



Assessment of the contribution of forestry to poverty alleviation in the People's Republic of China

Dai Guangcui*
Zhang Sheng*
Wen Caiyun*
Li Yang*

Introduction

Poverty is a global challenge and, in China, the spatial distribution of poverty and forests has a high degree of overlap, with poverty incidence higher in mountain areas. The study of forestry's role in China's poverty reduction has important practical significance.

Forest resources

China started with a relative lack of forest resources. In 1978, 30 years ago, the reform and opening-up took place and, in the new century especially, the Chinese government is committed to the protection and development of its forest resources through the full implementation of national key forestry programs (NKFP). Consequently, China's forest resources continue to be recovered and increased, and the forest ecosystem and environment has gradually improved. Forest coverage has increased from 8.6 percent when the New China was founded (1949) to the current 20.36 percent. According to the 7th National Forest Inventory (NFI) in China (2004-2008) (SFA 2009a), the forest area now covers 195.45 million ha which comprises about 20.36 percent of the country's total land area. The total standing stock volume totals 14.91 billion m³ and the forest stock volume is 13.72 billion m³.

Globally, forest resources in China showed the highest rapid increase. Since the 1970s, China has conducted seven NFIs (Table III.1), which indicate an annual average forest area increase of 1.36 percent, total standing stock annual average increase of 1.29 percent, and forest stock annual average increase of 1.32 percent. Plantations cover an area of 61.69 million ha, ranked first in the world.

China has entered a rapid development period for forest resources. Since 2000, relying on the NKFPs, China's annual new planting area has been more than five million ha. Total forest resources have continued to increase and the multiple functions of forests have been gradually revealed. The supply ability of forest products has been further increased, which has laid a solid foundation for socio-economic development and poverty reduction in forestry areas.

* China National Forestry Economics and Development Research Center (FEDRC), State Forestry Administration (SFA), P.R China

Table III.1. Summary of past NFI results

Interval	Total standing stock (million m ³)	Forest area (million ha)	Forest stock (million m ³)	Forest coverage (%)
1st (1973-1976)	9532.27	121.86	8655.79	12.7
2nd (1977-1981)	10260.60	115.28	9027.95	12.0
3rd (1984-1988)	10572.50	124.65	9141.08	12.98
4th (1989-1993)	11785.00	133.70	10137.00	13.92
5th (1994-1998)	12487.86	158.94	11266.59	16.55
6th (1999-2003)	13618.10	174.90	12455.85	18.21
7th (2004-2008)	14912.68	195.45	13720.80	20.36

Source: SFA 2009.

Poverty situation

The National Bureau of Statistics of China (NBS) defines poverty as a situation in which an individual or a family lacks basic materials and needs, and living standards do not reach acceptable minimum social living standards. The poverty line sets the lowest costs for the necessary consumption of goods or services for people to maintain their basic survival under certain conditions of time, space, and social development stage, also known as the poverty standard. In China, there are two poverty standards or levels. One is the absolute poverty level that is below the standard and is referred to as “extreme poverty.” The other is the relative poverty level and refers to the level above absolute poverty, but with lower income, also known as “low-income population.”

The current poverty standard of China was first estimated in 1986 based on consumption expenditure surveys of 67,000 rural households conducted by the NBS. After 1986, it was adjusted according to the changes in the rural price index. In 2009, China’s absolute poverty standard for rural and the low-income poverty standard were integrated into a single new poverty standard, which is about US\$180 (RMB 1,196) per year, and equivalent to US\$0.5 per day¹ net income per capita (Gu Zhongyang 2009).

In the implementation of the national poverty strategy in the 1990s, the Chinese government identified 592 national poverty-stricken counties (NPSC)². From the spatial distribution, most of these poor counties are located in mountainous areas or high altitude mountains. There are 373 poverty counties of concentrated distribution in 13 zones, covering approximately 170 million ha, and affecting 119 million people, including a rural population of 104 million (Jia Ruoxiang 2011).

National economy and poverty alleviation

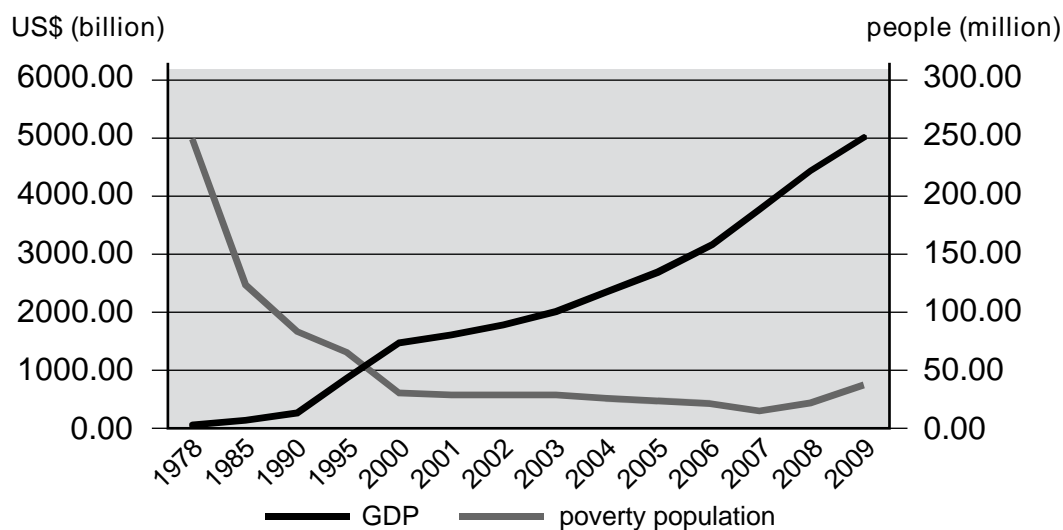
Since the start of the reform and opening up in 1978, China’s economy has rapidly grown while rural poverty alleviation and development has also made remarkable achievements.

From 1978 to 2009, with China’s annual gross domestic product (GDP) growth at 9 percent, the socio-economic development situation changed from solving the problem of basic living to achieving an almost well-off living standard. According to the preliminary estimates by NBS, China’s GDP totaled US\$5,880 billion in 2010 with an increase of 10.3 percent from that in 2009, and accounted for 8 percent of global the GDP, ranking the country second in the world.

¹ The exchange rate in 2010 was US\$1: US\$6.7695.

² The classification of a national poverty-stricken county is approved by the State Council according to a county’s poor population, net income per capita, GDP per capita, and financial revenue per capita.

Figure III.1 . China's GDP and rural poverty population in 1978-2009



With the sustained high growth of the national economy, poverty alleviation and development also made remarkable achievements. According to the national poverty standard, the rural poor population was reduced from 250 million in 1978 to 35.97 million in 2009, and poverty incidence went down from 30.7 percent in 1978 to 3.6 percent in 2009 (NBS 2009) (Table III.2).

Table III.2. China's rural poverty standard and poor population (1978-2009)

Years	Absolute poverty			Low-income poverty		
	Cut-off (US\$)	Population (million)	Proportion (%)	Cut-off (US\$)	Population (million)	Proportion (%)
1978*	14.77	250.00	30.7	-	-	-
1985*	30.43	125.00	14.8	-	-	-
1990	44.32	85.00	9.4	-	-	-
1995	78.29	65.00	5.4	-	-	-
2000	92.33	30.00	3.0	127.78	94.22	6.2
2001	93.06	29.27	3.2	128.81	90.30	6.7
2002	92.62	28.20	3.0	128.37	86.45	6.2
2003	94.10	29.00	3.1	130.29	85.17	6.0
2004	98.68	26.10	2.8	136.49	75.87	5.3
2005	100.89	23.65	2.5	139.45	64.32	4.3
2006	102.37	21.48	2.3	141.52	56.98	3.8
2007	115.96	14.79	1.6	157.62	43.20	3.1
2008	157.62	28.41	3.0	176.67	40.07	3.0
2009	176.67	35.97	3.6	176.67	35.97	3.6

Source: "China Rural Poverty Monitoring Report 2009" and other public information.

Note: The poverty standards of 1978 and 1985 were estimated according to that of 1986.

According to World Bank (WB) estimates in 2008, 67 percent of the global poverty reduction successes over the past 25 years happened in China. The WB indicated that since 1980, China's population that came out of poverty accounted for 75 percent of the total population that moved out of poverty in developing countries. The extent of poverty reduction in China comprised more than 90 percent of poverty reduction in the world from 1990 to 2002.

Although impressive, it must be noted that there is a big difference between China's poverty standard and the United Nations (UN) standard. Even under the new national standard in 2009 of per capita net income of RMB 1,196 (about US\$180 per year, equivalent to US\$0.5 per day), this is only equivalent to 40 percent of the UN standard of US\$1.25 per day. China's poverty reduction task is still arduous.

During the Twelfth Five-Year Plan period, China will further increase efforts in poverty reduction. In 2011, the government will further raise the poverty standard to US\$221.58 net income per capita per year, equivalent to US\$0.61 per day (Wang Qian 2010). With this standard, the poor population in China will increase significantly more than in 2009, as will the incidence of poverty.

Forestry and poverty

China's poor population is mainly concentrated in the relatively undeveloped western regions, mountainous areas, desert areas, and hilly areas, comprising around 80 percent of the total land area. In the 592 NPSC, hills and mountain counties account for 86 percent (Chen Guojie 2004), located mainly in the western mountain areas, stone mountains, deserts, alpine mountains, the Loess Plateau and other harsh natural environment areas. Meanwhile, the contiguous poverty areas are often in important forest ecosystem function areas, such as grasslands, wetlands, desertification control districts, rocky desertification control areas, biodiversity conservation areas, water conservation areas, and other types of ecological function areas. These are all the forested regions or main areas of forestry ecological construction in China. In terms of distribution, mountain areas where the poor population is concentrated are also the concentrated forest resources distribution areas with 90 percent of forest lands and 84 percent of the forest stock volume.

Correlation research on poverty in China indicates that the reasons for the high degree of overlap of the spatial distribution of poverty areas and forested areas or ecologically fragile areas are as follows.

First, forested areas or fragile areas are often the places with poor infrastructure where local farmers face problems concerning clean water, electricity, and traffic. Second, local farmers work at marginal levels of productivity as they have only limited property rights to natural resources before the forestry tenure reform. Third, farmers lack the necessary knowledge and skills, with limited education. Fourth, most of the farmers are idle due to limited job opportunities. Fifth, the development of forested areas or fragile areas is restricted to protecting forest resources. As the collective forest lands have been contracted to farmer households since the tenure reform, some farmers have managed forest resources and reduced their poverty. The NKFPs are considered to have improved the living conditions of local farmers and provided more job opportunities.

In summary, the spatial distribution of poverty areas and ecologically fragile areas has a high degree of overlap in China. Therefore, in the poor mountainous areas with forest resources, the need is to vigorously implement forestry ecological construction, push forest tenure reform, develop the forestry industry and other forestry projects, assist in fully exploring forestry's potential for improving the ecological environment, increase farmers' employment and income, and assert forestry's important role in poverty reduction. All these are of great practical significance for the implementation of China's poverty alleviation strategies.

Poverty reduction and forestry in national policy

National poverty reduction strategy

Since China's reform and opening up in 1978, the government has conducted an organized, planned, and large-scale development-oriented poverty reduction strategy in the rural areas with four development stages (Yang Zhanguo 2009):

1. System Reform Promotes Poverty Reduction;
2. Large-scale Development-oriented Poverty Alleviation;
3. Tackling Key Problems of Poverty Alleviation; and,
4. Large-scale Poverty Reduction under the background of balancing urban and rural development.

The first stage: system reform promotes poverty reduction (1978-1985): The main characteristic of China's poverty reduction strategy is to promote poverty reduction through system reforms, including the reform of the agricultural product distribution system and the household contract responsibility system.

During this period, the forestry system was also reformed. Collective forest lands were classified as private forest lands, contracted responsibility forest lands, and unified management forest lands by collectives that took responsibility for forest production.

The second stage: large-scale development-oriented poverty alleviation (1986-1993): In 1986, to promote poverty reduction, the state set up a special anti-poverty agency, the State Council Leading Group for Poverty Alleviation and Development. This agency shifted the traditional poverty alleviation mode of alms-giving to a development-oriented poverty reduction policy by a series of important measures such as establishing a special fund, making special preferential policies, and implementing credit policies for the poor.

During this period, the main forestry policies related to poverty reduction included: implementing national shelterbelt protective forests programs such as the Three-north Shelterbelt Development Program, the Key Shelterbelt Development Program along the Middle and Upper Reaches of the Yangtze River to improve the living environment and production conditions in these ecologically fragile areas; lowering farmers' taxes and fees such as reducing the log tax for agriculture and forestry special products from 8 percent to 7 percent; and exempting rural collectives and farmers from paying charges for forestry governance, construction of forest regions, and greening fees.

The third stage: tackling key problems of poverty alleviation (1994-2000): In 1994, the Eight-seven-years Anti-Poverty Plan was established and aimed to get 80 million people out of absolute poverty in seven years to reach the target of 0.67 ha per orchard or economic crop per household. The Plan required the forestry sector to support the development of high-yield forests and a variety of forest products in poor areas. It was the first action program for development-oriented poverty reduction with clear and definite objectives, targets, measures, and a time limit. There were 592 counties identified as NPSCs and the central government increased financial inputs to these very poor provinces in the central and western regions. Meanwhile, it was emphasized that poverty reduction plans should be implemented directly in poor villages and individual households.

During this period, the main forestry policies that emerged and related with poverty reduction included the launching of the Natural Forest Protection Program (NFPP), piloting of the Conversion of Croplands to Forests Program (CCFP) that emphasized the integration of comprehensive mountain development and poverty alleviation through forestry projects arrangements, and implementing Forestry Development Projects in poor areas using WB loans which covered more than 180 counties in 12 provinces.

The fourth stage: large-scale poverty reduction under the background of balancing urban and rural development (2001-2010): In 2001, the Chinese Central Government issued the framework for rural poverty alleviation and development (2001-2010). It pointed out the following ways to alleviate rural poverty: (i) solving poor people's basic needs for food and clothing; (ii) further improving livelihoods for poor people who have solved the basic needs for food, clothing, and capacity building; and, (iii) enhancing the construction of infrastructure facilities in poor areas and improving the environment and ecological situation to gradually address the socio-economic and cultural underdevelopment in these poverty areas. Since 2006, the agricultural tax has been abolished nationwide and the tax burden on farmers reduced to zero.

During this period, the main forestry measures and policies related to poverty reduction included the formal start-up of programs such as the CCFP, NFPP and the Sandification Control Program for Areas in the Vicinity of Beijing and Tianjin (SCPAVBT) and in other NKFP to improve the environment and ecosystem and to adjust the rural industrial structure. To drive local economic development, farmers' incomes were increased and their livelihoods improved through grain and cash compensation from the programs. The collective forest tenure reform (CFTR) was carried out

nationwide to contract the collective forest lands to farmer households to increase land productivity and farmer household income. Supporting policies were implemented such as the compensation system for forest environmental services and subsidies for forest insurance and micro-credit as well as lowering taxes and fees of forest management.

Poverty reduction policies of forestry

From 2000, a series of policies and measures have been carried out to reinforce forestry's role in poverty reduction, among them, implementing national key forestry programs, undertaking collective forest tenure reform, and establishing the compensation system for forest environmental services.

Improving environment to promote farmers' employment and income by NKFP

After the flood of 1998, the Chinese government launched several national, large-scale forest and ecologically-oriented programs including NFPP, CCFP, and the SCPAVBT. These programs covered all mountainous areas, desert areas, and soil erosion areas. Through tree planting, conversion of the marginal farmlands (i.e., steep slopes and degraded farmlands) to forests, and prohibition of grazing in degraded grasslands, local ecosystems and environments were rehabilitated. Farmers' employment and incomes increased through their participation in the project activities in ecological construction, receiving grain and cash compensation, migration, and ecosystem restoration.

NFPP plays an important role in poverty relief of state-owned forest region

Launched in 2000 with a budget of US\$17.83 billion, the NFPP aims to combat environmental degradation, protect and improve the ecosystem, and help in the sustainable development of the national economy. The laid-off workers in forestry enterprises and forest farmers were major beneficiaries of the NFPP. Relevant policies include: (i) providing employment for workers and farmers through participation in forest management, forest protection, and ecological forest construction; (ii) establishing a social insurance system and providing funds for workers who join the insurance system; (iii) resettling laid-off workers and providing daily subsidies; and, (iv) rebuilding infrastructure and residential quarters in the forest region to improve people's living conditions. The NFPP plans to provide 384,000 jobs and resettle 621,500 laid-off workers. A budget of US\$ 47 million from the central government is planned for the residential construction and US\$10.22 billion for infrastructure rebuilding in the forest region.

In 2011, China decided to launch the second phase of NFPP with a program period of 10 years from 2011 to 2020, covering 745 counties, and 167 forestry industry enterprises. The total central finance investment is US\$32.4 billion. The measures relating to poverty reduction include forest resource protection, forest tending and thinning, continuous planting of forests for public benefit, improving living conditions, and providing an insurance system in the forest area (State Council Office 2010).

CCFP played an important role in enhancing household livelihood of land degradation area

Initiated by the Chinese government in 2000 in 2,291 counties covering 80 percent of the land, the CCFP aims to control soil erosion and the impact of sandstorms, alleviate poverty, improve people's livelihood, and change the land use. The duration of the program is 16 years (2000-2016) with a total budget of US\$63.69 billion and targeting around 120 million farmers. Its main policies are:

1. Providing grain and cash compensation to farmers participating in the program for eight years for forests for public benefit and five years for economic forests. The annual grain payment is about US\$155 to US\$233 per ha and annual cash payment is US\$44 per ha. Farmers who implement CCFP will have ownership of forests on the cropland.
2. Providing farmers US\$110 saplings per ha;
3. Optimizing arable land and enhancing land productivity;
4. Developing alternative energy sources in rural areas; and,

5. Implementing migration for ecological restoration to improve productivity and living conditions of farmers in the remote lithoid and alpine mountains where the ecosystem is fragile but is important to the nation.



Croplands on sloping areas that were afforested under the Conversion of Croplands to Forests Program in Qinghai Province

SCPVBVT played an important role in enhancing household livelihood and improving the environment in the vicinity of Beijing and Tianjin

To control desertification around the Beijing-Tianjin area and improve the environment, the Chinese government initiated the SCPVBVT in 2001, implementing it until 2010. The total budget was US\$ 8.25 billion and covered an area of 45.8 million ha. The activities included afforestation and forest management, grassland improvement, water conservation establishment, and integrated watershed management. The policies relating to poverty alleviation were:

1. providing compensation and afforestation funds to farmers participating in SCPVBVT;
2. subsidizing measures taken to control sandification such as grass planting, enclosure grazing, banning grazing, pasture construction, cattle shed and greenhouse construction;
3. improving productivity and living conditions of farmers through small watershed management, reservoir construction and water-saving irrigation, basic farmland construction, water conservation measures; and,
4. arranging migration for ecological restoration and providing financial subsidies by the state in areas unsuitable for living .

CFTR contract long-term forest land management right to farmer households to improve their productivity and living conditions

Collective forest land is an important source of livelihood and production for farmers in forest regions. Occupying 183 million ha, it accounts for more than 60 percent of the total forest land and covers 1.5 times as much land as the country's farmland. In 2008, the Chinese government fully implemented the CFTR around the country to contract the collective forest land to farming households, mobilize their interest in forest management, and improve land productivity. The CFTR played a major role in

alleviating rural poverty. Collective forest lands totaling 160 million ha were contracted to farmers households on a long-term basis. The program ensured that farmers would have considerable forest assets, with some households receiving about 2.67-3.33 ha. Farmers not only obtained forest lands but also increased their income by planting trees, managing crops and livestock farming under-forest, and engaging in forest tourism, and other productive activities. Meanwhile, the government supported good forestry development mechanisms by formulating new policies, improving service, and standardizing management to achieve forest growth, increase in farmers' income, a better environment, and a harmonious forest society.

Policies for reinforcing forest management and sharing the benefits

A series of preferential financial and tax policies were issued to support sustainable forestry development and to improve livelihoods of farmer households.

Establish the compensation system for forest's environmental services

The forests in China are divided into protected forests (non-commercial forest)³ and commercial forests⁴, and are managed under the classified management theory. In 2004, the Central government set up the compensation fund for the forest's environmental services (CFFES) for key national protected forests⁵ with an annual government budget of US\$11.08 per ha. The CFFES fund for private forests was raised to an annual US\$22.16 per ha since 2010 and continues to increase. Meanwhile, local governments also set up a local fund for compensation to local protected forests.

Reduce and remit tax and fees for forestry management

The fund for afforestation and silviculture was reduced from 20 percent to 10 percent of the total income from the sale of timber products to ease the farmers' burden on forest management.

Forest tenure mortgage for micro credit

In 2009, the Bank of China, the Ministry of Finance, the China Banking Regulatory Commission, the China Insurance Regulatory Commission, and the State Forestry Administration jointly issued the Guidance on Financing Services to Support Forestry Development in the Context of Collective Forest Tenure Reform. Micro-credit for farmers was supported and the duration was extended to 10 years. The duration for fast-growing and high-yielding forest, camellia forest, bamboo forest, energy forest, and related subsequent industrial development was extended to 15 to 20 years.

Pilot premium subsidies for forest insurance

From 2009, the central budget carried out pilot premium subsidies for forest insurance in southern China. The central government and the provincial government subsidized 30 percent and 25 percent of the premium respectively. Currently, the scope of the pilot area includes Fujian, Jiangxi, Hunan, Zhejiang, Liaoning, and Yunnan provinces.

Input in projects to improve people's livelihood in forest regions

To promote the development of impoverished state-owned forest farms and improve people's livelihood, the central government provided inputs in infrastructure such as water supply, road construction, and residential quarters rebuilding.

³ Protected forest (non-commercial) is defined as forests and shrubbery areas mainly for meeting the demand for protection of the environment, maintaining ecological balance, serving as sites for scientific experiments, forest tour, etc.

⁴ Commercial forest is defined as the forest producing timber, bamboo, firewood, fresh and dried fruits and other industrial materials.

⁵ It means forests, trees and woodland in the protection area where the ecological status is very important and a fragile environment.

Pilot subsidies for forest management

In 2009, the subsidy for forest management was taken as part of the central budget. US\$73.86 million was invested to subsidize the tending of middle and young-aged stands. This subsidy was increased to US\$295.44 million in 2010. During the year, the central government allocated US\$ 29.54 million to the forest seed pilot and US\$44.32 million to the afforestation pilot. However, the current afforestation subsidy is limited to key forest ecological projects.

Effects of poverty reduction policies

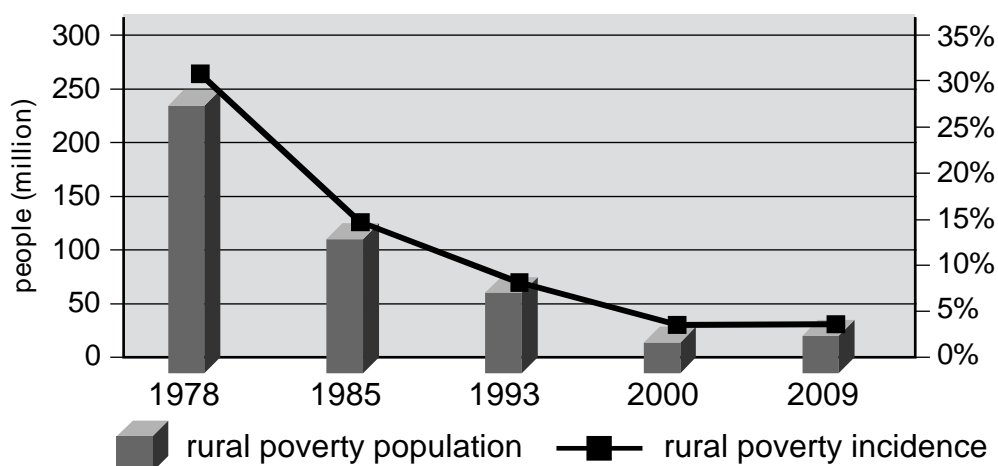
After 30 years of continuous efforts, China's rural poverty reduction has made remarkable achievements and progress in achieving the Millennium Development Goals. Some goals and sub-goals as halving extreme poverty, rolling back child mortality, providing universal primary education and safe drinking water have already been achieved, alleviating rural poverty significantly.

Through the first three stages of rural poverty reduction in China, the population in absolute poverty in the countryside decreased from 250 million in 1978 to 30 million in 2000, and poverty incidence from 30.7 percent in 1978 to 3 percent in 2000. During the fourth stage, the poor population rose to 35.97 million because the poverty standard rose from US\$116 in 2007 to US\$158 in 2009.

In recent years, the implementation of a series of important forestry policies such as NKFP and forestry reform has not only improved China's environment, but has also helped poverty reduction. The CCFP, for instance, not only effectively curbs soil erosion of the ecologically fragile areas but also benefits nearly 20 percent of the farmers with a grant budget of over US\$26.59 billion. The CCFP plays an important role in rural poverty reduction.

Meanwhile, the forestry construction program funded through a WB loan is another channel for poverty reduction and is led by the government with participation from concerned program entities (i.e. state-owned forest farms, collective forest farms, farmers, and forestry companies) and research institutes. Successfully completed in 2006, the "forestry development program in poverty areas" through a loan from the WB, covered 216 counties in 12 provinces, and benefited 3.83 million poor. Income per capita increased to an average of US\$84.60 and doubled after the program (Zhang Jianlong 2008).

Figure III.2. China's rural poverty population and changes of poverty incidence



Source: China Rural Poverty Monitoring Report 2009 and other public information.

Despite the progress in poverty reduction in the past 30 years, there have been many problems and challenges in rural poverty reduction in recent years. First, education, health and other basic public services lag behind, and the self-development capacity of farmers in poverty areas is weak. Second, limitations persist in the existing poverty reduction policies, such as the unsound evaluation system on poverty reduction and unregulated use and management of the poverty reduction fund. Third, the harsh natural environment seriously affects people's productivity and living conditions in some poor

areas. All these create pressure on rural poverty reduction, and there are some people returning to their previous poverty condition. About 62.3 percent of the rural poverty population in 2009 is composed of returnees to poverty (Wang Libin 2010).

Contribution of forestry to poverty alleviation

China's poverty population is mainly concentrated in the mountains. At present, 86 percent of 592 NPSCs are located in mountainous areas and China's forest resources are located mainly in these mountainous areas. Therefore, the development of forestry is an important measure for poverty alleviation in these areas.

Traditionally forest is always an important means of production and livelihood for farmer households

Farmers can get timber, fuelwood, fruits, nuts, medicinal herbs, and other products from forests. According to an investigation in eight villages in Jilin Province by the FEDRC, logs and fuelwood are entirely consumed in farmers' households. On the other hand, fruits, nuts and other forest food are mostly sold, while medicinal herbs are entirely sold in markets. The consumption pattern of forest products in these eight villages is common in the country. For example, farmers' households consumed 9.3 million m³ of logs, 21 million m³ of fuelwood, 11.85 million tons of fruits and nuts, and 262.7 thousand tons of other forest food for their own use in 2009 (SFA 2009b).

From 2003 to 2009, Chinese farmers harvested 26.75-21.03 million m³ of fuelwood and 8.6-9.3 million m³ of logs annually from the forest (SFA 2003-2009b). This enabled farmers to increase their income of US\$5.35 to US\$7.38 per capita each year only through fuelwood and logs in the forestry region. In key state-owned forest regions, forest resources become more important for local people. According to related investigations, local households consume an average of five m³ of firewood each year and 10 m³ in some cool zones (SFA 2009c). Forests have benefited local people through an equivalent US\$136.82 to US\$ 273.63 per household from their utilization of fuelwood. Forestry income has become an important source of farmers' households. In 2009, forestry income comprise 32.56 percent of the household income of farmers and net forestry income, accounting for 25.79 percent of the total net income of each farmer (SFA 2009c).

Through CFTR, farmers acquire forest property and increase their forestry income

Before the CFTR, due to unclear property rights, farmers were unable to use forest lands and undertake forestry management. That they did not have access to forest resources and related benefits from forest management is one of the main reasons why farmers in collective forestry communities are poor. In 2003, China started the CFTR wherein farmers have the right to the forest land, the right to use, the right to dispose, and other associated beneficiary rights. Forest lands allocated to farmers' households increased rapidly. From 2004 to 2008, the proportion of the farmers' contracted forestland to total forestland increased from 20.32 percent to 32.08 percent.

Table III.3. Forest structure by ownership between the Sixth and Seventh NFI

		State-owned	Collective	Private
The 6 th NFI (1999-2003)	Forested land (million ha)	72.85	64.84	35.10
	Proportion (%)	42.16	37.52	20.32
The 7 th NFI (2004-2008)	Forested land (million ha)	71.44	51.77	58.18
	Proportion (%)	39.38	28.54	32.08

Source: Report of the 6th NFI and the 7th NFI.

One of most outstanding and direct results of contracting collective forest lands to farmers is the increase in farmers' household property. By the end of 2010, each farmer household received a value of US\$14.77 thousand of forest assets. The proportion of the farmers' annual forestry income to their total annual income increased from 12.96 percent in 2009 to 20 percent or more in 2010 in 2,550 counties which underwent CFTR. In key forestry regions, the proportion of farmers' forestry incomes increased astonishingly from 12.96 percent to more than 60 percent.

Farmers depend on the forest to improve their livelihoods

The rural forest processing industry supplies employment for local farmers. Township enterprises engaged in forest product processing and circulation are growing rapidly, creating employment opportunities, increasing household income for the farmers, and playing key roles in reducing rural poverty. According to the monitoring results on collective forest tenure reform by the Forestry Economics and Development Research Center (FEDRC) in 2010, 118 wood/bamboo processing enterprises were established in 216 sample villages that employed 2,528 local farmers, as well as 554 other forest product processing enterprises that employed 1,883 local farmers.

Forest ecotourism is becoming a new employment chance for farmers. In China's rural areas, forest ecotourism stimulates new careers and creates employment for farmers. In 2009, farmers started different kinds of social tourism activities and employed 618,900 people based in forest parks. In Fujian Province, local farmers set up "forest homes"⁶ and developed forest tourism. In 2008, the number of "forest homes" in Fujian province grew to 358. They received 1.67 million visitors, and created 3,100 job opportunities with a social production value of US\$ 12.85 million. "Forest homes" have become new channels to increase income for local farmers in Fujian.

Non-wood forest products (NWFPs) have become a new "hot-point" for improving farmer's livelihoods. At present, a number of new forest industries are emerging as new opportunities for local farmers, such as under-forest cultivation, wildlife propagation and domestication, and forest bio-energy development in the forest region. For example, farmers in Qiupi village of Jilin province obtained a net forestry income of US\$917 per capita (about 86 percent of total net income per capital) from planting ginseng and breeding bees and wood-frogs in the forests, significantly improving their living standards. According to China National Tea-Oil (*Camellia oleifera*) Industry Development Program (2009-2020), tea-oil management alone is estimated to provide a potential two million jobs for farmers in the long-term. It is also estimated that if one farmer possesses a tea-oil farm of at least 0.67 ha, income can be as high as US\$2,954 each year when the tea-oil trees reach the stable production period.

Table III.4. Output of main non-wood forest products in 2004-2009 (in million tonnes)

	2004	2005	2006	2007	2008	2009
Fruit	69.59	82.52	88.63	97.21	98.15	111.82
Dried fruit	-	3.50	4.51	4.80	5.34	6.73
Forest beverage products (dry weight)	0.74	0.94	0.92	1.07	1.33	1.43
Forest seasoning products (dry weight)	0.29	0.36	0.36	0.40	0.43	0.47
Forest food (dry weight)	4.52	4.23	5.83	2.30	2.82	2.63
Woody herbs	0.58	0.75	0.96	1.06	0.95	1.53
Woody oil	-	-	-	0.97	1.05	1.22

Source: "Forestry Statistical Yearbook of China" 2004-2009.

Note: All kinds of economic forest products are listed in Table III.5.

⁶ "Forest homes" are new business entities of farmers' households taking advantage of good forest resources and the landscape to create eco-friendly tourism such as recreation, eating, housing, hiking, shopping for local specialty products, making full use of forest animal and plant resources for visitors outside the rural areas.

Table III.5. List of economic forest products

Type	Main products
Fruit	Apple, citrus, pear, grape, peach, apricot, lychee, longan, kiwi fruit, etc.
Dried Fruit	Walnut, chestnut, jujube (dry weight), persimmon (dry weight), mountain almond, ginkgo, hazelnuts, cashews, etc.
Forest beverage	Raw tea leaves, cocoa beans, coffee, etc.
Forest seasoning	Pepper, star anise, cinnamon, etc.
Forest food	Dried bamboo shoots, edible mushrooms, wild vegetables, etc.
Woody herbs	Eucommia ulmoides, Phellodendron amurense, Magnolia officinales, Lycium chinense, Cornel, etc.
Woody oil	Oil seed, Olive, Shiny-leaved yellowhorn, etc.

The development of the forestry industry provides ways for poor to get rich

The forestry industry is one of the important components of China's national economy. It plays a very important and distinct role in creating employment for farmers, increasing their income, and boosting the rural economy. China's forestry industry is developing rapidly. In 2009, the total output value of the national forestry industry reached US\$258.51 billion. The average annual growth during the year was 19.87 percent of that in 2003. The rapid development of the forestry industry has increased farmers' incomes and created job openings for a large amount of labor surplus in the rural areas. According to the estimation of the State Forestry Administration (SFA), the forestry industry has created job opportunities for 45 million people, which can accommodate 37.5 percent of the total rural labor surplus.



Small family-owned wood processing shop that employs some villagers.

Industrial timber base construction is one type of forest industry closely linked to farmers. For example, integrating the forest base with leading pulp and paper industries in Guangxi province involves the use of many different management models. Some leading enterprises cooperate with farmer cooperative organizations that organize resource supply by farmer households. Other enterprises build their own forest bases and receive resource supply from farmer households. Some forest farms operate their forest base, while farmer households also manage forest bases for leading forest enterprises, and so on. Through these models, farmers supply industrial timber to leading enterprises, enabling them to get jobs and increase their income. From 2001 to 2004, Guangxi set up helping poverty industries that directly benefited 359 villages, 1,461 administrative villages and 181,200 farmer households (including 139,500 poor farmer families) by offering jobs and increasing incomes through new “integrating forest

base with leading pulp and paper industry” projects with a forest area of 84,000 ha (Li Yuning 2005). At the same time, industrial timber base construction drives the development of man-made board industries, and further creates job openings for farmers.

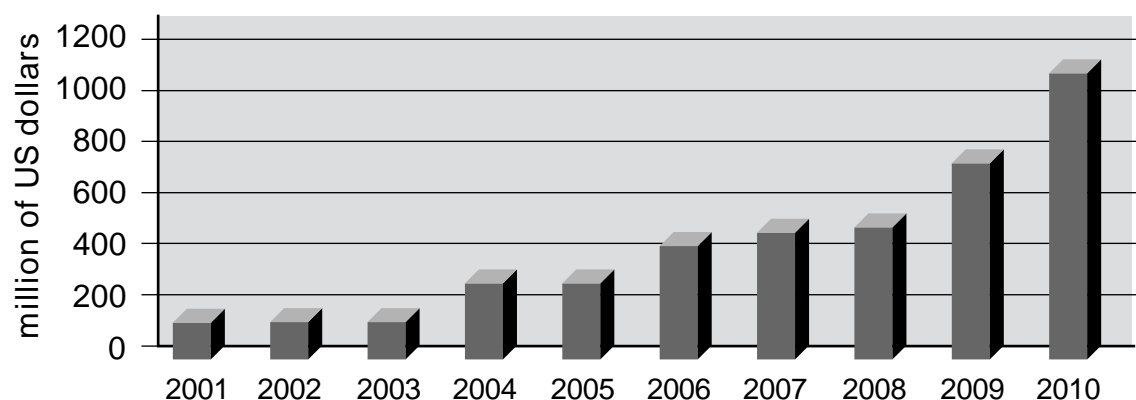
PES benefits farmers from forest management and protection

Since 2004, China has adopted the compensation policy for protected forests around the country and has subsidized planting, tending, protecting, and managing the protected forests for environmental services. The compensation fund for national and provincial protected forests is taken from the budgets of the central government and provincial governments, respectively. From 2001 to 2010, the Central CFFES expanded its coverage of national protected forests from 13.33 million ha to 69.33 million ha, and increased payments from US\$1,477 million to US\$11,197 million. By the end of 2010, cumulative investment by the central government reached US\$4.38 billion, of which 61.75 percent was distributed to collective or private forest owners (SFA 2010d). At the same time, almost all the provinces in China established provincial CFFES. Up to now, the local protected forests in China occupy about 77 million ha. Excluding Hong Kong, Macao, and Taiwan, a total of 28 provinces have established provincial CFFES for PES and their cumulative investment has reached US\$1.95 billion.

Besides PES, China’s NKFP also offers other subsidies for management, protection and construction of protected forests. For example, the CCFP subsidizes farmers with grains, seedlings, and cash. Basically, these CCFP subsidies make up 10 percent of the farmers’ annual income. In 400 counties in western China where CCFP is implemented, the proportion of subsidies to total income of farmers is even higher. In some counties in Ningxia Province and Yunnan Province, the proportion reaches 45 percent or more (Wang Rui 2010).

Furthermore, local governments established PES in different regions, watersheds, and industries to meet the protection requirements of ecosystems. For example, Fujian Province established and implemented PES integrating different watersheds. According to this policy, people in the upstream area should get PES for their forest management for public benefits from funds raised from hydroelectric development in downstream area. From 2005 to 2008, Fujian Province raised US\$59.09 million as special budget to support comprehensive ecological improvement in Jiulong, Minjiang and Jinjiang Rivers.

Figure III.3. Central Forest Ecological Benefit Compensation Fund, 2001-2010



Source: SFA 2001-2010.

Capability of forestry management and service has been improved

All the staff and workers in forestry can be divided into three types: staff in the state forestry system, employees in the non-state forest processing industry, and seasonal and temporary farmer workers.

The staff in the state forestry system are those workers serving in state forestry enterprises, state-owned forestry farms, state-owned nursery gardens, forestry stations, timber inspection stations, seedling stations, pest control stations, desertification controlling stations, natural reserves, wildlife protection

stations, and others. In addition, staff working in enterprises and entities administrated by the state forestry system in state-owned forest regions or others are traditionally regarded as staff in forestry operation systems. In 2009, this group reached 1.36 million in total.

Employees in the non-state forest processing industry are those working in the secondary industry, especially wood processing, bamboo or rattan processing, furniture making and papermaking. In 2007, it had 1.33 million employees.

Seasonal and temporary workers are farmers who pick up jobs from seasonal forestry production, silviculture, or forest management activities⁷. Seasonal workers consist of two kinds of farmers: self-employed farmers; and those employed by enterprises or collective economy organizations or other people temporarily. In recent years, China increased afforestation and invested more in forestry and needs four million seasonal farmers for afforestation (equivalent of 800 million person-days) activities.

Case studies

The case studies selected are located in the counties of Ningshan, Anhua, and Ledu and illustrate separately the contribution of traditional forestry, commercial forestry, and environmental services to poverty alleviation. In these counties, officers of the forestry bureau, agriculture bureau and poverty relief office, local farmers, village cadres, and forestry entrepreneurs, were interviewed through a workshop.

Contribution of traditional forestry to poverty alleviation: Ningshan case

Ningshan is located at the southern foot of the middle Qinling Mountains that is part of the watershed of the Yangtze River and Yellow River. Ningshan's economy is underdeveloped and it is both a provincial key forestry county and a NPSC. In 2010, its total area was 216,000 ha with a population of 74,000. Around 82.7 percent of the population lives in rural areas, and 38.9 percent is poor. The county's GDP is 1.16 billion yuan and the net income per local farmer is 3,812 yuan, lower than the average of the country by 38.9 percent. Its total forested area covers 184,720 ha with a forest stock volume of 11.82 million m³. The ecological forests that mainly provide ecosystem services have an area of 160,490 ha, making up 78.6 percent of the total forested areas.

In Ningshan County, farmers heavily rely on forest resources where they traditionally obtain timber, fuelwood, food (such as fruits, wild vegetables, mushrooms and fungi), herbs, and hunt animals. Timber production is the main source of income for farmer households and is an important material for housing, charcoal, furniture, and tools for farming, etc. The income from timber production and wood processing accounts for more than 70 percent of the total income. Since 1998, local farmers have transformed the mode of forest management from logging to cultivating under-forests for NWFPs as a result of the logging ban policy by NFPP. From 2007, CFTR was implemented in Ningshan County and 204,000 ha of collective forest lands were contracted to 17,000 local farmer households. An average of 12 ha of forest areas with 558 m³ of volume and forestry assets equivalent to US\$73,855 were allocated to every household.

With support by the government, local farmers devote much of their time to non-wood products in their contracted forest lands. For instance, Zhang Liyou, a farmer in Ningshan County, contracted 20 ha of chestnut forest areas, cultivating more than 30,000 bags of mushroom on tree branches from his own grafted chestnut forest lands. He also raises chickens under forests and grows konjak mannan⁸ and other edible plants and herbs in forests. In total, his income from forestry can reach US\$20,680 a year, an increase of US\$14,771. Zhao Guocheng, a poor farmer who had to migrate for

⁷ Seasonal forestry production activities include afforestation, tending of young forests, forest tending, forest management and wood and bamboo cutting. Due to limited data availability, this study only cites the number of workers in seasonal afforestation.

⁸ Konjak mannan (glucomannan) is a perennial herb and a fiber said to improve glycemia and other associated risk factors in coronary heart disease in Type 2 diabetes.



A number of farmers who have been allocated forestlands engage in chicken raising, mushroom production and other income generating activities under the trees they planted or are managing.



Research Team

a job before CFTR, now grows zhu ling (*Polyporus umbellatus*, a valuable medicinal mushroom that grows in forests 1,100 meters above sea level) in his 12.4 ha of contracted forest land. His annual average income is approximately US\$3,000, higher than his previous income. A typical example to show the contribution of traditional forestry to poverty alleviation is Chen Jinghe, a poor farmer who earned less than US\$200 per capita per year by planting crops. In 2008, his family contracted 36.2 ha of forest lands during the reform. Now, he gets US\$148 per year by leasing 13.3 ha of forests to a tour company for eco-tourism, and US\$3,545 by growing mushrooms on other forestlands. The income of his family doubled compared to his previous income from the traditional way he managed the forest area.

In the case of Ningshan, traditional forest is an important resource for local farmers for both subsistence livelihood and increased incomes. Traditionally, farmers rely on forests for multiple living and production materials. The implementation of NFPP does not reduce the degree of farmers relying on the forest but changes the mode of forest management. Before NFPP, the income of farmer households from timber was more than 70 percent of the total. Currently, income from fruits alone accounts for more than 50 percent of the total. Under CFTR, farmers enjoy the management rights to contracted forest land and can manage forest resources by multiple modes to get multiple forestry products. Forest resource multiple uses for commercialized management directly changed the state of operation of farmer households, increased their incomes, and improved the livelihoods of local farmers. Under CFTR, the population living in absolute poverty decreased to 12,000 (33 percent) from 18,000.

Contribution of commercial forestry to poverty alleviation: Anhua case

Anhua County is located in central Hunan Province. Its total land area covers 495,000 ha with 1.08 million people, of which 80.86 percent comprise the rural population. There is a labor force of 182,700 engaged in forestry production, accounting for 39.4 percent of the rural labor force. Anhua County is a NPSC and in 2010, rural per capita net income was US\$394.27, only 51.8 percent of the national average in the same period. There are 247,600 poor people, and the poverty incidence was 25.33 percent in the county.

According to 2009 data, there are 373,000 ha of forested land with a forest volume 12.16 million m³, and forest coverage of 76.17 percent. The economic forest area in the county is 79,000 ha, accounting for 20.1 percent of the forest area. The area of oil-yielding trees is 25,700 ha; the medicinal woody area, 20,000 ha; the tea area, 10,500 ha; the fruit forest area, 12,000 ha; and the rest of the forest areas, 10,800 ha. In 2010, the total output value of the economic forest, planting, and cultivation under crown

cover was US\$267.38 million. Economic forest, planting and cultivation under crown cover drove the average income of local farmers to increase to over US\$310.21, accounting for nearly 80 percent of the rural per capita net income. The economic forest output value was US\$168.40 million, raising the average income of farmers to US\$202.38. Output value of planting and cultivation under crown cover was US\$98.97 million, raising the average farmer income to more than US\$107.83.

Luo Jiean is an oil-tea camellia (*Camellia oleifera*) grower. He has transformed 0.2 ha of low-yield oil-tea camellia forest into a high-yield forest with an annual production of 250 kilos of tea oil. In addition to his family use, tea oil is sold and revenue can exceed US\$886.33, which accounts for 40 percent of their household income. With a stable income from tea oil, Luo Jiean's family now belongs to the middle-income level in the local community. Wang Shuhuai manages tea gardens and fruit orchards of over 40 ha. In forest lands, he breeds chickens, and the chicken manure fertilizes the forest land which enables him to obtain a high income from his forest produce, organic tea and fruit orchard. Annual gross income from the tea garden can reach as high as US\$73,860-88,630, while the income from forest breeding is as high as US\$29,540. Wu Xianzhong plants economic forest species in his contracted forest land, and Chinese herbal medicinal species under forest. He continually studies cultivation technology and engages in the development of new varieties, but also hires technicians from the county to improve his forest management techniques. For example, his normal papaya production is 2,250-3,000 kg per ha, but production in his papaya garden can go as high as 37,500-45,000 kg per ha. His papaya garden has become a "famous special fruit garden" in Anhua county. Currently, his forest land hires more than 100 farmers seasonally, and 30 to 40 farmers in the long-term, providing job opportunities for local farmers.

The Anhua case study clearly shows the role that the economic forest can play in increasing farmers' incomes. The living standards of all farmers engaging in economic forest are above the local average. There are various contributions of economic forestry to local farmers. First, forestry has widespread impacts among farmers in forestry areas. Economic forest planting by CCFP benefits 369,000 people in the county, accounting for 44 percent of the total rural population. Second, economic forestry contributes greatly to increasing farmers' income. Just two kinds of revenue from economic forest, planting and cultivation under crown cover, account for 80 percent of farmers' per capita net income. Development of planting and cultivation under crown cover achieve an excellent combination of forestry and animal husbandry, which not only protect forest resources but also improve farmer livelihoods. The local farmers believe that the development of economic forests and planting and cultivation under crown cover, is the best and the fastest path for farmers to get out of poverty.

Contribution of ecosystem service oriented forestry to poverty alleviation: Ledu county case

Ledu County is located in Eastern Qinghai, in the middle and lower reaches of the Huangshui River. Its total land area is 261,460 ha with 281,400 people, and the agricultural population is 84.44 percent of the total. According to 2010 data, the farmers' rural per capita net income is US\$676.86, which is 22.59 percent lower than the national level. Therefore, it is a NPSC. Ledu County now has 185,640 ha of forest land. But forested land is only 19,600 ha while shrub forest land is 71,500 ha, accounting for 10.39 percent and 37.92 percent of the total land area, respectively. The forest coverage is 24.7 percent. The total standing stock volume is 2.31 million m³, of which forest stock volume is 1.63 million m³. With a fragile environment and frequent natural disasters, Ledu County is one of the areas in Qinghai province experiencing serious soil erosion. Responding to these ecological conditions, several KFPs implemented in Ledu since 2000, such as CCFP, NFPP, and TNSDP have increased the area of forest and shrubs, prevented soil erosion, improved the local ecosystem, increased the income of local farmers, and boosted livelihoods.

The CCFP covers the largest area in the county, involves the largest population, and has the greatest impact on farmers. As of 2009, the county had a cumulative 43,450 ha of forest lands by CCFP, as a result of afforestation on 16,820 ha of farmlands and 23,970 ha of barren hills, including 2,670 ha of enclosed hillsides for natural afforestation. The project involved 30,110 households and 126,110 people.



A newly established oil-tea camellia plantation

Slope lands with 16,670 ha were effectively treated, and the forest area increased by about 40,000 ha, of which economic forest was 8,930 ha, timber forest, 1,600 ha, and *Caragana* sp lands, 667 ha. A total of 650 biogas digesters and 2,000 firewood saving furnaces were constructed which decreased the consumption of the forest resource. The grains for ecological compensation amounted to 78 million kg, living subsidies to US\$20.09 million, funds for forest management and protection to US\$5.02 million, and subsidies of seedlings to US\$4.43 million, with more than 130,600 farmers getting their compensation directly from the government. In 2008, incomes of farmland household of CCFP reached US\$479.05 per person, which was US\$199.93 more than that in 2000 in the county.

Xiaying Village, in Xiaying Township, a Tibetan Autonomous Township in Ledu County, is a case that is deriving benefits from PES. The village suffered years of drought in the past with rare harvests. Thus, farmers' lives were very difficult. When the CCFP was instituted in 2000, farmers' living standards began to improve tremendously, along with the ecosystem and environment. Li Caidan, a 62-year old Tibetan, owned 1.93 ha farmland before the CCFP and converted 1.53 ha of farmland to forestland. From 2001, he got compensation each year, and in 2010, got US\$366.35 from PES, which accounted for about 20 percent of the total family income. The old man said that before the CCFP, the harsh environment and droughts resulted in bad harvests (only 1,125-1,500 kg of grain per ha), which were barely enough for maintaining a family. But now, the compensation can meet his family's food demand and the family's income has apparently increased since additional labor is no longer needed to work on farmlands and he can work outside the county to earn more money. His family now has a television, refrigerator, other household appliances, and motorcycles. In 2009, his house was renovated. For forest farmers like him, life is getting much better.

Guo Sangjie is a 49-year old Tibetan and his family is a poor household in the village. His family had 2.07 ha of farmland and converted 1.87 ha to forest land. He received US\$417.76 for compensation in 2010, which accounted for 25 percent of the family total income. Before CCFP, they could barely maintain their daily needs and had no time to take care of his mother and the children since he and his wife were busy working on their farmlands daily. Under CCFP, he has been able to work outside the county and now earns about US\$738.61 a year. His wife can now take care of the family. Although the livelihood of his family is still difficult, the smile on Guo Sangjie's face reflects much hope about his future.

Zhu Zengcang, 74 years old, gets national special care subsidies every year. His family has 1.60 ha of farmland, of which 1.33 ha have been converted to forest land. He said that before CCFP, he could only

get a subsidy of about US\$42.6 a year from the primary national special care, and his family mainly relied on farmlands to maintain their life. Their life was so harsh that they could not afford new clothes. After converting their farmland to forest land, he now gets about US\$369.3 from PES every year and his national special care subsidy is about US\$443.16. These compensation and subsidy meet his family's basic needs and their life has improved a lot. His family has bought a large 25-inch color television set. The old man now is in high spirits.

The Ledu case shows that CCFP has contributed a lot toward improving farmers' lives. First, CCFP has changed the mode of production of local farmers. A large number of farmers have gotten out of farming work to obtain a job outside the county, which broadens their income sources. Second, the vegetation is protected, the ecosystem and environment improved, and the scale of natural disasters reduced significantly. Third, farmers' morale has changed and they are now in high spirits. Rural civilization has also been promoted. Before CCFP, the women in the village knew nothing about the "Women's Festival". But now, such movies are shown in the village, and women dine together to celebrate their holiday.

Outlook for forestry and poverty alleviation

Year of 2011 is the starting year of the Twelfth Five Plan of National Economic and Social Development (2011-2015) (The "Twelfth Five" Plan) and the key year of China's poverty alleviation. Markedly reducing the poor population is one of the targets of the "Twelfth Five" Plan. The Outline of China's Poverty Alleviation in Rural Area (2011-2020) (The Outline) aims to eliminate extreme poverty in the next 10 years and is the first task in China. The target is to notably decrease the poor population in 2015 and eliminate extreme poverty in 2020. Large areas with concentrated poor populations are especially considered as major areas for poverty alleviation and more funds should be invested in those areas.

In China, the poor area is basically the forest region or area of NKFPs. During the "Twelfth-Five Year," Chinese forestry development with ecosystem maintenance and protection as the main body of strategy intends to fully implement forest tenure reform, formulate more preferential policies on developing forests, and promote the beneficial interaction between ecosystem maintenance and forestry industrial development for enriching people through forest development. Therefore, the forest region continues to be the key area and forest farmers the main object for poverty alleviation in China. The development of forestry is forecast to contribute to China's poverty alleviation much directly, more so in the next five years.

First is the construction of "ten ecological forest-belts" with component activities in controlling desertification, combating and preventing the natural hazards from windy sand, mountain torrents, and mudslides in major ecologically fragile areas. This is planned to ensure the country's ecological security and improve the environment where poor populations live during the "Twelfth-Five" period.

Second is developing "ten leading forestry industries" to increase farmers' income, ensure and improve people's living conditions in the "Twelfth-Five" period. The main measures involve supporting the leading forestry industries to gradually strengthen forestry's role in assisting farmers and developing counties, and contributing to the national economy. The Forestry Rejuvenation Program (2010-2012) emphasizes optimization of the forestry structure and reinforces forestry's role in the employment and income growth of farmers, targeting 57 million employees in forestry in 2012.

Third is to comprehensively start forest tenure reform to stimulate the development of the forestry industry and alleviate poverty in forest regions in the period of "Twelfth-Five." Main components include further implementing CFTR, commencing the pilot reform of state-owned forestry farms, continuing the steady reform of key state forest regions by protecting and cultivating forest resources to create jobs, and building up a social security system to increase employment and improve the social welfare of people in the forest region.

Fourth is to improve forestry policies that will lead to people's increased incomes through forestry development. In the period of "Twelfth-Five," the government will reinforce its support to forestry development and protection through afforestation subsidies, improving species quality, thinning and tending middle and young age groups of forest, wetlands protection, compensating the damages caused by wild animals through forest insurance, forestry finance and taxation aid system, improving the harvest system, and establishing a forestry social service system. All these aim to provide farmers with a forestry development platform and policy guarantee to increase farmers' employment and income, contributing to poverty alleviation.

Recommendations

To further promote the role of forestry in poverty reduction, we recommend the following suggestions.

Speed up the infrastructure construction in forestry areas

Infrastructure is critical in improving rural production and living conditions, developing the rural economy, and increases farmers' income. The government should further invest in the construction of roads, electricity provision, and water conservation through CFTR to improve production and living conditions in rural areas.

Increase science and technical inputs

Science-technology popularization and application should be one of the leading strategies for poverty relief. The government's public service function of introducing, popularizing and demonstrating forestry techniques should be fully used to assist farmers. Forestry professionals and technicians should be trained regularly and encouraged to actively provide technical services in poor rural areas. Policies must encourage government and non-government science and technology research institutes, and rural cooperation organizations to participate in projects towards poverty alleviation.

Encourage the industrialization of forestry

Industrialization of forestry is key in promoting forestry development and assisting in increasing farmers' income. Forestry products with high value potential and their markets should be industrialized to form a regional leading specialty industry in a relatively large-scale area to enhance the added value of forestry products. Large- and middle-scale processing industries of forestry products with large market shares could be encouraged to source their raw materials from poor rural areas. This can provide services and markets for poor farmers before and after production and form a systematic industrialization management of the forest resource, production, and trade. Scaled-up and professional wholesale markets for forestry products from poor rural areas can then be set up to further assist farmers' incomes through forestry.

Strengthen forestry cooperation organizations

Forestry cooperation organizations (FCOs) are non-government organizations self-organized by farmers to ensure their rights. But FCOs have limited management capacity and few experiences. Government should help develop and strengthen FCOs through policies enabling FCO involvement in afforestation, science-technology popularization, financing, forest insurance, and information. Cooperation between farmers and forestry processing industries should be encouraged at different levels to enlarge the scale of forestry production, effectively decrease production costs, have free-flowing information and production plans, to enhance the market competitiveness of local farmers and increase their incomes.

Further improve the forestry financing system

A well-developed forestry financing system guarantees the capital from forest production and its

expansion in rural areas. Due to the relatively high costs of forestry production, farmers do not have enough capital to invest, leading to low inputs and constraints to forestry production. Fund sources should be explored such as forest property mortgages, discounted interest rates, petty loans, credit guarantee systems, and farmers' joint guarantee. Increasing capital will reinforce farmers' interests to develop and invest in forest production. Simplifying the loan process and decreasing financing costs are also helpful in increasing forest investments.

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IV

Assessment of the contribution of forestry to poverty alleviation in India

K. Balachandran Thampi*

Introduction

India has about one-third of the world's poor people—the largest by any country. Within the country, the 'bottom millions' are not spread uniformly across the states and, within states, across the regions. These regions include tribal and forest areas with large numbers of poor people. A significant proportion of the poor and forests occupy the same space. Development strategies have bypassed these historically marginalized groups and deprived regions, thereby perpetuating a variety of 'interlocking disadvantages' that limit people's opportunities to improve their livelihoods (IFAD 2011). Studies indicate that forests in India play a significant role in all aspects of poverty reduction as they make people less poor, enable them to escape from poverty, and prevent those on the margins from becoming poor. However, the extent to which the forest resources or forestry alleviate poverty is not well-documented, though the body of literature provides a number of case studies in different resource or poverty situations. Nor is there adequate exploration of the links between forestry and poverty reduction in the national poverty alleviation strategies which continue to form the central theme of development planning since independence.

Who are the poor in India, and where do they live? What do they do for a living in forest areas? What pathways and forest resources do they use to improve their livelihoods? This paper attempts to examine inter alia some of these questions. Many of the quantitative relations, accessed mainly from proxy national-level studies and case studies, would need to be further fine-tuned and documented by future research due to limited relevant data, especially on social and economic issues related to forests.

Overview of forestry resources and poverty situation

National forestry sector

Forestry represents the second largest land use in India after agriculture. The forest and tree cover of the country is 78.37 million ha, which constitutes 23.84 percent of the geographical area and includes 69.09 million ha (21.02 percent) Forest Cover (FC) and 9.28 million ha (2.82 percent) Tree Cover (TC) (FSI

* (Retired) Inspector General of Forests, Ministry of Environment and Forests, Government of India

¹ Based on the *State of the World's Forests 2011* published by the Food and Agricultural Organization (FAO), the extent of forest cover in the country is 68.43 million ha (FAO 2011). In this report, FSI figures are used to allow disaggregated analysis at country level.

2009)¹. Classifying FC based on canopy class², 8.4 million ha constitutes Very Dense Forest (VDF), 31.9 million ha Moderately Dense Forest (MDF) and 28.8 million ha Open Forest (OF). Nearly 42 percent of the forest cover is in the OF category and generally treated as degraded forests. Despite increasing pressures, mainly due to unregulated and illegal fuel wood and timber harvesting, excessive grazing, forest fires, shifting cultivation and encroachments, India's FC shows an increasing trend in the last decade—3.13 million ha³ from 1997 to 2007 (FSI 2009) due to increased afforestation/regeneration efforts and people's participation in forest protection. India is one of the very few developing countries to report an annual change rate of 0.5 percent increase during the period 2000-2010 (FAO 2011).

The tropical moist deciduous forest (34 percent) and tropical dry deciduous forest (30 percent) constitute the dominant forest types of the country. Based on ecological diversity, forests are classified into 16 types and 251 sub-types ranging from tropical rainforests in the south and the northeast to the dry alpine forests in the northwest Himalaya (MoEF 2006b). The growing stock of wood in India's forest and tree cover is estimated at 6,098 million m³, comprising 4,499 million m³ inside the forest area and 1,600 million m³ outside the recorded forest area. The average per hectare growing stock in forests is 58.46 m³ (FSI 2009) with only 0.7 m³/hectare/year productivity against the world average of 2.1 m³/hectare/year (MoEF 2009).

There are four distinct regions where the country's forests are distributed—North East India, Western Himalayas, Central India and Western Ghats. Six of the 28 states in India contribute about 50 percent of India's FC. Of the total 593 districts, 124 are categorized as hill districts where the FC forms about 40 percent of the geographical area. Around 84 percent of tribals, who form the most disadvantaged section of the society in India, live in forest areas and have close cultural and economic links with forests (Mehta and Shah 2003). The 188 tribal districts of the country, though occupying only 33.64 percent of the geographical area, have 59.72 percent of the total FC of the country.

Forest areas administered solely by the state forest departments comprise 65 percent while 27 percent is managed by community groups through Joint Forest Management (JFM)ⁱ, but still largely administered and controlled by government. Only 8 percent of the forest land is managed by private individuals on farms or by large forestry firms (World Bank 2006). The level of public ownership/administration in India is relatively high compared with other developing countries in the region where a significant portion of the forest areas is under community forestry.

Over the years, JFM has evolved to become the principal forest management strategy in India. JFM programs currently span all 28 states, involving 106,482 village committees with 23.71 million members and covering more than 22 million ha of forest land (MoEF 2006a). The program involves about 37 percent Scheduled Tribes (ST) and 20 percent Scheduled Caste (SC) members⁴.

Precise estimates of wood production and consumption in the country are not available and estimates vary considerably. The overall annual production of logs from forests (excluding fuel wood) and Trees Outside Forests is estimated at around 14 million m³, whereas consumption is estimated to be 17 million m³, with the gap in supply met through imports (MoEF 2009). The 2006 National Forestry Commission Report estimates India's round wood production to be about 240 million m³, of which 75 percent is the estimated share of fuel wood. In a recent estimate (Pandey in FAO 2010), wood fuel production was assessed to be about 261 million m³ in 2005, against industrial round wood production of 46 million m³.

The total economic value of forests in India, as per strict definition of GDP, is always underestimated as many goods and services from the forest are not traded in formal markets. The official contribution of forestry to India's GDP in the last decade was generally in the range of 1-1.5 percent. Some argue that

² Canopy density: >70% Very Dense Forest; 40-70% Moderately Dense Forest; < 40% Open Forest

³ Due to changes in resolution and quality of data, interpretation and classification, the decadal data may not be strictly comparable, but they have been significantly factored in by suitable adjustment.

⁴ ST and SC are categories protected under the Constitution from social injustice and all forms of exploitation and, for providing special care for their development and empowerment.

the value of forests reflected in the System of National Accounts represents less than 10 percent of the real value (Prasad 2006a). Further, various studies (Chopra et al. 2002, Verma 2000, in MoEF 2009) assessed the contribution of forestry to be many times higher than the conventional GDP assessment.

Poverty situation in India

Poverty in India is conventionally defined in terms of income poverty, i.e., inadequacy of income to provide a defined minimum level of calories estimated at 2,400 per person per day in rural areas and 2,100 in urban areas. The official poverty line currently in use is Rs 356.30ⁱⁱ (US\$7.80) per month in rural areas and Rs 538.60 (US\$11.80) in urban areas in 2004-05 (Press Information Bureau 2007). The official poverty estimate by the Planning Commission of India puts 27.5 percent of the population living below the poverty line (BPL) in 2004-05 (rural at 28.3 percent and urban at 25.7 percent) when the total population was 846 million. With the recent national census (National Census 2011) estimate of total population at 1,210 million, the number of poor people in the country could well be about 330 million, if the same proportion of the population falls below the poverty line. Many studies consider the official poverty estimate at 27.5 percent of the population an underestimation. Recent assessments based on different approaches have produced different figures on the percentage of population below the poverty line. Head Count Ratio (HCR) ranges from 27.5 percent to around 80 percent of the population under different approachesⁱⁱⁱ. Notable among them is the report of the Suresh Tendulkar Committee appointed by the Planning Commission of India, which puts 37.2 percent of the population (rural at 41.8 percent and urban at 25.7 percent) below the poverty line. Using the World Bank's international standard of per capita expenditure of PPP US\$1.25 per day, the proportion in poverty is even higher at 41.6 percent in 2005 (CPRC 2011). India is also home to the largest number of 'hungry' people in the world (IFPRI 2010) ranking 67th out of 84 countries in the 2010 Global Hunger Index.

Official statistics show that poverty measured in terms of HCR declined from 54.9 percent in 1973-74 to 27.5 percent in 2004-05, but the pace of poverty reduction over the past decade has been slow.

Poverty declined by 12.4 percentage points over the decade from 1977-78 to 1987-88, but by only 8.5 percentage points between 1993-94 and 2004-05. Hence, income poverty in the country declined only by less than one million a year over a time span of three decades (Planning Commission 2006), with the rise in population also offsetting some poverty reduction gains. This slowdown in the pace of poverty reduction indicates difficulties in addressing hardcore poverty, much of which is likely to be chronic in nature (Bhide and Mehta 2008 in CPRC 2011).

Of the 301.7 million below the poverty line in 2004-05, 220.9 million (73.2 percent) reside in rural areas and are concentrated in certain regions and among particular social groups. About 65 percent of the poor in India live in eight of the 28 states. The poorest states are predominantly rural and agrarian, generally with challenged systems and governance. Even within states, regional imbalances prevail. For example, rural Orissa (officially the poorest state in India) recorded a poverty ratio of 48.01 percent in 1999-2000 but, for the southern region, this was 87.05 percent (Padhi et al. 2006). Similarly, the poverty ratio is higher for the SC and ST categories (CPRC 2011). Estimates for 1993-94 and 2004-05 indicate that, against a decline in poverty for the whole population in India from about 37 percent to 27 percent, the decline among the rural tribal population was less impressive, i.e. from 51.9 percent to 47.3 percent (Planning Commission 2008).

States that have large numbers of poor people include those with large tribal and forest areas, much of which are in the central and eastern 'poverty heartlands' of the country and in semi-arid areas. Comparing the seven poorest states with the national average (Table IV.1), the data reveal that these poor states generally have a very high proportion of ST population (four states), a substantially higher proportion of BPL among ST/SC category (six states), higher forest cover (five states), and lower HDI scores (six states).

Table IV.1. Head count ratio, ST population and forest area in 7 poorest States - 2004-05

State	HCR%	% of ST population	% of BPL in SC/ST population	FC as % of GA of the State	FC of state as % of India's FC	HDI score
Orissa	46.4	22.13	45	31.38	7.07	0.537
Bihar	41.4	0.91	56	7.23	0.98	0.507
Chhattisgarh	40.9	31.76	60	41.33	8.09	0.549
Jharkhand	40.3	26.30	39	28.72	3.31	0.574
Uttarakhand	39.6	3.02	17	45.80	3.55	0.652
Madhya Pradesh	38.3	22.30	49	25.21	11.25	0.529
Uttar Pradesh	32.8	0.06	40	5.95	2.08	0.528
India	27.5	8.20	34.8	21.02	100.00	0.605

Source: Planning Commission (2008) and own calculation.

The Millennium Development Goals (MDGs) reflect the multiple dimensions of poverty and recognize the need to go beyond income poverty by using indices of human development and overall welfare—literacy, education, health, and lack of basic needs such as drinking water. The poverty alleviation strategies in India recognize the need for multi-pronged approaches essential for poverty reduction (Planning Commission 2006). Of the 18 targets to achieve the MDGs, 12 are relevant to India. Table IV.2 gives the country's progress on important targets.

Table IV.2. Millennium Development Goals: Summary of progress

Target No.	Target Description	Progress signs	Sign description
1.	Halve, between 1990 and 2015, proportion of population below national poverty line	Δ	Δ : Moderately or almost nearly on track considering all indicators Θ : Slow or almost off-track considering all indicators $\Delta\Delta$: On-track or fast considering all indicators $\Theta\Delta$: Slow or off-track by some indicators but fast by other indicators (including cases where composite targets are involved) $\Delta\Theta$: On-track or fast by one main indicator but slow by another main indicator (including cases where composite targets are involved) Φ : Pattern of change not discernible due to lack of sufficient data
2.	Halve, between 1990 and 2015, proportion of people who suffer from hunger	Θ	
3.	Ensure that by 2015 children everywhere, boys and girls alike, will be able to complete a full course of primary education	$\Delta\Delta$	
4.	Eliminate gender disparity in primary and secondary education, preferably by 2005, and in all levels of education no later than 2015	Δ	
5.	Reduce by two-thirds, between 1990 and 2015, the under-five mortality rate	$\Theta\Delta$	
6.	Reduce by three quarters, between 1990 and 2015, the maternal mortality ratio	$\Theta\Delta$	
7.	Have halted by 2015 and begun to reverse the spread of HIV/AIDS	Δ	
8.	Have halted by 2015 and begun to reverse the incidence of malaria and other major disease	$\Theta\Delta$	
9.	Integrate the principles of sustainable development into country policies and programmes and reverse the loss of environmental resources	$\Delta\Delta$	
10.	Halve, by 2015, the proportion of people without sustainable access to safe drinking water and basic sanitation	$\Delta\Theta$	
11.	By 2020, to have achieved, a significant improvement in the lives of at least 100 million slum dwellers	Φ	
12.	In cooperation with the private sector, make available the benefits of new technologies, especially information and communication	$\Delta\Delta$	

Source: Millennium Development Goals - India country report 2009: Mid-Term Statistical Appraisal, Central Statistical Organization, Ministry of Statistics and Programme Implementation, Government of India.

Poverty alleviation and forestry in national policy

National poverty reduction strategy

Since independence in 1947, the central goal of development and planning in India has been poverty reduction. Over the past six decades, there have been systematic efforts to reduce poverty in India. These include increasing economic growth, direct attacks on poverty, land and tenancy reforms, participatory and empowerment approaches, and provision of basic minimum services (Mehta and Shah, 2003). During the first two decades after independence, it was widely believed that economic growth would automatically reduce and eliminate poverty. However, it was found that the fruits of development did not reach the masses and there were large numbers of deprived and deserving communities whose basic needs remained unmet (Kaushik 2007). The planners later recognized the importance of distributional policies and

considered it necessary to have targeted programs for employment generation and income support for those who had been left out. A series of programs based on a three-pronged approach to attack poverty and unequal distribution was initiated which included the creation of an income-generating asset base for the rural poor, generation of opportunities for wage employment, and area development programmes in poorly developed regions with arid land, rain-fed, drought-prone, tribal, hill, and desert areas (Ibid). The 1990s saw changes in the development strategy. Poverty was recognized as a multi-dimensional deprivation of a set of capabilities in health, education, literacy, etc. The last decade witnessed a shift in strategy to initiate enabling a 'rights based approach' to development, backed by statutes. The enactment of the Right to Information Act, Mahatma Gandhi National Rural Employment Guarantee Act and Right to Education Act are important steps in this direction. Enacted rights legislation thus far adopts a mixed supply and demand-driven approach. For example, information and employment have to be demanded while education is compulsory. It must be noted that the establishment of rights in law may not, by itself, resolve the problems facing governments across India in implementing poverty-reduction policies and programs.

The main thrust of India's policy on a poverty-alleviation strategy has been the use of economic growth as a driver to provide employment and income support directly to the poor (CPRC 2011). Over the years, a large number of poverty-alleviation programmes have been implemented (Table IV.3). Direct responses to poverty have included the: provision of wage employment; support to asset building and self-employment; food, nutrition, skills, education, housing and income support; and subsidies for especially vulnerable groups. Programmes with universal coverage, such as rural water supply and sanitation, rural electrification and rural infrastructure, have also benefited the poor directly or indirectly (Ibid). Recognizing the limited economic opportunities and concentration of poverty in certain parts of the country, area-based interventions have also been implemented⁵.

Box IV.1. Rights-based approach and poverty reduction

Right to Information: Gives the right to access government documents. A transparent administration would help improve the implementation of poverty alleviation programmes.

Right to Employment: Guarantees 100 days of labor per household in a year at the prescribed minimum wage. The poor benefit through wage employment, income and asset generation.

Right to Education: Provides free and compulsory education for children in the age group 6-14 years. Education is important in the long run for escaping poverty, acquiring new skills, accessing benefits and realising other rights.

Forest Rights: Gives right of ownership of forest land up to 4 ha cultivated by tribals and traditional forest dwellers and community forest rights over forest resources. Ownership rights on land and access to forest resources will benefit the poor people in many ways.

Right to Food: This legislation is still to be enacted, but in the final stages. The proposal guarantees food grains at very low rates and provide better nutrition and health.

⁵ Drought-Prone Area Programme, Desert Development Programme, Integrated Watershed Development Programme, Hill Area Development Programme, and Backward Regions Grant Fund are specifically targeted schemes.

Table IV.3. Major national poverty alleviation schemes and their focus

Programme/ scheme	Focus of the scheme
Employment	
Mahatma Gandhi National Rural Employment Guarantee Scheme (MGNREGS)	Legal guarantee for 100 days of employment every year to adult members of any rural household willing to do unskilled manual work at the statutory minimum wage. Employment will be given locally within 15 days of application; if not, daily unemployment allowance will be paid. For 2011-12, the government has provided an outlay of Rs.400 000 m.
Nutrition	
Targeted Public Distribution System	National food security system that distributes subsidized food and non-food items such as wheat, rice, sugar, and kerosene to India's poor through a network of Fair Price Shops (FPS) established in several states across the country. The outlay provided for PDS in 2011-12 is about Rs. 605 730 million.
Integrated Child Development Services	To improve the nutritional and health status of children in the age-group 0-6 years; to reduce the incidence of mortality and malnutrition. The services include supplementary nutrition, immunization, health check-up, pre-school non-formal education and health education.
Education	
Mid-day meals scheme	To improve the nutritional status of children in primary classes and encourage them to attend school regularly, and providing nutritional support to children.
Sarva Shiksha Abhiyan	'Education for All' movement for achievement of universalization of elementary education, making free and compulsory education to children of ages 6-14. The objectives include bringing all children to school to complete five years of primary schooling.
Health	
National Rural Health Mission	To reduce Infant Mortality Rate (IMR) and Maternal Mortality Ratio (MMR); provide universal access to public health services such as women' health, child health, immunization, and nutrition; provide access to integrated comprehensive primary healthcare etc
Infrastructure and basic services	
Pradhan Mantri Gram Sadak Yojana	To provide connectivity to the rural areas with a population of 500 persons and above. Rural roads promote access to economic and social services, and increased agricultural income.
Indira Awaas Yojana	To help in the construction of houses for the ST/SC, freed bonded laborers, minorities in the below poverty line category and other below poverty line non-SC/ST rural households.
Integrated Watershed Management Programme	To restore the ecological balance by harnessing, conserving and developing degraded natural resources such as soil, vegetative cover and water. Enables multi-cropping and the introduction of diverse agro-based activities.

Sources: Web sites of various Ministries of the Government of India.

Although the economy grew at about 8 percent during the last eight years, it is widely acknowledged that lack of inclusiveness has contributed to substantial chronic poverty and at its core are strong geographical and sociological dimensions. While the GDP has more than doubled since 1991, malnutrition indicators have improved by only a few percentage points. Per capita availability and consumption of food grains has declined since 1996. The percentage of underweight children remained stagnant between 1998 and 2006 and the calorie consumption of the bottom half of the population has consistently declined since 1987. There are also massive unmet needs in addressing health problems. The performance on gender equality and child and maternal mortality has been disappointing, although the MMR has declined significantly (Saxena 2010 and Hogan et al. 2010 in CPRC 2011). There are several reasons underlying this performance. These include lack of good governance and decentralization, faulty program designs, difficulty in accurately identifying poor households, lack of effective delivery systems, corruption, inadequate capacities, poor awareness and low empowerment of the people.

Historically, forestry issues have never been high on the national political agenda and, consequently, in the national poverty alleviation strategies. Forestry coverage is limited within most of the Poverty

Reduction Strategy papers. Furthermore, the national poverty reduction schemes are predominantly universal. There is also no serious exploration of the links between poverty and forestry sector processes. If poverty issues are addressed at all in the forestry sector, it is incidental, superficial, and simplistic with unfounded generalizations.

National forest policy

Pre-independence (before 1947) forest policies were marked by a combination of high dependence on extensive regulations, treating forests as a resource to be exploited by the state. The dominant concern was to manage the forest resources of the country primarily for meeting the colonial needs, with little concern for the forest communities who made their living out of their forest resources. Commercial exploitation of timber to feed the British industrial development and the expansion of colonial rule were paramount. This led to conflicts between forest-dwelling communities and the ruling classes for rights over the natural resources (MoEF 2010). Independent India's first Forest Policy of 1952 recognized the protective role of forests and stipulated that the country should aim to bring one-third of its total land area under forests. Later, recognizing the ecological importance of forests, three key initiatives were adopted between 1952 and 1988:

1. the enactment of the Forest Conservation Act of 1980 regulating conversion of forests for non-forestry uses,
2. the recommendation of the National Commission on Agriculture in 1976 for large-scale plantations on degraded forest areas and social forestry to meet the timber and firewood requirements, and,
3. the enactment of the 1972 Indian Wildlife (Protection) Act providing impetus to wildlife conservation.

The current forest policy is the National Forest Policy 1988 (NFP 1988), which introduced the people-centric approach in the realm of forest management. NFP 1988, while espousing elements of sustainable forest management, also lays emphasis on strengthening the role of communities in forestry stewardship, representing a major shift in forest management intentions (World Bank 2006). It changed the focus of forest management from a high "timber and revenue orientation" to ensuring "environmental stability, maintenance of ecological balance and meet[ing] the subsistence requirements of local people" by strengthening the people-forest link (Nayak 2002). In spite of the laudable intentions, the implementation of this policy could not fully succeed in altering the concerns of top-down governance and alienation of forest-dwelling communities, and in meeting the growing needs of forest communities.

The 1990s saw the emergence of Joint Forest Management (JFM) in the country, encouraging State Forest Departments (SFD) to involve communities directly in forest management. JFM now is the principal forest management strategy in India with a focus on people-centric conservation efforts. The salient features of the program include access to forest lands and usufruct benefits to the villagers organized into a village association. Beneficiaries are given the rights to non-wood forest products (NWFPs) and a portion of the proceeds from the sale of timber, with the responsibility to protect the designated forest area. The spread of JFM, despite several shortcomings, helped in regenerating forests and sharing the benefits with communities. However, some argue that in most of the states, the program was extremely dependent on government funding⁶, giving rise to serious questions about its sustainability. It is also argued that JFM increasingly fell into the trap of project-mode implementation, luring international funders and external assistance to support large forestry JFM projects (Nayak 2002). The 'jointness' in JFM is seriously limited in the field and the day-to-day decisions in many states that are, by and large, controlled by the local forest official. The silvicultural decisions rest with the SFDs and their focus remains on tree planting/regeneration, thereby adversely affecting groups such as graziers, and failing to meet even firewood or NWFP augmentation goals (MoEF 2010).

⁶ Examples are the funding under the National Afforestation Programme, Externally Aided Programmes and State Plan schemes.

The Scheduled Tribes and Other Traditional Forest Dwellers (Recognition of Forest Rights) Act 2006 (popularly known as the Forests Rights Act or FRA) is widely considered as watershed legislation in independent India. The purpose of the law is to correct the “historic injustice done to forest-dwelling communities.” Communities have been cultivating/occupying forestland and using forest produce for ages but with no tenure security and recorded rights. FRA provides two main sets of rights. These are land rights (private and/or communal) and community rights, including collective management of common (or community) forest resources and common property resources. The FRA for the first time formally admitted that the rights of forest people were denied in the past and the new law attempts not only to correct this but also to give prime importance to the role of forest communities in forest governance and management. As of March 2011, more than 3.09 million FRA claims were filed, 2.61 million claims settled, and more than 1.16 million titles distributed⁷.

Contribution of forestry to poverty alleviation

Forest communities and forests

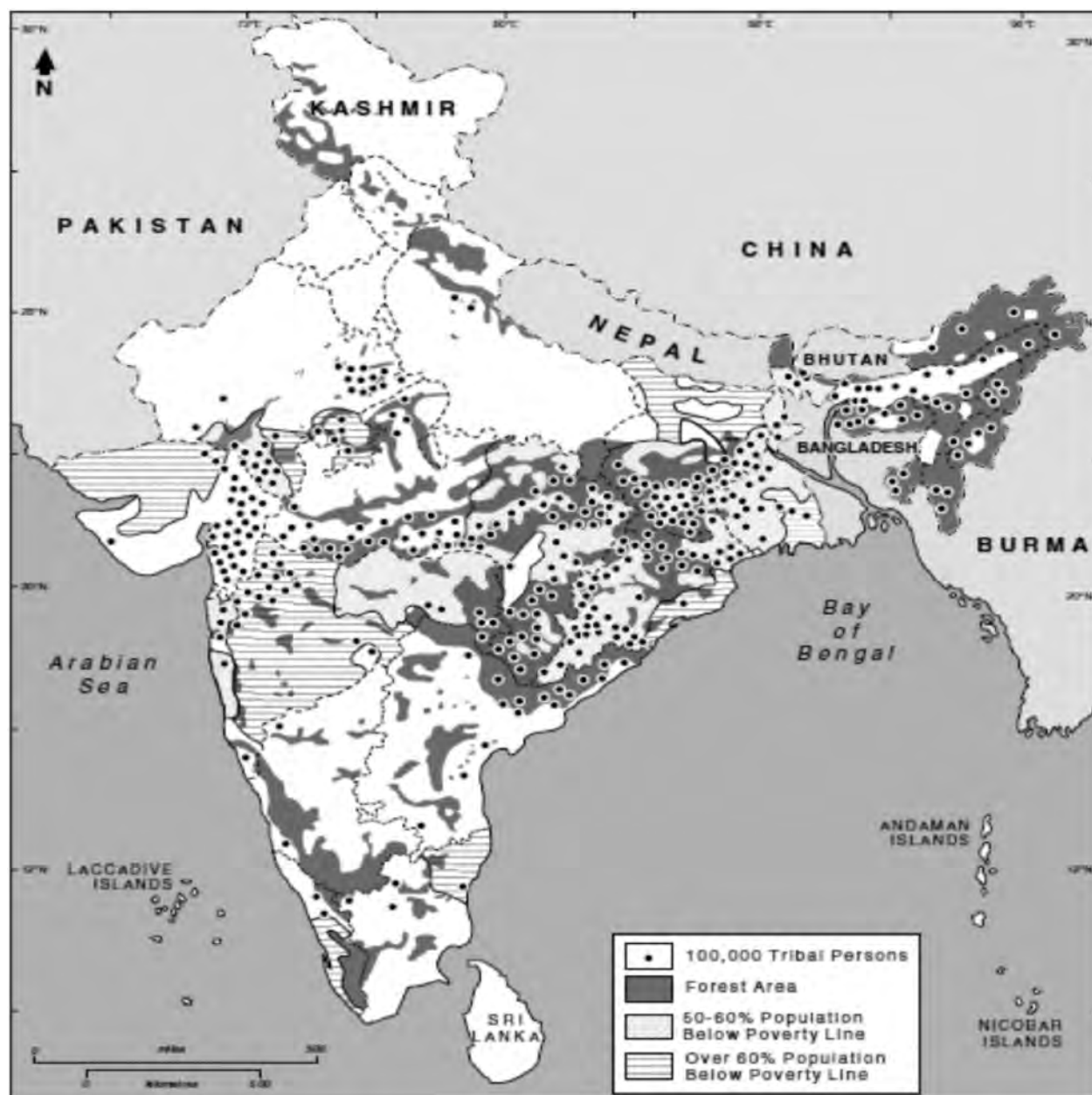
Forest-dependent communities in India, like those in other developing countries in the region, have a deep and intimate relationship with forests in all facets of their life—social, cultural, economic and spiritual. No precise estimate of the number of people living in and around forests is available. The Forest Survey of India (FSI), based on 1991 census data, estimated that 29 percent of villages (170,379 villages), with a population of 147 million, have about 50 percent of forests in the country (MoEF 1999). Assuming that the same percentage of people still live in and around forests at present, the total population living near forests would be about 210 million⁸ based on the 2011 census data. The other figures reported in various reports range from 100 million to 500 million (World Bank 2006; MoEF 1999; MoEF 2006c; MoEF 2009).

Studies show that generally, poor people and forests occupy the same space (Poffenberger et al. 1996; World Bank 2006; Mehta and Shah 2003). They also show that there is a strong association between the location of tribal people (who tend to be among the poorest people) and the location of forests. If the forested areas, tribal areas, and the areas with chronic poverty are mapped, there is a significant degree of overlap (Figure IV.1). FSI 1997 data show that about two-thirds of the total forest cover is in the tribal districts of the country, and the incidence of poverty among the tribal people is more than 50 percent. Eighty-four percent of India’s tribals live in forest areas (Mehta and Shah 2003). Shah and Guru (2004) explain that the incidence of poverty is higher than the overall-India estimates for the majority of forest-based states and the pattern is more or less the same in 1993-94 and 1999-2000. A recent study (Shah 2010) indicated that spatial concentration of poverty among seven states accounted for nearly 80 percent of the rural poor in India and that 15 out of 20 poorest regions remained in the list of the poorest regions from 1983-2000. A majority (nine out of the 15) of the poorest regions are forest-based (Shah and Guru 2004). The question of whether poverty in a particular poor region is high mainly because of their social identity (SC/ST group) and marginalization or whether it is more because of their forest dependence and physical isolation, was analyzed in the case of the poorest region in the country, Southern Orissa. The study found that regional characteristics (i.e., the forest-based nature) of the southern region are more significant than tribal characteristics (Shah 2010). This might be due to the lack of access to basic services for the communities or because of their capability constraints in not being able to use the natural resources for their economic development.

⁷ Web site of Ministry of Tribal Affairs, Govt of India: <http://www.tribal.nic.in/writereaddata/mainlinkFile/File1276.pdf>

⁸ The total population of India in the 1991 census was 846 million. The 2011 census puts the total population at about 1.2 billion.

Figure IV.1. Coincidence of forests, poverty and tribal populations



Source: Poffenberger and McGeen (1997) in Baginski, S. et.al. 2009.

Subsistence use of forests and community forestry

Subsistence use of forests

Forestry goods and services are gifts from nature for the poor and these include a wide diversity of products (food, fuel, forage, building materials, small timber, medicines, etc.) for home consumption and sale, in addition to conserving the soil fertility of agricultural lands and providing fresh water, land for shifting cultivation, etc. These resources also help the poor minimize the risk exposure through diversification of income sources, provide a source of gap-filler income in between agriculture seasons, and act as a safety net during calamities (Angelsen and Wunder 2003). India shares these subsistence uses of forests in common with many developing countries in the region. However, there are no macro-level analytical studies available to specifically assess the contribution of forests to the subsistence and income of forest-dependent people or their degree of dependence on forests. Consequently, one needs to probe the trends in other related studies, particularly on common

property resources (CPR)⁹. It is estimated that in India, such common-property land resources are about 70 million ha. Chopra and Gulati (2001) estimate that the forest department-owned common pool land resources are about 25 million ha and a large part of the remaining area also consists of forest ecosystems and qualifies under the broad heading of forestry. Thus, the contribution of CPR to poverty alleviation would be a good indicator of the contribution of forestry as well.

One landmark study on CPR was done by the National Sample Survey Organization (NSSO 1999). The study pertained to the role of CPRs in the life and economy of the rural population and was based on data collected on the extent of common-property land resources and gathering of different items from the CPR such as fuel wood, fodder, and other forest produce. A household survey was carried out with a random sampling of 78,990 rural households in 5,242 villages. The NSSO study showed that 38 percent of the households were residing in villages with forests within reach while 54 percent of the households were proximal to either forests or other common-property resources. Forty-eight percent of rural households reported some collection from the forests and common-property lands. As expected, the dependency of people on fuel wood was highest at 66 percent, followed by fodder at 34 percent. The important finding was that the contribution from CPR to annual household income at the national level was Rs693 (US\$16.30). The contribution to incomes differed according to the economic condition of the households. The rich derived 23 percent of total income from CPR; the middle group, 52 percent; and the poor group, 54 percent. This shows that the forests/CPR constitute one of the last battlegrounds for the rural poor in India and are critical to their livelihoods.^{iv}

There are also a number of case studies and reports in the body of literature assessing the contribution of forests to the livelihoods of forest communities, sometimes with contradicting data. These studies show wide variation in their assessments that are contextual depending on the socio-economic conditions of the people, resource endowment of the forests, opportunities for livelihoods from non-forestry sectors, and relative access to rights and tenure. While no generalization can be attempted based on these studies, they throw light on the relationships communities have with their neighboring forests for livelihood. Highlights of some of the case studies and reports are given on Table IV.4. These studies and reports are by no means exhaustive nor do they pinpoint any single trend in the assessment on the contribution of forestry to poverty alleviation. The degree and nature of dependence by people on forests differ from one community to another. Studies also reveal that villages closer to towns rely less on forest for livelihoods and more on agriculture and wage labor. On the other hand, villages in more remote areas rely more on agriculture and forest resources.

Table IV.4. Summary of findings of selected case studies/reports

Highlights of Findings	Source
<ul style="list-style-type: none"> Forests meet nearly 40% of the energy needs of the country and about 30% of the fodder needs of the cattle population. 270 million tonnes of fuel wood, 280 million tonnes of fodder, over 12 million m³ of timber and huge quantities of NWFP are removed from forests. The total value of fuel and fodder could be over Rs. 300 000 million per annum. NWFPs account for more than 70% of the opportunities for self-employment for the forest dwellers. 50% of the workforces on forest plantations are women and tribal peoples. 	Singhal et. al. (2003)
<ul style="list-style-type: none"> In Jharkhand state, fuel wood supplied an average of 86 % of energy needs. Fodder from the forest provided about 55% of input requirements for domestic livestock. On an average, gross values were Rs 2,356 (fuel wood) and Rs 8,507 (fodder) per household per year. In Assam state fuel wood supplied an average of 79 % of energy needs. Fodder from the forest provided about 64% of the feed requirements for domestic livestock. On average, gross values were Rs 2,440 (fuel wood) and Rs 10,992 (fodder) per household per year. 	World bank (2006)

⁹ "Common-property resources" constitute resources for collective use, which exclude private property and include community pastures and forests, wastelands, common grounds, drainages, ponds, rivers and other common resources for which well-defined property regimes may or may not exist.

<ul style="list-style-type: none"> In Andhra Pradesh 66 % of small and marginal farmers would be unable to cultivate their land without forests providing fodder to cattle. About 60% of NWFP collection goes unrecorded as it is consumed or bartered by the 15 million people living in and around forests. About 75 % of forest-dependent people in Bastar district, Chattisgarh state, supplement their food with tubers, flowers and fruits. In the Andaman and Nicobar Islands, several tribes subsist wholly on food derived from forests and the sea. In Maharashtra, tribal groups living near forests derive about 30 % of their diet from forest products. 	Prema Gera (2002)
<ul style="list-style-type: none"> In a study conducted in about 5000 ha in Mayurbhanj District of Orissa and covering 5864 households it was found that forests' contribution to overall livelihood was 33%. The total economic value of products from forests and TOF is close to Rs.10400/household/year of which subsistence and commercial use account for 62% and 38% respectively. Firewood for subsistence formed more than 50%—3.9 tons/household/year. 	Singh, K.D. (2009)
<ul style="list-style-type: none"> According to various studies, 67% of NWP gatherers are women and 13% children, contributing 20-24% of household income. 60 tribal villages in Madhya Pradesh state are totally dependent on NWFP collection for their livelihood. NWFPs provide about 40% of total official forest revenues and 55% of forest-based employment. 	Ram Prasad in MoEF (2006)
<ul style="list-style-type: none"> 50% of the households living in the selected coastal villages own animals and about 82% of these use mangroves as fodder, about 24% of households use mangroves for fuel wood and about 10% of them use it for construction. Each household on the average extracts 257 kg of fuel wood annually from mangroves. 	Hirway, et. al. (2004) in ESPASSA (2008)
<ul style="list-style-type: none"> Nearly 49% of the fuel wood and small timber requirement of the country comes from farm forestry sector. Annual turnover of fuel wood trade could be as high as Rs. 765 000 million and is a source of livelihood for over 11 million people, making it the largest employer in the Indian energy sector. Nearly 400 million people living in and around forests in India depend on NWFPs for sustenance and supplemental income. In some studies, household income from NWFP collection was assessed at an average of 40%, the range varying from 11% to 53%. A study reported that about 60% of the tribal population living in the forests of Andhra Pradesh, Madhya Pradesh, Bihar and Orissa states depends on forests for food. In selected Orissa villages, the share of total household income from sale of NWFPs averaged around 19%. 	MoEF (2006)
<ul style="list-style-type: none"> For sustainable agriculture in one ha area, 2.5 ha forest (vegetation) is essential. One hectare of agricultural field receives about 25-30 kg of nutrients through run-off, litter and animal dung in the forests. Forestry activities generate employment of approximately 240 million person days per day in the primary and secondary sectors. Out of 445 million cattle in the country, nearly 270 million cattle graze in the forests at present, the total number of men looking after the grazing of these cattle comes to 27 million. 	Dhyani, S.K.et. al. (2007)

Allocation of tenure over forest resources

In India, the forest is not simply an ecological entity, but a complex socio-ecological construct. The absence of credible community rights and tenure security are considered by many as critical elements in reducing poverty among forest communities. Appropriate mechanisms for ensuring rights and tenure security can provide (in ideal settings) better governance, access to resources, conflict management, capacity building, livelihoods improvement through socially relevant planning and resource management, equity (including gender equity), participation, and cultural integrity. However, one has to keep in mind that rights to and tenure on forests, on their own, may not guarantee poverty reduction unless augmented by enabling policies and actions in other spheres of governance outside the forestry sector.

The JFM policy speaks about the right of local communities in the management and use of forest resources. However, the JFM resolutions which are state-specific are silent about tenure issues on forestland, causing uncertainty and restricting the development of an effective partnership with

village communities. Some argue that JFM only gives the message of short-term stakes and leads people to plan for short-rotation production plantations (Nayak 2002). Adding to the uncertainties is the apparent conflict between JFM organizations and traditional or Panchayati Raj Institutions¹⁰ and the bodies under the Panchayat (Extension to Scheduled Areas) Act¹¹, which claim institutional and jurisdictional space over forests vis-à-vis JFM Committees¹². It is also to be noted that many of the salient intentions on community-based forestry in NFP 1988 have not yet been reinforced through a legislative framework. Even the legitimacy of the JFM notifications is often challenged as they are mostly not issued under any Rule or Act.

Presently, almost one-third of the forest area is officially under JFM and managed by around 106,000 village institutions. In the community-based forest management practiced through JFM, communities do not own the land and resources and their participation is dependent on government's call. The current JFM model appears to sit somewhere in between the NFP 1988 and the PESA with shared roles, responsibilities, and benefits (World Bank 2006). There have been several positive impacts of the JFM program, namely, improvement in the regeneration of forests, better relationship between the forest departments and local communities, increase in income of participating communities, additional employment opportunities and share in income from the forest¹³. However, many believe that the JFM itself is not sufficient to address the complex and multi-dimensional nature of poverty among the forest communities (MoEF 2006).

The most important value of JFM is not just delivering certain goods and services or just protecting the forests and sharing benefits, but in offering a platform. People's participation gives a sense of collective identity and, in many well-functioning JFM areas, people become better-equipped to play a more active role in governance and economic development.

A few recent studies are illustrative. Hiware Bazar village in Maharashtra state, a drought-affected village in the past was characterized by multiple deprivations in terms of income, health, and education; very low agricultural and livestock productivity; and heavy biotic pressure on forests due to fuel wood collection, grazing, and subsistence collections. The formation of a village institution for integrated natural-resource management transformed the village beyond recognition in a period of 10 years and the per capita income of villagers increased 30 times. Another example of JFM as an institution leveraging the resources for economic development is from the Jharkhand state (Dr. V.K. Bahuguna and Dr. Anup Bhalla¹⁴, personal communication, May 2011). Of the 15 percent share of the JFM committees they receive from bamboo and thinning, 30 percent is kept as a revolving fund for income generation and development activities in hundreds of villages^v. An empirical study in West Bengal state (Das 2008) compared the villages under a JFM program and non-JFM villages. The study found that the addition of forest-derived income in the JFM households reduced income inequality by about 12 percent, all else being equal. Per capita net real income from forest sources showed a major increase for all categories in JFM villages compared to non-JFM villages, with the rate of increase of forest income higher for landless and marginal landholding households. The JFM program has been found

¹⁰ PRIs form the third tier of the decentralised three-tier governance structure mandated under the Constitution. Among the 29 functions recommended for decentralization, three relate to forestry, viz. social forestry, fuel wood plantations and NWFP. The Panchayats (local self governments) are considered central to the development of villages.

¹¹ The Panchayat (Extension and Schedule Area) Act (PESA Act), is applicable to predominantly tribal areas specified in the Constitution. These areas are intended to be governed as 'village republics.' Under PESA, ownership of natural resources, including NWFP, rests with the tribal communities.

¹² JFM Committees are village-level institutions of forest communities constituted democratically for the protection and development of forests and sharing of the benefits arising out of the managed forests, including NWFPs.

¹³ For example, it is estimated that over 40 million person-days of work was created through JFM-related activities during the six years (1994-2000) that the Andhra Pradesh Forestry Project was operational (Mukherji 2004). In just four states (Andhra Pradesh, Punjab, Tamil Nadu and West Bengal), JFM groups received Rs 62.59 million through benefit sharing mechanisms in 2000-01 (Gol 2002).

¹⁴ Dr. V K Bahuguna is the Expert Member (Forestry) National Rainfed Authority of India and Dr. Anup Bhalla is Addl. Principal Chief Conservator of Forests, Chattisgarh State.

more beneficial for households belonging to the BPL category in all JFM villages. There are many such examples across the country where JFM has contributed to poverty reduction in varying degrees, mostly to the poorest.

Many people consider that access to land and forest resources through FRA will deliver tangible rights to the poor. The FRA has the potential to provide opportunities for the development of the disadvantaged sections of the population, apart from the de-escalation of tensions that have arisen due to the loss of customary rights (Dasgupta 2010). The potential of FRA to impact positively on poverty reduction is in two ways. First, securing tenure and legal ownership of the land in their possession for cultivation will help poor households in accessing credit from formal institutions, in engaging in long-term planning and land-based development, and in accessing a range of incentives for land-based activities¹⁵. The other potential is through securing tenure on community forest resources (CFR). Though *de facto* access to CFR is usually available to the communities, *de jure* access could open up opportunities including those for long-term enterprise activities, linking with markets and leveraging productive investment for resource-based development. However, the success of FRA will depend on its implementation, particularly in the context of a heterogeneous and culturally diverse society. Furthermore, poverty and deprivation as experienced by forest communities are not merely due to tenure insecurity in forestry sector but also from the multiple and interlocking disadvantages across many sectors.

Commercial and industrial forestry

The contribution of commercial forestry to poverty alleviation is difficult to estimate due to lack of relevant information at macro and micro levels. Data is scattered in different departments and ministries, industry associations, and other groups, and there is a lack of aggregated information at the national level. Published information is often outdated and contradictory, and the lack of organization and the operations of the forestry-related commercial activities in the informal sectors make data capture even more difficult. Although the informal sector plays an important role in the economy, its role is often poorly understood or appreciated. However, available estimates and analyses for certain specific enterprises and categories help in gaining an understanding of the sector, which may reflect the status of the commercial forestry sector in general. A more comprehensive field-based survey is required to collect in-depth and up-to-date information. Available information, though inconsistent, strongly indicates that commercial forestry plays an important role in poverty alleviation, income generation, and employment.

Small-scale forestry enterprises (SSFEs)

The bulk of commercial forest product processing in India is carried out by small-scale forestry enterprises (SSFEs). These are characterized by a diversity of products and markets at every level (from barter at the local level to export to international markets), and are governed by a range of policies cutting across many sectors of the economy. SSFEs are, by nature, location-specific and determined on the basis of the availability of resource, labor and markets¹⁶. These enterprises are mostly small, often household-based; predominantly rural and seasonal; labor-intensive and use simple technologies; require very low capital inputs; are accessible to low-income and socially disadvantaged groups; provide direct benefits to the local economy; and heavily involve women. While it is difficult to make generalizations for the entire SSFE sector, there are certain features of the sector that are clearly discernible which indicate their contribution to poverty alleviation. Some features of the SSFE sector in India are given below, mostly drawn from the study by Saighal and Bose (2003):

- Wood working is a traditional industry in India, producing furniture, doors, windows,

¹⁵ For example, under MGNREGA, the development of the land of BPL households is an eligible activity and members of the land owning household can work in their own land and earn wages.

¹⁶ For instance, most safety matches are manufactured in Tamil Nadu state, while the bulk of sports goods are manufactured in just two cities in Punjab state.

panels, sports goods, handicrafts, shoe lasts and heels, textile mill accessories, automobile body building, agricultural implements, etc. It is estimated that the wood processing industries process about 24 to 30 million m³ of wood per annum, the bulk of which is processed by SSFEs. Ninety-eight percent of the sawmills are small and they produce as much as 82 percent of the sawn timber. Eighty-two percent of the safety matches production is in the small-scale and cottage sectors and around 85 percent of the sports good units are in the small-scale sector.

- A case study of the small-scale informal forestry sector in Rajkot district in Gujarat revealed that 98 percent of forest-based enterprises were operating informally with 92.5 percent engaged in manufacturing automobile bodies and 38 percent in manufacturing items, such as packing boxes, furniture and fixtures. In the informal sector, 92 percent of saw mills and 93 percent of raw material were used.
- There are many very small wood-using enterprises that cater to local demand. For instance, it is estimated that 2.1 million bullock carts, 50 million yokes, 100 million wooden ploughs and 30 million wooden seeders are constructed each year. Most of these demands are met by local artisans who utilize local raw materials and traditional skills.
- The beedi¹⁷ industry is an SSFE generating significant employment. It is estimated that 30-40 million people are directly or indirectly involved in the beedi industry, many of whom are beedi leaf collectors and beedi rolling workers. About 550 billion pieces of beedi are sold annually in India. The World Bank estimates that the beedi industry provides 106 million person-days of employment in collecting activities and 675 million person days in secondary processing (World Bank 2006). Some other estimates put over 30 million people indirectly dependent on the beedi industry (Business Line Internet Edition, 19 January 2001). Beedi rolling workers are women while beedi leaf collection is very valuable for the poor, especially the tribals. The leaves are collected during the summer months, which comprise otherwise a lean season for employment. It is estimated that 350,000 tonnes of leaves are harvested annually and 4,700 tonnes are exported (MoEF 1999).
- Nearly half a million people are employed in safety-match making, sawmilling, and wood carving. The number of people indirectly involved in the industry is much higher than those who are directly employed. In Saharanpur District of Uttar Pradesh, it is estimated that while 50,000-87,860 people are directly involved in the wood-carving industry, there are about 350,000 people who depend indirectly upon the industry (WWF 2003).
- There are a large number of industries based on NWFPs, such as beedi, lacquer ware, brooms, essential oils, katha and cutch, tannins, resin and rosin, cane and bamboo furniture, herbal medicines, cosmetics, etc. Some studies indicate that NWFP-based SSFEs alone provide up to 50 percent of the income to 20-30 percent of the rural labor force in India. Landless and poor women often form a significant proportion of the labor force in many SSFEs.
- It is estimated that NWFPs worth Rs350 billion are used annually in India and the government revenue from NWFPs is around Rs20 billion, nearly 50 percent of the total forest revenue. Total NWFP exports (raw materials as well as finished products) were estimated at US\$480 million in 1991 (MoEF 1999).
- India is an important producer of lac¹⁸ and lac products. The production of lac is about 15,000 metric tonnes. It is estimated that in Channapatna Taluka of Karnataka state, over 35 percent of the workforce is engaged in lacquer work (Bahuguna and Shiva 2002 in Saighal and Bose 2003). Annual production in 1991 was estimated at Rs 30 million, of

¹⁷ *Beedi* is a local cigarette made by rolling tobacco inside leaves of the Coromandel ebony tree (*Diospyros melanoxylon*) locally called *tendu* or *kendu*.

¹⁸ Lac is produced from the secretions of a tiny insect *Laccifer lacca*, a parasite in a number of wild and cultivated plants.

which 70 percent was exported. It is estimated that lac exports in 2001-02 were worth Rs652 million (Ibid.).

- There are a number of SSFEs manufacturing bamboo and rattan-based (cane) products such as table mats, trays, lampshades and other household articles. Reed bamboo-based traditional industries, such as mat and basket weaving, play a crucial role in the rural economy. Many tribes and ethnic groups earn their living through bamboo handicraft work. Bamboo mat board manufacturing units have also been established. It is estimated that bamboo-based SSFEs provide livelihoods to more than 300,000 rural people in Kerala state alone (Bhat n.d.). There are around 2,000 small- to medium-sized rattan-based industrial units in India employing over 200,000 people.
- The domestic market for Indian systems of medicine and homeopathy is estimated at about Rs40 billion (World Bank 2006), the bulk of which is generated in rural areas through the traditional practitioners in unorganized sector.

The above listing is far from exhaustive. There are many other SSFEs in the country with a diversity of products and producers. One important trend seen is that the contribution of the household-based SSFEs to the livelihoods of the rural poor is perhaps even more significant than that of the organized sector. An idea of the immense contribution of forest products can be gauged from the fact that an estimated 600 million tonnes of forest produce valued at Rs 300 billion is collected annually from India's forests (MoEF 1999).

Wood-based industries

The wood-based industry in India is an age-old industry that produces a range of processed and non-processed products, including sawn wood, composite panel products, and pulp and paper. Sawn wood is the single largest category, and consumption is about 29 million m³ (Pandey and Rangaraju 2008). About 70 percent of the timber is used in the construction sector. Sawn-wood uses include packing, furniture, and numerous other uses. The saw-milling industry has undergone much expansion without a change in orientation. Much of the preliminary sawing is still done at the felling sites by hand, although this has completely disappeared from reconversion industries. Eighty percent of the wood converted into sawn wood comes from hardwood species and the rest from coniferous species. It is estimated that there are over 60,000 small sawmilling units catering to local needs and use low-level technologies (Ibid). Usually, the product reaches the sawmills in log form or as sleepers pre-sawn by hand in forest areas.

The composite wood industry in India goes back over 100 years when many factories were set up in North East India procuring raw materials from the rich natural forest and consequently causing deforestation in many areas. The policy shift prohibiting green felling from natural forests and the highest court's orders against indiscriminate felling of trees from forests by traders and contractors, especially in the North East, prevented this sector from expanding. Raw-material shortage hindered the growth. The challenge to the sector is in overcoming the shortage of high-quality logs which may constrain the long-term growth prospects. The plywood and panel, and wood-processing industries form the third most important contributor to the housing sector. It is estimated that there are about 62 large and medium-sized plywood mills and over 2,500 small-scale units, most of which are located in the north. The thriving agro-forestry sector, especially in the states of Uttar Pradesh, Haryana, and Punjab supplies large quantities of poplar and eucalyptus wood to these industries. As a result, the panel-producing industry is growing at a rate of 35 percent per annum in India. Imports also help in providing raw materials. In view of the robust demand growth, strong primary wood substitution pressure and regional variations, composite panels will be one of the most rapidly evolving forest industries in India. However, supply of raw materials will be the main challenge.

The pulp and paper industry is the most important cellulose fiber-based industry in India, with turnover exceeding US\$2.5 billion. It is considered to be one of the highest consumers of forest-based raw materials. The industry provides direct employment to 0.2 million people and indirectly supports one

million people. There are more than 380 mills, with installed capacity of 0.5 million tonnes. Most mills are small by international standards. The sector has a growth rate of around 8 percent per annum. The major issue confronting the sector is shortage of good-quality fibrous raw material. Every tonne of paper production requires about four tonnes of harvested pulp wood, and the current supply cannot even meet the demand of the existing mills. With a very low per capita consumption of paper in India at about five kg (compared to world average of about 50 kg), the sector offers tremendous potential for farm forestry. It is estimated that about 0.6 million ha of plantations is required to sustain the industry at current levels of production (Pandey and Rangraju 2008).

Reliable estimates about the contribution of forest industries to poverty alleviation are not readily available. This sector mainly contributes through employment generation in rural areas. The majority of sawmilling units are in rural areas and directly give employment. The pre-sawing in forest areas and homesteads adds to the employment potential in remote locations. Employment is also generated when trees are harvested and transported to saw mills. Generally, the composite wood industries are not located in rural or in remote locations. While employment generated in this sector may, inter alia, contribute to poverty alleviation, it may not be as socially relevant as in pulp and paper industries or, to a lesser extent, sawmilling, in terms of addressing the poverty of forest communities or remotely located populations. The pulp and paper industry contributes to poverty alleviation mainly through indirect employment. Harvesting of pulpwood from forests and transport to the mills involve huge labor. This provides employment to poor people living deep in forest areas and remote areas and addresses the spatial poverty and sociological poverty.

Payment for environmental services

Though market-based approaches such as payment for environmental or ecological services (PES) are increasingly applied to achieve conservation objectives all over the world, this is in an exploratory stage in India. Traditionally, environmental services are considered free services provided by nature and, therefore, their economic values are ignored or underestimated when used for alternative options. However, many believe that creation of markets for ecosystem services can promote conservation and support local livelihoods since it rewards the resource owners and managers for their role as stewards in providing these services. In India, though not all programs may conform to the true regime of PES, there are a number of initiatives that incentivize conservation of forests and ecosystems for providing environmental services. The incentives include carbon payment for projects under the Clean Development Mechanism (CDM), levy as Net Present Value for forests diverted for non-forestry purposes, compensatory payments from federal government to states, and small-scale arrangements for payment to communities for protecting ecosystems.

Payment for carbon credits under the CDM is one vehicle for PES in India. Of the 29 projects registered by the CDM Executive Board under the afforestation and reforestation activity, six projects are from India (Table IV.5). These are predominantly small-scale projects for tree planting as part of the restoration of degraded lands, which may in the long run provide benefits to local communities. Similarly, REDD plus has the potential to deliver conservation benefits to poor communities, though it could lead to elite capture of benefits and exacerbate conflict over land tenure. Some see the potential of REDD plus as a mechanism for reducing poverty as questionable, as ultimately it is contingent on how REDD plus is structured and how the benefits are shared at the national, sub-national, and community levels.

Table IV.5. Registered projects under CDM - AR activity

Title of project	Features	Reductions*
Small scale cooperative afforestation CDM pilot project activity on private lands affected by shifting sand dunes in Sirsa, Haryana	The project area is spread across eight villages located at the north-eastern fringe of the Indian Thar Desert and affected by shifting sand dunes. The proposal of the Haryana CDM Tree Farmers Society is to establish 369.5 ha of mixed forests in the lands belonging to 227 farmers and earn carbon credits from growing trees. Other purposes include stabilizing the sand dunes, improving soil and alleviating poverty by providing more employment opportunities.	11596
Reforestation of severely degraded landmass in Khammam district of Andhra Pradesh, India under ITC social forestry project	The ITC Bhadrachalam Ltd, a private company, initiated the project activity through the local NGOs of Andhra Pradesh. The degraded lands owned by the rural poor are developed for raising plantations with Eucalyptus. Apart from providing finances for the project, the company also distributes improved planting stock and provides technical support to the farmers. The project has been able to create more than 3000 ha of plantations which will help in alleviation of poverty by generating additional income from the proceeds of the wood sale.	57792
The international small group and tree planting program (TIST), Tamil Nadu, India	The project is for reforestation of 106 ha in three districts in Northern Tamil Nadu and involves 111 Small Groups, 1,200 members, 175 project locations. The main species planted are Casuarina equisetifolia, Eucalyptus grandis and Tectona grandis. In addition to generating carbon credits, the project helps poor people in many ways—reuce soil erosion, enrich the soil and provide other benefits, including edible fruits and nuts, medicines, windbreaks, firewood and timber.	3594
Improving rural livelihoods through carbon sequestration by adopting environment friendly technology based agro forestry practices	The project is to raise tree plantations on 1607 ha of degraded farmlands belonging to 1590 poor farmers in Orissa and Andhra Pradesh states. In addition to carbon benefits, the project will provide multiple benefits to farmers in terms of timber, firewood and non-timber forest products.	4896
Himachal Pradesh reforestation project-improving livelihoods and watersheds	The project is located in the Mid-Himalayan watershed in 12 districts of the state of Himachal Pradesh. It seeks to restore about 4000 ha of degraded forest, community and private lands through three plantation forestry models (Restoration forestry, Community forestry and Farm forestry) and involving the local communities. The carbon revenues accrued from the project will be transferred to gram panchayats (local self government) and individual participating farmers through a pre-project agreement between project implementing agency and gram panchayats.	41400
Bagepalli CDM reforestation programme	The purpose of the project is reforestation of 8933 ha degraded private uncultivable lands, fallow lands or marginal croplands in Karnataka state with local mixed species trees. In addition to sequestering carbon, it will generate income to the farmers, improve soil, control water erosion and provide other environmental benefits.	92103

Source: UNFCCC web site.

A type of compensatory payment provided by federal government to states for conservation is through the Finance Commission Awards. The 12th Finance Commission (2005-10) for the first time recognized the need to incentivize conservation efforts by the states and earmarked Rs10,000 million for five years. Funds are provided for conserving the present stock of forest resources and the state can utilize these funds for alternative economic activities, compensating the economic constraints caused by the conservation of forest cover. The 13th Finance Commission Award is in operation and an amount of Rs50,000 million is provided as 'Forest Grant' for five years, of which 25 percent has to be spent for forest development and 75 percent for development purposes in a selected location within the recipient state. Since the grant is not specifically targeted to the poor, this may help in poverty alleviation only in a limited way.

Whether these incentives will help reduce poverty is neither documented nor analyzed in depth. The benefits are also always linked to how resources are controlled and used. With an unclear tenure and user rights regime, the poor may not, by design, benefit from these incentives. In fact, if a conservation practice encourages a less labor-intensive procedure, the poor and landless may be disadvantaged. In any case, the poor may realize benefits “more by accident than design,” and reducing poverty is not an explicit objective of these conservation incentives.

There are also other small-scale PES initiatives that have benefitted local communities. In some parts of the country, the concept existed even before the term “PES” was introduced. The case of Sukhomajri village in Haryana state dates back to the 1970s. In the past 40 years, this PES initiative generated high economic returns for the once-poor community^{vi}. The Shimla catchment forest in Himachal Pradesh State with more than 1,000 ha of very dense forest was established in the early 20th century exclusively for securing the catchment and to protect 19 springs and streams that supplied drinking water for Shimla town. Mawphlang Lyngdohship in Meghalaya state, is another example of how new resource management partnerships are creating a win-win situation for local communities and those interested in investing in a better global environment^{vii}.

Public sector forestry

In India, the forest is still largely administered by the government. Only about 8 percent of forest land is managed in the private domain. The level of public ownership in India is very high, compared with other developing countries with significant forest areas under community forestry programs (World Bank 2006).

Forestry is in the Concurrent List¹⁹ of the Indian Constitution and is a shared commitment between the state and the central governments. The forestry-trained manpower at the state and national levels has defined functions and responsibilities. At the national level, the role of the Ministry of Environment and Forests (MoEF) is mostly in providing policy, strategic, and legislative support while the SFDs are the custodians of the public forest resource, carrying out the normative, regulatory, silvicultural, and protection functions. Often, they also perform an enterprise function through forest resource production, processing, and trade. Most of the states set up forest development corporations (FDCs) with responsibility for the production activities of the public forest estate. These corporations operate as autonomous business entities.

The organizational structure of the government focuses mainly on traditional forest management functions. It is similar across most states, with the Head of Forest Forces at the top reporting to government and coordinating the functional units headed by senior officers of Indian Forest Service. Divisional Forest Officers (DFO) are the senior professionals operating at the district/sub-district level. Below the DFO, there are field units headed by the Range Forest Officer (RFO) and supported by Foresters and Beat Forest Guards. There are more than 100,000 forest personnel in the field units up to RFOs and about 3,000 Indian Forest Service Officers in the higher positions from DFOs.

There are also a number of specialized public institutions directly linked to the MoEF. These include the network of institutions under the Indian Council of Forestry Research and Education, the Indian Institute of Forest Management, Indira Gandhi National Forest Academy, Wildlife Institute of India, FRI University, and FSI. Further, there are several universities and institutions engaged in research on biology and socio-economic studies relating to forests. The state forest departments also established several state forest research institutions, forestry schools and forestry research entities that carry out R&D and training.

¹⁹ As per the Concurrent List of the Indian Constitution, the Central and State governments can legislate on forestry. However central government legislation is binding in all states and overrides the state laws if there is any variation.

Case studies

Case study 1: a traditional forest village in Khapsadera, Orissa State

Khapsadera is a traditional forest village in Orissa, the poorest state of India with a population of 337 belonging to 62 households, 87 percent of which are categorized as ST and 13 percent as SC. These categories are constitutionally protected for redressing the historical disadvantages these people have experienced. Eighty-five percent of the population lives below the poverty line. Manoranjan, a project officer working with an NGO summed up the villagers' lifestyle, "The people are very simple and very hardworking with minimal needs and desires." The opportunities for livelihoods are also minimal, and agriculture and forests are their two lifelines. Their lives are organically linked to the neighborhood forests with which they have a day-to-day interaction like a family member or friend. An elderly villager commented, "We know our trees like they are part of the family and the forest is like our backyard. We grew up collecting food, fodder, and fuel wood from these areas all our life." Like in other parts of the state, the forest is revered as sacred and precious that provides for their daily subsistence and livelihoods.



Community members discuss and share about the challenges they face in preventing further depletion of forest resource base to ensure the sustainability of their livelihoods.

Sharda Gautam

High dependence on forests for survival

Villagers are highly dependent on the forest for fuel wood, NWFP, timber for housing construction, and for making simple agricultural implements. Major NWFPs harvested from the forest include nuts, berries and leaves of mahua (*Madhuca indica*), tendu (*Diospyros melanoxylon*), sal (*Shorea robusta*), harida (*Terminalia chebula*), bahida (*Terminalia belerica*) and several other medicinal plants which provide them with cash income for other daily needs. Livestock is treated as part of the family and the animals help out in agriculture work. Raising livestock depends on forests for grazing and fodder. Agriculture is rain-fed and weather elements affect production. During the dry months, people's dependence on forests is even greater and during droughts, the forest is the only safety net for them. It is interesting to note that even though people in Khapsadera are marginally poor, there is no household that goes without two square meals a day. A village woman said, "The basics are always fulfilled, thanks to the jungle. The food may not be nutritious but we never go hungry." A young man, who could not make it beyond the school level and is now ploughing his fields, agreed, saying, "Our basic requirements are fulfilled by the forest and the little patch of land we cultivate."

Left to themselves—government poverty schemes not reaching the village

The experience of the villagers with poverty alleviation schemes of the government is disappointing.

Situated in a remote area, the delivery of the schemes is filled with operational problems apart from leakage, inaction, and lack of awareness. The only schemes from which people seem to benefit are the MGNREGS (a scheme guaranteeing 100 days of labor in a year under a statute) and the PDS scheme (public distribution of food grains at subsidized rates). About 50 percent of households benefit from MNREGS and more than 85 percent of the households from the PDS scheme. By and large, the village continues to be on the margins of development in other aspects related to multi-dimensional poverty. The facilities for child and maternal care, health, education, infrastructure and communications are meager, and villagers have to go long distances to avail themselves of the services.

Quest for survival—quest for livelihoods

It is estimated that the villagers from Khapsadera depend on about 200 ha of the reserve forests for their livelihoods, while the forest department estimated that only about 60-70 ha is meaningfully used by people. The quantity of forest products that the villagers collect varies from season to season and also depends on the availability of non-forest employment and opportunities. While the villagers with more land collect forest resources for their agricultural needs and livestock, the poorest villagers collect more for their subsistence needs. The mahua tree, besides forming an important source of livelihood, has been an integral part of the social and cultural life of the tribal community. Mahua provides food for the people and livestock, flowers to make the local brew, and oil from the seeds for household use. Siriya Mahji, SHG Leader & Village Health Animator, said, “The mahua tree is our lifeline. She is our Goddess Laxmi, who protects and helps us survive in the worst of times.”

Tendu or kendu, also called the ‘green gold’ of Orissa, is another tree that is economically very significant to the villagers. The tendu leaves are used to roll beedi (country cigarette), providing significant cash income to communities, though seasonal. The leaves are picked by the locals, tied in bundles, and sun-dried before these are sold to a government-controlled organization. Sal tree leaves are used in making leaf plates, a source of income to many households, although small.

Based on discussions with villagers, it is estimated that about 16,000 kg of mahua flowers and 40,000 kg of tendu leaves are collected from the forest in a year, apart from large quantities of sal leaves, grasses, and other products. The total value of major NWFPs collected is about US\$18,200. The village is entirely dependent on fuel wood for cooking, and almost all households collect fuel wood from forests, mostly by the women. About 50-60 kg of fuel wood is collected and used by each household per day to meet their energy requirements. Livestock is largely dependent on forest grazing and fodder collection from forests. The degree of dependence on forests depends on the social structure of the village, as the less privileged in the village are the ones who highly depend on the forests. If anything happens to forests in the future—positive or negative—it will be the poorest among the villagers who will feel the highest impact.

Depleting forest resources

The villagers are well aware of the importance of the forests in their livelihood and their inextricable relationship with forests. They are concerned about the depletion of resources, smuggling by the timber ‘mafia,’ and their continued marginalization as poor people. They are also concerned about illegal timber collection by smugglers from outside their village, forest fires, and overuse of the forests as these have resulted in the degradation of their forests over time. They feel that forest degradation will ultimately affect their livelihoods and threaten their survival.

On the other hand, the local forest official has a different story. The forest guard has confided that the local villagers (tribals) help the smugglers in identifying and cutting timber from the forest as they are well acquainted with the area. The villagers also use forest fires for clearing the forest floor to collect mahua flowers and to have new and tender tendu leaves. As the villagers and the forest department blame each other for the forest fires, the end result has been the increasing degradation of their forests over the years. Gibardhan Mirdha, a middle-aged man recounts, “The stream used to flow so smooth and full when I was a child, but now it seems to flow in trickles. We do not even have enough water for

our land.” All agree that forests have been increasingly degraded over the years and some species like amla (goose berry) have become almost extinct in the forests due to fire and over exploitation.

Trust deficit and institutional failure

The villagers are unable to organize themselves to protect the forests against timber smugglers or to conserve the resources through collective action and self-regulation. Over the years, it has become a ‘free riding’ situation, depleting the same resources on which their livelihoods depend. There is limited capacity to establish sustainable relationships and institutions. Earlier attempts to organize themselves were not successful. Even after more than two decades of the JFM initiative, Khapsadera village has yet to establish the village sanrakshan samitis (the village level institution under the JFM framework, also called the JFM Committee or JFMC). In 1996, the JFMC was created, but slowly faded in 1999, as people stopped participating in meetings. There was a trust deficit between the villagers and the forest department. Villagers were not taken on board and there was inaction and no sharing of information or participation in decision making. The villagers did not know what was happening and did not see much gain from the JFMCs. The JFMC collapsed in 1999. The local official of the forest department agreed that there were a lot of issues pertaining to forest management in the area involving the people.

With increasing awareness contributed substantially by some NGOs, more involvement of the people with the forest department is now visible. The villagers have started supporting the department to protect forests. For example, by providing timely information and by regular monitoring, the villagers have reduced timber smuggling by more than 60 percent. Tulsiballav Dash, after working closely with the villagers of Khapsadera and the forest department, believes that community forestry and ownership of resources are needed to provide subsistence and build people’s confidence to conserve these resources.

The case with FRA, which vests land and resource rights to the tribals and traditional forest dwellers, is similar. Tulsiballav Dash feels that people have not been aware of FRA. The attitude of authorities also has not helped. Dash emphasizes the need for increased awareness on the FRA and its implications on the tribal livelihoods. The villagers believe that their lack of participation in FRA has essentially been due to the complicated procedures and the antagonism of the concerned departments (the revenue officials in particular). As a result, neither individual claims nor community claims from the village under FRA have been submitted. Mami Pradhan, the woman Sarpanch (Head) of panchayat (local self government), observed, “FRA is good and will give land to the tribal community, but we are not fully aware of the benefits.” The local forest department and the revenue department officials are apprehensive as the wrong implementation of the FRA will lead to encroachments and misappropriation of forest land.

The benefits of JFM or FRA have not really reached the village. The local Forest Range Officer, Patel, observes, “In view of the existing problems regarding forest land and resources, JFM is the only way to promote forest conservation and management. The revenue department, police, panchayat, village leaders should come together to discuss the issues and overcome the problems.” Villagers and civil society have different views on JFMCs in the area. Sarpanch Mami Pradhan views that ownership and management should be with the villagers and the panchayat for better, effective, and efficient forest management.

Conclusion

The story of the Khapsadera village is illustrative of the spatial and sociological dimensions of poverty in the forested regions of India. The village is characterized by interlocking disadvantages. Forestry by itself will not address the poverty in this remote village consisting entirely of SC and ST populations. Affirmative actions are called for in a number of sectors especially relating to human poverty measures such as infrastructure, education, health, and other basic human needs. Governance and delivery systems need to be improved. Above all the capacity of people to understand, to be aware, and to access

various rights, entitlements, and benefits has to be enhanced. There should also be a deliberate focus on the need for developing enabling forestry and local governance institutions.

Forest is one of the key lifelines for the people of Khapsadera village. It keeps them from falling into chronic and more severe poverty, and helps them cope with difficult situations during dry periods and drought. The critical ‘upfront’ intervention needed in this village is building the capacity and enhancing people’s awareness to access the rights, responsibilities, and privileges arising out of national policies (such as JFM and FRA) and the potential of enabling institutions. At present, there is no facility for people to organize themselves for community action. The forest department should be pro-active and facilitative in institutionalizing community-based forest management in the village and in implementing the FRA. The people’s trust deficit in government needs to be resolved. New opportunities can be developed to take forestry beyond subsistence, especially those relying on NWFP resources. The earlier these opportunities for forest-based development are explored, the better for the people and forests in Khapsadera village.

Case study 2: contribution of NWFPs to poverty reduction in a forest village in Orissa State, India

Geographically, Kuanrpur village lies in the tribal belt of Mayurbhanj district of Orissa state, in a remote forest location inhabited mainly by tribals (60 percent of the population). In terms of the Human Development Index (HDI) and per capita income, the district counts among the least developed districts of India. The old people consider Kuanrpur village to be about 100-150 years old, as they can trace back their families to three filial generations. The village has 123 households, with 400 residents living on either side of a canal, which is the mainstay of the village’s agricultural economy.

Importance of forests for the people

The district supports a high forest cover of about 45 percent of the land area. The older generation shares the nostalgia of an entire block that was once a dense forest. The passage of time and degradation brought about by the in-migration of tribals and non-tribals from neighboring states gradually cleared the forests as settlements took over. With low per capita income and limited livelihood opportunities, the forests, particularly NWFPs, play a major role in providing cash income to the villagers from non-farm sources. The importance of NWFPs is not limited to providing cash income to the poor. NWFP resources share an organic and evolutionary relation with the people—a relation intertwined in their culture and beliefs. According to Ranjan Samal, the Ward Member from the village in Gram Panchayat, people mainly derive their income from the primary sectors like agriculture and NWFP collection. Although there are different government schemes for people living below poverty line, the people in Kuanrpur are not getting the real benefits due to leakages. For the people of this village, the forest plays a very important role especially for the landless and smallholders. They use the forests for a variety of purposes ranging from collecting medicinal herbs to grazing livestock.

Forest management

Historically, ownership and management of forests in Kuanrpur rested with the government. Until the end of the 18th century, local communities had free access to the forests and forest products. Later these forests were considered as a source of state revenue, and rules were put in place to regulate forest product extraction in the area. The forest department was then created and forests in the area were categorized as reserved forests and protected forests. Subsequently, in consonance with the Indian Forest Act, several rules were issued imposing restrictions on user rights of communities. The late 1980s witnessed a large number of local NGOs actively promoting community forest management in the district. Minnati Kisku, treasurer of newly formed Marshal Cooperative²⁰, traced the genesis of community participation in forest management:

²⁰ This is a cooperative of villagers recently formed for NWFP management and trade.

The forest around the village was degraded due to illegal cutting promoted by buyers of logs from outside. Villagers formed a village protection committee and followed the traditional practice of *thengapali*²¹. Later, the village protection committee was converted into the Village Sanrakhsan Samiti (VSS) under JFM by the forest department. However, the forest department neglected the village and the VSS became inactive. Only the Panchayat Forest Act enacted in 2001 provided some relief to the villagers as it permitted the collection of 67 NWFPs from forests.

Brindavan Bindhani, a landless villager added,

In the Panchayat discussion, we were told that we can make a claim over the forest land where we have been living traditionally. But the process and conditions required for getting the claim are very rigid and cumbersome. No one in the village up till now got a land claim because of this. Well-off families may not need forest land for survival, but we, the poor people, need it badly.

Forests for livelihoods

Livelihood options available to the people revolve around the forests, agriculture, and wage labor. Agriculture, commercial sale of NWFPs, and wage labor provide the main income opportunities for villagers, the proportions of which vary across socio-economic groups. The contribution of agriculture (mainly rice) is about 30-40 percent while that of commercial NWFPs is about 25-30 percent. With an average farm size of two acres and the majority of farmers being smallholders, the villagers rely heavily on forests for meeting many of their needs. They collect firewood, logs for ploughs, bamboo for the construction of houses, thatching grass and fencing wood from the forests. *Sal* (*Shorea robusta*), *mahua* (*Madhuca indica*), *kusum* (*Schliechera olosa*) and *chironji* (*Bachanania clauzen*) are the most economically relevant trees to the people.



Collected NWFPs in the hamlet are packed and transported to distant markets.

Brindavan Bindhani captured the forest-livelihood links aptly:

Forest occupies a very important role especially for poor families. The favored tree for us is mahua or mohul. Mahua flowers are used as food supplement and cattle feed, and seed oil for lighting and cooking. Poor people cannot afford to buy costly allopathic medicines and therefore often rely on forests for alternative natural cure. Forests are the main fuel sources for cooking needs as poor people cannot purchase modern cooking fuels like LPG. Kerosene provided through the village PDS is not sufficient to meet family requirements. Every family uses about 50 kg of fuelwood per week, valued at about Rs4,000 per year. Furthermore, 90 percent of our livestock graze in the forest.

²¹ The *thengapali* practice of protecting the forests involves two persons guarding the forest at night with a thick wooden stick. The forest regenerated because of protection. Villagers formed a fund to which every family contributed. Money thus collected was given as token of gratitude to the two persons doing *thengapali*.

Every year, on the occasion of Raksha-bandhan (an important Hindu festival in which a sister ties a small thread on her brother's wrist and the brother promises to take care of his sister), the villagers tie threads to the trees as a symbol of their love and affection for the forest. They expect that the trees will protect them from all unforeseen calamities.

Dynamics of NWFP collection

NWFPs provide subsistence and income to people especially during the lean seasons. NWFPs also provide food for the communities and more employment for people than wood products do. While the poor and very poor households, who are usually also the landless and marginal farmers, depend on NWFPs mostly for income and domestic consumption, the well-off families use NWFPs primarily for household use. *Mahua* seeds are collected mostly for consumption in the form of oil and a very limited quantity is sold for cash income. More than 200 days of the year are spent collecting *sal* leaves which they use for making *khali* (cups) and *dwipatri* (plates). *Sal* leaves and seeds are collected by the poorer households while the *mahua* flower is collected by all, mainly the well-off households. This is primarily because *sal* leaves and seeds are found in the thick of the forest whereas *mahua* trees grow not only on forestland but also on thicket land.

A similar pattern exists in the sale of the forest products. While the poorer households sell their products without storing and waiting for price increases during off-season, well-off households with financial and physical capacity can store their products while waiting for better prices. The former do not have much choice and normally sell to the village *kuchias* (traders), as they are in urgent need of cash. Weights and measures used in the sale of products are different across socio-economic classes. While the well-off class use standard weights and are cautious about the accuracy of measurements, the poorer class sell majority of their produce in "basket" weight, often considerably lower than the standard weight.

The major NWFPs (*mahua*, *sal* and *chironji*) contribute about Rs210,000 annually to the villagers. The quantity of NWFPs collected by the tribals generally depends on the economic status—the very poor and poor tribals with small landholdings collect a greater quantity of NWFPs but are forced to sell a greater proportion of the collected NWFPs rather than consume these at home. This has implications. For example, medicinal herbs which were easily available in the past in forest areas are becoming extinct and are being sold rather than consumed in the household. While collection is the primary responsibility of women, decision-making on selling is generally a man's prerogative.

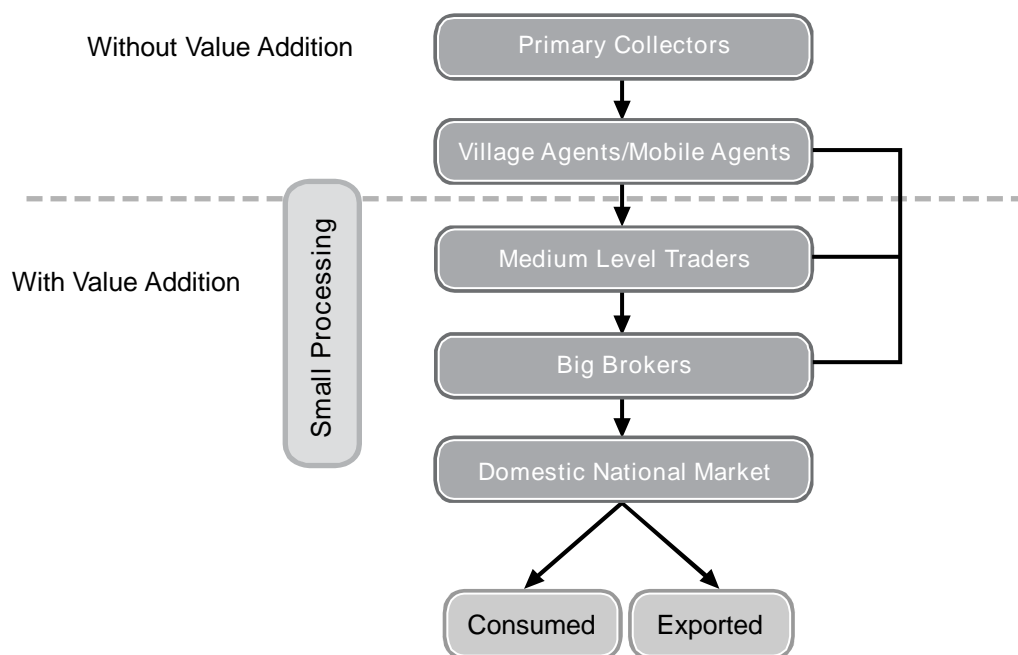
NWFP trade analysis

The NWFP market within the village is essentially a buyers' market with little or no bargaining opportunity for the primary collectors. The role of two NWFPs, namely, *mahua* flowers and *sal* leaves, is very important in the life of the people: these are traded in the local markets for cash. Although these NWFPs contribute significantly to people's livelihoods, the real economic value of the efforts put into collection does not reach the primary collectors. The value chain for the NWFPs in the village is illustrated in Figure IV.2.

In the case of *sal* leaves, value-addition takes place locally and the finished product is transported to distant trading locations, whereas products like *sal* seeds and *mahua* flowers reach the adjoining trading hubs in Chattisgarh and Jharkhand states and even to national markets like New Delhi, Kanpur, and Chennai. *Sal* seed is even exported to countries like Germany as a substitute for cocoa butter.

In the Kaptipada cluster of which Kuanrpur village is a part, the bulk of the NWFPs are collected from the farmers' doorsteps by village agents contracted by traders based at the block level. Commercial NWFP collection is next to agriculture in its contribution to the poor and very poor households' income (about 25-30 percent of their cash income). Another important feature of commercial collection of NWFPs is its importance during the lean season when other livelihood opportunities are minimal. The NWFPs keep them going in adverse situations and act as the safety net for the poorest households.

Figure IV.2. Value chain analysis



Source: Unpublished reports and discussions with villagers and traders.

Challenges faced by villagers

With low or no value-addition at the primary collectors’ level and limited access to end-consumers, the villagers sell a major portion of NWFPs to intermediaries who operate in the area as commission agents. The NWFP value chains are very large and fragmented, and the role of primary producers ends at the very start of the chain, where the returns are lowest. Situated in remote areas, primary collectors do not have access to the higher levels of the NWFP value chain. The intermediaries withhold market information from the villagers and take advantage of this to secure high returns on NWFPs. The collectors lack the capacity for sustainable harvesting, processing, quality control, value addition and trade. Bhimal Khilar, a landless villager shared the concern,

We are caught in a cycle. Since we are poor, we cannot own processing facilities and therefore we have to be satisfied with whatever the traders offer us for the raw products. With low returns, we do not have much to save and invest in processing machines.

Nityan and Mallick, a grocery shop owner, added that the biscuit manufacturer can decide the price and print it on the packet, but the poor NWFP collector cannot. Traders control the market and decide the prices, both during on and off seasons, and the intermediaries and local traders exploit the primary producer in weighing, grading, and sorting. Furthermore, forest dependent households lack access to credit that limits opportunities for value addition and compels them to “distress selling,” especially during the peak harvesting season. As one collector wished,

We have no cash for day-to-day needs. So we have to sell at whatever price is offered by the trader. If only we have somebody to give us loans for meeting our cash needs and pay back when we sell the NWFP, we can wait for better prices and need not resort to distress selling.

Jagabondhu Gan, caught up in a debt trap incurred from the marriage of his two daughters commented,

Alleviating poverty is not possible without people getting the true value of their produce. For moving beyond subsistence and leading a good life, people’s efforts for better income generation must be supported. Enterprises managed by the primary collectors of the forest produce can perhaps enable them to earn the real share of the efforts.

The real challenge in Kuanrpur village is how to overcome the institutional failure in providing a venue for people to organize themselves for collective community action. Due to multi-pronged disadvantages, communities are not able to come together and fight for their rights, entitlements, and access to resources in a meaningful and effective way. The government, especially the forest department, should facilitate in institutionalizing community-based forest management in the village. In the short term, it could be through re-organizing the currently defunct JFM structure. There is also a compelling need to start building the capacity and awareness of, as well as trust among, the communities. Dibakar Mohapatra, field manager of the newly-formed Marshal Cooperative concludes:

Community-owned organizations like cooperatives have high potential for ensuring that NWFPs do not remain just a safety net but become a climbing rope for the poor to come out of poverty. The Orissa Panchayat NWFP Act of 2001 allowed 67 NWFP items free for collection by people. The time is ripe now to make this right become the prime mover for strengthening community level trade channels, processing, value addition, and marketing.

Conclusion

NWFPs are critical safety nets for the families of Kuanrpur village, though the extent of dependency varies for the poor and relatively well-off families. Poor households depend more on NWFPs for cash income to meet their needs including housing, children's education, nutrition, health, and spiritual. Forests in general and NWFP, in particular help reduce poverty and provide livelihoods. NWFPs are a natural safety net, especially when there is a bad crop due to rainfall fluctuation. But despite this significant contribution to poor people's daily lives, NWFPs have yet to become a predictable and sustainable income source for the poor. Institutional weaknesses lead to uneven market mechanisms that benefit intermediaries and traders and siphon off the larger share of the value chain while the poor continue to remain poor. Community-based organizations that can collectively trade the forest produce can increase the returns from NWFPs for the benefit of the poor. Government and non-government organizations must endeavor to promote such community-based organizations and enable establishment of proper infrastructure such as processing machines and storage facilities. Commercial NWFPs in Kuanrpur have great potential for alleviating poverty, but they have to be given more support and focus with enabling interventions.

Case study 3: impacts of ecotourism on tribals in a forest village in Kerala State

The Athirapally waterfall along Chalakudy River is the most well-known waterfall in Kerala state. Popularly called the "Indian Niagara," the scenic surroundings, lush green forests, and the sight of the mighty river falling from a height of 80 feet make it a 'hotspot' for tourists. The surrounding forests of Vazhachal area constitute one of the richest biodiversity areas in India²². The river and the forests form a unique ecosystem of very high biodiversity value. The Vazhachal Tribal Settlement near the ecotourism spot is inhabited entirely by the Kadar tribe. The Vazhachal settlement is made up of 52 households (total population of 164 people), all below the poverty line. Literacy rate is only 35 percent and other HDI parameters are low compared to those of the non-tribal population. The Kadar tribe is one of the forest dwelling non-agrarian tribes of Kerala and the Western Ghats who used to be nomadic but who now live in settlements inside the forests. They do not practice agriculture or livestock-rearing and are dependent on forests and the river for practically all their needs. Geetha, a young Kadar tribal girl, relates,

The water and surrounding forests is our lifeline. The waterfall, the river, and the forests provide livelihoods for all the people living here, without destroying the forests.

²² There are 24 endemic species of flowering plants of the Western Ghats (one of the biodiversity hotspots of India) of which 10 are rare and endangered. The Chalakudy River supports 85 species of fresh water fish, and 35 species are endemic and nine are endangered.



Dr. Amithab Bachan

A popular tourist attraction in Kerala state, the Athirapally waterfall sustains income generating activities for the Kadar tribe members who help in protecting the surrounding forests and maintaining the tourism site.

Development projects, dislocation and depleting livelihoods

The construction of a series of reservoirs upstream of the Chalakudy River and large-scale forest plantations from 1940 to 1980 had deleterious impacts on the forests and biodiversity, more so to the forest-dependent Kadar tribe. The infrastructure submerged rich valley forests and displaced Kadar from their original homes deep inside forests. Adding to the misery of the tribals, about 40 percent of the natural forests of the Vazhachal forest were converted into plantations of teak, eucalyptus, and other commercial species. Employment opportunities generated from plantation activities mainly went to the non-tribals of the area and workers outside the settlement. These events resulted in the fragmentation of the remaining natural forests, depletion of the forest resources, and increased biotic pressure on the remaining forests. It is estimated that over the last 30-40 years, 60 percent of the forests underwent some form of degradation and detrimentally affected the forest-dependent Kadar community of the area and many starved. To meet their immediate needs, the people turned increasingly to the forests and river, while others got involved in illegal trade of forest products, poaching of animals, tree felling, and illicit brewing of alcohol.

Winds of change: ecotourism for conservation and livelihood

Vazhachal's main natural attractions are the waterfall and the beautiful forest landscape. Even before the forest department took control of the area, the tourist spot was already drawing a large number of visitors. When the commercial potential of the tourism became evident, shops and hotels sprang up along the jungle routes. Some forests were destroyed as trees were felled for construction materials. Forest fires became frequent, destroying the regenerative capacity of forests. Many tribals were engaged in illegal felling of trees, construction of make-shift hotels and shops, and collecting fuelwood for sale. Unregulated tourism also brought with it pollution, garbage, alcohol and drugs, increased collection of fire wood and timber from forests, and other social problems. Faced with limited livelihood opportunities, tribals of Vazhachal were also sucked into this vicious circle and there were serious concerns about the socio-cultural, environmental, and ecological well-being of the forests and people.

The Joint Forest Management (JFM) program, also known as Participatory Forest Management (PFM),



Members of the Forest Protection Committee in their uniform, are in charge of managing the tourism site, including the management of wastes within the picnic area.

Photos on this page: Amithab Bachan

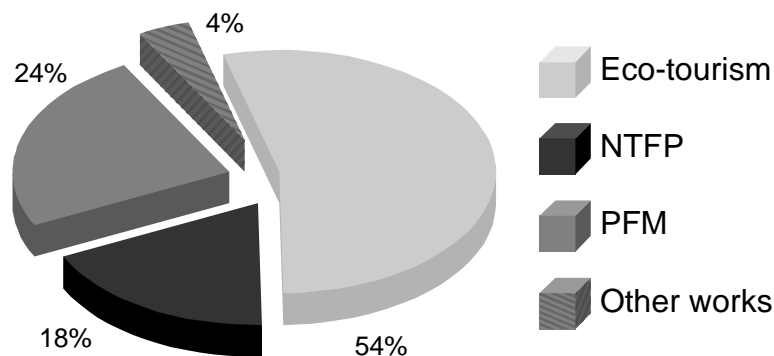
ushered in some changes in Kerala. JFM was actively introduced in the state in the late 1990s and took some time to reach the Vazhachal forest areas. The forest department took the first step and constituted the village level JFM Committee in 2002, chaired by an elected member from the tribals. Initially, it was difficult for the department to bring the tribal people to agree on collective action under an institutional set-up. Eventually, the forest department succeeded in winning the confidence and trust of the tribals through a series of awareness and capacity-building programs. Changes started to happen after the JFM was operational. A participatory microplan and visitor management plan brought order to the area and many of the illegal activities were eliminated, not by force, but by providing ecotourism-related livelihood opportunities.

Ecotourism initiatives under JFM have contributed to poverty reduction of the Kadar tribes in many ways. At least one member from each household works with the ecotourism project in various activities, which includes visitor management, garbage management, forest patrolling, forest fire prevention, forest products trade, etc. A group of tribal people (25 to 30) serves as guides or facilitators in tourist spots, trekking trails, and camping spots inside the forest. They are provided with green uniforms that give them a sense of pride, authority, and self-respect that they seemed to have lacked before, and afforded a real incentive for the tribals to actively participate.

Innovative mechanism for resource generation

Apart from eco-tourism, the community was allowed to use the other local forest and river resources. The relative contribution to livelihoods of tribals from different activities is given in Figure IV.3. The JFM Committee helped provide many opportunities. A Self-help Group was started for processing NWFPs, such as honey, dammar, resins and plant extracts. The processed NWFPs were packed and marketed under a brand name and the sales outlet was strategically located near the waterfall. The total value of NWFPs gathered from the forest in one year by all households was estimated at Rs400 000.

Figure IV.3. Income from different activities



Before the ecotourism project was introduced in Vazhachal under JFM, the forest department used to collect a small fee from visitors for the use of the picnic spots and the money (which was not a large sum) was credited to the state exchequer. The people never cared about how much the government collected or why it was collecting money, as they were not involved in the fund management. Later with JFM, the community assumed the role of a “caretaker” and modified the tourist spots into a more regulated and managed site. Consequently, the number of tourists more than doubled during the last 10 years with 1.05 million tourists visiting the area in 2010. However, this also required more financial resources for providing facilities and protecting the forests. The influx of tourists was leveraged to generate additional resources through an innovative mechanism which helped provide enhanced livelihoods and improved forest conservation.

A service charge of Rs15 is now collected from visitors for the use of facilities and services provided in the ecotourism area. Of this, Rs4 goes to the government and Rs11 goes to the VSS to be deposited in a corpus fund to be used for expenses related to tourism management, river protection, forest protection, tribal welfare, improving livelihood, and infrastructural development. To date, the VSS has collected about Rs10 million. For visitors coming from far-away places, Rs15 is a very small amount compared to their total expenditure. The general feeling shared by the community, forest department, and tourists is that the service charge helps provide improved services for the enjoyment and safety of the tourists. By providing alternative livelihoods to the poor tribal people, the pressure on the forests (and biodiversity) has been reduced and the tribal community is gradually getting back a sense of belonging to the forests and the ecosystem.

Voices of the people

The voices of the people from the field share an appreciation of the ecotourism initiative started by the VSS under the JFM framework (Box IV.2).

An elder from the Kadar community added that it is not their tradition to destroy the forests, and that they used to live in the wet evergreen forests since birth, owning very little land. He explained that in other forest areas in the region, for example, Edamalayar area, the people are clearing the forests to cultivate the land. The Kadars need opportunities to manage the forests entirely and not just the activities related to ecotourism. He concluded, “We need a better hold in management.”

According to some nature lovers of the area, tourism activities should not be concentrated in the present

Box IV.2. Voices of the people

According to a local forest official,

Over the years, there has been tremendous increase in the number of tourists, going beyond the carrying capacity of the area. Many people used to go beyond the Vazhachal picnic spot and deeper into the forests. This not only interfered with the wildlife protection in the area but also put stress on the forest department struggling to cope with the pressure of the tourist influx. It is only through VSS, especially the Kadar tribe's support, that we can protect the forests.

Ammi, an elderly Kadar woman who owns a shop in the area, said,

Everything has changed now after the VSS was setup to manage tourism in the area. Now, nobody goes hungry; everybody has an assured job in the VSS. We have good amenities and good food, almost all children are going to school, and every woman has some savings.

Janaki from a nearby area aired some concerns:

The waterfall and river provide us with livelihoods and are our lifeline. There are many threats, including proposals for Athirapally hydro-electric dam and privatizing tourism, but we are fighting against these. For almost one year, we held continuous sathyagraha (protest) here against the dam, and we found support from environmentalists and nature lovers all over the country.

Shelly, a local politician says,

Sustaining the area for tourism is not only a concern for Athirapally and Vazhachal alone: the entire area from Chalakudy up to Puliyilapara (40km east) depends on tourists. The main reason there is ecological sustainability is the joint effort of the forest department and VSS who manage the area with concern for people and ecology. Otherwise, tourism could have gone in the wrong way.

On the other hand, Mohandas, an environmental activist working in the area felt differently:

Though tourism contributes hugely to poverty reduction, the adverse impact of tourism on the forest, river, and tribes is inevitable. The negative impacts are minimal now only because of the involvement of the tribal people. We should develop tourism into a real "eco" tourism and not promote general tourism." There are also some people like Thankappan who want to use traditional skills in conservation and emphasize the need for diversification of jobs in the forest areas.

Geetha offers this view:

"We all agree that eco-tourism is supporting us to get out of our poverty. More than that, we now have acquired a voice to discuss our concerns, although there are still improvements needed. All the members, especially the officials, are not empowered fully to bring all problems into light," said Geetha.

picnic spots, but distributed downstream to spread the benefits of ecotourism to more people and also help to decrease the pressure of tourism in the forest areas.

Some tribal elders are very concerned about the negative impact of outside influences and culture to the Kadars. They think that their socio-cultural relationship with forests has changed in the last eight years and that this trend will continue into the future. For them, increased interaction with the outside world has brought them a different set of concerns. In their view, the traditional family and community interactions, beliefs, and culture, have been generally threatened and eroded. As an example, these elders confided that some of the tribal youth have become alcoholics.

In general, poverty among the tribals has been reduced and the forests are better protected. With better income from tourism-related ventures, they are now able to support their families and obtain education, health services, and other comforts. But they still have concerns, mainly the adverse impact on their culture and on the relationships within community and families. The increasing trend in tourist arrivals is another concern which many feel will have adverse consequences in the long term for the ecology and people.

Outlook for forestry and poverty alleviation

The forestry sector in the 21st century in India is saddled with contradictions and conflicts. Old and unresolved issues still remain with a set of new issues brought about by globalization and the rapidly evolving environmental, economic, social, and technological developments. In the process, forest management has become increasingly complex and is presenting new challenges as well as new opportunities. Added to these are long-standing challenges, such as poverty and deprivation among forest communities which have still to be resolved.

Drivers of change

The real drivers of changes may not be home-grown in the forestry sector but will be a result of events and developments outside the sector, mainly larger societal changes. It is imperative to recognize these to have a better understanding of what is likely to happen, what can be influenced, and what will remain as givens that have to be lived with and acknowledged.

Globalization. Competition and conflicts with local communities are foreseen with regard to forestlands for development purposes, such as mining, industries, bio-energy, and infrastructure. The Indian forest industry will be facing escalating raw material deficits and higher costs. With a robust regulatory regime coupled with vibrant media and civil society, the forest industry will be less dependent on government forests for raw materials.

Demography. The current population of 1.2 billion is likely to increase to about 1.33 billion by 2020. Increase in population, though slowed down, means that the absolute number of poor people will remain more or less same, but the projected demand for forest products and services may increase as the urban population is projected to increase to about 430 million by 2020. This will drive higher construction needs and demand for wood and wood products, and other goods and services.

Economy. According to Citigroup Global Markets R Research (Business Standard 2011), India's real per capita GDP is expected to grow at over six percent annually between 2010 and 2050. Whether or not this will put pressure on natural resources and threaten the livelihoods of the forest-dependent poor depends on the dynamics of growth and the distributional process. Evidence suggests that economic inequalities in India increased in the post-liberalization period. The major challenge therefore will be how to achieve higher and more inclusive growth. Another challenge will be to what extent the opportunities arising out of growth are taken advantage of by forest-dependent communities for getting out of poverty.

Policies. The rights-based approaches to development will continue to play out, and new legislation on the right to food and the right to health might be enacted in the immediate short term. With a vibrant civil society, active judiciary and media, there will be 'push factors' for transparency, participation, democratization of institutions, and accountability. Local Self Government will be given more rights and responsibilities in resource management and governance. These developments will have implications on forest-dependent people and poverty alleviation. Forestry issues could assume more political importance. Demand for development space and jurisdictional claims on forests are likely to be 'up front' issues in the sector in the near future.

Climate change. In the international arena and negotiations, India will increasingly take a nuanced position to expand its negotiation options. Efforts would be adopted to protect the country's economic growth, inclusive development, and poverty eradication agenda. It will also be guided more by domestic policies and actions and green growth strategies. Forestry will assume greater importance, and initiatives—such as the Green India Mission^{viii} under the National Action Plan on Climate Change—will follow an integrated landscape approach for increasing the quality and quantity of forest cover and improving the livelihoods of poor people. India is also likely to explore the REDD plus regime in forestry that is pro-poor and augurs well for poverty reduction. However, it remains to be seen how, when, and in what manner the REDD plus mechanism will be actualized on the ground.

Water. Demand for water for a variety of uses is assuming critical importance and there will be an increasing awareness on the significance of protecting the forest in critical watersheds. It is likely that the poor communities will be provided incentives to protect forests under the PES mechanism. There will be a deliberate focus on watershed programs. Linking MGNREGS with watershed programs is a possibility, given the necessity of addressing spatial poverty in dry lands of the country.

Primary production sectors. Unlike in other developing countries, agricultural expansion at the cost of forests may not pose a big threat. With about 500 million livestock (18 percent of the world livestock population) that contribute substantially to the livelihoods of poor people, especially in the dry lands of the country, there is a growing recognition that the grasslands need ecological restoration and integrated management to support the people's livelihoods (as in the Green India Mission). An integrated view of the forestry, agriculture, livestock, and fisheries sectors in an ecosystem-based approach will be one of important focal areas for future management.

Science and technology. New developments in the field of science and technology will help the forestry sector in many ways. The use of Remote Sensing (RS) and Geographical Information System (GIS) in forestry will be mainstreamed to help management decisions in future.

Future scenario for forestry and poverty alleviation

Forest area. In view of the current trend, forest cover may increase though to a small extent, and provide more goods and services to all, including poor people. The national goal of bringing one-third of the land area under forest or tree cover will continue to be a distant dream. The trend in the decline of shifting cultivation areas in North East India will have a positive impact for increasing forest cover.

Ecological services of forests. The recognition and importance of ecological services will improve and there will be new mechanisms to transfer the compensatory benefits and incentives to people who conserve the resources. PES, REDD plus, NPV of forests for diverted forest areas, and rights under the Biological Diversity Act (BDA) are some of the areas where opportunities for forest-dependent poor could improve, but not much in the immediate future. REDD plus benefits to the poor are not likely to be realized in the next five years at least. Water from forested watersheds will assume economic significance.

Forest degradation. More than the quantity of forests, the quality of forests will be the major concern in the coming years. Landscape and integrated approaches addressing drivers of degradation, rather than mere afforestation and plantations, will guide future efforts. Forest fires, though, will remain as the most degrading influence on forests.

Sustainable forest management. Green tree felling from natural forests is prohibited and will continue to be so in the future. Increase in productivity of plantations, biodiversity conservation, forest certification, restoration of degraded ecosystems, and wildlife conservation will be thrust areas for future management. Forest communities stand to gain from these developments provided the enabling policy and institutional platforms are in place.

Policies and institutions. Forest laws are likely to be re-aligned with the forest policy of the country recognizing the tenure, rights, and responsibilities of forest-dwelling people. It is also likely that the state will provide more space for a plurality of local institutions including traditional institutions under the Local Self Government for forest governance and resource management. However, the transition will not be without its share of conflicts and contestations. The regulatory and compliance mechanisms on forest and environment will continue to be robust and will be more institutionalized.

Community-based approaches. In spite of its deficiencies, the centrality of the community-based approach in forest management will be further consolidated. JFM will undergo changes with legal backing through the LSG route. In remote areas and with practically little presence of other arms of the government, JFM institutions could become the nodal points for delivery of a host of entitlements under different poverty reduction strategies.

Wood demand. Trees from non-forest private lands will remain the major source of timber. With the increasing demand for wood and wood products in the future, the gap in supply will be met through imports to a certain extent. Agro-forestry and trees outside forests will be the main sources of wood for forest industries, including the pulp and paper industry.

Non-wood forest products. NWFPs, including medicinal plant products, will assume more importance economically than timber from forests. More high-value products will be generated through processing, value addition, and vertical integration with markets through small and medium forest enterprises. Subsistence production of NWFPs may decline as these will be increasingly commercialized. Commercially high-value species will be domesticated and cultivated on private farm lands. The institutional framework may undergo changes at all levels reflecting the importance, huge potential for value addition, and the need for market-based approaches.

Recommendations

1. In the poverty reduction strategies of the country, forests and forestry are generally touched upon as passing references. More often they are introduced in the descriptive sections of the programs and schemes of agriculture, livestock, watershed, rural employment, and rural development sectors, and in promoting tree-planting activities. It is important that the State and Central governments recognize forestry as a sector capable of meaningfully addressing poverty issues in some of the most deprived regions of the country and sections of people. The role of forestry in poverty-reduction strategies needs a sharp and pro-active focus.
2. The overarching concern of all national and state forest policies and programmes is sustainable forest management. Livelihood issues of people, though finding a place in the management objectives, appear not to be dealt with adequately based on a robust understanding of the forestry—poverty dynamics and links, both at macro and micro levels. While it is recognized that forestry by itself cannot solve the multi-dimensional nature of poverty in the forest regions of the country, establishing effective institutional linkages between the poverty reduction processes (PRP) and national forest programs (NFP) will help in ensuring meaningful forestry-related responses in the PRP and vice versa.
3. Notwithstanding methodological problems in valuing many non-marketed benefits of forests, the knowledge base is weak in understanding the dynamics of the contribution of forestry. It lacks clarity in valuing forest resources in economic terms in the context of poverty reduction/livelihood strategies. Specific research and specialized surveys are needed at the national level to understand the value of the forestry sector.
4. Promoting forest based enterprises, e.g., NWFP-based enterprises, is one of the most effective ways to trigger broad-based job-creating rural development in India. The NWFP sector suffers from a host of problems such as poor returns to collectors, market distortions, low technology, and institutional inadequacy. Despite the growing recognition of the importance of NWFP resources for poverty reduction, there is no institutional mechanism that has the approach, reach, or the capacity to take a long-term view of the sector. A national body for the management and development of the NWFPs sector would be necessary. This body could act as the lead organization and federate the primary collectors, producer organizations, and institutions at village, district and state levels, taking a cue from the very successful example of AMUL²³ in India.

²³ AMUL is the well-known brand name of the Gujarat Cooperative Milk Marketing Federation (GCMMF), India's largest food products marketing organization, which aims to provide remunerative returns to the farmers and also serve the interest of consumers by providing a wide range of quality products. It has 2.9 million milk producer members organised into 15,322 village milk cooperative societies handling more than 9 million liters of milk daily and with an annual turnover of Rs 80,053 million in 2009-10 (~US\$ 1.7 billion). GCMMF is an institution created by the milk producers themselves to primarily safeguard their interest economically, socially as well as democratically and plough back the surplus to farmers through the village societies.

5. PES is in an exploratory stage in India, but could possibly provide opportunities for poverty reduction if positioned in a socially relevant, transparent, inclusive, and decentralized manner, mainly in the areas of ecotourism, carbon, water and biodiversity. Compensatory payments to communities protecting the catchments of rivers could help their livelihoods. To start with, PES can be tried in catchments supplying water to cities and towns by levying a fee from users and ploughing it back to communities.
6. Community-based Eco-tourism is an effective instrument for conservation of natural resources and local economic development. With a bulging middle class in India and a rich diversity of wilderness and unique endowments, the demand for ecotourism is on the increase. Being context-specific, models need to be developed across the country and strategic partnerships established among local communities, government tourism agencies, NGOs, and the commercial private sector. To start with, an inventory of the best practices could be documented and disseminated to local forest institutions, especially the JFM institutions.
7. Of all the avenues to realize carbon benefits, REDD plus offers high potential in India. Resolution of the concerns related to transaction costs, lack of clarity on rights, benefits and incentive structure for the local people, and centralization-decentralization is necessary. However, initiatives could be taken to prepare the country for REDD plus such as developing a national REDD plus strategy, an appropriate communications strategy, benchmarking the carbon capture potential of ecosystems, and improving the capacity to implement REDD plus at decentralized levels. The country should eventually be able to set up a reliable, predictable, and adequate compensation mechanism for REDD plus benefitting poor forest communities.
8. The objective of BDA, enacted as a sequel to CBD, is fair and equitable sharing of benefits arising out of the use of biodiversity and the Act mandates the creation and empowerment of state and local-level institutions. The institutions under the Act such as the State Biodiversity Boards and Biodiversity Management Committees²⁴ need to be revamped to ensure empowerment of the local communities and their realisation of benefits.
9. Compensatory payments to state governments for conserving forests or payments for forest areas diverted for non-forestry uses should be targeted to the poor and the money should be utilized for providing education, public health, energy, agriculture development, infrastructure, and other development in forest areas.
10. The village-level institution for forest protection and management in India is the JFMC. There are also legally-mandated institutions under different legislations on environment, governance and forest-related subjects such as those under the FRA, BDA, PESA and PRI Act. Added to these are traditional community institutions managing local resources, including forests in many parts of the country. All these play out in the same spatial arena and with the same set of communities with many overlaps. The institutional and jurisdictional claims over forests under many of these are confusing to stakeholders resulting in conflicts and inefficiency to deliver. Resolution of these contradictions has implications in reducing poverty in forests and is of critical importance. Given the mandate of PRIs under the Constitution for local governance and development, and being the integral part of the three-tier governance structure in India, the resolution of institutional mismatch is best resolved under the aegis of PRIs with a polycentric approach. Instead of being prescriptive, it would be rewarding to work with a plurality of institutions at the local level, including the traditional institutions, and leveraging their relative strengths through a context-specific approach.
11. Though the communities generally manage to enjoy *de facto* benefits of using forest resources for their income and subsistence needs, the state continues to consider forests as state assets and put restrictions on local peoples' rights of access legally. However, until rural people can claim clearly-defined user rights, there is very little incentive for them

²⁴ The Biological Diversity Act (BDA) provides a three-tier institutional set up of National Biodiversity Authority, State Biodiversity Boards at provincial level and Biodiversity Management Committees at Panchayat level.

to engage in long-term forest development or to use the opportunities fully for enhancing their livelihoods. Resolution of policy, legal and institutional conflicts discussed earlier would define the process for securing tenure in a clear and unambiguous manner. Recent remarks²⁵ made by the Indian Minister for Environment and Forests capture the sense on this issue.

12. Studies show that, of the two geographical regions—dry lands and forested areas—where chronic poverty is widespread, the latter represents a more complex interface of the forces causing poverty brought about by multiple disadvantages. Though national poverty alleviation programs are generally universal in application, a separate targeted approach in forested areas, such as the one adopted for North-Central India, makes sense. Poverty-alleviation strategies in these areas should be complemented by support to initiatives that are aimed at overcoming the political powerlessness of people who live in remote forested regions.
13. An enabling environment for sustainable forest management and production of goods and services will help in alleviating poverty in the forested areas. This could include the following:
 - adaptive silviculture for local use forestry that meets the diverse ecological and social needs, respecting traditional knowledge and resource management skills, choice of species, and coping techniques;
 - landscape approach addressing livelihood dependencies in an integrated manner that treats forests and non-forest lands simultaneously in a given bio-physical unit and in convergence with programs such as watershed programs;
 - easing regulations on harvesting and transit of forest produce to encourage tree-planting and forest/tree-based enterprise activities;
 - capacity-building, awareness and communication to enable the communities to capture potential livelihood opportunities from forests and acquire a clear sense of their legal rights and access over the resource; and,
 - community facilitation through building a cadre of community foresters from among the skilled local community youth to act as a bridge between the communities and the service providers.

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²⁵ Remarks quoted in the Indian newspaper, 'The Hindu' of January 04, 2011: "We need a complete paradigm shift in the way we look at forest management. Our model is based on the primacy of the state, but we must shift to a three-fold model of state, communities, and partnership between the two... Out of the total 70 million hectares, I'd say about 35-40 million hectares could be shifted to exclusive community management or partnership between the Forest Department and communities," the Minister for Environment and Forests said, adding that these were "preliminary estimates."

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Endnotes

- ⁱ Joint Forest Management (JFM) is the official and popular term in India for partnership in forest management involving the state forest departments and the local communities. The JFM frameworks vary from state to state as per the state-specific resolutions and are also known by different names. Generally a village-level institution, the general body of which comprises all willing households in the village, known as the Forest Protection Committee (FPC) or JFM Committee (JFMC) and the Forest Department enter into an agreement. Villagers agree to protect the neighborhood forests from fire, grazing, and illegal harvesting and in exchange, they receive the rights to collect NWFP and a share of other forest products including timber harvested from the area. A participatory micro plan is prepared for the area for development of the forests to be implemented by the JFMC, usually with financial assistance from government.
- ⁱⁱ Exchange Rate as on January of the year (One US\$ to Indian Rupee): 1999 – 42.47, 2000 – 43.48, 2001 – 46.66, 2002 – 48.24, 2003 – 47.99, 2004 – 45.61, 2005 – 43.61, 2006 – 44.36, 2007 – 44.20 2008 – 39.42, 2009 – 48.73, 2010 – 46.65, 2011 – 44.67, Aug 2011 – 45.37 (Source: Reserve Bank of India).
- ⁱⁱⁱ The official poverty line based on the per capita consumption level does not capture consumption patterns that are changing, nor reflect the growth of income in the economy and the inadequacy of relative weights. The Tendulkar Committee recommended that the rural poverty line should be recomputed to inter alia reflect the money value in rural areas of the same basket of consumption that is associated with the existing urban poverty line. The Committee hence estimated that the percentage of people below the poverty line in rural areas during 1993-94 was 50.1 as against official estimate of 37.3 and during 2004-05 it was 41.8 against 28.3. Whether we use the new or old methodology, the

percentage of decline during 1993-94 to 2004-05 is more or less the same i.e. about 8-9 percent. (Press release Planning Commission 2011). There are also other assessments such as by the N.C. Saxena Committee which reports 50 percent of rural population below the poverty line and Arjun Sengupta Report of National Commission for Enterprises in the Un-organized Sector (NCEUS) which considers more than 77 percent below the poverty line.

^{iv} **Table IV.6. Summary statistics on common property resources**

Highlights	Percentages
Common Property Land Resources(CPLR)	
Percentage of CPLR (land)	15 %
CPLR per household (ha)	0.31
Collections from CPLRs	
Household reporting collection of any materials from CPRs	48 %
Average Value of annual collections per household	Rs 693
Ratio of Average value of collection to average value of consumption expenditure	3.02 %
Nature of Use of CPRs	
Households reporting grazing of livestock on CPRs	20 %
Livestock rearing	30 %
Household Enterprise	2.8 %
Share of fuel wood in value of collection from CPRs	58 %
Average quantity of fuel wood collected from CPRs during 365 days	500 kg
Households possessing livestock	56 %
Households Collecting fodder from CPRs	13 %
Households Cultivating fodder from CPRs	2 %
Average Quantity of Fodder collected from CPRs during 365 days	275 kg

Source: NSSO 1999

^v There are 7887 JFMCs in Jharkhand state with 2.76 million members of which more than 70 percent is from SC and ST communities. During the last 10 years JFMCs received about Rs.1070 million as share from bamboo and thinning (15 percent of the value of produce). Although this amount is generated from only about 350 JFMCs in dense forest areas, it is used in all JFMCs for income-generating activities and development. The benefits include establishing 331 NWFP enterprises; bringing 25000 ha under irrigation; introducing more than 113700 improved biomass cooking stoves, solar lighting devices in 2152 villages and 34 bio-briquette machines; forming 120 artisan SHGs; establishing handicraft emporiums in cities; pasture and dairy development; producing about 10000 tonnes of lac; raising clonal pulp wood plantations with major pulp and paper companies etc. (Dr. V K Bahuguna and Dr. Anup Bhalla, personal communication, May 2011).

^{vi} In the 1970s, agricultural land degradation led villagers in Sukhomajri village to practice indiscriminate free-grazing, land-clearing and tree-felling – perpetuating a cycle of land degradation and poverty. These actions affected the water supply for communities downstream. Sukhna Lake in Chandigarh city was being silted due to degradation of forests in the mountain land near Sukhomajri village. The city administration decided to compensate the villagers for giving up grazing and tree felling in the hills. Two earthen dams for water harvesting were built which provided enormous irrigation benefits as immediate incentive to initiate watershed protection work by the villagers. The villagers also introduced a market-based mechanism for equitable sharing of benefits. All the households in the village, including the landless, were assigned an equal share of the water collected in the dam in return for their participation in watershed protection activities. Hence, the landless and those with very small landholdings were able to sell their water rights to larger landowners who needed more water. The de-linking of water rights from land rights compensated the landless and the small landowners for the loss of access to traditional grazing lands and allowed them to gain an equal share of the watershed benefits. This PES scheme has, in the past 40 years, generated high economic returns for the once-poor community.

^{vii} The case of Mawphlang Lyngdohship in Meghalaya state is an example of how resource management partnerships help local communities and the environment. Large tracts of upland forests were getting degraded due to swidden or Jhum, deforestation, quarrying etc. The local villagers stand to lose income if they end commercial fuel wood collection and small scale quarrying, restrict grazing, and allow

marginal farmlands to return to natural forests. The indigenous leadership of the communities signed a resolution to control seasonal fires, grazing by cattle, unsustainable firewood harvesting, and quarrying. Community Forestry International (CFI), an international agency, has agreed to provide financial support of \$12,131 per year and technical support for a three-year project period to the community as Payments for Environmental Services.

^{viii} Green India Mission (GIM) is one of the eight missions under India's National Action Plan on Climate Change. The overarching objective is to increase the forest cover on 5 m ha of forest/non forest lands and improving the quality of forest cover on another 5 m ha, and together improving ecosystem goods and services on 10 m ha. The salient features of GIM include: improving the livelihoods of 3 million forest dependent households; enhancing a broad array of ecosystem goods and services such as biodiversity, carbon sequestration and hydrological services, and realising carbon benefits as co-benefits; providing a definitive focus on improving the quality of forests/ecosystems and not merely on increasing the quantity of forests; finding pathways to resolve institutional issues relating to tenure and user rights; providing a major focus on democratic decentralization, autonomy, accountability and inclusiveness with local communities at the heart of implementation and proposing an integrated approach of treating forest and non forest lands simultaneously in a given bio-physical unit, and addressing the drivers of degradation through cross-cutting interventions and convergence with other programs.

V

Assessment of the contribution of forestry to poverty alleviation in Indonesia

Nurwahid Juni Adi
Dallay Annawi*

Introduction

Forest situation

Indonesia's forest cover based on 2005/2006 satellite imagery was 98 million ha or 52.43 percent of the country's total land area (187.8 million ha) (FRA 2010). Of the total forest cover, over 90 million ha are within forest areas¹ (132 million ha), while approximately 8 million ha are within non-forest areas. About 65 percent of the country's forest cover is located in Papua and Kalimantan (MoF 2009).

Indonesia has, however, undergone rapid forest loss over the past decades. It was estimated that forest cover declined from 84 percent of country's land area in 1950 to 61 percent in 1985, representing a 27 percent loss over 35 years. The deforestation rate during 1970-1990s ranged from 0.6 and 1.2 million ha per year, as vast forests were allocated for large-scale commercial logging concessions. The rate of deforestation climbed to 1.7 million ha per year from 1985 to 1997: Sulawesi, Sumatra and Kalimantan each lost more than 20 percent of their forest cover during this period (FWI-GFW 2002). Forest development activities began with capital-intensive production of logs or timber in the early 1970s, and continued with the development of timber processing, pulp and paper industries in the mid 1980s, and large-scale forest clearance for industrial timber plantations in the 1990s (Simorangkir and Sardjono 2006). The deforestation rate climbed rapidly to 2.8 million ha per year from 1998 to 2000, before falling to about 1.08 million ha per year from 2000 to 2005. Globally, Indonesia is one of the top 10 countries having the biggest net loss of forests per year in 2000–2005². In 2007, Indonesia posted the third largest green house gas (GHG) emissions globally, and deforestation, forest degradation and forest fires accounted for about 85 percent of the country's total GHG emissions (Olsen and Bishop 2009).

The causes of deforestation in Indonesia are numerous and complex, with large-scale commercial logging and forest clearance for industrial timber, oil palm plantations and agriculture as the leading drivers of forest loss. The government's transmigration program of relocating thousands of people from densely populated Java to the outer islands was responsible for nearly two million ha of forest clearance from the 1960s until the 1990s (FWI-GFW 2002). The Forest Planning Bureau attributes continuing forest loss to weak law enforcement, intensive illegal logging, uncontrolled forest fires, communities' claims on forest areas, log smuggling, mining activities and conversion of forests to other land uses

* Asia Forest Network

¹ Based on Law 41/1999 on Forestry, 'forest area' refer to land that the MoF designated as permanent forest. Forest areas may or may not have actual forest cover.

(MoF 2009). A study by the TREES Project (Stibig et al. 2007) investigated in detail the major forest change processes in different parts of Indonesia.

The government's policy and forest management framework has generally been "one of large industrial concessions awarded to a select set of private sector firms, all geared towards spurring industrial development, energizing national economic development and securing public claims on territory" (Contreras-Hermosilla and Fay 2005). This approach has resulted in the unsustainable exploitation of forests and the inequitable distribution of benefits from forests.

With 126.8 million ha or about 68 percent of the country's land area designated as forest areas as of 2005 (MoF 2006), forest management is mostly under the control of the Ministry of Forestry (MoF). The three main objectives of forest land management are: (i) supporting economic development; (ii) improving rural livelihoods and reducing poverty; and (iii) producing environmental services and benefits (MoF 2009).

Based on a recalculation of Indonesia's forest cover for 2005 (FRA 2010), the total production forests comprise 71 million ha (74 percent forested); protection forests, 24.9 million ha (96 percent forested); and conservation forests, 18 million ha (84 percent forested).³ The uneven distribution of forest management rights between the government, state-owned or private companies and local communities is reflected in only about 230,000 ha of community forests developed between 2003 and 2005 (Manurung et al. 2007) compared to 27.8 million ha designated for logging concessions and 5.4 million ha for forest estate companies (Fey 2007). Official data of forests under customary management by indigenous peoples are not available.⁴ The establishment of forests as protected and conservation areas to protect Indonesia's high level of biodiversity has often marginalized the poor in these areas and resulted in conflicts on forest ownership and access.

Economic situation

Since its recovery from the Asian economic crisis, Indonesia's economy has been growing at an annual average of 4.5 percent in 2000–2004 and 6 percent in 2005–2008. It went down to 4.3 percent in 2009, (BAPPENAS 2010a) despite the 2008 global economic downturn, and rose again to 6.1 percent in 2010. Indonesia's economy is now shifting from an agricultural base to being service and industry-based (ADB 2009). Another indicator of economic growth over the last decade is the increase in income per capita from US\$ 1,186 in 2004 to US\$ 2,271 in 2008, making Indonesia a lower middle-income country (BAPPENAS 2006).

Forestry has been contributing to Indonesia's economy, particularly to the gross domestic product (GDP), foreign exchange earnings, government revenue and employment (Manurung et al. 2007; World Bank 2006). Its contribution to GDP in 1993 to 2005 ranged from 1.7 percent to 3.1 percent (Manurung et al. 2007); however, its contribution to the GDP has been steadily declining in recent years since its highest in 1997, along with the decrease in the number of natural forest concessions (MoF 2006). Non-tax concession license fees, reforestation funds and forest product royalties have also been contributing to state revenue. Estimates of the workers employed in the private forestry sector vary. Simangunsong (2004 in MoF 2006) placed the number of these workers at 338,000 during the peak of the forestry sector in 1997, which has since been declining, while Manurung et al. (2007) estimated them to number about 500–600 thousand people, not including thousands of workers in the woodworking, small-scale

² <http://www.fao.org/forestry/30515/en/>

³ Production forests are classified into: (i) limited production forests for restricted logging activities; (ii) permanent production forests; and (iii) conversion forests, which can be converted into non-forestry uses for other development objectives, such as agriculture. Protected forests are forests designated for protecting important life-supporting environmental services, such as preventing flooding, minimizing erosion and maintaining soil fertility. Conservation forests are particularly allocated for biodiversity protection. Conservation forest include strict nature reserves, national parks, wildlife sanctuaries, nature recreational park, game hunting park and grand forest park.

⁴ Some *adat* forests recognized by government include 73,309 ha allocated as forests with special purposes in Krui Lampung, 1,178 ha of *adat* forests awarded to the Katu people in Lore Lindu National Park, and 690 ha

sawnwood, particle board and wooden handicrafts industries. MoF (2007), on the other hand, claimed that 3.4 million people were employed by forestry industries and businesses in 2000. The contributions of forestry to the GDP, which are largely focused on timber production and processing, do not account for the subsistence use and informal earnings from rural forest-based livelihoods, profit from illegal logging operations and the value of environmental services.

The above-mentioned economic measures, however, “misrepresent” the role of forestry and forest industries in rural and forest-dependent communities (MoF 2009). Although “pro-poor growth” is said to have allowed Indonesia to bring down the poverty rate from 40.1 percent in 1976 to 17.7 percent in 1996 (WB 2006; BAPPENAS 2006), the lion’s share of the benefits has been bypassing the communities living in and around forests, as the trickle-down effect of the profits from the forestry sector did not significantly redound to these communities (Safriti 2010). Serious policy efforts are necessary to allocate huge revenues being derived from timber and mineral resources in the forest areas to local poverty alleviation or to ensure that long-term investments in human, financial, physical or natural assets for communities in and around forests translate to greater share of benefits to local communities (Wollenberg et al. 2004). However, rather than improving the welfare of communities in previously resource-rich areas, the unsustainable exploitation of resources has led to the loss of resources and worsened the poverty situation (UN CCA 2004).

In the late 1990s, Indonesia started to experience a “forestry crisis” (Barr et al. 2006) with declining stocks of timber following decades of rapid deforestation driven by the overcapacity of the wood processing sector. The *hak pengusahaan hutan* (HPH) timber concessions (and subsequently the timber industry) began to decline toward the end of the New Order Regime owing to several factors, including (MoF 2006):

- mismanagement of forest resources leading to shortage of supply of raw materials;
- slow progress in industrial timber plantations;
- conflict over tenure with local communities; and
- high business transaction costs.

Besides insufficient supply of raw materials and over-capacity (which is driving illegal logging⁵), stakeholders in the timber industry also identified other major problems besetting the industry namely: (i) industry inefficiency; (ii) low product competitiveness; (iii) diminishing market share; and (iv) low added-value of wood products (Manurung et al. 2007). Intensifying forest plantation development is seen as the primary strategy to ensure sustainable and legal timber supply (Manurung et al. 2007; MoF 2007).

Poverty situation

Indonesia is an early achiever of Millennium Development Goal (MDG) 1, halving the incidence of extreme poverty, by reducing the proportion of its population living on less than US\$1/person/day from 20.60 percent in 1990 to 5.9 percent in 2008. Raising the target for poverty reduction, however, the government aims to reduce poverty using the national poverty line of US\$1.50/person/day from 13.33 percent in 2010 to 8–10 percent in 2014 (BAPPENAS 2010b). Likewise, the increasing trend in the country’s Human Development Index (HDI) values (0.458 in 1990; 0.500 in 2000; 0.561 in 2005; and 0.600 in 2010⁶) represents some improvements made in terms of human development (i.e., in improving people’s access to education and health, and purchasing power). There are, however, variations in the HDI across the country’s provinces.

Among the major causes of poverty and hunger in Indonesia are: (i) unemployment and a lack of adequate livelihood opportunities; (ii) gender and cultural inequalities; (iii) over-exploitation of natural resources and hunger; and (iv) insufficient budgetary allocations to key human development sectors,

of *adat* forests of the Guguk community in Jambi (Fey 2007).

⁵ A substantial proportion of the timber supply is harvested illegally.

(UN CCA 2004). Further, poverty among indigenous peoples in the country (estimated to number 50–70 million), is caused by: (i) lack of recognition and protection of their rights to their land and natural resources; (ii) transfer of lands to outsiders and poor quality of land; (iii) development activities, mainly logging, mining and plantations; (iv) degradation of the natural resources; (v) lack of education and poor health; (vi) limited access to information; and (vii) problems in transportation (AMAN 2010).

Reducing poverty in Indonesia, a large archipelagic country with diverse conditions, poses several major challenges. One, there are significant disparities in poverty levels among the provinces that are in part reflected in the gap between the urban and rural areas (BAPPENAS 2010a; WB 2006). Of the country's 33 provinces, 17 provinces have a poverty rate below the national average (13 percent). Provinces with poverty levels twice the national average include Papua (37 percent), Papua Barat (35 percent) and Maluku (28 percent) (BAPPENAS 2010a). A related challenge is that, while the poverty rate is higher in the eastern provinces and in more remote areas (where population is smaller), most of the country's poor are living in the densely populated western provinces (WB 2006). In 2010, the poverty rate in rural areas was 16.56 percent, which is significantly higher than the 9.87 percent rate in urban areas. While the country is fast urbanizing, there are still more households in rural than in urban areas. Two, almost one-half of the population are “near poor”, living just above the national income poverty line of US\$ 1.50/day, and are at risk of slipping into poverty in case of price increases, unemployment or natural disasters (WB 2006; BAPPENAS 2010b). Three, the income poverty measure does not represent the real poverty situation in Indonesia: households that are not income-poor may be poor because of their lack of access to basic services and their poor human development levels (WB 2006).

There are no official data on the population living in forest areas and the poverty situation in these areas (Fey 2007). Citing Brown (2004) and Muliastira and Boccucci (2005), MoF (2009) estimates that about 50–60 million people dwell in mostly rural, state-claimed forest zones, of which 20 percent are poor. People living in and around forests comprise one of the largest groups of poor people in Indonesia (Wollenberg et al. 2004). Commercial utilization of forest resources, wherein forest areas are opened to concessions and the people's resource bases are subsequently degraded, has reduced the capacity of the people dependent on these forests to access natural resources (Sumarjani 2006 in MoF 2006). Compared to villages away from forests, villages in and near forests have higher proportions of poor households and are worse off in income and non-income measures, including availability of infrastructure (CESS-ODI 2005). In rural villages, compared to households that are better-off, poor households depend more on incomes from forests, which serve as their important resource base and ‘economic safety net’ (Wollenberg et al. 2004).

Poverty in and around forest areas is closely related to access to and quality of resources as well as lack of access to education, health services, housing and other public facilities, and the government's weak capacity to provide social services fails to improve the situation (MoF 2009). Getting out of chronic poverty is difficult, because the lack of infrastructure and the distance from markets and social services hinder the poor from shifting to better livelihoods (Wollenberg et al. 2004).

Poverty and forest policy in poverty reduction policy

National poverty reduction strategy

Indonesia's National Poverty Reduction Strategy (*Strategi Nasional Penanggulangan Kemiskinan* or SNPK), which was finalized in 2005, defines poverty⁷ as a situation in which a person or a group of people are not able to adequately exercise their basic rights to live with dignity. SNPK adopted a rights-based approach to development, calling on the state to undertake measures to recognize and

⁶ Indonesia is in the medium human development category and ranks 108th out of 169 countries in 2010.

⁷ The Central Bureau Statistics (BPS) defines poverty as inability to sufficiently meet minimum requirements, comprising food (2,100 kg calories/person/day) and nonfood needs that include health, education, housing, clothing and other services and goods (BAPPENAS 2008). BPS set the national poverty threshold in 2007 at

protect the basic rights of the poor, which include the rights to food, education, participation and land tenure security. The rights pertaining to forestry and natural resource management include the following (WB 2006):

- right to land by guaranteeing and protecting individual and communal property rights, protecting customary communities and vulnerable groups and increasing the involvement of poor communities in spatial and land-use planning and implementation;
- right to resource access by increasing the means for the poor and communities to manage and use natural resources and the environment in a sustainable way
- the right to employment, including improving the capacity of poor communities to pursue businesses and enter labor markets and promoting small and medium enterprises and cooperatives

Among the forest-related problems of the poor are inequality of land ownership and landholding, limited access to forest and natural resources and low participation in development planning and implementation (Ibid.).

Prior to the SNPK, the environmental aspects of poverty reduction approaches had not been adequately considered in national development planning (UNEP n.d.). With regard to the rights to environment and natural resources, the SNPK recommended policies to: (i) ensure fair and sustainable access of the poor to natural resources; (ii) improve the capacity of the poor to use and manage natural and environmental resources; and (iii) strengthen the role of civil society and traditional and local organizations (Ibid.). The pillars for reducing poverty are: (i) creation of opportunities for the poor; (ii) community empowerment; (iii) capacity building; (iv) social protection; and, (v) strengthening of global partnerships on poverty alleviation. Integrated in the rights-based approach are good governance, decentralization and elimination of gender discrimination and environmental sustainability.

The SNPK and MDGs have been incorporated in the Medium Term Development Plans for 2004–2009 and 2010–2014. The Medium-Term Development Plan⁸ (*Rencana Pembangunan Jangka Menengah Nasional* or RPJMN 2010–2014) is the second phase of implementation of the Long-Term Development Plan (*Rencana Pembangunan Jangka Panjang Nasional* or RPJPN 2005–2025), which envisions an Indonesian nation that is self-reliant, advanced, just and prosperous by 2025. The second RPJMN includes reducing poverty and unemployment and providing the people equal access to public services, economic facilities and infrastructure in its national development missions (BAPPENAS 2010).

Increasing people's welfare is one of the government's top priorities for 2010–2014. Attaining and maintaining high economic growth (7 percent by the end of 2014) is critical for generating job opportunities and supporting government projects to achieve the target of RJPM 2010–2014 of reducing absolute poverty from 14.1 percent in 2009 to 8–10 percent in 2014. The development of rural areas will be pursued through strengthening the agriculture sector and encouraging the growth of small and medium enterprises (SMEs) and cooperatives. Related to the above pillars for reducing poverty, the strategies include: (i) improving credit facilities for SMEs; (ii) empowering the poor through better access to and use of resources to improve their welfare; (iii) improving the poor people's access to social services; and (iv) improving the provision of social protection to the poorest of the poor (BAPPENAS 2010a). RJPM 2010–2014 also aims for a just and inclusive development, particularly for the economically, socially and politically marginalized groups (i.e., those in "left-behind", frontier, outermost and post-conflict areas).

Forestry sector development is a fundamental part of national development; hence, forestry planning is inseparable from national development planning (MoF 2006). Under RJPM 2010–2014, reference to increasing productivity and value-added products from processed forest yields is included in the

IDR 166.7 thousand/capita/month (or approximately US\$ 0.65/day).

⁸ The RPJMN 2010–2014 serves as a basis for ministries and government agencies in preparing their Strategic Plans as well as for regional governments in their formulation or updating of regional development plans to

development of Kalimantan. This is in line with the National and Regional Spatial Plan, which states that the development of the Kalimantan region is directed at maintaining areas that have a conservation function, rehabilitating environmentally degraded areas in the context of supporting the sustainability of the utilization of forest, mining, agricultural, marine, coastal and small islands resources, reducing the risks of natural disasters, and developing sustainable marine, agriculture, estate, mining, and forestry-based processing industries (BAPPENAS 2010a).

Forestry policy

Indonesia's forest policy and management framework during the New Order Regime (1967–1998) was mainly oriented toward large-scale commercial timber production and processing to support national economic growth. Although there have been some shifts in forestry policy over the last decade with the issuance of new laws and regulations that allow for more space for local communities to play a role in state forest management, forestry policies and management in Indonesia continue to prioritize large-scale exploitation activities as contributing to economic development, with less consideration for sustainability and ecological and social values (Leimona et al. 2009). Forest policies encompass numerous laws and regulations that are complicated, not well-integrated and—as some analysts noted—“not in the best interest of the people” (MoF 2006).

In the 1960s, the government of Indonesia consolidated state authority over the country's forests through the Basic Agrarian Law (1960) and the Basic Forestry Law (1967). Under these laws, the government assumed control and management of the country's forests. Subsequent laws—Law 1/1967 on Foreign Investment, Law 6/1968 on Domestic Investment and Government Regulation (GR) No.21/1970 on Forest Logging Concessions and Rights of Collecting Forest Produces—served as the legal foundation of the New Order regime (1967–1998) for large-scale timber exploitation and forestry investment (Safriti 2010). The laws catered to the timber industry as a source of revenue for economic growth. Concession rights were granted to state-owned and private companies (domestic or foreign) for timber and plantations, without concern for the sustainability of forests or fair sharing of benefits with communities living in and near the forests and with very limited participation from these communities (Simorangkir and Sardjono 2006).

Act No 5/1960 recognized the claims of indigenous communities living in forest areas, but their rights were generally ignored, overruled or granted minimal recognition. The Law on Forest Planning (PP 33/1970) failed to include community participation in the setting of forest boundaries and to ensure compensation for communities for lands lost to concessionaires, thus weakening policies that gave some recognition to traditional management of customary forest lands (Poffenberger et al. 2005). During the New Order regime, a lot of conflicts over land tenure emerged but the people could not openly complain or protest. Further, during the 1970s and 80s, forest communities were stigmatized as illegal practitioners of “slash and burn” agriculture and primary causes of deforestation. This was in part adopted to draw attention away from the culpability of the commercial timber industry (Ibid.). The disregard for the people's customary ownership and rights to forest lands and resources led to rural poverty and conflicts.

Laws favorable to commercial logging and processing operations spurred large-scale forest exploitation from the 1960s to the present, which contributed to the country's economic growth but had limited impacts on local communities' welfare and livelihoods. Although MoF policies upheld centralized control and timber production throughout the Soeharto regime, some efforts explored community forestry as an option for managing the forests with the support of development agencies. During the mid-1990s, the MoF passed policies related to community forestry, including the Community Development Program (CDP or *Pembinaan Masyarakat Desa Hutan* or PMDH) that obliged timber concessions to address some of the negative impact of their operations to local villages and a Ministerial Decree issued in 1995 on Community Forestry granting limited user rights to rural villages in state production and protection forests as part of the objective of regenerating degraded forest lands.

During the *reformasi*, the Decentralization Policy (Regional Autonomy Law No. 22/1999) and the Revised Forestry Law (Act No. 41/1999) were passed. Act Number 22/1999 on Regional Autonomy decentralized

many functions of the central government, including various aspects of forest regulation and management, to the provincial and district governments. Inspired by the *reformasi*, advocates of community-based forest management (CBFM) pushed for the greater recognition of communities' ownership of and rights to forest resources. Act No 41/1999 on Forestry provided a legal basis for CBFM (Safriti 2010) while "promoting social objectives by recognizing forest land tenure and user rights and allowing individuals and cooperatives involvement in forest-based business" (Wardojo and Masripatin 2002 in Yasmin et al. 2010), although it was criticized for its limitations in acknowledging indigenous peoples' rights to their *adat* forests and introducing more secure land tenure reforms for local people in forestlands.

Through Regulation 6/1999 on Forestry Enterprise and the Extraction of Forest Products in Production Forest, the central government authorized district governments to issue small-scale Forest Product Harvesting Permits (*Hak Pemungutan Hasil Hutan* or HPHH) in areas within forest estates. Many districts then passed local regulations authorizing the district heads to issue different types of small-scale logging permits. The proliferation of small-scale timber extraction and forest conversion permits issued by district governments threatened the large-scale concession holders, as the increasing administrative authority of the district governments over lucrative timber resources did the MoF (Barr et al. 2006). In response, the MoF actively took steps to stop the issuance of these permits until Regulation 34/2002 on Forest Administration and the Formulation of Plans for Forest Management, Forest Utilization, and the Use of the Forest Estate was signed into law in June 2002. Revoking Regulation 6/1999, Regulation 34/2002 reaffirmed MoF's authority over large-scale timber extraction and the transport and marketing of both timber and NWFPs in the domestic market, and also extended MoF's administrative control over wood-processing industries (McCarthy et al. 2006). Regulation 34/2002 "effectively recentralized control over the allocation of timber concessions and small-scale logging permits—and many other aspects of forest administration" (Barr et al. 2006).

Decentralization efforts led to both opportunities and challenges for the legalization of community property rights, allowing communities to have more participation in forest-related policy-making in some areas but also critically threatening community rights to forests in other areas (Contreras-Hermosilla and Fay 2005). In some places, decentralization encouraged some district governments to formulate local policies on community forest management (Fey 2007; Adi et al. 2004) and led to greater accountability at the local level, increased equity and more sustainable forest management (Contreras-Hermosilla and Fay 2005). However, in many areas, the abuse of authority over forest resources, lack of capacity and corruption among local officials as well as confusion over forestry administration and management accelerated forest loss (Poffenberger et al. 2006; Simorangkir and Sardjono 2006).

During the last two decades, various CBFM schemes, recognized or developed, with varying levels of support from civil society organizations, local communities and development agencies, have—besides *private forests*—allowed community access to state forest lands and resources (Safriti 2010). *Forests with special purposes* are designated for research and development, education and training, religion and culture or other purposes of public interest. Government Regulation (PP) No. 6/2007 aims to empower communities living in or around production and protected forests through *community forests*, village forests and partnership between communities and forest concession holders, with the opportunity to obtain licenses for using forest resources (HPH). Ministerial Regulation P.49/2008 concerning village forests provides village-based institutions with licenses to manage protection and production forests within a village's administrative area. *Community forests* are state forests intended for empowering forest communities. Local individuals or cooperatives (indigenous or not) can be granted rights to state forests through community forest licenses for commercial utilization of forest areas, timber and non-wood forest products (NWFPs) and licenses to collect timber and NWFPs. This licensing system allows communities to have the same opportunities as private companies in accessing the forests (Fey 2007). Other than general provisions contained in Act No 41/1999, no specific national policy on recognizing the customary rights of indigenous peoples to their *adat* forests and lands has been issued yet. Based on the draft regulation, a community has to be proven to exist first before the district government will recognize an *adat* forest. In 2007, the MoF introduced the scheme, *community timber plantation (hutan tanaman rakyat* or HTR), which provides communities rights and incentives for developing timber

plantations on community lands. However, with rural livelihoods being secondary to the primary goal of increasing timber production for the wood-processing industry, a number of concerns were raised on ensuring benefits for HTR holders (DTE 2007). Other types of forest management schemes involving local people are *company-community partnership in forest management and collaboration in managing conservation forests*.

However, lack of clear laws and regulations and stability of policies as well as contradictions, inconsistencies and uncertainties in forestry policies have been hindering the effective implementation and widespread application of the CBFM schemes and have been leading to many conflicts—and difficulties in the resolution of these conflicts—as people have been increasingly asserting their rights and demanding access to their lands and forests.

The Forestry Long-Term Development Plan for 2006–2025 (MoF 2006) sets the vision for the forestry sector development as “forestry as a pillar for sustainable development by 2025”. Noting that “poverty is not the main responsibility of the forestry sector”, the 20-year plan lists as one of its goals improving social welfare and raising society’s active role in supporting responsible and equitable forest management (Ibid.).

In more recent years, climate change and reduced emissions from deforestation and forest degradation (REDD plus) are becoming an important policy priority in view of the government’s commitment to reduce its GHG emissions from forest destruction. Some REDD policies are already in place, but which have been criticized for ignoring the rights of indigenous peoples.⁹ The country has been participating in two international initiatives to support REDD-plus readiness activities: the Forest Carbon Partnership Facility (FCPF) funded by the World Bank and the UN-REDD Program, which is committed to a rights-based approach and recognition of free, prior and informed consent (FPIC) of communities. In early 2011, Indonesia announced a two-year moratorium on new concessions to clear natural forests and peatlands as part of a US\$ 1 billion deal signed with Norway.

Forestry-related programs for addressing poverty in and around forests

For the first time, the development of communities in and around forest areas was included in the MoF’s strategic priorities in its plan for 2004–2009. Empowerment of local communities around forests is also one of eight strategic priorities for 2010–2014. This reflects in recent years a recognition by the MoF of the relationship between poverty and forestry and of some responsibilities of the ministry in addressing the poverty of forest peoples (Kayoi et al. 2006). In the Forestry Long Term Plan, the MoF (2006) acknowledged that reducing poverty in and around forests (with target beneficiaries numbering 10 million poor people) is not the sole responsibility of the forestry sector.

Approaches to community empowerment by the MoF, which include providing support programs for local forestry enterprises, livelihood programs and CBFM implementation, have not been clearly identified as poverty reduction programs (Fey, 2007), although these were intended to improve the welfare of rural households. However, sectoral programs through the MoF have not been making significant impacts, as the ministry lacks the capacity or mandate to engage in poverty alleviation and as its interests in timber production and conservation usually run counter to local people’s livelihoods needs (CESS-ODI 2005; Wollenberg 2004). CBFM strategies tend to be weak in specific targeting of the poor and vulnerable groups, because these interventions are often designed to address all local stakeholders and thus lack differentiated approaches in addressing levels of rural poverty (CESS-ODI 2005). The process of allocating forest land has been conducted in a purely top-down manner from Jakarta, ignoring existing local systems and failing to involve local people (Simorangkir and Sardjono 2006). In general, rather than providing security of tenure over portions of the forestland (including *adat* forests), the CBFM schemes “continue to be primarily directed towards sharing management responsibility over state forests” (Fey 2007). The reforms in forest policies “have nothing to do with changing forestland tenure regime”, thus, communities’ rights to forestlands remain obscure (Safriti 2010).

attain development targets. (BAPPENAS 2010).

⁹ ‘REDD in Indonesia: An independent monitoring report by Forest Watch Indonesia’ Retrieved from <http://vh->

Sunderlin et al. (2006) suggested four policy approaches for reducing poverty:

- transferring tenure of forest lands from the government to the people living in and near forests;
- facilitating access to the markets of forest products;
- promoting commercial-scale community forestry and company-community partnerships; and
- establishing payments for forest environmental services that are pro-poor.

Past and current contribution of forestry to poverty alleviation

Forests are a significant natural resource owing to their economic, socio-cultural and environmental values. About six million people are depending directly on forests, including about 3.4 million people employed in the private forestry sector (MoF 2006). Their livelihood strategies are diverse, including subsistence farming, or commercial farming (combining upland rice and annual crops), logging, selling wood and collection of NWFPs for consumption and sale. Nonetheless, the country's forest resources "are not contributing as they should to poverty reduction, economic and social development, and environmental sustainability" (Sheyvens and Setyarso in press).

Forests for subsistence use and allocation of forest resources

According to WRI et al. (2005), more than 50 million people live in Indonesia's rainforests, and thousands are engaged in traditional livelihoods, such as small-plot farming, bamboo harvesting and collection of fruit and honey. It is difficult to obtain estimates of the extent of direct and indirect household use of forest resources, and most of the local consumption and exchanges of NWFPs are not reflected in the national account (Gautam et al. 2000). NWFPs, compared to timber, have been given little support by national policies, but are vital to the subsistence and livelihoods of the rural, forest-dependent poor: these provide some of their basic needs and serve as a safety net and potential sources of cash during times of hardship.

Traditional and subsistence forest management. Most of the indigenous peoples live in rural areas, in or near forests, engaging in gathering, rotational swidden farming, agroforestry, small-scale plantations, fishing and mining (AMAN 2010). The value of forests for indigenous peoples stems from their direct and cultural, social, political and spiritual relations with the forests, which have been changing, as well



Agroforestry can help ensure food security and income through the production of a diverse mix of annual crops and fast-growing trees that can be harvested at different times, while also helping in sustaining the soil.

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as the subsistence, livelihood and economic relations (MoF 2006). Forests are part of their animist beliefs and the natural capital needed for making traditional products used in the culture. Compared to early twentieth-century literature, shifting cultivation is presently not considered anymore as a major driver of forest loss, though it still plays a role in the mountain zones of northwest and southwest of Sumatra and in Kalimantan (Stibig et al. 2007).

An assessment conducted by the Papuan Provincial Forestry Office in five places in Papua in 2004-2005 as part of the Multi-stakeholder Forestry Programme found that forests meet an average of 40 percent of cash and 30 percent of subsistence needs of the people (Kayoi et al. 2006). Communities nearer to the forests and farther from towns tend to be more dependent on the forests. Within the communities, young single men who are not yet entitled to own agricultural lands have high dependence on forest resources for cash (i.e., timber, being one of few reliable sources of cash), compared to the women who generally use forest resources for subsistence (i.e., gathering of firewood, fruit and wild vegetables). However, because they do not have formal tenurial recognition, indigenous peoples in Papua lack clear rights to FPIC over the allocation of their customary lands to concessions or legal basis by which they can demand unpaid timber royalties from companies or seek compensation for economic losses resulting from logging and road construction (Ibid.). Previous deliberate attempts to abolish and replace customary institutions have weakened indigenous peoples' capacity to negotiate effectively with the government and investors.

The threats to local rights and livelihoods identified by local communities include the following (Fey 2007):

- lack of recognition of *adat*/local communities' rights to land and natural resources;
- illegal logging;
- continuing acquisition of *adat*/people's lands for plantations and mining concessions;
- transfer of lands to outsiders;
- lack of access to basic needs;
- low prices for local commodities and weak bargaining position with middlemen;
- degradation of natural resources;
- political changes; and,
- more frequent environmental disasters.

Agroforestry. Agroforests in Indonesia represent a diverse set of complex resource systems. In Java, the terms *pekarangan*, *kebon* and *talun* refer to lands that villagers planted with wood or fruit trees. The development of the *hutan rakyat* with community utilization of forest lands with initial food crops and the growing of commercial timber species sustains many in the community. *Simpuk* in Kalimantan is a fruit garden developed in formerly cultivated areas, while *repong* in Sumatra refers to rubber farms grown in formerly cultivated fields. However, statistics on community forests largely exclude extensive forests in the Outer Islands that have historically been managed by indigenous communities for long-rotation swidden cultivation, resin oil collection, hunting and gathering areas and protection for religious and hydrological purposes (Poffenberger et al. 2005).

Studies of monetary benefits of community-managed agroforestry systems show that these have a substantial advantage over alternative land uses (IBP 2002 in Contreras-Hermosilla and Fay 2005). Comparing the financial structures of three possible land use options in Krui, West Lampung, IBP's research reflect a significant financial gain of the agroforestry systems practiced by indigenous communities over rubber or oil palm plantations (Ibid.). Customary agroforestry systems have associated environmental advantages as seen, for example, in higher returns to labor from community-managed systems of land use than from the plantations. One of the case studies in this report provides a qualitative account of an agroforestry system being practiced by an upland community in Bogoran, Wonosobo.

Agroforestry practices exemplify sustainable forest management, but there are obstacles in their development to contribute to timber production, local livelihoods and environmental services. Van

Noordwijk, et al., (2003 in WB 2006) identified the main constraints as: (i) definition of forests, functions and land uses; (ii) lack of good-quality planting stocks; (iii) lack of smallholder management, processing and marketing skills; (iv) over-regulation that limits market access or increases costs; and (v) lack of reward mechanisms for generated environmental services. Large-scale plantations are often prioritized, with government policy support and subsidies, over agroforestry systems.

Community forestry schemes. Some community forestry programs included poverty reduction as part of their objectives, but with limited success. Effendi (2000 in Subarudi 2003) noted that the implementation of the Prosperity Approach Program in Java led to benefits for the forestry institution but not for the farmers, as farmers' participation was limited. The Joint Forest Management with Communities (*Pengelolaan Hutan Bersama Masyarakat* or PHBM), which was implemented by Perum Perhutani in Java, was "highly conflictual" (CESS-ODI 2005) and failed to improve community involvement in forest management (Subarudi 2003). Likewise, CESS-ODI (2005) noted that the Support to Forest Villages Development Programme (*Pembinaan Masyarakat Desa Hutan* or PMDH), which was implemented by logging concessions as a condition of licensing, also had very limited impact. The key objective of the CBFM policies (such as the *taungya* or *tumpang sari* implemented in Java and Nusa Tenggara, PMDH and government community forestry or *hutan kemasyarakatan*) has been to set up joint forest management and charity programs, which were not related to providing security of tenure over forestland that can contribute significantly to long-term improvement in the people's livelihoods (Fey 2007).

Nonetheless, there have been community development programs for poverty reduction that were successfully implemented in other parts of Indonesia (Subarudi 2003). According to Kusumanto, et al., (2005 in WB 2006), there are approaches that registered successes in improving both the forests and people's livelihoods, but the state and companies—not the communities—continue to wield effective control over forest resources. The MoF notes that the "role of private or state-owned enterprises as partners and the role of the government as a facilitator are not optimal". (MoF 2009)

Forestry policies over the past decade have evolved state-sponsored CBFM schemes that allow communities' access to production and protection forests. However, these policies have not been addressing poverty (Adrianto et al. 2006). As noted above, these schemes mainly focus on benefit-sharing agreements with the government, with the latter generally setting the terms and determined to get the highest possible share in the benefits (Contreras-Hermosilla and Fay 2005). Previous experiences with parastatal corporations (Inhutani) and government offices were not beneficial for the participating communities (Ibid.). The CFM schemes are different from one that grants legal ownership to communities, which seeks to empower communities to be able to make the relevant decisions. The changes in the regulatory frameworks over time have led to local people's access to forest lands but also to uncertainties and conflicts between the communities and state-owned or private companies, which have been hindering the building of trust in and expansion of the application of these approaches.

Support from civil society organizations have been critical in providing various forms of assistance for local communities, including livelihood programs (Fey 2007) through establishing credit facilities that allow local people to have access to soft loans; developing rattan programs for rattan farmers and handicraft-makers; developing food processing enterprises (some integrated with conservation and food security); and producing NWFPs.

In 2003–2007, the MoF implemented the National Campaign for Forest and Land Rehabilitation (*Gerakan Nasional Rehabilitasi Hutan dan Lahan* or GERHAN) project with the target of rehabilitating three million ha of degraded forestlands inside (60 percent) and outside (40 percent) state forest areas within five years. Its approach was to involve the communities in forest and land rehabilitation, such as in planting and maintenance, and cash or seedlings were given to farmers as direct incentives to plant trees on their farms (Nawir et al. 2007). However, GERHAN failed to meet its goal of forest and land rehabilitation, and the success of the project is difficult to ascertain. Sustainability of activities may last while there is funding as there is no incentive to encourage a sense of ownership of the trees being planted. Implementation in some areas lacked adequate community participation in the process and results were not satisfactory (Ibid.).

As of 2010, MoF was able to issue 22 community plantation forest licenses covering a total of 9,045.89 ha, 107 community forest licenses covering a total of 415,153 ha and village forest business licenses covering 113,354 ha.

Commercial and industrial forestry

Production forestry, processing industries and plantations (large scale operations)

Forestry in general is said to have contributed to national and regional development through logging roads that made access to remote areas possible, creates job opportunities and increases regional government and community income (MoF 2006). However, there have been critical problems associated with the dynamic growth of the forestry sector with regard to the poverty situation of communities in and around forests. While large-scale capital-intensive operations have been relatively able to generate short-run financial returns, “there is little evidence for poverty alleviation” (WB 2006).

The appropriation of forest communities’ lands and resources for large-scale timber interests and the lack of recognition of the customary communities’ rights adversely affected the people’s livelihoods, economic opportunities and tenure security (Jarvie et al. 2003 in Contreras-Hermosilla and Fay 2005). Rural communities which depended on forest resources for their livelihoods associated the entry and operations of timber concessions and plantations with abuses and the deterioration of the community’s condition (Contreras-Hermosilla and Fay 2005). The people would still manage to utilize forest resources to meet their livelihood needs, but usually amid ensuing conflicts (Kayoi et al. 2006). Or else, they would be forced to seek other forms of livelihood when activities of large-scale agri-businesses and logging companies encroached into substantial land areas. In Kaimana and Mapia in Papua, the shift away from a nomadic way of living (*pinda-pinda*) with hunting and gathering as the livelihood strategy occurred very fast after the logging company arrived in the area (Soriaga and Walpole 2009). Often, local people could be denied access to grasslands they can cultivate for food crops on the basis of the classification of those lands as forest zones to be used for timber plantations (Contreras-Hermosilla and Fay 2005).

In many cases, overlapping land claims and management regimes over the same area in the context of legal uncertainties and inconsistencies have led to conflict between communities and companies or local governments. Among the common reasons for local communities’ complaints about forestry and forest utilization are (i) loss of forests that serve as sources of NWFPs; (ii) pollution of rivers and reduced fish stocks due to logging waste; (iii) community development approaches not based on local people’s needs; (iv) the limiting of communication to those between company representatives and community elites, while not involving the broader set of community stakeholders; and (v) decreased community land (Eriantono 2010). Interrelated factors leading to intractable conflicts include: (i) communities’ loss of forest area and living space on lands licensed as concession areas; (ii) restriction of community activities in concession areas, particularly shifting cultivation and the collection of NWFPs; (iii) lack of communication between communities and companies leading to misunderstanding and distrust between the two groups; (iv) minimum benefits from the companies for local communities (wages and employment provision as companies prefer to recruit migrant/external workers); (v) encroachment into local communities’ traditionally protected and sacred sites; and (vi) deforestation and its impacts on the rural agro-ecosystem, such as erosion and increased river pollution (Sardjono 2004c in Simorangkir and Sadjono 2006).

Owing to the unequal distribution of benefits, affected local communities received little share—if any—of the benefits from their forests. Moreover, little policy effort has been made to “invest revenues in human, financial, physical, or natural assets for the long term” (Kayoi et al. 2006). The long-term impacts of the degraded state of the forests and natural resources to the poverty situation are being acknowledged in terms of reduced resource base and unsustainable livelihood; lack of access to clean water; environmental disasters (floods, droughts and landslides); forestry-related crimes (e.g., illegal logging and timber smuggling); as well as competition over resources, conflicts and weakening social cohesion.

Employment in forest industries. According to the World Bank (2006), large-scale commercial forestry

can create employment, but the forestry sector is not a “major source of employment” for the country’s workforce of 100 million. Compared to about only 400,000 employees in mills and concessions, about four million people work in the agroforestry sector and three million in the fisheries sector. Though thousands of people depend directly or indirectly on the forestry sector, the sector is not likely to generate enough jobs to employ a large number of the poor and lift them out of poverty (Ibid.).

An analysis of the forestry sector employment in Riau province in Sumatra (Obidzinski and Barr 2005) raises questions on the contributions of commercial forestry subsectors to local employment. Riau province now hosts 70 percent of the country’s pulp production capacity, and growth of the HTI pulpwood plantations to meet the fiber needs of Riau’s pulp mills is expected to create jobs. However, employment in pulpwood plantations is cyclical. Labor input is highest in year 1 for land clearing, site preparation and planting, and in year 7 for harvesting and replanting. Between these periods, relatively few workers are hired to manage the plantations, but lands are not made available for people’s livelihoods. As for land-clearing activities in the government’s community forestry program (*hutan kamasyarakatan* or HKM) operations, the jobs that are created are short-term and unsustainable. Mechanized operations can significantly cut down the labor input: e.g., converting 1,000 ha of land requires 39 workers with mechanized operations compared to 96 workers with semi-mechanized operations and 440 workers through manual work. As regards the claim of companies that they provide a major source of employment as justifying the conversion of natural forests into plantations, with mechanized operations needing lesser labor, there are relatively few foregone jobs if future pulpwood plantations are designated on lands with no forest cover or with lesser tree cover.

Further, jobs created by forestry operations do not necessarily benefit the communities where these are located (Ibid.). The majority of the workers in HPH concessions, plantation companies and licensed and unlicensed sawmills surveyed by the study come from other provinces. Workers from Riau are generally at a disadvantage in terms of the wage structure and the distribution of positions compared to non-Riau workers. Also, most of the jobs are not full-time and permanent: about 75 percent of the workers are hired by pulp companies on a daily or target basis and without long-term job security.

In view of the plans of the government to promote the pulp and paper industry for its perceived major contribution to Indonesia’s national economic growth, the study recommends an assessment of whether or not further investment of public funds in pulp and paper production is a cost-effective means of creating jobs in the forestry sector and whether or not the jobs generated are sustainable over the long term (Ibid.). The Riau study approximates that every job generated in the pulp and paper industry and associated land clearing and plantations subsectors involves an investment of around US\$ 218,000. According to the study, the huge government subsidies to two large pulp and paper companies in Riau could have created jobs for hundreds of workers over a number of years if the money were invested in a public job-creation program. As two large pulp and paper companies aim to expand their plantation areas in the province, the tradeoffs between plantations and other land-use options need to take into consideration the livelihood security of rural communities.

Considering the ongoing forestry crisis, the sustainability of some jobs in the forestry sector is in question (WB 2006). Rising costs and limited supply of raw materials are affecting the Indonesian pulp and paper industry, forcing one company to lay off nearly half of its total workforce (ITTO 2008). Further layoffs in the wood products sector are expected as many manufacturers and sawmillers are considering scaling down businesses due to declining export prices (ITTO 2009). It had been initially expected that jobs lost due to the closure of plants in less efficient subsectors would be offset by jobs created through accelerating plantation development and SME activities (WB 2006).

Economic costs vis-à-vis economic benefits: Assessing the economic impacts of five large pulp plantation projects through industrial timber plantation (HTI) in Sumatra in terms of the total economic costs and benefits, Maturana (2005) revealed that four of the five plantation companies were incurring economic costs higher than their economic benefits. These costs comprise the direct financial costs of the investment (money, natural resources, etc.) and of operating the pulp mills and pulp plantation as well as the costs borne by the local people, the country and the world of the vast forest land allocated for HTI projects. The finding underscores the need for the Indonesian government to rethink its plans

to allocate logged-over forestlands for use as HTI pulp plantations and reset the directions for future plantation projects that will benefit the national economy in the long term.

Outgrower schemes. The allocation of wide areas for industrial plantation development poses both risks and new opportunities for rural livelihoods (Barr and Stafford 2007). Pulpwood plantation concessions have often overlapped with land or forests being used by local communities and thus have commonly resulted in their displacement or loss of livelihood options (Obidzski and Barr 2005). On the other hand, the industry's increasing demand for wood offers the opportunity for farmers to supply this demand. Colchester et al. (in Barr and Stafford, 2007) stressed the need to ensure that the program truly strengthens the smallholders' livelihoods and welfare drawing on the lessons from previous government-sponsored outgrower schemes.

In 2007, the MoF launched the HTR community timber plantation program to establish plantations on 5.4 ha of community lands until 2016 as part of the revitalization of the forestry sector. Progress has been slow, however, and smallholders in some regions prefer oil palm and rubber plantations as better land-use options than acacia plantations (Barr and Stafford 2007). After two years, community interest and participation was low and had not expanded beyond a small number of state-directed pilot projects (Schneck 2009). Based on his investigation of the financial viability of developing HTR pulpwood plantations in Kalimantan, Schneck concluded that these were not profitable under existing market conditions.

HTR allows communities to have greater involvement in plantation development and helps clarify land tenure arrangements to an extent. However, its implementation faces challenges in identifying suitable lands, dealing with the limited capacity of communities and companies to manage HTR development, defining effective institutional arrangements and ensuring economic viability, considering existing market conditions and level of state-funded support as well as poor market access in many areas. Promoting HTR for pulpwood plantations necessitates "supportive macroeconomic and forest-sector policies which reduce market distortions, increase market transparency and liquidity, and raise domestic wood prices" (Schneck 2009).

In Pasir district (East Kalimantan province), five years after decentralization and the development of oil-palm plantations, the number of local people taking part in smallholder oil palm estate schemes together with the area of plantations have increased significantly (Simorangkir and Sardjono 2006). In 2004, about 17,000 families were managing 65 percent of the crop plantations. Oil-palm plantations allow the communities to gain income faster than timber and higher than NWFPS, although NWFPS continue to contribute to their livelihoods. Communities have divided views on the scheme, however. Some local people see the scheme as an opportunity to claim land, while others oppose it but still participate as a means of increasing their income and only on the condition that the land stays under community control in order to retain customary ownership. The plantations have also been contributing to Pasir's regional economy, which is expected to be sustained in the future. The local government plans to adopt agro-industry as the core of the district's economy and allocate about 250,000 ha for the expansion of oil-palm plantations that can allow more people to participate. This plan, however, threatens the district's remaining forests as most agriculture areas are already being used and has high potential for increasing conflicts over land because of unclear land ownership and use rights (such as traditional rights to land and natural resources), unclear boundaries, incompatible traditional claims and different interests over the same land (Ibid.). The increasing participation of communities in Pasir district in the establishment of oil-palm plantations has been used as a justification for obtaining timber use permits to expand to the remaining residual forests (Ibid.). Nonetheless, there is generally little proof that forest conversion is for the benefit of local communities for them to participate in community forestry schemes (Fey 2007).¹⁰

Company-community (CC) partnership under a profit-sharing agreement is one of the approaches of plantation companies to ease conflicts they commonly encounter with communities over the rights

gfc.dpi.nl/img/userpics/File/REDD/REDD-in-Indonesia.pdf

¹⁰ An exception to this is the conversion of 145,000 ha of forest zones into non-forest zones by the MoF and subsequent issuance of individual ownership rights to the communities in Lampung province in 2001 after

to the land and forest resources within their concession areas (Maturana et al. 2005). However, these have low acceptance among the communities and are difficult to maintain beyond one rotation period. Companies must consider the resources that the people use and the corresponding values associated with these resources in developing cost-effective CC partnerships to ensure better acceptance and long-term commitment.

Nawir et al. (2003) in their study on different schemes claim that mutual benefits for communities and companies require commercial feasibility based on a long-term partnership contract with shared economic and social objectives; equitable contractual agreements based on a fair valuation of shared inputs; and full understanding by both parties of the benefits and potential risks of joining the partnership. Companies seek to reduce social risks through the resolution of conflicts over lands in concession areas and establishing relations on which to negotiate contract agreements toward ensuring a reliable source of wood. Tree growers benefit through secure long-term investment (trees to be harvested in the future), clarification in the status of their land rights and ownership, job opportunities, use of underutilized lands and access to company's social funds and credit assistance. The challenges include lack of trust, with companies dominating negotiation processes; lack of commercial viability owing to inadequate capacity-building and extension programs; lack of clearly defined investment mechanisms, and; inadequate assessment of community needs leading to waste of community funds when developing income-generating programs.

Community development (CD) programs. Community development programs, which timber and plantation companies were required to develop and implement starting in the 1990s to respond to the poverty situation and local conflicts in the areas where these were operating, have been expected to contribute to local livelihoods but with limited impacts. Companies tend to implement CD programs merely out of legal compliance and not out of concern about the people's livelihoods. The government assesses the programs based on the money spent by the companies and not on the actual activities conducted (Simorangkir and Sardjono 2006). Most CD activities put up infrastructure and short-term income opportunities, and were not invested in long-term, sustainable local development (Ibid.).

In her study on the impacts of the CD expenditure of five large pulp plantation companies in Sumatra as an approach to address land conflicts they have with villages within their concessions, Maturana (2005) found that although companies are investing money on CD programs (such as infrastructure or agricultural projects) to help address conflicts, it remains unclear if lands under conflicts were being reduced. Money invested in CD increased with the area of land under conflict. Districts that had higher CD share were those with larger areas of land affected by claims, which seemed to suggest that CD investments tended to promote land claims rather than decreasing these. The large investments in small villages created an "adverse incentive" for some people to gain profit by creating conflicts over the land, while developments in infrastructure as part of the CD programs encouraged people who went to work or live in other places to return to their villages or forested areas and re-claim their rights to their lands within concessions. These results underscore the need for companies to review their CD program implementation and further understand why the claims in their concession areas are being made as well as to redesign their CD investments so as to make them more beneficial to both the companies and communities (Ibid.).

Engel and Palmer's study (2006) of the impacts of decentralization in East Kalimantan found that companies wishing to receive harvesting permits from the district government have to negotiate directly with affected communities. After decentralization, an average of 94 percent of the households surveyed received payments from companies (compared to only one percent prior to decentralization), and villagers have become more able to negotiate for better non-cash benefits. After decentralization, 80 percent of the households viewed that forests belonged entirely to communities, compared to only 20 percent before decentralization. Further, after decentralization, many communities reported that logging was bad for hunting and the quality of river water, but felt that logging caused fewer problems for farming and forest product collection. Nearly two-thirds of community agreements with companies included environmental provisions, such as replanting logged forests, respecting minimum diameter of trees to be cut and logging of certain species only. Communities now feel empowered to take direct action with the companies that do not follow these agreements or are late with payments, often with success (Ibid.).

Royalties and reforestation fund. Forest royalties and levies in Indonesia are set very low, so that forest companies can capture “superprofits”, which do not provide incentives to reforest logged areas. Forestry companies should bear the responsibility of leaving forests in the same condition in which they were originally leased. However, paying royalties lead companies to perceive that they can shift responsibility for reforestation onto the government (Maryudi 2008).

The revised system of revenue sharing now allocates a higher proportion of the benefits for the local governments. From forest-product royalties, the central government gets 20 percent, and 80 percent is divided between the province (16 percent), producing district (32 percent) and other districts in the province (32 percent). The forest concession fee is divided between the central government (20 percent), province (16 percent) and producing district (64 percent). The reforestation fund, the single largest source of forest revenue (Resosudarmo et al. 2006), is shared between the MoF (60 percent) and the originating regions (40 percent, not necessarily the districts where the logs were harvested from within a province). There are no comprehensive records on the extent of areas rehabilitated using the reforestation funds, and activities could have met many problems or were not successful (Nawir et al. 2007). When Regulation 35/2002 was in effect, district governments’ use of their share in the reforestation fund was restricted to activities directly related to land and forest rehabilitation (e.g., reforestation, greening, forest management, enrichment planting) and did not support such activities as information dissemination about the projects, and provision of technical guidance, that were critical to the success of forest rehabilitation activities (Resosudarmo et al. 2006). With the strong emphasis on community involvement and on tangible benefits for participating communities, activities were mostly conducted in accessible areas with clear ownership status (Ibid.). Based on the regulation on Reforestation Fund management issued in 2007, state-owned companies, private companies, cooperatives and forest farmer groups can access loan schemes for forest and land rehabilitation from the Fund. However, the money has yet to be spent on needy parties (Eriantono 2010).

Illegal logging. Local communities are usually ‘willing victims’ in illegal logging operations financed by rich people, risking their lives for only a small share in the profit (Fey 2007). The bulk of the benefits from illegal logging operations are captured by the timber brokers and exporters. For instance, members of illegal logging gangs, often poor forest-dwellers, receive a mere US\$ 2.20 per cubic meter of wood, compared to what timber brokers get (US\$ 160) and what Singapore-based exporters of sawn Indonesian hardwood can charge (as much as US\$ 800 per cubic meter to ship to Western markets (EIA/Telapak 2002). Some 60-80 percent of Indonesia’s timber is illegal (Colchester 2006), costing the country US\$ 3.7 billion a year in lost revenue (Saparjadi 2003).

Small-scale logging permits

Decentralization has had both positive and negative impacts to local people’s livelihoods (Moeliono and Dermawan 2006). Through small-scale logging permits issued by the district governments until 2002, decentralization allowed some local communities to gain short-term economic benefit from increased forest exploitation that used to be the privilege of large companies only (Ibid.). Also, local communities could negotiate with logging, plantation and mining companies for a share of the benefits from their resources, in the form of entrance fees to the lands and forests they claimed, volume-based payments for harvested timber, compensation for lands used for infrastructure and plantation development (Tokede et al. 2005 in Ibid.), as well as provision of educational and health services and communal housing (Yasmi et al. 2005 in Ibid.).

Nonetheless, the ultimate beneficiaries of decentralized timber harvesting were not the local cooperatives comprising local villagers, but individual entrepreneurs or companies (in some cases, HPH concessionaires) who owned the equipment and capital (Moeliono and Dermawan 2006). Often, though local communities’ share of the benefits from forest utilization increased, these were not shared equitably with the poorest community members and instead profited the entrepreneurs, elite and government officers. Some community members, who got small percentages of the profits from the small-scale timber permits, were not transparent or fair in the distribution of the benefits, especially

with marginalized groups (Yasmi et al. in Barr et al. 2006). Further, in many cases, the money obtained by local communities under timber-harvesting agreements with outside companies or investors was not always used for lasting community development (Moeliono and Dermawan 2006). Some groups took advantage of these permits for profit in the short-run, but their activities resulted in increased internal conflicts owing to unequal distribution of fees and compensation payments, reduced quality of their forest resources serving as their safety net, and the increased gap between the better-off and the poor. Continued cutting and conversion in forests where the poorest families depend most for food and other needs increased their vulnerability (Adrianto et al. 2006). Also, broadened authority of local governments through decentralization was used by some local officials and politicians for their rent-seeking agenda, and not to promote resource sustainability, improve people's livelihoods or clarify local people's rights to land and forests (Safriti 2010). A study on two forested districts in 2004 found that local officials continued to consider forests mainly as cash-income sources (Adrianto et al. 2006).

In Papua, smallholder logging was facilitated by a system locally called *kopermas* (*Koperasi Peran Serta Masyarakat*), which are community cooperatives granted small-scale concession permits. The *kopermas* system enabled indigenous communities to get directly involved in forest management and obtain short-term benefits. However, it failed to ensure equitable sharing of benefits from timber revenues within these communities and between the *kopermas* and other actors along the production chain. Several cases of co-optation were found (Tokede et al. 2005). Some indigenous peoples allowed their names to be used by outsiders to obtain permits, and migrants worked with local people to log illegally (DTE 2002). The most significant factors contributing to the failure of *kopermas* to deliver equitable and sustainable forest management are the lack of information about community rights in new policies of government as a result of decentralization; unclear and inconsistent implementing guidelines from national and local governments; the limited capacity and skills of community cooperatives for commercial forest management; and limited knowledge and access of community cooperatives to operating capital (Soriaga and Walpole 2009).

Forest-based small and medium enterprises (SMEs)

The forestry sector in Indonesia has been “quite highly concentrated with 8 percent of the large firms using 60 percent of the wood in export-oriented production, while 80 percent of the firms are small or medium-sized firms oriented to the domestic market” (NRM 2000 in WB 2006). Forest-based SMEs, which dominate the furniture and handicrafts-making enterprises, generate employment for skilled and unskilled laborers (Manurung 2007).



A small scale processing enterprise in Java serves as an accessible market for smallholder tree farmers who sell their logs in large or relatively small quantities depending on their need for cash and available harvestable trees.

Pedro Walpole

Satyawati's (1991) field research reflects some limitations of employment in wood-handicraft shops in Central Java and rattan-handicraft industries in Cirebon county. The workers were getting a small percentage of the profit derived from the products, and as operations generally depended on orders for the products, they were at risk of losing their jobs if there were no orders. Although wood and rattan-handicraft enterprises were thriving at the time, market saturation and the high cost of raw materials reduced the profit of the entrepreneurs, driving some to reduce costs by lowering their workers' wages that in turn brought the workers to the verge of poverty. Wood and rattan handicraft industries are viable and thriving industries, but need support in terms of making wood prices affordable, ensuring sustainable supply to the raw materials, better training and credit facilities.

Noting that SMEs can be a leading force of economic growth and employment creation, the World Bank and the IFC (Policy Brief 2004 in WB 2006) recommended reforms to improve SMEs, such as reducing regulatory burdens, streamlining tax administration, increasing access to credit and supporting business education. Promoting SMEs, which have generally proven to be more effective in absorbing labor than large capital-intensive companies, is identified as a strategy in the revitalization of the forestry industry.

NWFP commercialization

Over 90 NWFPs are traded in the local, national or international markets (FAO 2002 in MoF 2009), but records of their production and extent to which the poor are benefiting from the trade are lacking.

NWFPs provide jobs to farmers. For many households in Kalimantan, rattan is the main or secondary source of cash as well as emergency income (Seibert n.d.). NWFPs are accessible to the poor because of their low market value. However, as NWFP products become valuable, "powerful interests generally appropriate the benefits" (Dove 1993 in MoF 2009). Much of the value-added and profits from NWFP activities are in transport and marketing, from which poorer households tend to be excluded.

The entry of logging concessionaires in forest areas improved accessibility to remote areas, allowing those engaged in the collection of NWFPs (e.g., rattan) to bring their products to the market. However, logging often destroyed the local communities' resource bases for NWFPs and the conversion of forests into monocrop plantations (such as oil palm or rubber) meant permanent loss of NWFP sources and consequently, the destruction of customary NWFP production and management practices. Investments in the rattan industry in 1970s–1990s encouraged rattan production (Silitonga n.d.). The prices of rattan were however depressed by restrictive trading policies on raw rattan, thus, reducing farmers' incomes (FAO 1997 in Tiwari 2007).

Payments for environmental services (PES) and carbon payments

There are a number of efforts in Indonesia to protect environmental services (ES) and develop the markets for these, though these are still at an early stage. PES provides some potential to contribute to the livelihoods and welfare of the poor living in and around the forests.

A review of 81 case studies related to environmental services (40 percent related to biodiversity conservation and the rest equally distributed for watershed protection, carbon sequestration and landscape beauty) notes that only a few cases have a truly functioning ES market or have proposed an ES market (Suyanto et al. 2005). In some projects, the sellers are the farmers' groups and, in others, government and National Park community (mostly landscape beauty). The range of rewards includes land leases to potential monetary benefits from carbon credit, water user's fees, eco-tourism concessions and entrance fees (Ibid.).

Payments for watershed regulation

Since 2001, the World Agroforestry Center (ICRAF) has been implementing the Rewarding the Upland Poor for Environmental Services (RUPES) program which aims to improve the livelihoods and reduce poverty of the upland poor while supporting ES. At the local level, RUPES has been supporting the

development of institutional mechanisms for implementing PES schemes in villages around Singkarak Lake in West Sumatra, linking watershed protection by upland communities to the existing monetary flows from the hydroelectric plant and to the provincial and district governments, as well as for participating in the global carbon market. With regard to the reward for watershed function, the local government in West Sumatra issued a regulation on the sharing of tax money paid by a state-owned hydroelectric power company that is tapping water from Singkarak Lake between the provincial government, the district generating the tax and other districts in West Sumatra. However, the regulation does not provide for a policy on how the tax should be distributed to the upland communities. As for the market for carbon sequestration through A/R CDM, the concept of ‘bundling’ services, is posing challenges for the CDM requirement for additionality and investors’ preference for fresh sites that allow them a more controlling role than being part of a “bundle” (Leimona et al. 2006).

Carbon payments: A/R CDM and REDD mechanisms

Under the Afforestation/Reforestation Clean Development Mechanism (A/R CDM), some small-scale “tree-based agriculture” systems and other forest activities by local communities on forest areas turned into grasslands seek to capture economic benefits for local communities from carbon payments. An example is the Loksado Grassland Reforestation project (Boer et al. 2006) which aims to establish about 2,500 ha of viable mixed rubber-cinnamon-timber plantations in three Dayak villages in Loksado subdistrict, South Kalimantan. The project hopes to contribute to the incomes of poor communities through the sale of rubber and other tree products by the fifth year of project implementation and through carbon payments by the 10th year and to decrease pressure on the Loksado protection forest by developing the commitment of local farmers to practice sustainable, permanent agriculture. Another reforestation project (Roshetko et al. 2006) plans to establish smallholder fruit and timber systems in 650-hectares of grasslands in Sidenreng Rappang (Sidrap) district, South Sulawesi to improve soil conservation and watershed functions. The project targets to increase the incomes of 581 participating families through the sale of fruits and timber products after the fifth year, as well as from carbon payments for a 30-year period, and help in developing Sidrap as a major producer of specific tree products. The agreed-upon carbon payment-sharing scheme gives the farmers the highest share plus the proceeds from the sale of tree products. Other direct benefits for the participating farmers include: (i) secure land tenure to be facilitated by the district government through the end of the project; (ii) viable market-oriented tree-based systems to be established by the farmers; and (iii) start-up investment to be secured with other stakeholders to initiate the project.

No CDM forestry project has been approved yet. MoF sees A/R CDM as an option for financing the rehabilitation of logged-over forest areas through community or industrial forest management systems (MoF 2006), but recognizes that meeting CDM conditions, such as clarifying land rights, poses critical challenges.

Many REDD pilot projects and proposals across the country are in varying stages of development and initial implementation. Among the major concerns over REDD projects in Indonesia relate to the nature and extent of participation/consultation with local communities during project preparation, such as top-down planning by government, international agencies, NGOs, private companies and carbon financing companies and lack of consultations with communities or local governments that are signing on to REDD.¹¹ Local and indigenous communities often lack the administrative and legal knowledge to be in a position to effectively negotiate over REDD deals. FPIC is not integrated in the draft REDD policy. Also, promises of equitable distribution of REDD funds to indigenous and local communities in the forest project areas are made but without clear mechanisms. Questions being raised on the equitable sharing of benefits need to consider whether villagers with no formal land titles or those not doing destructive activities will receive benefits, as new inequities may be created with unfair benefit-sharing (Colchester et al. 2006 in MoF 2006).

strong pressure from the communities and local governments (Fey 2007).

Morgan's investigation (2011) of 23 privately sponsored REDD projects found that project developers deal with communities through services, jobs, cash and, in very few cases, land rights. All projects claim to provide new employment (mostly as forest wardens for protecting forest conditions) or livelihoods to lessen the communities' forest dependence, but these have often been developed without much community inputs and have benefited only a small percentage of the people whose livelihoods were displaced. Nine projects have plans of providing health clinics and primary schools; nine projects gave cash to communities in exchange for their promises to stop using forests for food or fuel; and four projects proposed micro-credit to support local projects for alternative livelihoods. Only two projects were noted to prioritize the rights of communities within the project areas, including the right to FPIC. Both projects facilitated the designing of the project on traditional land-use pattern within village customary forest areas and development of access plans based on the communities' traditional land rights and management practices. Project developers discovered that while engaging with communities costs money, sharing benefits with them may actually save the developers money in the long run (Morgan 2011).

According to Morgan, providing jobs, services and cash is relatively cheap compared to recognizing the land rights of communities in REDD project areas, and may be the most cost-effective way to increase projects' ability to save forests. However, carbon credit buyers "either do not care about communities whose livelihoods and forest uses are displaced by REDD projects, or do not have the experience to judge what is better or worse in terms of community co-benefits. What is more insidious and systemic is that project developers are able to market REDD carbon credits while providing only minimal compensation to forest communities because no laws or regulations require them to do more". As there are no minimum standards for engaging with communities in the voluntary carbon credit market, project developers, for instance, may opt to deal directly with the local government and work with communities "as much or as little as they want" (Morgan 2011).

Case studies

The first case study focuses on the experience of Bogoran, a village in Wonosobo District (Java) in agro-forestry on private land as well as negotiations with the Perhutani over the use of state forest land and benefit-sharing. The second case study looks into a REDD plus initiative in the Merang peat swamp forest in MUBA District, Sumatra.

Bogoran: a village's experience in agroforestry on private forests and negotiating clearer agreements with the Perhutani on state forestlands¹²

Wonosobo is one of the poorer districts in Central Java Province.¹³ It has a total land area of 98,468 ha, and more than 60 percent of this is farmland planted to rice, vegetables, fruit trees, coconut, coffee, clove, and various tree species for roundwood. State forestlands comprise the second largest land use (20 percent). These are under state forest management, through the Perhutani, primarily for the production of pine and dammar. Of Wonosobo's 733,000 population in 2001, over 70 percent live in the uplands and depend on agriculture and forestry. Remittances coming from members who have left to work in other provinces or other countries also form an important livelihood source.

Forest tenure and management in Wonosobo

The district's total forest cover in both private lands, called people's forests or *hutan rakyat*, and the Perhutani-managed state forestlands is about 37 percent of its land area. Agroforestry systems (called *wono dusun*) are usually practiced in *hutan rakyat* involving a high level of plant diversity and

¹¹ No Rights No REDD. <http://www.foe.org.au/climate-justice/activities-and-projects/redd/REDD-Indo.pdf>

¹² Data for this case study are drawn from previous AFN field visits to the area (with corresponding reports) in 2004 (Communities Transforming Forestlands: Java, Indonesia and Forest Stewardship in Southeast Asia), in 2006 (Small Scale Tree Farming: Philippines Learning Visit to Indonesia), and in 2010.

¹³ Wonosobo services five watersheds and the Wadaslintang Dam.

generating a wide range of products in densely packed plots of land. On the other hand, Perhutani forest management is based on specific technical and organizational regulations, grounded in strict representations of what a 'planted forest' should be and who will benefit from output. Perhutani allows villagers to plant in state forestlands only when *tumpang sari*¹⁴ is being implemented; otherwise, entering state forest lands is forbidden.

Some of the state forests in Wonosobo are now bare because there has been no replanting in recent years. After massive forest plunder and the weakening of Perhutani's presence in state forest lands following the *reformasi*, many areas became open access. *Hutan rakyat* areas, nonetheless, retained their tree cover.

***Wono dusun* (agroforestry) in *hutan rakyat* (people's forest) in Bogoran village**

Bogoran is an upland farming village in Wonosobo with a total population of 1,810 people in 2006 and a total land area of 664 ha. State forestlands comprise 34 percent of the village land area (226 ha), while agricultural lands that include people's *hutan rakyat* make up 50 percent (332 ha). Most of the village members engage in rice cultivation (two harvests in a year), agroforestry and backyard raising of cattle and goat. Because of limited economic opportunities in the village, some of the young women have left to work in neighboring towns or other countries. A majority of the youth are staying to work on the land and are active in organizing environmental initiatives and working with NGOs.

Comparing the conditions in the village today and 40 years ago, a mother shared that there are no longer times of hunger, as families who do not own ricefields or have limited harvests have access to government-subsidized rice. Another villager cited improvements in water access and sanitation. The village got electricity in 1997, and many families replaced the 15–20 meter-deep household wells with electric pumps for their water supply. There are also several good land-use practices and new ones are emerging to help them improve their farming and productivity.

Farmers in Bogoran practice multi-layered *wono dusun* where, typically, fast-growing or fruit-bearing trees (*sengon* or *Paraserianthes falcataria*, jackfruit, mahogany or *Swietenia macrophilia*, etc.) provide the upper layer canopy; coffee, *salak* (*Salacca edulis*), *kaliandra* (*Calliandra calothyrsus*), cocoa, pepper, banana and papaya compose the middle layer; and cash crops such as ginger, turmeric, and other shade tolerant crops are grown at the lower layer. Other crops such as corn, cassava and pepper are also planted where light permits. At first, *sengon* was intended to shade the coffee, but this tree later gained higher commercial value for the community. The logic to their multi-layered farming has taken into consideration the shade, nutrients for their crops, space optimization and other factors.

Incomes from the *hutan rakyat*

Sengon is usually grown for only 8–10 years, reaching not larger than 20 cm in diameter. Farmers have three options for marketing their wood. One, wood in relatively small quantity is hauled to the depot about five km away. Prices at the depot tend to be lower, but the farmers can decide how many trees to cut based on their needs. Two, there are traders who buy in bulk. Wholesale selling of all the trees on a farm gives the farmers higher returns in the short run, but leaves them with no trees to harvest the following year or when the need arises. Third, farmers with a relatively large volume of wood can sell directly to a processing plant where prices are relatively higher than the depot rates. Prices for the three buyers (ranging from US\$ 33–78 per cubic meter) also depend on the diameter of the logs or trees.

Farmers usually sell their trees with smaller diameters, which do not fetch a high price but allow them to get early returns for their needs. Still, many farmers retain some big trees for future plans, e.g., construction of a new house. The younger trees are likened to a regular 'savings account' that they draw from for regular needs, and the 'legacy' trees to a 'time deposit' that they allow to mature and earn higher 'interest' for special occasions. According to the Bogoran village head, a family which practices intercropping in at least a 0.25–0.5 hectare parcel can send their children to junior high school without

¹⁴ A system (also called *taung ya*) where farmer planters could grow rice, corn, tobacco and other field crops for one or two years in between rows of state owned seedlings.

having to harvest from the forests. Income from *hutan rakyat* is also spent for contributions for social affairs, such as marriages, births and religious events. Also of importance, at least 10 percent of the families in Bogoran have sent a member on a hajj pilgrimage, with 11 more villagers expected to go this year.



Pietro Walpole



Pak Mustadzir proudly refers to the pilgrimage of some of the young community members in Bogoran, largely financed by proceeds from the sale of falcata, as "Albasia Hajj".

Some women earn cash by preparing snacks from crops harvested from the *hutan rakyat* and selling these by the roadside.

Farmers also harvest their other crops within their *hutan rakyat* for their household consumption or for selling to earn cash. *Kapulogo* (*Amomum compactum*), *salak* and chili are harvested regularly as sources of additional household income. Even cow dung is collected and sold to the market by the truckload: two cows can generate at least one truckload of dung in a month.

Previous Perhutani operations in Bogoran

Perhutani's earlier schemes with the villagers over the state forestland in Bogoran had been limited to hiring some members to plant seedlings. The first time was after the old-growth forests were clear-cut in 1965 and, the second time, after the first round of plantations were harvested in the 1990s. For the second

round, the Perhutani again hired Bogoran villagers to plant pine seedlings and allowed them to plant food crops in newly planted areas under the tumpang sari system until the canopy would close on the third year while they looked after the seedlings. In some areas where the pine seedlings died, the farmers planted *sengon* with coffee and cassava but, because there was no clear agreement on this, Perhutani had these cut in 1998.

After the *reformasi*, Perhutani field staff asked the Bogoran villagers to replant on looted state forestlands. Prior to planting, the villagers asked permission to cut the remaining trees and use the proceeds for improving their village road. Perhutani permitted them to cut 100 trees. At the time, some local Perhutani staff and police officers reportedly informed the farmers that they could earn money by cutting pines trees on state forestlands and bringing the wood to local traders. The farmers who were involved got paid Indonesian rupiah (IDR) 20,000–30,000 for each tree felled and delivered to the traders who in turn paid off the Perhutani staff and police. This pattern led to the loss of over 300 ha of pine forests in Bogoran in 1998–2000. At the time, the state forests were heavily looted and Perhutani lost its control over state forest lands. Following the looting, several Bogoran villagers started planting on barren state forestlands in and around the village. As of 2002, around 90 ha of state forestlands have been planted.

Perhutani forestry program and Wonosobo district forest policy

In 2000, the Central Perhutani adopted collaborative forest management (PHBM) as the new Perhutani management approach. The main feature of PHBM is the introduction of the timber profit-sharing agreement, which gives 25 percent of the timber sale to the communities for their labor on state forest lands.

With 70 percent of its population dependent on forestlands, forest plunder and land use conflicts were high on the Wonosobo District's agenda. In 2001, on the strength of the 1999 decentralization policy, the district government passed the District Regulation on Community-based Forest Management (PSDHBM), which was formulated through a multi-stakeholder consultation process with NGOs and initially the Perhutani (which later withdrew from the group). PSDHBM provided the basis for giving greater tenurial rights to communities working on state forest land through a 30-year tenurial agreement. The production-sharing scheme is 70 percent for the community and 30 percent for the district government. The guidelines gave priority to farmers with existing ownership of lands less than 0.3 ha. Both the Perhutani and MoF, however, contested the regulation since it threatened their control of the forests.

Bogoran is one of three villages selected as a pilot area for the implementation of PSDHBM, through the Wonosobo Multi-Stakeholder Team. In 2002, as the piloting of the implementing guidelines of the PSDHBM was in progress, Perhutani started lobbying with central government for the district regulation's cancellation. Perhutani also campaigned against the PSDHBM process in the communities, claiming it lacked legal backing from the central government, and unlike Perhutani, did not assure a 25 percent share for communities. The local communities were divided over the more substantial benefits offered under PSDHBM as compared to the assured benefits under PHBM. In 2005, the Ministry of Interior revoked the Wonosobo district government's PSDHBM regulation.

The risk of insecure tenure to the state forestland confronted the Bogoran farmers in 2004, when a timber trader, who claimed to be backed by Perhutani, forced them to clear-cut a 6-hectare block in state forestlands and to give him 30 percent of the revenue. Perhutani officers denied that they ordered the trader, but admitted that the state forest block in question was targeted for planting that year. Farmers planted this barren block in 1999 with *sengon*, then valued at 20 million rupiah (US\$ 2,300). In the end, the farmers had to relent to the timber trader's demands. Without an approved CBFM District Regulation, district government representatives could not stop the land clearing. Most of the Bogoran farmers accepted the situation and devised a sharing arrangement: 90 percent of the proceeds for the farmers who tended the block and the rest to be distributed among the village government, the youth organization and the Block Sijambu forest farmer group. However, this sharing arrangement did not

materialize as the trader insisted on his 30 percent share by threatening farmers with arms. Until this incident, difficulties of Wonosobo farmers who actively managed state forestlands had largely been legal and procedural in nature.

Challenges and ways forward

In the last two years, *sengon* is being attacked by a gall disease that damages the growing trees, reducing greatly its value when harvested. The alternative fast-growing tree, *mahoni*, takes 15 years compared to the 8–10 growth years for *sengon*. Shifting to *mahoni* will mean economic and farming adjustments for the farmers. The community knowledge of the land is constantly adapting and now gives importance to organic aspects of cultivation, as the practice of intensive cultivation involves different ways of composting.

One challenge to the farmers is getting better prices for trees they harvest from their *hutan rakyat*. A youth leader admitted that buyers were trying to dictate the market terms and demand for smaller-diameter logs to keep prices down. An interview with one of the furniture makers confirmed this: he generally prefers to buy 16-20 diameter wood since wood larger than this was less cheap.

After more than a decade of struggle with Perhutani (Ministry of Forestry) seeking a more socially responsive policy for community forest land use, the situation is still risky. The community seeks to establish acceptable and secure guidelines for planting and harvesting on forest lands, inasmuch as the present sharing and management practice still results in much confusion and loss of face.

Case Study 2: Merang REDD Pilot Project¹⁵ (MRPP) in Sumatra

Indonesia leads globally in GHG emissions associated with the draining of peatlands (Olsen and Bishop 2009). In Sumatra, most of the island's forest and peat carbon are concentrated in the province of Riau. Riau also holds the highest deforestation rate in the island as plantations have increasingly replaced natural forests (WWF-Indonesia 2010). REDD is envisioned to protect and rehabilitate the remaining peat forests, while benefiting poor local communities in the process.

Peat swamp forest status and the MRPP

In South Sumatra, the Merang peat swamp forest area has been chosen as a site for a REDD pilot project.¹⁶ The project area covers the contiguous peat forest areas in Southern Sumatra, located near the Sembilang National Park (South Sumatra province) and Berbak National Park (Jambi province). Its forest cover and large below-ground carbon storage capacity remain relatively intact. However, these are threatened by legal and illegal logging, forest fires, digging of canals for transporting logs and expansion of plantations as developers look for new lands with lesser land tenure problems.

The MRPP project area covers 24,000 ha of peat swamp forest in Musi Banyuasin (MUBA) district, classified as limited production forest. When HPH forest concession operations in the peat swamp forests stopped in 2000, illegal logging activities took over. The local authorities have neither the capacity nor the will to stop illegal logging. The forest is now about 37 percent degraded primary forest and 63 percent secondary forest. In 2009, the MUBA district government passed two decrees approving the MRPP and establishing the Lalan Forest Management Unit (FMU) or *Kesatuan Pengelolaan Hutan Produksi* (KPHP) covering an area of 265,953 ha of various forest concessions and conservation areas.

The MRPP aims to protect and restore the Merang Kepayang peat swamp forest in South Sumatra, including its biodiversity, through its preparation for REDD implementation and a system of FMUs. The MRPP implementation from 2008–2011 is being supported by a grant (up to euro 1,433,454) from the

¹⁵ Case Study 2 is based on literature review. Sources of information include <http://www.merang-redd.org/REDD/komponen-mrpp/pengendalian-kebakaran-terpadu/community-development.html>; <http://www.merang-redd.org/REDD/home.html>;

¹⁶ The MRPP draws on the South Sumatra Forest Fire Management Project (SSFFMP) that the Indonesian government collaboratively implemented with the European Union in 2003-2008.

German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU). MoF is the executing agency, and District Forestry Agency of Musi Banyuasin and the Provincial Forestry Agency of South Sumatera are the implementing agencies in cooperation with GIZ in Indonesia. There are no communities within the project area; the villages nearest the Merang Kepayang peat swamp forest (Muara Merang and Kepayang in MUBA District) were chosen as the community partners for the project.

Merang and Kepayang villages: socio-economic situation

Muara Merang has a total land area of 16,912 ha and a total population in 2006 of 3,036, while Kepayang has a total land area of 13,288 ha and population of 1,207. The majority of the villagers are locals and the rest are migrants from other districts of South Sumatra and other provinces. Merang and Kepaya are poor, isolated villages. Educational levels of the people are very low, and access to health services is very limited. The people use rainwater and water from the river for their daily needs, exposing themselves to water-borne diseases. Income levels are also low. The people's main livelihood sources are small rubber or oil palm plantation holdings and temporary daily work at oil palm plantations. Daily labor rates range from IDR 32.000–40.000 (US\$ 3.3–4.4) per day, with 20–22 working days per month. Many villagers are expecting to benefit from a recent government regulation that allows registered households to be given two ha of oil palm plantation each by the companies adjoining their village.

Despite their low incomes, not many of the local villagers have been drawn to work as illegal logging laborers under the illegal logging mafia. However, some villagers, mostly migrant, are involved in illegal logging and others may be forced to participate in times of grave need (e.g., paying for health expenses).

Merang and Kepayang villages are hemmed in by oil palm plantations, timber estate concessions and state forest lands, which leaves little room for productive activities and which can easily trigger conflicts over land tenure. In response to the people's need for land for their livelihoods, the MoF issued about 7,250 ha of hutan desa or village forest concession to the Pancoran sub-village of Muara Merang in 2010. Another 6,000 ha of hutan desa concession is being considered for Kepayang village.

Community development component and establishing Community Forest Rangers

MRPP's community development component centers on establishing the Community Forest Rangers or *Kelompok Masyarakat Peduli Hutan* (KMPH), which is the project's main strategy for conserving, protecting and rehabilitating the peat swamp forest. The activities include: (i) improving awareness and promoting active community participation in the project; (2) establishing effective fire prevention and developing methods to mitigate illegal activities through the involvement of the local communities; and (iii) developing alternative income-generating activities to reduce dependence on illegal logging and to prevent fires. The KMPH will be mobilized and capacitated to participate in protecting the peat swamp forest forests from illegal logging and forest fires and in rehabilitating the forest area.

Each KMPH comprises 15 members. The CFRs' tasks include conducting fire patrols within the project area, and preventing and providing initial control of fire when these occur during the dry season; monitoring and reporting illegal log rafts that pass by CFR posts; and participating in MRPP field activities, e.g., canal blocking, survey on vegetation and degree of degradation, and carbon measurements. As part of capacity development, the project has been providing trainings (forestry techniques, agricultural technologies, basic fire management, nursery development and others), public awareness raising and strengthening of group organizational capacity. Institutional strengthening is being carried out in collaboration with local NGOs.

Economic incentives for the members of the KMPH include additional income from income-generating activities (IGAs) and access to village micro-finance service/savings and loan mechanisms. After IGAs are agreed upon during KMPH meetings, agriculture specialists conduct assessments of existing technology to identify the needed interventions. An ongoing IGA in two KMPH is on poultry raising. IGAs are intended to be scaled up or replicated by other villagers as alternatives to illegal logging.

In 2010, the project disbursed a subsidy of IDR 30 million each to 14 KMPH as their revolving capital for their savings and loan services. Under the agreement signed with MRPP, the KMPH members will use the fund for IGAs or other productive activities only—not for illegal logging and other illegal activities.

Challenges

The target buyers of the carbon capture and storage are voluntary and/or compliance markets and other investors with corporate social responsibility policies. Based on project plans, the FMU/MRPP will receive conditional payments for the environmental services to be obtained by the project. However, there is still no precise guideline on how the carbon payments will be shared, other than mentioning that the benefits would accrue to local communities for alternative livelihood generation and other activities. Transparency and communities' participation in fund management and project planning and implementation are critical to ensure fair benefit-sharing with the communities and broader impacts to improving their welfare—for the compensation of their labor as well as for investment in social services in the area and sustainable livelihood activities. The security of the KMPH members must also be ensured in case illegal logging monitoring and reporting will put their lives at risk.

Current MRPP funding ends in 2011 and other funding sources are needed to bridge the project from readiness to a developed REDD project. An assessment of the first phase of project planning and implementation on the community development component, KMPH being the main strategy for the peat swamp forest protection and rehabilitation, would be opportune to know the strengths and weaknesses of the project's approach and identify areas for improvement. Worth looking at is the effectiveness of the selection and capacity-building process. Illegal logging will be a big challenge for the project, and needs a detailed investigation on the operations and other ways of mobilizing community support against these activities and targeting their participation in the project.

Locally, the successful outcome of the MRPP in conserving and protecting the Merang and Kepaya peat swamp forests for environmental objectives and contribution to local communities' welfare rests in large part on the level of commitment of the MOF and the district government to support the initiative and keep the area off from plantation development. In 2006, the district head endorsed a decree recommending the conversion of 89,500 ha—the MoF approved only 67,000 ha—in Merang peat swamp forest into timber plantation by PT Rimba Hutani Mas. At the national level, the Indonesian government imposed a two-year suspension on all concessions for the conversion of peat and natural forests starting from January 2011, but this does not cover those that were already issued.

Outlook for poverty and the forestry sector

Indonesia has achieved its target for MDG 1 of halving extreme poverty before 2015 at the national level, but poverty reduction remains a challenge, as this target may not be achieved in poorer districts and since a significant proportion of the population is living just above the poverty line. The Second Medium Term Development Plan lists poverty reduction as one of the national government's top priorities for the period 2010–2014 and specifies attaining and sustaining high economic growth as the key to alleviating poverty (BAPPENAS 2010). Given this economic goal, the country's high forest cover and the international market opportunities for wood products, forests and forestlands are largely viewed as economic assets and sources of national income, which will determine priorities for forest resources development and will have critical implications on rural livelihoods and forests.

To what extent the forestry sector can contribute to further reducing the proportion of the population living below and just above the national poverty line of US\$ 1.50/capita/day in the immediate future will be largely determined by how initiatives and activities in community forestry, commercial and industrial forestry and PES and carbon payments support or enable some critical aspects of people's livelihoods, including secure tenure and access rights to forests and forest lands, sustainable resource base, secure employment with fair wages, better market access, capacity to add value to forest products, greater participation in forest management, and fair benefit-sharing. Since the end of the New Order,

community forestry schemes have been evolving in forestry policy which allows for some opportunities for the poor to derive benefits to some extent from the forestry sector. There are various schemes that allow local communities, including the poor, to have access to forest lands and enter into benefit-sharing with state and private companies, although broader implementation is slow. The improved system of forest revenue-sharing (royalties, reforestation fund) allows for more funds for local development and forest rehabilitation in areas affected by logging and plantations development, although to what extent the benefits will accrue to the poor depends on local capacity to access and allocate the fund for long-term development and reforestation.

Addressing issues on tenure and management rights for communities living in and around forests is among the key challenges to reducing rural poverty. With the value of forests still largely weighed in terms of commercial and market opportunities, community forestry will remain of lesser importance in forest management priorities. The forest policy and management framework's heavy orientation toward large-scale, capital-intensive commercial forest operations will continue to critically limit the potential for community forestry to be developed further and make significant contributions to poverty alleviation. Existing policies are not supportive of tenure reforms in the form of transferring ownership to the local communities or fully recognizing adat claims to customary forests. Policy reforms over the past decade are not genuinely addressing secure tenure of indigenous and local communities, but are more focused on benefit-sharing over the utilization of forest lands and resources. Private forests and outgrower schemes with fair benefit-sharing can benefit from the high market demand for wood and wood products.

International market trends and demand for wood and wood products is one of the key factors significantly affecting the forestry sector in Indonesia. The increasing global market demand for wood and related products, especially with the rapid economic growth in China and India, will continue to make considerable demands on Indonesia's natural forests, as state and private companies relying on forest clearing for their operations take advantage of the growing opportunities to supply the market demand. It is projected that the global demand for plywood, sawn timber, moulding and furniture will continue to rise (MoF 2006a). However, the wood processing industries in the country—plywood, veneer and block board, sawnwood—are likely to continue to face shortfalls in the wood supply until 2017 (MoF 2009). In turn, this high demand for tropical timber and wood products will define how forests will be allocated in the country, which means continuing priority placed on timber and plantations development.

The MoF's program of establishing nine million hectares of plantations for industrial wood in state forest zones by 2016 for Indonesia's pulp and paper industry is not likely to reach the target and contribute to local poverty reduction. Progress in establishing 60 percent of the total target through industrial community-based timber plantations in Sumatra and Kalimantan has not been proceeding as rapidly as expected owing to the unattractive economic benefits for local communities. On the other hand, progress in establishing traditional large-scale industrial plantations (40 percent) is being hindered by issues and conflicts between companies and local communities in many areas, i.e., over land claims and adequate compensation. Employment to be generated through the expansion of plantations can have minimal impacts to reducing poverty, considering the low labor demand of plantation development relative to local unemployment and the livelihoods that may be displaced and the lack of long-term security in employment in plantations development. Private forests will meet some of the demand for woods, ensuring markets and income for private forest owners but, with the development of sustainable timber supplies still unable to keep pace with the industry's demand, the expansion of the pulp industry would mean huge costs in terms of the natural forests and peatlands.

Certification may be less effective in checking illegally sourced products for China and India, because these rising markets do not have strict environmental standards. Likewise, oil palm plantations are one of the main causes of forest loss in Indonesia, and it is likely that additional land requirements will result in an acceleration of deforestation in the country (WG-CCD 2007).

With the forestry crisis, a number of Indonesian timber companies have collapsed or are facing severe pressure because of economic difficulties and "adverse publicity due to social and environmental

problems caused by the industry performance” (Eriantono 2010). Further, plywood, panelwood and pulp and paper industries are beset by shortages of raw materials and a negative public image in relation to the exploitation of natural forests (Ibid.). The forestry crisis will continue to threaten some forest industries, which will lead to loss of a number of jobs, as affected companies, both large- and small-scale, end or scale down their operations. As legal uncertainties and confusion are not being decisively dealt with, vertical and horizontal conflicts will persist, causing problems for the companies and significant delays in the development of vast areas of forest lands. Logging and plantation companies can no longer easily ignore the environmental costs of their operations. Broadened space for local people’s voices, participation by civil society organizations, networking at the local, national and international levels, social and environmental safeguards of international financial institutions will continue to exert pressure on large-scale companies and the government to address social and environmental values and not just the aspects of economic gains from forest exploitation and technical management. Depending on the commitment of the companies to plan and implement appropriate community development activities with the local communities to reduce corporate risks and the capacity of local communities to effectively negotiate with companies and equitably share the benefits, improved partnerships can lead to better community development programs and profitable outgrower schemes that will contribute to improving local livelihoods and social services as well as reducing risks to plantations and processing operations for the companies.

PES schemes have the potential of accruing benefits for poor communities in and near forests, but the markets and the policy framework have yet to be established. The market for landscape beauty (mainly tourists) seems to have made the most progress, but biodiversity protection and eco-tourism are not always compatible. Markets for watershed protection are newly evolving, on the perception that the forests are good for water and the people are willing to pay for this service, though the scientific connection between land-use and water has not been completely established (Suyanto et al. 2005). Indonesia has high potential to benefit from the REDD market, given its high deforestation rate and vast forest areas, but actual impacts to rural poverty alleviation are yet uncertain.

As expressed by President Yudoyono, the emerging carbon market provides an opportunity to develop a new sector in the economy—“through ecosystem restoration concessions for carbon sequestration and emission reduction”.¹⁷ REDD plus will be significantly affecting the forestry policies in the immediate years ahead, which will have positive or negative implications for the rights of local communities depending on the extent of recognition of their FPIC and other rights by REDD-plus project developers and their participation in the project development and implementation. The two-year moratorium adopted in May 2011 on the issuance of new permits for the use of primary natural forests and peatlands to reduce emissions from deforestation and degradation as part of the country’s REDD agreement with Norway may impact the local communities negatively because it does not include the exemptions for the “multiple types of use or management rights that can be issued to communities, even though community based forest management and monitoring has been recognized as an effective strategy for achieving sustainable forest management and balancing economic, social, and environmental development goals” (Gingold and Stolle 2011). PES schemes and REDD plus activities that will primarily focus on protection to the economic displacement of the poor will further lead to rural poverty.

Recommendations

Reversing the trend of unsustainable forest management, inequitable allocation of forest land and resources and inequitable distribution of benefits from forests will be critical for achieving the poverty reduction target beyond MDG 1, particularly alleviating rural poverty in and near forest areas. For many, forest lands and resources are critical resource bases for the livelihoods of the poor, and safety nets or “gap fillers” during hard times. Harnessing forestry to lift the poor out of poverty will require

¹⁷ Speech delivered by President S.B. Yudoyono during the conference, “Forests Indonesia: Alternative futures to meet demands for food, fibre, fuel and REDD+”, held on 27 September 2011 organized by CIFOR.

serious measures to strengthen the poverty alleviation agenda in forest management. The reforms needed can benefit from numerous assessments and analysis of the forestry industry in Indonesia and the recommendations for improving current conditions. Ultimately, there is a need for the national government to give more priority to the goal of poverty reduction in forest management, in consideration of the goals of forest and biodiversity conservation, protection of environmental services and economic productivity, if the forestry sector is to contribute more to the welfare of the rural poor. Efforts of the forestry sector to alleviate rural poverty needs to be coordinated or integrated with social development programs to attain greater impact.

Improving community forestry implementation

The goal of empowering communities recently included in the strategic priorities of the MoF needs to be translated into specific actions. MoF should take the lead in carrying out the specific activities laid out in the Forestry Long Term Plan with reference to increasing communities' role in sustainable forest management and improving the welfare of communities in and around forests. Pertinent and practical actions are needed in the areas of more secure tenure (which is fundamental to the livelihoods of the poor) and increased participation in forest management, equitable benefit-sharing and conflict resolution.

There is a need to increase community participation and capacity in the management of forests and/or forest lands through community forestry schemes that grant clear communities' rights to manage the forest resources area or forest lands with fair benefit-sharing. Various CBFM schemes have been evolved and it would be useful to review their effectiveness to craft a comprehensive and integrated community forestry program that will offer schemes appropriate to local conditions. Consistent with the rights-based approach of the SNPK, CBFM schemes must endeavor toward greater recognition of the rights of indigenous peoples and local communities to forest resources toward addressing their poverty situation. As has been raised, tenure reforms that will include the allocation of land to the communities beyond agreements with local communities on access to forest lands and benefit-sharing (Fey 2007) and reduction of the level of corporate control of the forestry sector form the far-reaching options to take (Wollenberg 2004). The identification and recognition of customary claims on land and forest management rights of indigenous peoples, which have long been raised, need a specific law beyond general provisions in the Revised Forestry Law of 1999. Beyond tenure reform, further support is also needed for the marketing of forest products as well as capacity building and access to funding support for the farmers to add value to their raw products.

Working with available CBFM schemes, CBFM schemes in forest lands must secure increased benefits for people working in the forestry sector through establishing an equitable and transparent profit-sharing system between the government, private companies and local communities involved, improving access to micro-credit, developing alternative income-generating sources, improving infrastructure and facilitating technical and information services. Promoting SMEs, one of the strategies for revitalizing the forest industry and one of the strategies of RJPMN 2010-2014, can allow local communities to participate more in forestry development, with specific measures to ensure that benefits accrue to the poor. As proposed in the Forestry Long Term Plan, the area of independent and sustainable private forests should be increased to support the forests' contribution to community livelihoods. This will involve recognizing forest management rights on lands with traditional management rights, improving local people's capacity to be involved in forest management from planning to the management stage, developing community forestry industries, such as small-scale industries, and markets for community forestry products, and developing policies that support the growth of community forestry businesses aimed at creating an enabling business climate for community forestry. Small- and medium-scale enterprises that rely on community forests have great potential to absorb labor and increase the income of local people living in and near forests and thus make a direct contribution to the poverty eradication.

Policy inconsistencies and uncertainties need to be addressed, and innovative and acceptable mechanisms for the resolution of conflict related to forest management need to be established for communities to be able to participate in sustained forest management and obtain lasting benefits.

Increasing the benefits from large-scale commercial and industrial forestry and ensuring their operations do not exacerbate poverty

In view of the negative impacts of timber concessions and industrial plantations to local communities' livelihoods and, at best, their minimal contribution to rural poverty alleviation in terms of local employment creation and social services, there is a need to increase the benefits that local communities can derive from large-scale corporate operations and ensure that their operations do not worsen poverty of the affected communities.

There is a need to develop incentives to encourage state-owned and private companies to adopt voluntary commitments to undertake activities that are socially responsible and environmentally sound, including fair terms of employment, fair wages and benefits for the workers. Strategies that incorporate poverty alleviation include making more lands available for community-company partnerships for outgrower schemes and ensuring fair benefit-sharing, as well as planning community development programs with local communities that are economically profitable and are addressing social development needs so as to re-invest forestry revenue in long-term social and economic development in the affected areas. Establishing grievance and monitoring mechanisms involving local governments, local communities and civil society organizations with channels of communication with national government will help address local conflicts for the mutual benefit of both companies and local communities.

Making payments for environmental services and carbon payments accrue to the local communities

For PES and carbon payments to contribute to the welfare of the poor living in and near the forests, related initiatives and activities must start from a recognition of the rights of indigenous peoples to FPIC as well as the rights of local communities to the forests, and allow greater community participation in the planning, implementation and monitoring of the projects, including fund management. Strategies for the protection of environmental services must not displace economic activities of local communities, but provide support for the rebuilding of the resource base for local livelihood and environmental services values, as well as provide viable alternative livelihood activities. There is a need for transparency and greater accountability in the management of the funds from the PES or carbon payments with clear agreements to ensure that more benefits will accrue to local communities and not to mediating parties. Participation must look into better targeting of the participants to involve the community members who are most in need and to ensure equity in benefit-sharing.

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