. Recognizing that further development is closely tied to issues outside the sector, such as population growth, rural poverty and the country's weak socio-economic status, the formulation of integrated strategies and the allocation of adequate resources would greatly promote community forestry in the country.

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Decentralized Forest Sector Governance: Prospects and Learning from Nepal

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1. Historical Developments and Drivers of Change in Nepal's Forest Sector

1.1 Geographical Setting

Nepal is situated between China and India and occupies 147,181 square kilometers. It stretches about 885 km from east to west and varies in width from around 90 to 230 km. For administrative purposes, the country is divided into five regions, fourteen zones, and seventy-five districts. These districts are sub-divided into municipalities and village development committees (VDCs) which are further divided into wards. Cultivated land accounts for 21% of total area; non-cultivated land 7%; forestland 29%; shrub/degraded land 10.6%; grassland, 12% and 'other', including perpetual snow, 20.4% (Amatya and Shrestha, 2003). The Tarai, the hills and the mountains form Nepal's three agro-ecological areas, as noted in the map below.

The mountains, mid-hills, and Tarai

Source: www.southalabama.edu/ nepal/map.htm

Mountains are found in the north and their height varies between 4,877 m and 8,848 m above sea level. Many are snow-covered, including the highest peak in the world, Mount Everest. Almost all large rivers in the country originate from this region. Because of its geography and climate, only 7.3% of the population live here (CBS, 2005). It covers about 15% of total land area (Satyal-Pravat, 2004), about 2% of which is suitable for cultivation.

The hill region covers about 68% of the country's land mass (Satyal-Pravat, 2004) and lies in the centre, between the mountains and the Tarai - 610 to 4877 m above sea level. It comprises several peaks, a fertile valley, and basins such as Kathmandu and Pokhara valleys which are densely populated. Some 44.3% of the Nepalese people inhabit this area (CBS,

2005).

The Tarai covers 17% of land area. It is divided into the southern alluvial plain belt of forest and farmland (part of the Gangetic plains) and the northern colluvial deposits (the Bhabar) along the foothills of the Siwalik range in the south. A narrow belt of forest is found mostly in the north and fertile farmland in the south. Fertile land in irrigated areas permits the cultivation of a variety of crops such as paddy, maize, wheat, sugarcane, vegetables and tobacco. The inner Tarai is comprised of valleys and low hills between the Siwalik range and the Mahabharat range in the north. Together, the Tarai and inner Tarai take up about 23% of total land area and accommodate 48.4% of the population (CBS, 2005).

1.2 Forest Management and Key Drivers of Change

During unification in the late 18th century, government granted large areas of Tarai forests to favoured military and civil elites as well as other employees and encouraged forest clearance (Bhatta et al., 2007). Similarly, from the 19th to early 20th century, the Rana rulers used Tarai forests to generate state revenue and to fund their lavish lifestyles (Hobley and Malla, 1996). When the Rana regime was overthrown in 1950, forest clearance and conversion to agriculture accelerated drastically, including after government nationalized all private forests in 1957 and made the Department of Forests (DoF) custodian and manager of forestland (Bhatta et al., 2007:182). In addition, because tenure was not secure, unsustainable use by villagers resulted in forest degradation.

After the King returned to power in 1960 and introduced the Panchayat system, deforestation continued despite the Forest Act (1961) assigning responsibility to DoF for forest protection. The migration of hill people to the Tarai and the eradication of malaria in this area led to a significant decrease in forest cover, as did the construction of a major highway which opened forests to settlement and exploitation (Bhatta et al., 2007:183). The king granted large areas of national forests to his relatives, political supporters, high-ranking bureaucrats and army personnel (ibid). A massive resettlement program in the 1970s and 1980s also had devastating effects when the Nepal Resettlement Company distributed 77,700 ha of forestland and illegal encroachment occurred on 237,600 more ha between 1963 and 1974. From 1973 to 1980, the company distributed an additional 34,771 ha (Adhikari et al., 2005). More than 100,000 Bhutanese refugees settled on forestland in the eastern Tarai and 103,968 ha of forest in the Tarai and Siwalik were cleared between 1950s and 1985, including about 22,700 ha in the space of seven years (RDFN/N, 2003). An equal amount was lost to illegal settlement during the same period. Between 1964 and 1991, forest cover declined by 570,000 ha - 380,000 ha were converted to agriculture and the rest was used for roads, irrigation, electricity, urbanization and other purposes (GIDA, 2003). Population growth, massive legal and illegal deforestation, and huge settlements of hill migrants along the northern forest fringe caused demand for timber, fuelwood and

other forest products to soar. The indigenous inhabitants of the Tarai lost a large part of their forests, a situation made worse by new settlers excluding them from participating in community forestry.

From ancient times, inappropriate government policies and practices drove deforestation, particularly in the Tarai (Karna, 2008). In 1976, the national forest plan recognized the need to involve local people in forest protection and management. Also, the influence of donors and the move toward decentralization saw participatory approaches emerge in the 1980s. Legislation in 1978 placed limited areas of government forest under the control of village panchayat. The Decentralisation Act of 1982 also called for local participation in development initiatives, including in forestry. This approach was then integrated into Nepal's sixth five-year plan and experiences from the Panchayat Forest and Panchayat Protected Forest led to the inclusion of the concept of forest user groups in the seventh five-year plan (1985-90). Approval of the master plan for forestry in 1989 further raised the profile of the sector.

Drivers of Nepal's forest sector:

- Poverty and demand for forestland for subsistence
- Population growth and resettlement in Tarai forests causing further degradation and deforestation
- Unique biological diversity, including high value medicinal plants, and traditional knowledge
- Long experience in community forestry to help restructure, decentralize and devolve power
- More awareness of the role of forests in mitigating climate change and the emergence of carbon market

Source: Adapted from Kanel et al., 2008

During the eighth five-year plan (1991-96), Forest Act 1993 and Forest Regulations 1995 provided the basis for implementing community forestry, simplifying the handover process, and recognizing community forest user groups (CFUGs) as autonomous corporate bodies to manage resources according to an operational plan. The Local Self-Governance Act 1998 enabled local authorities to work with CFUGs to plan and promote village development programs during the ninth five-year plan (1997-2002). These rules, regulations and donor support are vital for the devolution and democratization of forest governance in the hills. However, forests in the Tarai continue to deteriorate, driven by illegal activities and the

exclusion of forest users in community forestry (Springate-Baginski and Blaikie, 2007, 2007:45).

During the tenth five-year plan (2002-2007), with donor assistance, government introduced collaborative forest management (CFM) and other participatory approaches in the Tarai. A District Forestry Sector Co-ordination Committee (DFCC) was also established to increase the involvement of both near and distant users. From 2007 onward, these different management schemes are an integral part of the strategy to reduce poverty and mainstream social justice, equity, gender and good governance.

Nepal's forest sector has pioneered participatory resource management and experiences with diverse approaches provide useful lessons for its restructuring. Climate change is also creating local impacts - increasing the vulnerability of poor and marginalized groups whilst offering communities and government new opportunities to benefit from forest-based carbon sequestration.

2. Supportive Government Policies

PARTICIPATORY FOREST MANAGEMENT	
Policy/national strategies	
The National Forestry Plan, 1976	Recognized the importance of and need for participatory forest management
Master Plan for the Forestry Sector, 1989	Aims for the sector to: meet basic needs for forest products on a sustained basis; conserve ecosystems and genetic resources; prevent land degradation; and contribute to economic growth
Revised Forest Policy, 2000	Maintains block forests of the Tarai as government-owned and hands over remaining forest areas to communities
Leasehold Forest Policy, 2002	Allows private and commercial enterprises to manage leasehold forests
Monitoring and evaluation, 2003	Institutionalizes a monitoring and evaluation system, provides for self monitoring, and calls for the establishment of a management information system
Herbs/NTFP Development Policy, 2004	Points out that the management and protection of high value NTFPs will contribute to the national economy and reduce poverty

Human Resources Strategy, 2004	Calls for training and organizational development across the forestry sector
Law and rules	
Forest Act, 1993 and Regulations, 1995	Identifies five categories of forests in Nepal: government managed, community managed, private, leased and religious; emphasizes community forestry; and recognizes users groups as independent, autonomous institutions
Directives and guidelines	
EIA Directives for the Forestry Sector, 1995	Establishes procedures for assessing environmental impacts on proposals pertaining to forestry
Community Forestry Directives, 1996	Describes the process to establish community forests
Forest Products Sales and Distribution Directives, 2000	Establishes procedures for the collection and sales/ distribution of forest products in government controlled national forests
Guidelines for the Development of Community Forestry, 2002	Describes the processes to form CFUGs, draft their constitution and develop/revise operational plans
Collaborative Forest Management Manual, 2003	Describes the process to establish collaborative forests, formulate operational plans and design an organizational structure
IEE Directives for the Forestry Sector, 2003	Provides guidelines for preparing terms of reference and conducting an initial environmental examination for forestry projects
Directives to Auction/Sell Forest Products, 2004	Establishes procedures for auctioning/selling forest products from national forests
Guidelines for non-government service providers, 2004	Involves NGOs in the provision of services related to sustainable forest management and development
Forest Sector Foreign Aid Policy Guidelines, 2004	Calls on external donors to adopt a sector wide and coordinated approach to development, sustainable forest management and poverty reduction
Community Forestry Resource Inventory Guidelines, 2005	Sets procedures and processes to carry out an inventory of forest products in community forests

3. Successful Practices and Experiences: BISEP-ST in Tarai and Inner Tarai

The Biodiversity Sector Program for Siwalik and Tarai (BISEP-ST) is implemented by the Ministry of Forest and Soil Conservation through a national coordinator and is one of its priority programs. Focus is on strengthening decentralized governance, enhancing livelihoods, improving coordination at the local level, providing guidance and developing different participatory forest management modalities. Two units at central and regional levels support initiatives in districts and facilitate coordination among ministries, departments and donors. The major thrust of BISEP-ST is on the sustainable management of the Tarai productive forests, in partnership with communities and under a formal arrangement which outlines how benefits will be shared. Activities involve trees outside forest on public land, forestry on private land, the development of alternative energy to reduce pressure on forest resources, commercialization of high value NTFPs and conservation of wildlife and habitats, as outlined in a strategy drafted by the District Forest Sector Coordination Committee.

3.1 Community Forests

National Context

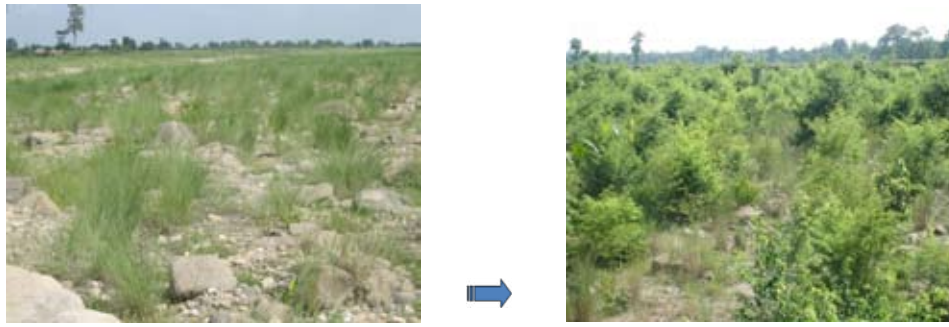
The success of community forestry is based on the devolution of power and on the mutual trust and cooperation that come with establishing a strong partnership between communities and the Department of Forests. If these principles are in place, the approach can significantly improve the livelihoods of rural people (Pokharel, 2001). Experiences have laid the ground for governance reform in terms of participatory decision making, bottom-up planning, and sensitization to gender and equity issues. The program operates in all districts and involves approximately 35 percent of Nepal's households and more than 15,450 CFUGs which sustainably manage about 1.326 million hectares of forests. In addition, income from the sale of forest products has increased (Pokharel and Nurse, 2004).

Although less than 3% of women, ethnic minorities and Dalits participate in decision-making or are hired as front line staff, the proportion of women on CFUG committees went from 19% in 1996 to 30% in 2003 and that of Dalits increased from 2% to 7% over the same period. Their representation in key positions has also increased (Pokharel and Nurse, 2004).

In 2002, the Community Forest Division conducted a survey of 1,788 CFUGs which compared income versus expenditures in 12 districts in the hills and the Tarai. Finding showed that they are spending 36% of their budget on community development, including schools and small scale infrastructure. Another 28% is invested in forest protection and management, 14% on operational costs and 17% on miscellaneous items. Activities to reduce poverty and build capacity account for only5 % of annual expenditures (Kanel,

2004).

The biggest support to communities and leasehold forestry users went to improve forest management, cultivation techniques and implementation. BISEP-ST assisted 582 CGFUGs and supported the establishment and management of 10 biodiversity hot spots and 14 NTFP demonstration plots.



Changes after implementation of BISEP-ST

Remaining Challenges

Key issues are governance and gender inequality. Organizational structures, procedures and capacity are outdated as well. Of 14,572 CFUGs, only a few hundred practice transparent, participatory and inclusive decision-making. Poor and disadvantaged groups are excluded and their needs are not considered (Springate-Baginski et al., 2001; Tiwari, 2002). The poorest households carry the burden of protection where tenure on their private land is not secure (Springate-Baginski et al., 2001).

3.2 Collaborative Forest Management

In 2000, the Department of Forests introduced collaborative forest management in the Tarai as a means to involve local government and user groups in decision making, implementation, benefit sharing and monitoring. The approach aims to achieve sustainable forest management in order to 1) meet the demand for forest products, 2) reduce poverty through job creation, 3) maintain and enhance biodiversity and iv) increase incomes.

The CFM Manual (2003) describes the approach as a partnership among local users, other stakeholders and government officials at local and central levels. It calls on users to select representatives from close (often recent settlers) and distant users (often the original population) to form a group which steers the process and makes decisions. The group then establishes a committee to oversee implementation by a unit formed for this purpose. The unit also serves as the committee's secretariat and runs daily operations.

CFM in Nepal is still at an early stage. It is being piloted in 11 districts in the Tarai, with support from development partners. To facilitate the participation of a large number of people, the CFM group can establish sub-committees based on user needs, potential opportunities and available resources.

At present, only dead and fallen trees are collected from government managed forests. However, CFM allows more silviculture operations, including tree felling, thinning, and fire control - all of which create employment. As with community forestry, CFM has improved social justice and inclusion, in addition to focusing on sustainable forest management and livelihood improvement.

BISEP-ST Achievements

BISEP-ST supported pilot projects in five districts of the Tarai where CFM groups are managing 23,680 ha of productive forests. Approval for seven more projects is being sought and, if granted, will provide an additional 177,000 households with access to forests (see table below). Under current arrangements which allocate 25% of the benefits earned to CFM groups, they have been able to undertake a number of income generating activities, invest in landscape restoration, and take back 54 ha of encroached forestland. They are also managing 338 Chatta to supply fuel and timber to distance users.

	Approved CFM Schemesin BISEP-ST Districts	Proposed CFM Schemesin BISEP-ST Districts
Total	9	7
Districts	5	6
Area	22,730 ha	16,133 ha
Households	244,386	177,040
Beneficiaries	1,493,008	1,062,240
Village Development C'tees	245	187
Municipalities	4	1

Source: BISEP-ST, 2011

CFM has brought about greater awareness and sense of ownership among participants, aspects which have led to better forest protection and more responsible management. The institutional framework is strong and decision making is clear and transparent. The establishment of plantations interspersed with cultivated crops has reduced encroachment or stopped it entirely. Fuelwood depots have been set up and distribution of a supply

to distant users is equitable. Alternative sources of income have also been promoted - for example, pig and fish farming, beekeeping, handicrafts and NTFP cultivation - and a revolving fund provides greater access to credit for these activities. At the same time, CFM offers opportunities to focus on the needs of women, dalits and other poor people. The development of agro-forestry on private and public land has also been initiated.

CFM Assembly

Timber depot managed by CFMG

Remaining Challenges

Due to the high number of users and limited resources, it is essential for CFM to focus on pro-poor outcomes and to design mechanisms that ensure equity and social inclusion. These aspects still need to be incorporated into both policies and activities. Better identification and targeting of the most vulnerable groups, including lower castes, women and ethnic minorities, are required as well. In addition, CFM groups are strengthening their control over forest management - a change which places more restrictions on people who depend on these resources for their living (Bhattachan and Hatlebakk, 2005). Better protection also means confrontations will increase with those engaged in illegal activities. Moreover, the potential for agro-forestry on public and private land to address the needs of distant users is currently under-utilized. Lastly, CFM committees should enhance the involvement of the private sector and promote the development of small enterprises as essential approaches to boost the rural economy and reduce poverty.

3.3 Leasehold Forestry

The Forest Act 1993 provides for any part of national forests to be leased to any organization, industry, or community to produce raw material for industries, engage in eco-tourism, and practice agro-forestry. Licenses are granted for a maximum of 40 years and can be renewed for another 40 if performance is satisfactory. The program was established to improve living conditions, raise the income of poor families, rehabilitate degraded land and plant trees in barren areas. It targets poor farmers who have less than 0.5 ha of private arable land and annual per capita income below the poverty line of 2500 Nepalese rupees

(NRS). Priority is given to deprived ethnic or tribal groups and female-headed households who depend on livestock and forest resources.

Plots are managed to meet household subsistence needs, generate income and protect the environment. Other components include ownership of livestock to help fulfil household requirements for food and income; a sustainable rural finance institution comprised of the leasehold groups and village finance association; and capacity to implement leasehold forestry to reduce poverty in a gender sensitive way (DOF & DOL 2005).

The DoF identifies degraded forestland suitable for leasing and facilitates the process, including by identifying customary users. The Department of Livestock Services assists groups with their livestock and need for forage. Financial institutions help in the formation of groups and provide them credit up to NRS 5000 without collateral. The management plan is approved for 40 years but can be extended for 40 more.

So far, 5,113 groups of 43,183 households, have been created and are leasing 23,028 ha - an average of 0.56 ha per family. Encroachment has been reduced and natural regeneration is taking place. Higher incomes and the rearing of more productive livestock are improving living conditions and a number of seed growers, women and marketing associations have been established. BISEP-ST supported 667 groups of households.

Remaining Challenges

The loss of public grazing land under leasehold forestry requires that, as one solution, communities reach agreement on integrating such plots into community forestry and collaborative forest management approaches.

3.4 Trees Outside Forests

Trees outside forests are part of a traditional agroforestry system and provide an important source of income, particularly for poor and marginalized communities. Despite the success of community forestry, the uneven distribution of forests in the Tarai gives limited access to poor and marginalized communities in some areas and people living far away are excluded from benefiting from the use of these resources, especially in the southern Tarai. Thus, the government developed a national policy and program for forestry on private and public lands which BISEP-ST has been helping to implement in the six central Tarai districts over the last eight years. A recent assessment of agro-forestry on public and private land shows that this model can be expanded to many fragmented public lands in the central Tarai. The report also reveals that this type of forestry not only provides income to communities but also addresses social inclusion and gender issues. The Forest Act, 1993 recognizes the rights of individuals to own forests on their private land, regardless of size. These forests are an integral part of agricultural life in rural Nepal as many people grow trees on small, often

barren and marginal plots.

BISEP-ST Achievements

BISEP-ST considers trees outside forests under the agro-forestry model as a priority program because of the income it generates. The trees are also important in restoring landscapes, particularly in barren lands. At present, it is supporting 470 forestry user groups which are practicing agro-forestry on more than 260 ha of public land. They keep all sales of the cash crops and share the income from tree crops with land owners. Recent data show that NRS 1million per ha will be generated from the sale of tree crops over the seven-year rotation period.

Some 622 forestry user groups are managing 600 ha of private land, with BISEP-ST support. The project has already provided about 9.7 million saplings which were planted on community, public and private land. These plantations significantly helped to restore degraded land, supply timber and meet fuelwood demand.

Agro-forestry on public land

Agro-forestry on private forests

Remaining Challenges

Despite these promising results, the capacity of newly formed networks and associations is weak. Secure tenure is also an issue on public land, as is the need for the private sector to engage in processing of forest products to add value.

3.5 Micro-enterprises

Some 82 micro enterprises have been established, involving more than 536 groups of mostly Dalits, women, and Janjati (about 30,000). Operations cover a wide range of commodities such as medicinal and aromatic plants, wood carvings, and bio-briquettes. The estimated NRS 3.5 million benefited 1800 families.

3.6 Conservation in Churia

The Chure region spans 33 districts, covers 13 percent of Nepal's land area, and is home to

about 4 million marginalized people. Conservation of its ecosystems is a major challenge, given continuous deforestation, uncontrolled grazing, and nomadic life styles. BISEP-ST is helping to address these issues, in partnership with upstream and downstream communities. Activities include the management of 16 micro watersheds, small irrigation schemes, torrent control, construction of about 12.5 km of bioengineering check dams, protection of water sources, and the planting of bamboo and broom grass in fruit orchards to conserve soil. Initiatives are generating income and benefitting 5000 households. In addition, strategies are being developed and discussions are underway to explore potential opportunities from schemes such as Payment for Environmental Services and Reducing Emission from Deforestation and Forest Degradation (REDD).

Protection of water sources

Protection against soil erosion

3.7 Plants, Wildlife and Buffer Zones

BISEP-ST supported the conservation of species and the management of habitats in two protected areas: Parsa Wildlife Reserve and Chitwan National Park. With the project's help, local offices managed 70 ha of grasslands and 5 wetland sites, maintained 55 km of forest roads and constructed/maintained five water holes. In addition, the construction of a crocodile breeding centre and the renovation of an elephant shed contributed to conservation efforts. Communities learned cultivation techniques and took over the management of 12 plant species which yield non-timber forest products. BISEP-ST also supported the conservation of germplasm of 25 species, the development of 0.4 ha of floriculture and of a rhododendron garden on 2.5 ha, the establishment of an orchid nursery and construction of a green house for the production of seedlings.

3.8 Alternative Energy

Southern settlements in the districts where BISEP-ST works are fuel deficit and have limited access to forests. As a result, communities rely on cow dung for their fuel requirements, a product which is also the main fertilizer used in agriculture. The project is therefore introducing new sources of alternative energy in the form of 1155 biogas plants linked to toilets and the installation of 2651 more efficient cooking stoves. Moreover, 60 user

groups, comprising 738 households, are making bio-briquettes.

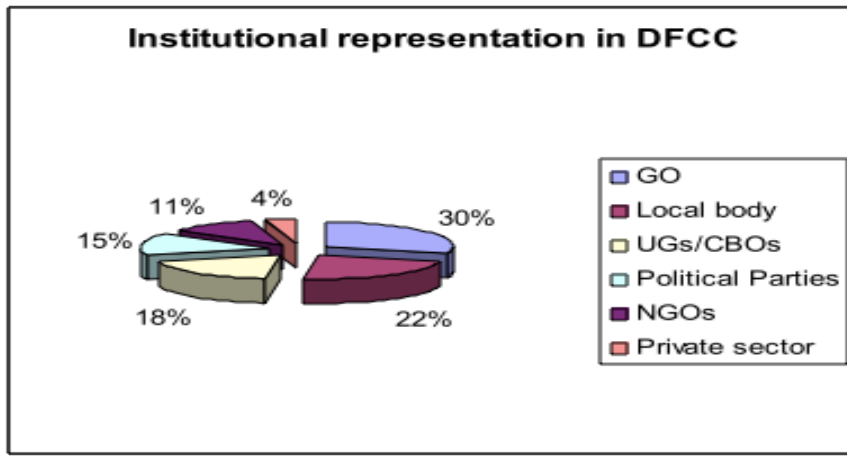
Dried cow-dung for cooking

Improved stove in rural village

3.9 Enhancement of Capacity

Capacity building is the major component of BISEP-ST's mandate. It focuses on issues such as good governance, leadership, gender equity and social inclusion, accounting, institutional development, auditing/budgeting and training in various fields - GPS/GIS, forest management information systems, REDD, soil conservation through bio-engineering, and aspects related to the promotion, cultivation, marketing and value addition of NTFPs. About 30,000 villagers and staff from line agencies benefited from these activities in more than 1,000 events. Some 44 % were women, 15% Dalit and 38% ethnic minorities.

DFCC membership structure



Assembly of user groups

DFCC meeting at district headquarters

3.9 District Forest Sector Coordination Committee (DFCC)

The Ministry of Forests and Soil Conservation established District Forest Coordination Committees to improve collaboration and coordination of forestry activities among stakeholders within the broader umbrella of local self governance. Each committee comprises up to 27 members from line agencies, local government, forest user groups, community organizations, political parties, civil society and the private sector. It is a permanent decision-making body which reports to the president of the District Development Committee who heads a unit which oversees implementation.

One of the responsibilities of the DFCCs is to supervise the preparation of district forest sector plans which identify, prioritize and address local needs through a bottom-up and participatory process. Committees also help to resolve conflicts among user groups and other stakeholders, promote good governance, guide program implementation and support changes to achieve more people-oriented outcomes, as noted in the table below.

FROM	TO
Organizational governance	Both self-disciplined and organizational governance
Needs-based approach	Rights-based approach
Resource-centered approach	Resource and livelihood-centered approach
Conservation and protection mind set	Sustainable utilization and entrepreneurship mind set
Capacity building	Capacity and relationship building
Fulfillment of basic needs	Fulfillment of subsistence and commercial needs
Training	Training, coaching and counselling
Participation	Credible commitment and genuine consultation
Vertical communication	Two-way vertical and horizontal communication
Governance reform	Governance transformation

Source: Adapted from Sah and Pokharel, 2006

4. Lessons Learned

Lessons have been learned in three key areas: policy formulation and planning; organizational structure and operational mechanisms; and implementation of plans, programs and projects.

4.1 Policy formulation and planning

- A top-down approach has had little success.
- Diverse geographical and socio-economic conditions across the country require different approaches - for example, community forestry in the hills and collaborative forest management, trees outside forests and other participatory management modalities in the Tarai and high altitudes.
- The formulation of policy should take into account outcomes of pilots and the concerns of stakeholders.

4.2 Organizational structure and operational mechanisms

- Bureaucratic requirements and multi-cultural dimensions hinder service delivery to the public.
- Policing by forestry authorities does not help to achieve effective forest management in the Tarai.
- Successful forest management depends more on robust local institutions than on technical aspects.
- Various forms of community-based forest management have been moderately responding to the needs of poor and disadvantages groups.

4.3 Implementation of plans, programs and projects

- Bottom-up planning and participatory approaches improve forest conditions and rural livelihoods.
- Collaboration between government and non-government/grass-root institutions, including the private sector, promotes effective synergies.
- Findings from monitoring and evaluation exercises must be taken into account when designing and revising plans, programs and projects.
- Local government (district and village development committees) plays an essential role in the formulation, coordination and monitoring of plans, programs and projects.

- Forest enterprises under private-community partnerships are more financially viable and socially responsible.
- CFUGs did not responded well to prescribed silvicultural practices because they were not compatible with economic incentives.
- Effective forest governance can significantly contribute to at least five Millennium Development Goals.

5. Challenges and Opportunities, Including in the Context of Climate Change Mitigation and Adaptation

5.1 Policy development processes

The forestry sector has established some of the most participatory processes in Nepal, including to develop community forestry guidelines. Despite good examples of achieving stakeholder consensus, civil society and affected communities often contest policy processes because they consider them not sufficiently inclusive, transparent and participatory. In addition, many strategies are not well-defined and capacity to engage multiple stakeholders in developing and implementing forest policies is weak.

5.2 Equity and social inclusion

Like other sectors in Nepal, forestry is dominated by privileged groups - a situation which makes inclusion a major issue of concern, including in community forestry and collaborative forest management schemes. There is thus a need to address equity across institutions and at different levels to ensure the participation of distant users, women, poor and landless people, marginalised and disadvantaged groups in decision making. There is also the need for households and other groups of stakeholders to share power, rights, and responsibilities associated with forest management.

5.3 Financial sustainability and the trade in forest carbon

The urgency to reduce carbon emissions as part of efforts to mitigate climate change has led to the search for options to sequester it. In this regard, Nepal's community forestry program provides a sustainable and viable mechanism. However, many challenges have to be overcome in terms of forest carbon trading: methodologies to establish baseline data and to measure biomass and annual growth as well as silviculture practices and technologies that are compatible with particular ecosystems and traditional lifestyles, for example. Reaching consensus on strategies and approaches among government, communities, professionals, conservation groups and households is another difficult task, as is the development of

mechanisms to facilitate negotiations, including on the unit price of carbon sequestrated, and to oversee expenditures, financial transfers and the equitable distribution of revenues.

5.4 Framework and modalities of participation in forest governance

While community forestry and other community-based forest management modalities provide a framework for public participation in governance of the sector, stakeholders have different and often contradictory views on how power should be shared. Another challenge arises in the application of participatory approaches used in small areas of forest to larger blocks and landscapes, especially given the growing demand for public involvement and for greater local autonomy.

5.5 Structure and capacity of the Department of Forests

Staff in the Department of Forests should provide services in a professional manner and be motivated to achieve excellence. Moreover, civil society and the private sector should share in the delivery of services while government forestry authorities should lead in the development and coordination of policies and in the monitoring and enforcement of regulations.

5.6 Monitoring, communication and adaptive learning

Monitoring provides feedback so that learning can be adapted accordingly. Similarly, good communication between stakeholders and government decision-makers about the process and outcomes promotes a sense of ownership and increases program effectiveness. Participatory monitoring and evaluation in some CFUGs are showing encouraging results and should be scaled up.

6. Future Outlook and Trend

- Despite significant achievements in institutionalizing participatory forest management, further efforts such as those listed below are needed to make the sector more inclusive, transparent, responsive, self-financing and ecologically resilient.
- Develop and consolidate current forest policies and plans through inclusive multi-stakeholders processes.
- Promote conservation at the landscape level and improve livelihoods, in collaboration with local government.
- Include poverty reduction and livelihood improvement in all programs and initiate payment for environmental services.

- Develop plans and programs to mitigate the adverse impacts of climate change in the forestry sector, including on forests, biodiversity and watersheds.
- Explore the opportunities, challenges and risks of carbon trading through REDD and ensure poor people benefit from this program.
- Intensify schemes related to collaborative forest management and trees outside forests in the Tarai and inner Tarai and apply the knowledge gained to landscape and local government levels.
- Clarify the roles of government, non-government organizations and the private sector in the development of sector.
- Promote public–private partnerships for the development of forest enterprises.
- Make the sector more accountable, transparent, responsive and service delivery more people-oriented.
- Strengthen multi-stakeholder fora at all levels to facilitate participatory planning, implementation and monitoring.
- Identify and harmonize inconsistent and conflicting forest policies and legislation.

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Community Forestry Development in The Context of Climate Change

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Peru in South America

Total Area: 1,285,215.60 km2

Population: 29´461,933

Biological Diversity: Fourth in the world

Cultural Diversity: Tenth in the world

Peru is well known for the Andes Mountains and the ancient Inca culture.

Machu Picchu

Highlanders in Andean communities

The Andes Mountains and the Peruvian geography

The Andes Mountains significantly influence the Peruvian geography and environment, making it one of the most diverse countries in terms of climate and biological diversity. The Amazon river - a major water system - originates here, formed from the melting ice of its snow-covered caps.

Peru's vegetation offers a new perspective to the world and to Peruvians

Most city dwellers consider the Peruvian Amazon or the selva (jungle) as unproductive and irrelevant for the country's development. However, the recent proposal to call the area "Amazonia" is making people more aware of the unique ecosystems of Peru and their significant importance to economic growth which is based on the sustainable use of natural resources and ecosystems.

Population distribution

As noted in the table below, the coast of Peru is the most densely populated, the Andes region is next, and the Amazon - the focus of this report - is the most sparsely populated.

Region	Coastal Land	Andes	Amazon
Size (%)	11.4	29.7	58.9*
Population (%)	55.1	35.5	9.4
Population density	111/km^2	27/km^2	4/km^2

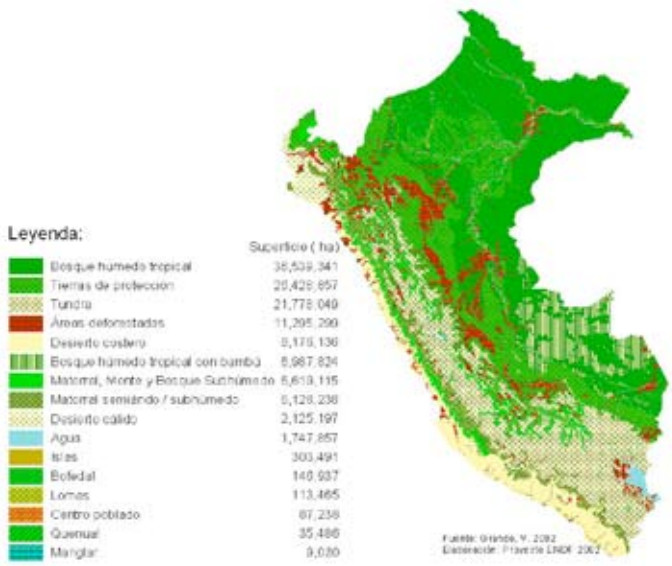
** The Peruvian Amazon (Selva) is all land which is 500 meters below sea level.*

Cultural Diversity of the Peruvian Amazon

Much like its ecology, the Peruvian Amazon is socially diverse as well. Some 58 groups not only hold different cultural, economical and political values, but also manage natural resources and ecosystems according to traditional knowledge which dates back centuries. For example, indigenous communities plant crops when water recedes from flooded forests because of the fertile deposits from the Andes which are left behind to enrich the soil. Such agriculture production both meets their basic needs and generates income. Flooded forests are one of the most dynamic and productive type of tropical forest.

Peruvian Forests

Peru's tropical forest area ranks it the second largest in South America and the ninth in the world. The Peruvian Amazon (all land drained by water that runs into the Amazon River) comprises 74% of land area, much of which is primary forest under various degrees of degradation due to legal and illegal logging. The map below shows forest cover in 2002.



Historical development of community forestry and its drivers

The indigenous people of the Amazonian forest have been practicing what is now known as community forestry or community forest management for thousands of years, using traditional knowledge. They live in vast territories and practice shifting cultivation - a system which clears forests to grow crops but then leaves the land fallow until above ground biomass and soil properties are restored. This way of farming is possible because low population density over huge areas allow the land to fully recover before being used again.

Legislation has recognized indigenous communities and their knowledge for decades but, for many reasons, contributions to their own development and to the development of the region are restricted. The law defines community forestry as the sustainable harvesting of forest goods and services as well as the conservation of forest and other plant ecosystems by the village or village groups for their collective wellbeing. It takes into account their vision of the Cosmos, their social and cultural values, and their traditional knowledge and practices in managing forests for timber, non timber products and ecosystems benefits.

From that perspective, community forestry can promote the development of indigenous communities through the use of traditional knowledge which can be framed in new ways to respond to current market demand in an equitable manner. Peru's indigenous population holds tenure on close to 13 million ha and the sustainable management of this territory represents a significant opportunity for their development as well as that of the Peruvian Amazon and the country.

Supportive government policies

When Legislative Decrees 1015 and 1090 were issued in 2008, indigenous peoples living in the Peruvian Amazon held huge protests which convinced policy makers of the need to consult them, obtain their informed consent and include them in decision making processes. At that time, they demanded forest policy reform and major changes in implementation of the Forest Law. Issues included:

- A boom in the demand for rubber which led to unsustainable practices
- Illegal mining for gold
- Indigenous territories given to settlers to develop the Peruvian Amazon through agriculture and cattle ranching
- Concessions given to international petroleum companies
- Indigenous territories given to entrepreneurs to establish oil palm plantations
- Indigenous territories given to entrepreneurs to produce biofuel.

Legislation and initiatives dating back to the 1970s still guide development in the Peruvian Amazon and the indigenous peoples who live there, for example:

- Establishment of the Forum for the Development of the Peruvian Jungle (1973)
- The Law for Indigenous Communities and the Promotion of Agriculture and Ranching in the Jungle Region of Peru - Legislative Decree 20653 (1974)
- Forests and Wildlife in Peru - Legislative Decree 21147 (1975).

After many years under the same forest laws, the Free Trade Agreement with USA and the special legislative power given to the President to fulfill Peru's commitments gave rise to the new Forest and Wildlife Law N° 29763 which Congress enacted in 2011. Provisions consider the special situation of indigenous communities in the Peruvian Amazon and recognize:

- forests as their property or for their exclusive use

- the need to respect their traditional knowledge
- their right to harvest forest goods
- the need to maintain a healthy environment for the services it provides
- the need for capacity building programs
- the need to allocate territories based on traditional use and practices
- community forest management as an accepted approach
- their use of land for different purposes - for domestic consumption and subsistence as well as for commercial and industrial activities.

In addition, the law provides that confiscated illegal timber from a community forest be used for the benefit of the local people.

EFFECTIVE MODES, PRACTICES AND SUCCESSFUL EXPERIENCES

Community-based ecotourism in San Rafael: Close to Iquitos City, the largest in the Peruvian Amazon, lies a primary forest in the Yanamono Mishana Corridor that is reported to contain one of the most diverse flora on earth. Villagers manage and use the natural resources based on their traditional knowledge and are accessing markets to sell the value added items they produce. Visitors come to the area to witness traditional practices and the community is reaping economic benefits from this tourism.

The Amazon wetlands (aguajales): These ecosystems are unique because they can store close to 1600 t of carbon dioxide below and above ground. In the past, the native palm (aguaje) was cut to obtain the fruit. This practice not only lost twenty years or more of production but it also released carbon into the atmosphere. Now the fruit is harvested by climbing the trees and the production has become sustainable and environmentally friendly. Researchers are improving the quality of the fruit to increase the level of oil used for sunscreen, antioxidant oils, and carotenoid. The sale of the fruit for consumption employs close to 5000 women in the Iquitos City area, jobs which have been safeguarded because of the new harvesting and management techniques.

Agroforestry: This practice involves planting trees on deforested land for timber and non-timber production,

thereby avoiding the need to continue harvesting primary or secondary old-growth forests. Agroforestry is a suitable alternative for well drained soils in uplands as well as for forests which are flooded on a regular basis. In the latter areas, the trees planted provide the conditions required to supply food for fish ponds and fish cages in lakes. The practice increases the production of fish for household consumption or for the market - both of which yield benefits to communities on the river banks.

CHALLENGES AND ISSUES OF COMMUNITY FORESTRY IN CLIMATE MITIGATION AND ADAPTATION

A key issue in the Amazon is the imbalance between the amount of carbon emitted as a result of forest activities versus the significant impact that global warming has on the area. Climate mitigation is a matter of concern but the need for adaptation measures is equally urgent.

Part of the solution is to recognize the Amazon for what it is: an area rich in biodiversity; one of the largest carbon storage ecosystems on earth; and home to diverse indigenous groups that have vast experience over thousands of years in adapting to changing climate and environments.

Action required in the Peruvian Amazon:

- Support regional and local governments to develop incentives to conserve forests as a complement to the Ministry of Environment's efforts at the national level.
- Avoid creating high expectations among the indigenous communities with regard to payment for environmental services related to carbon sequestration.
- Stimulate national research and promote the international exchange of scientific information on the impacts of climate change on tropical forest ecosystems and water ecosystems because of their direct link to forests.
- Develop a strong extension program and capacity building component in the Peruvian Forest Service.

Community- Based Forest Management in The Philippines

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1. Introduction

The Philippines spans an area of 30 million ha, of which 14.77 million (49%), are forestland, 14.11 million (47%) are alienable and disposable (A&D) land, and 1.09 million (4%) are unclassified.

Under Philippine law, forestland is public. These areas are home to an estimated 24 million people, more than one-third of the country's population, 6 to 10 million of whom are indigenous.

The Department of Environment and Natural Resources (DENR) has primary responsibility over forests and forestland.

2. Historical Development of Community-based Forest Management

As early as the 1970s, the government implemented people-oriented forestry programs such as:

- Forest Occupancy Management (1971) which either resettled or granted forest occupants a 2-year permit to manage a lot of 2.0 ha
- Family Approach to Reforestation (1974) which contracted families to produce seedlings and establish plantations
- Communal Tree Farm (1979) which allowed communities to plant trees under a 25-year agreement and allowed individuals to harvest products from the trees and crops they planted.

These programs, however, did not give communities greater authority or secure tenure but were designed to rehabilitate open and cultivated areas and to limit occupancy on forestland. The rights of local communities and the land they occupied and developed were based on short-term arrangements.

In 1982, the Integrated Social Forestry Program (ISFP) consolidated various people-oriented approaches and shifted government focus away from pure enforcement of regulations. It was designed to alleviate poverty, promote social justice, manage and protect forest resources and to develop open and occupied areas within forestland in a holistic manner. Forest communities in the uplands became partners in development efforts, participating in activities which improved their socio-economic situation. Under the program, certificates were issued which granted secure tenure to People's Organizations and to individuals for the same period of time.

Through the years, several programs and projects were established to further involve communities in the protection and management of forestland: the Upland Development Program, Forest Land Management Program, and Community Forestry Program, for example. They provided livelihood alternatives and engaged in reforestation, tree farming,

the organization of communities and other activities to develop the uplands.

3. Community-based Forest Management: A Strategy to Achieve Sustainable Forest Management

After more than two decades, government used experiences and lessons learned from a people-oriented approach to develop community-based forest management (CBFM) - an equitable and holistic strategy to sustainably develop forestland across the country and achieve social justice in accordance with Executive Order No. 263 (1995). CBFM is practiced in all areas classified as forestland, including designated zones in protected areas, be it occupied, open, denuded, reforested or forested. It encompasses all organized efforts of the government to work with communities located in or adjacent to public forestland. Authorities allocate portions to them for the purposes of development, protection, management, conservation and wise use. Specifically, CBFM aims to protect the right of Filipino citizens to a healthy environment, improve socio-economic conditions of participating communities, promote social justice and provide equitable access to and benefits from forest resources. These objectives highlight the role expected of communities not only to promote forest development but also to advance socio-economic development in the uplands.

The CBFM Strategic Plan addresses the development of forestland over the long term. After 10 years of implementation, it was revised in 2007 to cover another ten years (2007-2017) and forms the basis of regional and provincial action plans.

4. Institutional Arrangements

Three major stakeholders are involved in CBFM implementation: 1) People's Organizations which may be an association, cooperative, federation or other legal entity established by the community to collectively address concerns and needs; 2) the Department of Environment and Natural Resources; and 3) Local Government Units (LGUs).

People's Organizations

People's Organizations are required to prepare a long term plan (Community Resource Management Framework) for the CBFM area awarded to them. As a major stakeholder, they are entitled to incentives, privileges and rights to peacefully occupy, manage and benefit from the forestland in a responsible and sustainable manner. They are exempt from paying rent on the land and must be properly informed and consulted on all proposed government projects in the area. They can also harvest timber from plantations, subject to, for example, an approved framework and a five-year work plan which contains detailed strategies, activities and targets. The community must also use a portion of the income from harvesting to protect, renew and improve the forest resources and to develop alternative

sources of livelihood income.

In return, they must protect and manage their areas according to the principles of sustained-yield; develop and implement equitable benefit-sharing arrangements; be transparent in financial transactions; and promote participation and consensus in all CBFM activities.

Department of Environment and Natural Resources (DENR)

DENR is responsible for the management, development and administration of forestland. Its 16 regional offices are headed by an Executive Director, including the National Capital Region which issues CBFM policy and guidelines. At the project level, in partnership with local government, DENR facilitates the establishment of CBFM in 4 stages, each of which has the following objectives:

- preparatory: to inform and educate stakeholders and the public about CBFM; establish linkages between DENR and the LGU; and delineate CBFM areas
- formation of People's Organizations and secure tenure: to encourage community participation; establish/strengthen community organizations; define socio-economic conditions; and conduct an inventory of natural resources
- planning: to assist organizations prepare a Community Resource Management Framework and a 5-year work plan
- implementation: to enhance community capacity for sustainable resource use and development; ensure the economic viability of resource management and the equitable distribution of benefits; and build capital for forest management and community development projects.

DENR field units are responsible for the overall management of CBFM, including monitoring and evaluation. The Regional Environment and Natural Resources Office coordinates and implements all policies, regulations, programs and projects. The Provincial Environment and Natural Resources Office supervises implementation, including the requirement to submit periodic reports and maintain a database of all CBFM projects. The Community Environment and Natural Resources Office implements the approach within its jurisdiction, in collaboration with local government, other agencies, non-government organizations and the private sector.

Local Government Units

The enactment of the Republic Act 7160, known as the Local Government Code of 1991, assigned certain DENR functions to local government units, particularly implementation of projects under the Integrated Social Forestry Program. These units then incorporate forest management and protection in their ordinances and/or policies - a practice which makes

joint planning with DENR a necessity, including to determine the extent and condition/ potential of the area and its resources. The Code also requires the Department of Interior and Local Government, the League of Local Government Units and DENR to issue joint guidelines on program implementation.

DENR Administrative Order No. 2004-29 stipulates that DENR has the duty to collaborate with LGUs as well as other agencies and entities to support and strengthen communities involved in CBFM.

5. CBFM Management Practices

5. 1 Forestland allocation

DENR has sole authority to allocate forestland. CBFM projects may be implemented in:

- uplands and coastal lands in the public domain except areas covered by prior rights (unless the lessee or permit/agreement holder waives such rights); protected areas other than designated multiple use zones; forestland legally assigned to other government agencies (unless they give written consent); certified ancestral lands and domains (unless the indigenous peoples opt to participate)
- communities residing in or adjacent to a forest and depend on its resources for their livelihood
- areas adjacent to existing CBFM projects.

5.2 Eligible Participants

Communities represented by People's Organizations can participate in CBFM and a committee composed of the DENR, LGU, other concerned agencies and sectors, and NGOs determines the eligibility of each resident to be a member. They must be Filipino citizens who already till portions of the proposed area; traditionally utilize resources for all or a significant part of their livelihood; or reside in or next to the area to be allocated and need to develop portions of it.

5.3 Tenure Security

DENR is the only agency that can grant secure land tenure in classified forestland. The legal instruments it uses take 2 forms: a Community-based Forest Management Agreement and a Certificate of Stewardship. The duration of the former is 25 years, renewable for another 25, and is entered into with People's Organizations which represent communities. The latter is a formal arrangement with individuals/families who occupy or till portions of the forestland covered under the 25-year agreement.

Community-based Forest Management Agreement: This instrument is designed to

ensure that communities enjoy the benefits of sustainable management, conservation and utilization of forestland and natural resources. It is non-transferable but it is possible to contract development and other economic activities to private or government agencies. The agreement may also be used as collateral for the standing crops which communities plant, subject to DENR approval.

Certificate of Stewardship: The Community Environment and Natural Resources Office issues the certificate upon recommendation of the relevant People's Organization, provided that the applicant is a regular member. In the case of married couples, the names of both spouses are included. It can be transferred to legal heirs in case of death or incapacity of the holder.

5.4 Development and Management of CBFM Areas

The development and management of CBFM areas are consistent with the Community Resource Management Framework which was formulated by the People's Organization, with assistance from the Community Environment and Natural Resources Office. Activities include the establishment of nurseries and plantations, assisted natural regeneration/ enrichment planting, agroforestry and forest protection and conservation.

Benefits received from forest products harvested in government-funded plantations or those established by former corporate permit holders must be shared. In general, 75% of the proceeds goes to the People's Organization and 25% to government. The organization then divides its share in various ways: to members, to improve livelihoods, and to rehabilitate and protect forests. In some cases, part of the income is used for infrastructure development such as roads.

The Constitution and By-Laws of People's Organizations define the rules and regulations for group management and forest operations, including the role of officers and members. Arrangements may be informally negotiated, especially those pertaining to daily operations.

5.5 Participatory Monitoring and Evaluation

Annual monitoring and evaluation to assess issues and constraints related to implementation is carried out by a team from regional, provincial, and community offices, as well as from the local government unit, NGOs and other concerned sectors. In addition to this effort, DENR offices monitor and evaluate progress on a regular basis.

5.6 Technical Support

Other than DENR and LGUs, the Department of Agriculture, Department of Science and Technology, and Cooperative Development Authority provide technical support to CBFM participants according to their mandate and priorities - for example, agroforestry practices

and livestock dispersal, the development of small-scale enterprises to make furniture and handicrafts, and the formation of cooperatives.

Non-government organizations also provide vital services, including helping communities to organize themselves, building capacity through training, funding livelihood projects, and supporting the establishment and maintenance of plantations. Some NGOs also assist with monitoring and evaluating CBFM activities as well as in linking People's Organizations with government and other service-providing institutions.

6. Supportive Government Policies

1996	Executive Order 263, known as the CBFM Strategy (DENR Administrative Order No.96)	Calls on communities to prepare Community Resource Management Frameworks with the assistance of DENR, LGUs, NGOs, and other government agencies. It stipulates that CBFM applies to all areas classified as forestland, including designated zones within protected areas. It integrates all people-oriented forestry programs of the government.
1998	Joint Memorandum Circular No. 98-01 (DENR and Department of Interior and Local Government)	Operationalizes the devolution of forest management functions from DENR to LGUs. It also seeks to strengthen and institutionalize collaboration among the relevant departments on devolved and other forest management functions.
2000	Guidelines Regulating the Harvesting and Utilization of Forest Products within CBFM areas	Rationalize the utilization of forest products within CBFM areas.
2003	Joint Memorandum Circular No. 2003-01 (DENR and Department of Interior and Local Government)	Provides guidelines and instructions for DENR, DILG and LGUs to strengthen their collaboration on matters related to forest management and the environment.
2004	Executive Order No. 318	Prescribes the pursuit of sustainable management of forests and forestland in watersheds based on six principles, including community-based forest conservation and development. It confirms CBFM as the primary strategy for forest conservation and development.

2004	DENR Administrative Order No. 29	Gives more flexibility to communities by, for example, requiring 5-year work plans instead of annual ones.
2005	DENR AO No. 2005-25	Provides for the establishment and development of agroforestry farms and plantations in the open and unproductive forestland, including CBFM areas.
2007	Sustainable upland development for food security, wood and non-wood products and economic growth	Emphasizes CBFM in the sustainable management of forestland and the equitable sharing of benefits.

7. Status of CBFM

CBFM under various land tenure instruments encompasses 5.97 million ha - 66.33% of the 9 million ha target stipulated in the DENR Strategic Plan. Current coverage involves 690,687 households in 5,503 sites, most of which are led by a People's Organization. These groups could also belong to a local, regional, and/or national CBFM federation.

8. Successful Practices and Experiences

The *muyong* system

The ***muyong*** system is a unique type of forest management which is deeply ingrained in the culture of the Tuali tribe who lives in the northern province of Ifugao on the island of Luzon. Most ***muyongs*** are located in the upper portion of stratified agricultural lots and are generally thought of as an extension of the ***payoh*** (rice field). They help to conserve water needed to grow the rice and are a source of firewood for cooking and of materials for house construction and woodcarving.

Customary laws confine the cultivation of the ***muyong*** to clan members as it is considered as clan or family-owned. They are expected to maintain their ***muyong*** as it is a disgrace to leave only a few trees to heirs. Maintenance includes weeding, thinning and enrichment planting. The Ifugao also employ sprouting/pruning, rejuvenation, and composting. Moreover, trees are thinned to regulate the intensity of light reaching the undergrowth. Huge trees in a muyong, especially those near creeks and large rocks, are protected from cutting because they are believed to be the homes of the Ifugao earth spirits. Mostly all forests in the Ifugao and Banaue areas are managed under the muyong system.

The saguday system

The ***saguday (woodlot)*** system involves the ownership and management of 0.5 to 10 ha of forestland by a clan of 1 to 20 families, the largest of which may include members from several generations. Only clan members have access to the resources and share equal rights to them. Five objectives govern this system: health, prosperity, abundance, nature, and peace. The ***saguday*** is managed for wood supply, food, medicine, clean water, and cultural values.

Only the council of elders and their designated caretakers can make decisions concerning the use of resources and these are based on traditional rules and on need. For example, if fuel is required, only branches and dead trees are harvested. For house construction, the caretaker chooses the trees, usually those that are mature and those that bear fewer cones. The quantity cut depends on his assessment of the requirement of the party requesting the wood. In exchange for services, caretakers have access to the resources of the ***saguday*** and can stay in the area. However, the elders can replace them if they deem performance unsatisfactory.

Both the ***muyong*** and the ***saguday*** systems demonstrate that learning from informal arrangements can help to achieve sustainable forest management.

9. Opportunities and Constraints

More than two decades of experience in CBFM in the Philippines have identified the following factors which either facilitate or hinder implementation:

Facilitating Factors

- Government, communities and individuals are partners in development.
- Policies formulated by leaders of People's Organizations strengthen projects.
- Forestland improves livelihoods and promotes economic development.
- Communities and People's Organizations are willing and capable managers.
- Socio-economic, environmental and other benefits sustain the commitment of People's Organizations to forest development and protection.
- Externally-funded projects employ strong community organizers.
- Appropriate technology and channels for its transfer are more available, such as farmer-to-farmer training and exchange visits.
- Agroforestry projects incorporate aspects that improve livelihoods.

- Collaboration among organizations and agencies for technology, product development and financial support is enhanced.
- Working mechanisms developed at local levels promote local participation.
- Training is based on needs and the use of participatory techniques.
- Financial and technical assistance from DENR, LGUs and NGOs is essential.

Hindering Factors

- Concerns over tenure security have increased as a result of the nationwide suspension of resource use permits and management agreements.
- DENR requirements and procedures for resource utilization are bureaucratic and limited technical assistance is available to help communities comply.
- Organizational and technical capacity of People's Organizations is weak, including financial management and entrepreneurial skills.
- The technical capacities of implementers and LGUs need to be strengthened.
- Parties involved in CBFM implementation lack confidence.
- Investments from the government, private sector and financial institutions to develop CBFM areas are inadequate.
- Weak collaboration among DENR and the range of other stakeholders prevents addressing broader community needs, such as infrastructure development and provision of basic services.
- Financial capital for resource utilization and income-generating projects are insufficient.
- Personnel and budgets to effectively respond to CBFM demands are limited.
- Management information systems (MIS) to aid planning and decision making are absent.

Key Remaining Challenges for Effective CBFM Implementation

The following weaknesses still need to be addressed with regard to CBFM implementation:

- Insecure tenure and resource use policies that discourage participation
- Overly complex policies and procedures, especially on timber utilization

- Formulation of new policies instead of monitoring and evaluating current ones
- Continued conversion of forestland to agriculture production
- Increased pressure on forestland in the uplands because of population growth
- Inadequate participation of women in decision making
- Insufficient attention to developing future leaders and to training DENR staff, LGUs and People's Organizations
- Little use of indigenous management systems in CBFM projects

Community Forestry in Papua New Guinea

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1. Introduction

Papua New Guinea (PNG) with its 600 islands and 46.2 million hectares is one of the largest island nations in the Asia-Pacific region. Although estimates of forest cover vary, the currently used figure of 29 million hectares (15 million of which are classified as production forest) is down from 33 million in 1975. The loss is attributed to shifting cultivation, conversion to agriculture, logging, urban development, infrastructure development, mining and natural disasters. The country's abundant forest resources span a landscape as rugged as any in the world, from the coastal flats to the high mountains.

PNG shares a land boundary with Indonesia to the west and a sea boundary with Australia to the south and Solomon Island to the east. It is highly diverse in terms of its culture, topography and biodiversity and is divided into four distinct regions: Momase or Northern Region in the north central mountains (4 provinces), the Southern Region located south of the same range (5 provinces), the Highlands in the hinterland (5 provinces) and the New Guinea Islands (5 provinces).

The Southern Region leads in terms of timber concessions and production forests,followed by New Guinea Islands, Momase and the Highlands where the difficult terrain makes harvesting commercially unviable. Logging in the other three regions has resulted in forest degradation and a significant reduction in forest cover.

Map of Papua New Guinea

2. A Brief History

The first inhabitants of Papua New Guinea probably migrated from the Indonesian archipelago about 50,000 years ago. Because its terrain is mountainous and rugged, groups of settlers evolved in virtual isolation, each developing its own language and culture. Today, more than 800 languages are spoken and, of its population of about 6.5 million, only 18 percent live in urban centers. PNG is one of the world's least explored countries and many undiscovered species of plants and animals are thought to exist in the interior.

3. Forest Policies and Legislation

Prior to independence in 1975, forests covered 80% of PNG. Following this event, government developed policies for managing and utilizing natural resources for socio-economic development without compromising the environment and the future. In 1979, it issued a White Paper, the main thrust of which was to relax restrictions on the export of logs. As a result of this policy, much of the accessible forest areas were depleted. As PNG moved toward a cash economy, landowners allowed their resources to be exploited to meet the cost of goods and services.

The international community's reaction to destructive forestry practices in the late 1980s gave rise to the National Forest Policy which was adopted in 1991. It focuses on sustainable forest management and forms the basis of a number of other policies which government has yet to sanction. The Forestry Act, 1991 (amended) and Forestry Regulations, 1998 also shape forest interventions and management in PNG. However, insufficient resources continue to hamper implementation.

Climate change, as a global issue, prompted the sector to begin work on a specific policy on carbon trade in 2008. The Forestry and Climate Change Framework for Action (2009-2015) was endorsed by the National Executive Council and launched in 2010. It complements other policies of the Office of Climate Change and Environment Development.

Recent changes increased royalties to landowners by 250 percent since 2008. Aspects related to the establishment of small community enterprises promote the use of portable sawmills; recognize the need to add value to raw products; and discourage large-scale industrial logging. Some directives also complement the policy for downstream processing.

4. Institutional Arrangements for Forest Management

Following the 1989 Barnett Commission of Inquiry into forest industry, the Papua New Guinea Forest Authority was established in 1993 to replace the Department of Forest. It also unified all provincial forest divisions and the Forest Industries Council. The new structure is headquartered in the National Capital District and has 19 provincial offices.

Permanent employees number more than 386, including foresters, economists, lawyers and accountants, as well as about 300 casual laborers, cleaners and drivers.

The Forest Authority is made up of three components: the National Forest Board, provincial forest management committees and the National Forest Service.

National Forest Board

The National Forest Board comprises major stakeholders - national and provincial governments, landowners, non government organizations, the Chamber of Commerce and Industries and the National Council of Women. It advises the Minister on forest policies and legislation and gives direction to the National Forest Service through its Managing Director on ways to achieve sustainable forest management. Some functions and powers of the Board have been delegated to the Managing Director to ensure projects and industries run smoothly.

Provincial Forest Management Committees

These committees were established in each province and are made up of key stakeholders as well. They provide a forum for consultation and coordination on forest management between national and provincial governments and make recommendations to the National Forest Board on related matters. Provincial governments are empowered to make decisions on the management and utilization of forest resources within their respective jurisdictions.

The National Forest Service

The NFS is the implementing arm of the Forest Authority and is headed by a Managing Director who is in charge of five directorates (Corporate Services, Forest Policy and Planning, Project Allocation, Forest Development, and Field Service) and oversees five regional offices (Momase, Southern, New Guinea Islands, West New Britain and Highlands).

The Papua New Guinea Forest Research Institute in Lae (Morobe Province) is also part of the Forest Authority and has the same status as a directorate.

5. Importance of PNG's Forests

For centuries, PNG's forests have provided food, building material, medicine, shelter, wildlife habitats, and many ecological services. Over the years, especially since the Second World War, they have been exploited mostly for timber. While still sustaining rural livelihoods, forestry has increasingly become a key source of revenue for landowners, government and the timber industry.

More forests are being cleared each year through shifting cultivation to meet the demand for food of a growing population. Landowners are also seeking government assistance to bring in companies to harvest their forest as a means to generate cash income, develop infrastructure (roads, bridges, jetties and airstrips) that increase access to towns/cities, and to provide basic services such as health care and education which are often non-existent in rural communities.

Forestry is among the top three sectors in terms of foreign exchange earnings and contributions to the national economy. It provides direct employment to more than 10,000 people.

6. Service Functions of Forests

Forest-based recreation

Although several national parks were established in the early 1960s and 1970s, lack of maintenance and security issues associated with their remoteness make them unattractive to visitors. The only exception is the Kokoda Track which is famous for its strategic importance in World War II. Many tourists, especially from Australia, come to the area for recreation and hikers sometimes test their endurance by walking the track.

Urban forestry

Urban forestry in the country is not widespread but there are 2 botanical gardens - one in Port Moresby (the capital) and one in the northern city of Lae. Smaller parks and tree-lined streets are found in some major cities and towns for beautification purposes rather than for wood products. Trees in home gardens are becoming popular in many urban areas because they are a source of fruits, nuts and firewood, both for personal consumption and for sale.

Forests, water and cultural values

Traditional PNG culture recognizes the role of forests in protecting watersheds and in providing other goods and services. Therefore, communities generally leave them undisturbed in river catchment areas. Moreover, tribal people consider these resources as places where spirits dwell. Fear of enemy tribes also restrain many villagers from venturing into these often isolated areas.

Economic importance

According to the Forest Acquisition Booklet (PNG Forest Authority, December 2007), the Southern Region and Momase have the largest remaining commercially viable timber areas

which provincial and national forest plans have earmarked for logging.

Given that little demand was placed on forests for the country's development during the early 1960s and 1970s, the decline in forest cover during that period was much lower than from the mid-1980s to 2000 when foreign demand for round wood was high. At the same time, forests were cleared for agriculture production to feed a rising population.

Forest ownership and management

Ownership of land and resources is unique in PNG in that about 97 percent belong to tribal clans. This age-old arrangement is not expected to change, although individual families in some groups are demanding to be recognized as separate landowners, despite being members of the same clan.

Increasingly, landowners are pressuring government to acquire and tender out timber areas to attract developers, most of whom are from other Asian countries. Some seek out potential developers on their own, then approach authorities to endorse their choice - a situation which often leads to conflict among landowners as well as with processes that are in place to grant timber concessions on an impartial basis.

The Forestry Act, 1991 (amended) stipulates that landowners must willingly transfer timber rights to the state and that the transaction be formalized through a Forest Management Agreement which is valid for 50 years. This provision replaces the purchase of timber rights under chapter 216 (repealed) whereby the state negotiated the transfer with the landowners and then issued timber permits to contractors to develop the area. Chapter 217 (also repealed) provided for landowners to deal directly with potential developers. However, this arrangement often led to abuse and the state had few legislative powers to intervene on behalf of the tribes.

The Forestry Act, 1991 (amended) also provides for the allocation of three types of Timber Authority to harvest trees on customary land. This permit is usually valid for one year and for no more than 5,000 m3. In most cases, the timber is processed domestically and harvesting is by selective logging. However, if the Timber Authority is issued for agriculture purposes or for road construction, clear felling is used and the logs can be exported.

Marking and selection of trees and direction of felling

7. Threats to PNG's Forests

An estimated 120,000 hectares of forests are cleared each year but only 60,000 hectares of plantations are established. If this trend continues, PNG's forest sector will all but disappear in the not too distant future.

Land tenure

As noted earlier, 97 percent of land is owned through complicated arrangements which vary widely across thousands of tribes and more than 800 languages. Decisions to undertake forest activities, including the establishment of plantations and the management, conservation and utilization of natural forests, rest with the customary owners and are based on consensus.

Other land uses

Competing land uses in productive forest areas such as large-scale agriculture, oil, gas and mining exploration, urban development and road construction hinder the sustainable management of forests in PNG. Customary ownership compounds the problem because no national land use plan can be put in place.

Resource constraints

Like many developing countries, PNG has limited human, financial and technical capacity to achieve sustainable forest management. Although the sector contributes significantly to the country's economy, the budget allocated to the forestry agency is insufficient. However, the limited resources available are utilized for sustainable management activities and donor support supplements government efforts.

Impact of climate change

El Nino and drought in 1997 resulted in several bush fires which still threaten PNG's forests today. Change in climate is also reducing the capacity of trees to bear fruit.

National Agriculture Development Plan

The National Agriculture Development Plan provides for the clearing of forests to establish oil palm plantations and grow other cash crops. In the past, forests were sometimes cut and the proposed agriculture project was never implemented.

8. The Future

The forest industry will continue to contribute to economic development and provide income as well as other goods and services to PNG's mostly rural population. Of the many timber companies that operated from 1980 to 2000, only a handful will continue due to lack of forest resources in their concessions, the increasing cost of operating in remote locations, and the recent global financial downturn. The willingness of some entrepreneurs to stay in business will depend on the extent of support they receive from government to increase their capacity for onshore processing and value addition, especially given the 2010 ban on the export of roundwood.

Fuelwood shortages, especially in the highlands, is a growing concern. In future, community and private tree farms and woodlots will be a major source of supply.

Conservation of forest ecosystems for their significant biodiversity has not been widely undertaken because landowners receive no direct benefits. Forest protection - for example, in watersheds, to conserve soil, and for recreation - has also been negligible. With more awareness and education, landowners will better appreciate these and other environmental services and be more willing to set aside areas for conservation and protection purposes.

With the phasing out of large-scale logging operations which provided income to landowners, NGOs are promoting the establishment of smaller portable sawmills as a means to manage forests sustainably and support livelihoods. Their viability will depend on choosing the right locations, given rising operational costs, especially for fuel to run machinery and to transport products to markets.

Portable sawmill

Forest-based eco-tourism and recreation can enhance the well-being of rural people but lack of basic infrastructure to access remote areas and problems related to personal security must first be overcome. In addition, the potential market for non-wood forest products

needs to be researched and developed.

Mindful of growing concerns over climate change, PNG is championing the proposed mechanism for Reducing Emissions from Deforestation and Forest Degradation (REDD). It is part of a coalition of rainforest nations that joined forces to negotiate issues related to implementation of the United Nations Framework Convention on Climate Change (UNFCCC).

Future global demand and supply of wood and wood products will affect the markets on which PNG relies for revenue. Fluctuations in the price of commodities determine output and, already, growing demand for bio-fuel alone is posing a serious threat to the country's forests.

Policies and institutional changes must take place if government is to effectively address the needs of citizens, especially those who depend on forests, and if it is to decrease the rate of deforestation and forest loss. Similarly, government needs to endorse a number of forest policies that were formulated to improve practices, promote stakeholder participation, and ensure that development of the country's resources enhance the well-being of its people, as stipulated in the Medium-term Development Strategy (2005-2010).

In 1975, the Government of Australia's assessment of PNG's forest cover using aerial photography was 33.067 million hectares. In 2005, the Forest Resources Assessment of the Food and Agriculture Organization of the United Nations reported 29.4 million hectares, of which 25.2 million were intact. Still others reported that forest area in 1972 was 33.227 million hectares, compared with 28.2 million hectares in 2002, 25.3 million of which were intact. The Papua New Guinea Forest Authority estimates forest area to be 29 million hectares, 24 million of which are intact. Some reports also give different annual deforestation rates. Thus, there is a need to verify PNG's forest area using newer remote sensing technology. Experts are of the opinion that forest cover has been under-reported because forest loss was based on the area of production forests even though selectively logging, not clear felling, was practiced. Moreover, many logged over areas were not converted to other land uses such as agriculture.

9. Forestry and Climate Change

Climate change is causing PNG's shorelines to wash away and its islands to sink. Loss of coral reefs due to increased flooding and the spread of malaria to higher elevations are also problematic. The relocation of the inhabitants of the Carteret islands makes them the world's first climate change refugees. However, despite these events, opportunities exist because of the country's vast area of rich tropical rainforests. Developed countries are prepared to share the burden of reducing carbon emissions and international partners have pledged to fund programs to help achieve this objective.

The Forest Authority's ***Forestry and Climate Change Framework for Action (2009 – 2015)*** embraces a vision to make Papua New Guinea's people, their forests, environment and livelihoods resilient to the risks and impacts of climate change. Goals aim to build capacity and ownership of carbon credits through adaptation measures; reduction of greenhouse gas emissions; better understanding, education and awareness of climate change and its effects; and strong partnerships.

10. Community Forestry Development

Community forestry centers around extension services and projects related to afforestation and reforestation, enterprise development, agro-forestry, eco-tourism and conservation.

Forestry extension

As part of its extension services, the Forest Authority grows and distributes seedlings to communities and individuals for the establishment of woodlots and plantations, usually on a small scale. It also provides training on sustainable forest management to communities and raises awareness of the need to achieve it.

Reforestation and afforestation

Following training in the Highlands and Momase regions in 2004, some nurseries and reforestation programs were established but their viability remains in question because of the time it takes for trees to mature (minimum 15 years) and for communities to benefit. Schemes to sequester carbon hold promise but government needs to explore their potential as a matter of priority.

Enterprise development

Donors are promoting and supporting the establishment of community-based forest enterprises which operate according to the principles of sustainable forest management. Efforts to certify forests are also being made - schemes that require meeting specific standards and criteria. Six projects in the New Guinea islands have 10,000 hectares of certified forest area.

Eco-tourism

Because foresters do not usually receive training in forest-based eco-tourism, this aspect was outsourced to a non-governmental organization which offers various forms of recreation, including bird watching, and trekking. It also rents accommodations.

11. Future Trends

- Projects will be piloted on REDD+, the Clean Development Mechanism, and on climate change adaptation and mitigation in 4 regions.
- Efforts will be made to raise awareness of the rural population.
- More community forestry sites will be established.
- Landowners will receive incentives to engage in community forestry.

12. Assistance Required in Terms of Climate Change

APFNet and other partners can assist PNG in the following ways:

- Support to draft a development strategy that is compatible with climate change realities
- Reforestation and afforestation projects under the Clean Development Mechanism
- Establishment of bio-fuel projects
- Capacity building and technology transfer
- Infrastructure development in rural areas
- Research to improve food security
- Help to conduct a national forest inventory.

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Community Forestry in Sri Lanka

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1. Historical Developments and Drivers of Change

1.1 Introduction

Sri Lanka is a tropical island, 65,610 km2 in area. It consists of a costal plain and a central highland massif, the highest point of which is 2,525 meters. The average mean temperature is about 26.7oC on the coast and 19.2 oC in the hills. Annual rainfall is generally monsoonal: below 1,900 mm in the dry zone and about 1,200 mm in semi-arid and arid areas. In the wet zone (south and west), annual rainfall ranges between 1,900 and 5,000 mm. Sri Lanka is a small island nation which is rich in culture. It also has abundant biodiversity because of the extreme variation in altitude and climate.

1.2 People and forest

The country is divided into 9 provinces and 25 districts. It has 20 million people, 70% of whom live in rural areas, have close ties to forests, but depend on agriculture for their livelihoods. Annual population growth is estimated at 1.2%. Literacy is 90% and life expectancy is 70 years. In 1881, forests covered 84% of the island. This figure fell to 71% in 1902 as commercial coffee and tea plantations expanded and it further declined to 44% by 1956, 30% by 1992, and less than 23% by 2000 (0.07 ha per capita). Causes of deforestation and forest degradation are rapid population growth, large-scale agriculture expansion and past settlement schemes. Until the late 1980s, natural forests were excessively logged and cleared for plantation agriculture and shifting cultivation.

1.3 Forest Ownership

Almost all natural and planted forests are owned and managed by the state. The Forest Department administers 16.1% of the natural forest, 2 national heritage wilderness areas, as well as conservation, reserved and other state forests. The Department of Wildlife Conservation is responsible for 12.4% of the natural forest as well as national parks, nature reserves, sanctuaries, and strict natural reserve and jungle corridors.

1.4 History of Community-based Forest Management

Sri Lanka's more than two thousand years of forestry is documented in the records of ancient kings. Tree planting was referred to as early as 543 BC under King Vijaya and is seeped in the Buddhist culture. The historical chronicles of Maha-Wamsa, Rajaratnacari and Rajawali reveal that villages were organized and lived in harmony with the forest environment. They practiced sustainable forest management, enjoyed privileges and were given a good deal of administrative freedom. Rules and regulations governing forest protection and use date back to the reign of King Dutugamunu, from 161 to 137 BC,

(Maddugoda, 1991) who was considered the rightful owner of forestland (Troup, 1940). Although kings were the nominal rulers over forests, communities held clear usufruct rights and activities were supervised by designated managers (Nanayakkara 1996). Forests were managed under a common property regime, with norms and conventions to regulate individual rights. Social obligations also prevented the misuse of resources (Kariyawasam, 2001). Forest reserves for the use of royalty (gabadagam), monastic institutions (nindagam), public temples (viharagam), and other purposes (devalegam) has been documented in ancient inscriptions. Forests were allocated to people for services performed for the ruler (rajakariya), while forest officers (kele korala) were appointed to regulate uses.

Sri Lankan chronicles note that communities were well organized and home gardens were planted with flowering and fruit bearing trees. People were self-sufficient in terms of food, practiced agro-forestry on homesteads and lived in harmony with their surroundings. Rules for the protection of forest vegetation and for the use of forest products were followed until the end of the Sri Lankan Kingdom in 1815. Even during the Kandyan era (1514-1815), shifting cultivation was not allowed indiscriminately. These forestry practices flourished during the Kandyan kingdom - now popularly known as "Kandyan home gardens" - and continued into later periods. Under British colonial rule, the rights and responsibilities of communities to manage forests shifted to government, a move which undermined the cohesion of rural communities and eroded systems of common property management. Colonial policies of the late nineteenth and early twentieth centuries, however, recognized the dependency of communities on forests and granted them the right to collect firewood and minor forest produce free of charge within a 3 mile radius of their villages (Ibid). Since the 1950s, after independence, technical officers of the Forest Department are responsible for forest management. In general, they are not trained to properly recognize indigenous rights, appreciate local knowledge, or understand the extent to which communities rely on forest resources. Traditional institutions and leaders have often been marginalized or ignored. Eventually, outsiders from urban areas, particularly timber merchants, took control of forest resources, the production system central to local livelihoods, and the way of life of forest communities. Many migratory herding routes that had functioned for centuries were closed. Forest authorities, however, were unable to control the gathering of fuelwood, shifting cultivation, plantation agriculture, mining, logging and other illegal forest activities.

Ancient resource use strategies and customs are once again becoming important components of forest management and, in this regard, the traditional functions performed by communities are necessary and require strengthening (Ibid).

2. Supportive Policies and Legislation

Prior to the 1980 forest policy, protection and production aspects governed forest management and were the responsibility of the state. Since then, social forestry has

become the key mechanism to plant trees on unproductive and scattered government land. The policy also calls for communities to participate in the establishment of private woodlot and forestry farms. Following this shift, the Forest Department created a new division. Its initial tasks were to provide extension services and support tree planting but it later became involved in the social aspects of forestry as well.

The 1980 policy acknowledges the need to safeguard the remaining natural forests for posterity by conserving biodiversity, soil and water resources. It emphasizes the importance of maintaining the area of natural forests and increasing tree cover, designating a large part as protected areas and promoting multiple use forestry. The policy also calls for the sustainable use of remaining natural forests - without ignoring environmental objectives - to meet growing demand for bio-energy, wood and non wood forest products, and for various services, especially for the rural population. In this regard, it calls for management plan to be prepared for each and every state forest as well as for the conservation and reserve forests.

In addition, the policy recognizes the critical value of home gardens, other agro-forestry systems and trees on non-forest land, to supply timber, bio-energy and non-wood forest products. It also emphasizes partnerships with local communities, non-government organizations and the private sector as well as the need to recognize and respect the close cultural and spiritual linkages that people have who co-existed with forests for centuries.

The policy aims, therefore, to broaden the framework for forest management and to define the roles and responsibilities of stakeholders: farmers, state, community and non-government organizations, and small/medium-scale entrepreneurs. All have a part to play in protecting forests, growing trees to meet the demand for wood and bio-energy, supplying raw material for industry and harvesting, transporting, processing, distributing and selling various forest products.

In 1995, government issued a Forestry Sector Master Plan to shape future management and halt deforestation. The plan noted that forest cover was decreasing, that the conflict between forestry and agriculture expansion must be resolved, and that strategies and programs were required to support the long list of action items. Its objectives were to:

- conserve biodiversity, soil, water
- preserve cultural, historic, and religious values
- increase forest cover and productivity to meet the needs of current and future generations
- strengthen the welfare and economy of local communities and the nation
- manage all state forests according to ecological principles

- establish partnerships with communities as the basis for forest development through, for example, joint forest management and leasehold forestry.

With community involvement in forestry activities now becoming the norm, participatory forest management was included in the 1995 amendment to the forest ordinance. In 2009, provisions were added to facilitate implementation of this approach, outline benefit sharing arrangements, involve the private sector and improve rural livelihoods.

Legal reforms are being undertaken to reflect the priorities of the national forest policy. In this regard, new legislation will take into account the need to:

- reflect the policy in its entirety and avoid the tendency to draft laws that address specific problems in isolation
- provide a framework for forestry development that supports the involvement of partners, including in policy formulation
- rationalize the classification of forest and protected areas and, for each type, specify the roles and responsibilities of the various partners, the management objectives and the allowable activities
- promote stakeholder participation in tree planting, forest management and protection through, for example, provisions that facilitate implementation of leasehold forestry, promote the formation of user groups and clarify land and tree tenure
- provide incentives, sanctions and other regulatory measures
- define a mechanism for the regular revision and updating of sectoral plans
- achieve a balance between sanction-based and market-based regulations
- review and update sanctions to reflect current trends and social realities
- establish simple mechanisms to resolve disputes
- develop mechanisms for public involvement in enforcement and implementation.

3. Successful Practices, Experiences and Lessons Learned

Community forestry is about local control over and enjoyment of the benefits that forest resources provide, both of which lead to sustainable rural development. Since 1982, bilateral and multilateral partners are funding projects and programs to implement a range of community forestry approaches in the country. The Asian Development Bank funded the Community Forestry Project and the Participatory Forestry Project which were launched in 1982 and 1993 respectively.

In addition, six integrated rural development projects introduced a different form of social forestry. The European Commission also initiated and funded the Small Grants Programme to Promote Tropical Forests in 2004 as a means to make communities partners in sustainable forest management in buffer zones along state forests. Activities focused on biodiversity conservation; alternative livelihoods; sustained delivery of services; and the establishment of multi-sector partnerships. More than 400 NGOs are also engaged in community forestry throughout Sri Lanka.

3.1 Community Forestry Project (1982-1990)

The Community Forestry Project involved communities in planting, managing and harvesting trees for fuelwood on state lands under a system of common property rights. They established farmer woodlots, community woodlots, demonstration woodlots and block fuelwood plantations. Blocks on degraded state lands were allocated to individual community members as part of the farmer woodlot component. The first phase of the project, from 1982 to 1988, gave the Forest Department an opportunity to experiment with participatory approaches to management. Initially, it was oriented towards the establishment of block fuelwood plantation but shifted to community forestry in 1987.

Lessons Learned/Implementation Issues

1. The project was essentially funded, designed and driven by outsiders without any real consultation with local people. A bottom-up approach would have instilled a better sense of ownership and commitment.

2. Insecure land tenure discouraged participation and badly affected outcomes.

3.2 Participatory Forest Project (1993-1998)

This project was developed to assist in making Sri Lanka self-sufficient in timber and wood products while maintaining an ecological balance, consistent with the goals of the Forestry Sector Master Plan. More specifically, the project focused on involving communities in:

- planting trees in homestead gardens for fruit, timber, and other purposes to create employment, generate income, reduce poverty and rehabilitate degraded areas
- establishing farmer woodlots on degraded government land and other woodlots to conserve soil and water as well as rehabilitate eroded land
- using agroforestry to both supply wood and improve livelihoods
- carrying out miscellaneous plantings in public areas for beautification and public awareness.

The project also allowed the Forest Department to expand its program to plant trees outside forests, especially in terms of adaptive or on-farm research, to improve service delivery and to help establish village nurseries as independent and profitable private sector operations.

Lessons Learned/Implementation issues

1. No plans were prepared for the management of the woodlots.
2. Though the Forest Department signed agreements with farmers, which included a schedule of activities to develop and manage woodlots, no monitoring was carried out.
3. The Forest Department and the project recruited 268 local motivators who were trained and worked closely with farmer organizations and communities. In the absence of an exit strategy, their departure after the project ended left the Department with no mechanisms to interact with communities.
4. The project focused on building the capacity of individual farmers or community members rather than of community organizations.

3.3 Participatory Forest Management Project (1996-1998)

The Forest Department selected a forest in southwest Sri Lanka to test a model of participatory forest management which involved the development of a management plan and the improvement of livelihoods through the sustainable use of non-timber forest products. The process included the collection of data, the development of management plans, the formation of micro societies at the village level, mother societies at the cluster level and a main organization at the district level. Capacity of community members was built to sustainably harvest NTFPs and develop NTFP-based enterprises.

Lessons Learned/Implementation Issues

5. Though the adjacent community did not directly depend on the forest, it needed to be involved in the protection of forest resources.
6. Key factors that affect the success of participatory forest management are site selection and community dependency
7. Provisions in the forest ordinance must allow the Forest Department to enter into agreement with communities and grant them user rights.

3.4 Upper Watershed Management Project (1998-2004)

This project aimed to rehabilitate and sustainably manage the central watershed, raise

the income of local communities and strengthen the capacities of agencies responsible for watershed management. The forestry component focused on the rehabilitation and protection of forests and the promotion of conservation-oriented farming systems through participation.

Lessons Learned/Implementation Issues

8. The project built the capacity of individual farmers and offered them incentives rather than providing these services to organizations. As a result, no strategy was in place to handover responsibilities to communities when the project ended.

9. After withdrawal, follow-up with farmers ceased, as did the establishment of plantations.

10. Though the intent was to foster community participation, the project and the Forest Department took decisions on matters such as the identification of buffer zones for tree planting and the selection of species.

3.5 South West Rain forest Conservation Project (2000-2005)

The objective of this project was to protect the rainforest ecosystem in Kanneliya,Dediyagala and Nakiyadeniya through co-management. Activities included efforts to improve forest protection, promote the sustainable use of NTFPs, strengthen decision making in community institutions, and develop buffer zones that integrated biodiversity conservation and livelihoods.

Lessons Learned/Implementation Issues

11. Although communities did not depend on forests, involving them in conservation activities won their trust.

12. Capacity building and the provision of revolving funds offered alternative livelihood choices.

13. Lack of adequate follow-up and monitoring by forest officials after the project ended were problems, as were the lack of guidance and support to the community organization.

14. Eco-tourism motivated rural people to manage forests in a sustainable manner.

15. Community-based organizations need continuous capacity building and participation in the management of eco-tourism activities.

3.6 Forest Resource Management Project (2000-2008)

This project aimed to establish and maintain sustainable forest management through community participation. It has three components:

- participatory planning, management and awareness programmes, including boundary demarcation
- sustainable development, including agro-forestry and participation of farmers on state land
- institutional development focused on capacity building, infrastructure and equipment support.

Lessons Learned/Implementation Issues

16. Building the capacity of communities better enables them to manage responsibly.
17. Agro-forestry is not successful in degraded areas and the risk of damage to new plantations by wild animals should be taken into account when selecting sites and species.
18. Suitable land to establish woodlots and rehabilitate degraded plantations was limited due to damage by wildlife and no communities nearby to provide oversight.

3.7 Sri Lanka-Australia Natural Resource Management Project (2003-2009)

The project aimed to support a participatory and holistic approach to the management of natural resources and improve livelihoods through more efficient resource utilization and better integration of forestry and agricultural activities. It focused on developing and testing various models of participatory management and strengthening the capacity of the Forest Department to assist communities.

Lessons Learned/Implementation Issues

19. Mobilization of the community was key to securing its involvement.
20. Training employees of the Forest Department on participatory and technical approaches enabled them to facilitate community forest management.
21. Sites should be selected based on community dependency on forests for at least some aspects of livelihoods, including benefits such as water, fuelwood, timber, and NTFPs.
22. To ensure an integrated approach, a community's functional resources unit should encompass their agricultural lands, water resources and forested catchment areas.

23. Mobilization and networking among both government and private agencies helped community development.

24. Availability and access to forests and other natural resources improved livelihoods and ecological functions.

25. Communities must benefit from participatory forest management to compensate for their inputs.

26. Rural women are valuable partners in community development and natural resources management and every effort should be made to ensure their on-going participation.

4. Challenges and Opportunities in the Context of Climate Change Mitigation and Adaptation

Forests feature prominently in climate change negotiations by virtue of the fact that the sector accounts for an estimated 17.4% of global greenhouse gas emissions and has significant potential to mitigate its effects. Mean precipitation and temperature are key determinants of the suitability of plants to particular ecologies. Therefore, if climate patterns shift permanently in the coming years, the composition of many forest ecosystems will change and have unpredictable impacts on flora, fauna and livelihoods.

Climate change may also reduce forest outputs, increase the risks of fire, pest outbreaks, drought, wind damage, ice storms and weed invasion. In addition, forest ecosystems are affected by such anthropogenic drivers as land-use change, pollution and invasive species. Such vulnerability determines the extent to which communities and indigenous people living in or near forests are susceptible, especially if they have no alternative livelihoods - a situation that may initiate or exacerbate conflicts regarding the balance among conservation efforts, measures to mitigate climate change and the need for forest communities to improve livelihoods.

Of the two types of forests in Sri Lanka (conservation and multiple-use) the latter are to be managed by local communities, with state assistance. However, the transition to these new arrangements needs to be accelerated as it may provide an effective means to mitigate climate change.

Like most countries, Sri Lanka has developed strategies and plans to take advantage of mitigation opportunities and to address the forestry sector's needs to put adaptation measures in place. "Caring for the Environment (2003-2007)" outlines a path to sustainable development which recognizes the importance of forestry in the context of climate change. The policy proposes a number of strategies, including conservation, sustainable resource use, participatory management, demarcation of forest boundaries, increased timber

production, propagation of non-timber species, and agroforestry.

The Ministry of Environment and Natural Resources, the Department of Forest Conservation and the Department of Wildlife Conservation are the main agencies responsible for climate change issues. In 2009, Sri Lanka began developing a national strategy for climate change adaptation, with support from the Asian Development Bank. It includes the formulation of public information and awareness campaigns as well as capacity building.

5. Future Outlook and Trends

Develop forest-based ecotourism

Because ecotourism has the potential to generate income and improve rural livelihoods, forest areas should be developed in a participatory manner for this purpose in order to motivate communities to become involved. Given the requirement to prepare management plans for each forest in the country, eco-tourism should be integrated as one of the activities.

Provide incentives for sustainable forest management

Local communities, indigenous people and other stakeholders should be rewarded for improving forest management, part of which entails measures to combat illegal logging, avoid forest degradation, prevent encroachment and enhance carbon sequestration.

Integrate adaptation and mitigation strategies:

Adaptation and mitigation have conceptually been treated as separate but there are definite synergies between the two that need to be explored.

Harmonize economic and forest policies:

Forest-based strategies to mitigate and adapt to climate change, such as increasing forest cover and quality and supporting participatory management conflict with economic growth strategies. They need to be streamlined.

Avoid deforestation

Although the drivers of deforestation vary, the following strategies can help address them:

- Strengthen policy and legislation for forest protection
- Reclassify land-use zones or renegotiate concessions
- Modify agriculture or infrastructure programmes to reduce pressure on forests
- Offer economic incentives or impose deterrents such as taxes or fines.

Include climate change issues in national forest programs

Climate change strategies should be fully integrated into national forest programs – the policy, legal, institutional and governance framework for forests.

Collaborate across sectors

Agriculture, transportation and land-use policies in the context of development provide significant incentives to destroy or degrade forests even though a key strategy to mitigate and adapt to climate change is to increase forest cover, not reduce it. On the one hand, reforestation and afforestation could lower water tables and adversely affect supply that generates power and irrigates crops. On the other hand, tree planting supplies communities much needed fuelwood and other forest products and services. Concern is growing among institutions and sectors about formulating forest-based climate change strategies without linking diverse needs with those related to forest conservation and management. Therefore, it is essential that discussions take place across sectors on a regular basis to address issues of common concern.

6. Conclusions

In summary, community management must involve local people in decision making at each and every stage. Experience also shows that it is better to build the capacity of community organizations than focus exclusively on individuals. To ensure sustainability of initiatives, mechanisms must be in place to assess progress and provide follow-up assistance, as required. Lastly, lessons learned from implementing social forestry should form the basis for developing tools and future policies.

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Community Forestry in Thailand

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1. Background

Thailand is located in Southeast Asia and has a surface area of approximately 513,000 km2. Estimated population is 65 million and 49% of the labour force is employed in agriculture. Its climate is tropical, characterized by both high temperatures and humidity. It is dominated by monsoons, with an average temperature of 28 oC and an average annual rainfall of 1,500 mm. Thailand has several distinct geographic regions: mountains in the north; the Khorat Plateau in the northeast; the flat Chao Phraya river valley in the center which runs into the Gulf of Thailand; and the narrow Kra Isthmus that widens into the Malay Peninsula in the south. This wide variation has produced a complex mosaic of forests across the country.

The two types of natural forests in Thailand (evergreen and deciduous) are classified broadly as conservation forests and national reserve forests. In 1961, when the country's first economic and social plan was implemented, 53% of Thailand was under forest cover. Since then, however, natural forests have declined rapidly due to the expansion of commercial plantations, conversion to agriculture, and harvesting by timber concessions - factors which also resulted in the loss of biodiversity and forest degradation (Niwat, 2005). In 1989, when forest cover was estimated at 28%, the government cancelled logging contracts and accelerated reforestation and rehabilitation programs. By 2011, these efforts saw forest cover increase to about 34% (Department of National Parks, Wildlife and Plant Conservation, 2010), a figure which is still 6% below the 1985 target to designate 25% as conservation forests and 15% as commercial (Niwat, 2005). Expansion of oil palm and rubber tree plantations, including illegal conversion, continue to drive deforestation.

Three government departments are involved in forest management in Thailand: Royal Forest Department (RFD), Department of National Park, Wildlife and Plant Conservation (DNP), and Department of Marine and Coastal Resources (DMCR). Thailand defines forest as land that has not been acquired by any other means in relation to land laws. RFD is responsible for all forest lands, except conservation forests which fall under the jurisdiction of DNP. DMCR has the lead for mangrove and beech forests but, by law, must conduct any work in collaboration with RFD.

2. Historical Development and Drivers of Community Forestry

Community forestry in Thailand has been evolving for more than 70 years, since the end of World War II. It has grown from a basic tree planting campaign conducted on special occasions to a legal requirement to involve local people in forest management. The concept and practices have developed in 4 stages as follows (Janesak, 2001):

2.1 Before implementation of the 1st national development plan in 1961

1941: tree planting in non-forested areas

1952: the first national Arbor Day on the 24th of June

During implementation of the 1st to the 5th national plan (1941-1986)

1970: multipurpose forest program for communities near forests

1976: forest village program to relocate farmers operating illegally in watershed areas to appropriated agricultural areas.

1977: voluntary tree planting program to motivate people to grow trees in public areas such as roadsides, temple yards, school playgrounds

1980: firewood and woodlot project for hill tribes in the north

1982: community woodlot project which harmonizes the activities of government agencies such as Land Development Department, Pioneer Department, National Energy Offices

The focus of community forestry during this period was on protection against illegal encroachment.

2.2 During implementation of the 6th and 7th national plan (1987-1996)

1987: establishment of farmer groups, training programs and nurseries to strengthen community forest management

1988: establishment of community forestry cooperatives, with support from UNDP/FAO/ SIDA

1987-1994: pilot projects supported by Ford Foundation, Royal Forest Department, and educational institutions

During this period, acceptance of community forestry was increasing, compared to the past 2 decades.

2.3 Implementation of the 8th national plan (1997 onward)

The 8th national development plan is the first attempt to create a supportive social environment and increase regional and rural development through the judicious utilization of natural resources and sound management of the environment.

1997: RFD introduced the notion of long term planning into community forestry as a means to promote cooperation with and participation of local people.

2000: First formal project on community forestry

2005-present: People living in or near forests establish and organize community forests to manage resources. The system is based on local knowledge and the rights of communities to ensure ecological sustainability and livelihoods.

Characteristics of community forests in Thailand

The north: This area is made up largely of highlands which are inhabited by various ethnic tribes such as the Karen, Lua, Akha, and Lahu. Most community forests are original forests that are managed through traditional beliefs and cultures, including the designation by monks of certain trees for protection.

The northeast: Villagers conserve patches of forest at the edges of their cultivated fields to provide food and medicine.

The west: This area is inhabited mostly by the Karen who have a long tradition of caring for forests.

The east: Most community forests are mangroves, set up after they were degraded through harvesting by timber concessions and shrimp farming.

The central plain: Community forests are scattered around Uthai Thani, Nakon Sawan, Supanburi provinces and their management is based on traditional ways and beliefs.

The south: Community forests range from forests in watershed areas in the hills to peat swamp and mangroves on the coast. At the household level, original trees are left standing and are intermixed with cultivated economic species.

Government legislation and policies to support community forestry

1. Forest Act, 1941 (amended in 1948, 1982 and 1989)

2. National Forest Reserve Act, 1964

3. Reforestation Act, 1992

4. Tambol Council and Tambol Administration Organization Act, 1994

5. Decentralization Act, 1998

6. National forest policy

7. Constitution, 1997:

    - Article 56 - communal rights in the conservation and use of natural resources
    - Article 59 - the right to access information

- Article 79 - the duty of the state to promote and encourage public participation in the conservation and use of natural
- resources,
- Article 290 - the power and duty of local authorities in the
- management, maintenance and utilization of natural
- resources

8. The 10th National Economic and Social Development Plan (NESDP): "opportunities must be given to citizens and communities to participate in the planning, decision making, and evaluation of government projects that could have an impact on natural resources and the environment"

9. The National Environmental Quality Enhancement Act, 1992:

- "instill in people the sense of ownership in natural resources and environment and maintain them"

The use of forest products is strictly regulated by legislation and all forest activities require authorization from RFD. However, the establishment of community forests provides for and has encouraged the participation of local people in the sustainable management of these resources. Some 8,000 have been registered so far, covering approximately 500,000 ha. In addition, RFD is in the process of registering about 11,700 more. Performance is evaluated after 5 years and communities are granted a 5-year extension if a positive assessment is made of ecological, environmental and participatory functions.

Among other activities, awareness raising and the provision of incentives, aim to enhance the involvement of members of the community in the management of forest land. Prior to a request for RFD registration, both formal and informal consultations take place between stakeholders and forestry officials to develop the proposal. Requirements include a clear demarcation of boundaries, a community forest committee, as well as regulations and conditions governing forest use. Activities such as enrichment planting on special days for reforestation and forest rehabilitation purposes, prevention of encroachment, and protection against fire should also be specified as part of the community's responsibility for the planning, care, monitoring and development of its forest. Only then, with formal RFD approval, will the community be given the legal right to manage the forest and it will receive training to carry out its responsibilities in this regard. Since 2005, RFD is also providing funds to help cover operating expenses for the first year. To date, more than 2,600 communities have been benefited from this program. More recently, RFD is granting title rights to communities as a means to increase their sense of ownership and enhance forest management.

Religious and educational institutions also play an important role in the sustainable management of forests by securing the cooperation of stakeholders and students to use forest resources wisely and by encouraging them to plant trees on special days throughout the year to increase green areas. In this way, they are made aware of how important trees are and they better understand the need to address environmental concerns. Up to now, monastery temples in 4,700 national reserve forests and 550 conservation forests are participating in such initiatives.

After registration, RFD helps community forests to establish networks, particularly at the provincial level. Through sharing experiences, conducting field visits and exchanging knowledge, these networks find creative non-violent solutions to conflict and have proven to be more effective than if one community addressed issues on its own. In addition, the power of a network to negotiate with other organizations is stronger. So far, 84 are operating at a provincial level but they still lack long-term funding and the legal right to manage forest lands.

Some community forests also practice agroforestry through a project which aims to increase food security. Villages select multipurpose trees which, as noted earlier, are planted on special days. The choice of species is made on the basis of their requirements and ecological conditions. Although this project is not implemented everywhere due to limited funding, pilot areas serve as demonstration sites and as networks to facilitate the transfer of knowledge about agroforestry to other communities. About 112 agroforestry sites totaling 1,268 ha have been established across the country since 2000.

Due to a budget decrease as a result of a weak economy, RFD sought financial support from other sources, particularly the private sector. Through a program of corporate social responsibility, Ratchaburi Electricity Generating Holding Company (RATCH) and Siam Cement Group (SCG) have been contributing to sustainable forest management since 2008 and 2010 respectively. RATCH awards cash to communities that win first prize for the best forest management. The winner also receives the HRH Princess Sirindhorn trophy as a way to raise awareness of the need to conserve forests. This company also works with RFD on two other initiatives; (1) enrichment planting in 84 community forests for His Majesty the King's 84th birthday, and (2) urban forestry for research. Both projects provide incentives to rehabilitate forests and enlarge green areas. SCG offers 5-year forest management programs to community forests recognized by RFD, with a target area of about 1,900 ha. The aim is to motivate villages to utilize forest resources sustainably so they can receive direct or indirect benefits.

3. Effective Modes, Practices and Successful Experiences

In general, community forestry in Thailand emerged because of strong leadership at the

village level - either from an elder or an elected official. Once established, responsibility for day-to-day operations usually shifts to a local organization, with RFD facilitating and supporting efforts to manage resources sustainably, in accordance with forest law. Formal mechanisms are only set up to assist with activities that communities initiate on their own and, as experience has shown, outcomes are successful when awareness of the benefits is high and incentives are offered, such as the annual contest for the best managed community forest. A recent study of the Faculty of Forestry at Kasetsart University compared communities which won awards with those which did not (Forest Research Center, 2011). It found that winners had a more positive view of community forestry, were less in debt, made greater and more efficient use of forest products, and had healthier ecosystems and richer biodiversity. These results demonstrate that sound community forest management both reduces poverty and sustains biodiversity.

Community forestry and climate change

Community forestry not only improves livelihoods but also increases the resilience of forests to adapt to climate change and mitigate its effects such as more frequent drought and flooding. In addition, it enhances biodiversity and food security through reforestation and forest rehabilitation programs; reduces exploitation through efficient use of resources; adds value through the processing of non-timber forest products, including herbal and medicinal plants; and generates more income for local people. To achieve these desired outcomes, RFD promotes local participation, facilitates the transfer of knowledge in forest management, and supports market mechanisms for products from community forests. Through the registration process, it is building community capacity to manage forests and, to the extent possible given tight budgets, is providing training on the effective utilization of non-forest products. RFD is also using international instruments, including the Clean Development Mechanism and REDD+ as incentives for communities to manage forests sustainably and address climate change at the same time. Currently, it is conducting a study on carbon stock and biodiversity in community forests where the use of non-timber forest products was previously examined. Quantification of carbon, biodiversity and consumption at regional and national levels will help to advance community forest management and provide local people with significant incentives to reduce emissions and benefit from payment for environmental services (PES) schemes.

4. Future Trend

- Provide clear guideline for community forestry activities to take place.
- Establish more community forests across the country.
- Strengthen participation through regional, national and international networks.

- Provide local people fair and wise access to resources from natural forests.
- Enhance forest law enforcement.
- Continue awarding prizes to communities for the best forest management and use well known media to promote the concept.
- Develop forest rehabilitation programs to enhance biodiversity, conserve natural resources, and use forest products effectively.
- Build the capacity of communities to manage forests sustainably through training and the transfer of knowledge.

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Community Forestry Development in Viet Nam

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1. Introduction

Viet Nam is located in Southeast Asia. It shares land borders with Cambodia and Laos in the south and China in the north and is surrounded by sea to the east and parts of the south. Total land area is 33,038,000 ha, divided into 63 provinces.

After implementation of reforms in 1986 and growth in the national economy, changes in the forestry sector in Viet Nam also took place. The focus on exploitation of resources shifted to include the establishment of forest plantations as well as forest management and protection. In addition, exclusive state administration in the past was broadened to encompass social forestry and stakeholder participation.

Viet Nam's many ethnic minorities have a long history of forest protection and development based on local knowledge and traditional practices which guide the current strategy for the sector.

This report describes experiences with testing different processes of allocating land and forests to communities and assigning them management responsibilities. Recent case studies and lessons learned are also presented.

2. Forests

Forestland covers 19.2 million ha, 13.1 million of which is forested (10.3 million ha of natural forest and 2.8 million ha of planted forest). The remaining portion is barren land and hills. According to land use plans, special use forests comprise 2.2 million ha, protection forests comprise 5.7 million ha and production forests comprise 8.3 million ha.

3. Community Forestry Development

Community forestry in Viet Nam is practiced in four ways:

- on land allocated by government
- by household groups who manage forests on their own
- through contracts issued by state enterprises to protect forests
- by communities in traditional areas, without legal recognition by the state.

Up to August 2009, forest area managed by households and individuals accounted for 25%. The area allocated by government and managed by communities was 1.44% and the balance was administered by the state. Under the four categories noted above, community management makes up more than 20%. Presently, about 2.8 million ha are not allocated but are managed by Communal People's Committees.

In the past 15 years, many models of community forest management have been tested. Projects focused on activities such as land use planning and allocation of forestland, regulations on forest protection and development, and agreements on forest use and benefit sharing.

3.1 Land use planning and allocation of forestland

- 1995: Land use planning and forest allocation to communities were tested in the northwest. Son La Province issued guidelines in 1999.

- 1998: State forest enterprises allocated forests to communities in Dak lak on a trial basis.

- 1999: The Son La Provincial People's Committee began allocating 300,000 ha of forest for community management, work which was completed in 2004.

- 2001: Dak Lak Province allocated rich forest for community management.

- 2004: Forest legislation provided for the allocation of land and forests to communities.

- 2005 and 2006: Dak Lak and Dak Nong Provinces issued guidelines on forest land allocation, developed through a participatory process.

-2007: The Management Board for Forestry Projects issued Decision No. 38 on the inventory and demarcation of community forests.

3.2 Regulations on forest protection and development

-2000: Lai Chau and Son La Provinces approved regulations for village forest management and protection.

- 2002: Gia Lai Province approved a forest development plan for villages.

- 2003: Lai Chau Province approved a forest development plan for villages based on a forest inventory, both of which were completed with community participation.

-2004: A national workshop on community forestry discussed technical processes for formulating regulations on forest management and protection and for drafting village forest development plans.

-2004 and 2005: Dak Lak and Dak Nong Provinces approved a five-year forest development plan for villages.

3.3 Agreements on forest use and benefit sharing

- 1999: Dak Lak Province approved regulations on the distribution of benefits to communities on the land and forestland allocated to them.
- 2001: The Management Board for Forestry Projects issued Decision 178 on the mechanism to share benefits from forests.
- 2002: Dak Lak Province allowed the commercial harvesting of 500 m3 from community forests.
- 2006: Dak Lak Province approved a mechanism to share benefits from natural forests.
- 2006 to 2009: Commercial logging was allowed in community forests in three provinces in the Central Highlands.

3.4 Experimental development of community forestry on a large scale

As of 2008, with support from the Trust Fund for Forest, the Administration General of Forestry is piloting a program in 64 villages in 10 provinces across the country to allocate land and forests to communities in different ecological areas and under different social conditions. It also aims to evaluate by-laws on community forestry and strengthen community capacity.

3.5 Future development

In the next phase, efforts will focus on improving the policy framework for community forestry on aspects such as land use planning, land and forest allocation, forest use and exploitation, organization of communities, benefit-sharing mechanisms, and human resource development at the village level.

4. Community Forestry Development in KFW6

The Federal Republic of Germany is funding forest restoration and sustainable management in Quang Nam, Quang Ngai, Binh Dinh and Phu Yen (KFW6) - a project which is using an 8-step approach to put the concept of community forest management into practice:

1. Land use planning and forest allocation
2. Development of forest protection and development rules
3. Division of forest plots and determination of long-term forest management targets
4. Forest resources investigation and assessment
5. Forest management planning

6. Establishment of a village forest development fund

7. Forest management and utilization

8. Commercial timber marketing and distribution.

From April 2006 to date, Quang Ngai and Binh Dinh Provinces developed six models which are being applied in 3,585 ha of natural forests. The areas under 4 of the models (3,085 ha) were issued red books and land use planning was completed in early March 2011 for the other two (500.5 ha) in Binh Dinh Province.

When the state issues red books to formalize land use rights in future, villages that participate in developing the community forest management model will follow the new guidelines which gives people a voice in decision-making throughout the process.

Current models also provide an opportunity to test and evaluate all aspects of forest management and of the process to implement it - from design to evaluation - based on sustainability, community ownership, and effectiveness of the approach to develop plans.

Some basic activities are implemented as follows:

Development of rules for forest protection and development:

The project considers the development of rules for forest protection and development as a priority activity, to be completed first, as a prerequisite for the steps that follow.

Establishment of a forest management unit at the village level:

Forest management carried out by communities as a collective entity helps to ensure that activities are well coordinated. This approach also provides close links between villagers and state agencies/organizations at the local level. Communities consider the involvement of forest protection groups, established on a voluntary basis, as an appropriate in-kind contribution to the project.

Forest resources assessment:

The inventory of forest resources is carried out in a participatory manner, at 5-year intervals, and is in accordance with Circular 38/2007/TT - BNN&NT. The information gathered forms the basis for government and local authorities to allocate land and forests to communities. It also provides a solid foundation for long-term development of the sector and is considered an effective tool to assess and report on forest resources. Methods combine traditional and applied silviculture techniques which help communities to understand how to manage and use the data.

Development of a forest management plan:

Communities developed a 5-year forest management plan and use it to determine annual objectives as well as the quantity and size of trees to be harvested.

Establishment of village forest development fund:

Communities participating in the project received support for the first six years of operations. In the longer term, communities will add to the village forest development fund through profits earned from the sustainable use and management of forests.

Effective forest protection:

Forest protection groups are working with and being supported by authorities and functional agencies at district and commune levels to prevent and deal with forest encroachment. Illegal forest activities have decreased significantly and awareness of the need for local people to protect forests has increased. Forest-dependent communities that monitor the management, protection and development of resources do so more efficiently when they received real benefits.

Pilot logging and benefit sharing mechanisms:

The project piloted commercial logging and benefit sharing from the sale of timber in all models of community forest management, in compliance with regulations on the management of natural forests. The Community Forestry Management Board in the village of Truong Le was the first to test a benefit sharing mechanism which was successful. Local authorities and agencies highly appreciated the fact that the method increased community participation.

The project also used the opportunity to test silvicultural techniques adapted to the community. In future, it is expected that sustainable exploitation of forest resources on a small scale (low-intensity, short and closed rotation, stable forest fund) will provide regular income and make communities self-sufficient.

Formulation of guidelines:

Although community forest management has a basis in law, policies to share benefits from commercial exploitation of natural forests are lacking. Thus, the project developed guidelines which the Management Board for Forestry Projects approved in Decision No. 2004/QD-DALN-KfW6, dated 14 October 2009. Specifically, the guidelines stipulate the technical criteria for carrying out commercial logging, procedures for obtaining approval of the design and terms for issuing licenses to communities for exploitation of the natural forests allocated to them.

Sustainability of the model

Local authorities and communities consider the models piloted as valuable in terms of

economic, social and environmental aspects. However, the future of the project depends on continued external support. Moreover, not all forestry authorities and local organizations have the opportunity to implement community forest management - a fact that adds to the difficulties of securing the support required to ensure sustainability after the project ends.

5. Lessons Learned From the Development Process

Donors have funded many community forestry projects in different ecological regions. In the process, lessons have been drawn from successes and failures.

- Community forest management should be multidisciplinary and holistic and be based on local knowledge.
- The cooperation of stakeholders, especially local governments and forestry departments, greatly improved management and use of resources by communities after land was allocated to them.
- Forestry development must integrate activities to improve livelihoods, from initial project design to ongoing monitoring and evaluation.
- The participation of people and communities in the overall development process must increase and special attention must be paid to disadvantaged groups.
- Effective benefit sharing mechanisms provide an important incentive for communities to engage in sustainable forest management.
- Linkages need to be strengthened between training, research, forestry extension and capacity building for community forest protection and development.

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