

The image shows a vast, misty landscape of a forested valley. The foreground is filled with tall, slender pine trees with dark green needles. The middle ground shows a dense forest of smaller trees, and the background is a hazy, green-toned valley with rolling hills. The overall color palette is a monochromatic green, with varying shades from dark forest green to light, misty green. The text is overlaid in the lower right quadrant.

Asian Forests:  
Working for People and Nature

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## Preface

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Asia, although extremely diverse, is the world's most populated region, and has become a leading economic powerhouse. The future of the world's natural resources, including forests, will be decided in large part in Asia because the region imports a major portion of the resources it consumes.

This brief, *Asian Forests: Working for People and Nature*, argues that Asian forests today have a huge potential to contribute to people and nature in the region. The brief highlights key concerns and presents recommendations on how to more fully optimize the opportunities of forests today better than in the past. Acknowledging the problems is a part of the solution.

Preparation of this brief was a joint effort of IUFRO's Special Project on World Forests, Society and Environment (IUFRO-WFSE), the Food and Agriculture Organization of the United Nations (FAO), and RECOFTC — The Center for People and Forests. This publication is part of the series of policy briefs

produced by IUFRO-WFSE on major regions of the world (Europe, Latin America and Sub-Saharan Africa 2005–2009). The brief has benefited from substantial inputs derived from the Asia-Pacific Forestry Sector Outlook Study, coordinated by FAO, under the auspices of the Asia-Pacific Forestry Commission. RECOFTC contributed specific inputs related to community forestry and devolved forest management.

The expertise of nearly 20 persons working in different fields of Asian forestry, acting in their personal capacity, developed the basis for this text through in-depth discussions during a technical meeting convened in Bangkok, Thailand, in July 2010. The draft manuscript was then reviewed by several specialists and experts on Asian forestry.

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## New emerging opportunities

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The multiple benefits of Asian forests have been acknowledged for decades. However, effective realization of these benefits has not been fulfilled, leading to the questions:

Why have the potential contributions of Asian forests not been maximized for the full benefits of people and the natural environment? What can be done now that was overlooked in the past?

Forests are now central to the global agenda. In this context local and global needs highlight the values of Asia's forests, presenting a unique opportunity for their critical role in addressing societies' concerns. Civil society, decision- and policy-makers as well as private–public sectors should be alerted that the need to optimize the multiple benefits of forests is greater than ever before.

The emerging opportunities and incentives for forests in Asia to make a more rewarding and greener difference in the future include:

- Payments through carbon finance mechanisms for climate change mitigation and Reducing Emissions from Deforestation and forest Degradation (REDD);
- New mechanisms, such as REDD+, offer opportunities for improving governance in and beyond the forestry sector and for providing incentives for moving towards a green, low-carbon economy;
- Incentives for biodiversity conservation and resource stewardship through payments for environmental services (PES);
- Increasing recognition that large, biologically diverse forests buffer climate change impacts;

- Enhancing spiritual value and scenic beauty; burgeoning demand for recreation and ecotourism can provide income and incentives for forest conservation and landscape management;
- Integration of national supply chains with their global counterparts, accompanied by liberalization of investments and trade; supported by the rapid expansion of foreign direct investment (FDI) in forest enterprises;
- Forest Law Enforcement and Governance (FLEG) mechanisms, market access and sustainable forest management (SFM) are increasingly becoming prerequisites for access to key international markets;
- Institutional investors' interest in the region's forests to diversify their portfolios and hedge against short-term or cyclical risks;
- More Asian middle-income consumers are diversifying regional and domestic demand for forest products and different ecosystem services;
- Alliances between forest industries and smallholders are ensuring supply for wood processors. This provides an opportunity for millions of marginalized farmers to generate additional income; and
- Greater willingness among Asian governments to consider increased stakeholder participation as an essential component to promote SFM.

These and other yet-to-be explored opportunities renew hope for Asia's forests; to make best use of these multiple benefits we must

**Unleash the potential of Asia's forests!**

## Key messages

Emerging incentives are creating huge potential to capitalize on the multiple benefits of Asia's forests. To make the most of these opportunities two mutually reinforcing and integrated conditions must be in place:

- (1) an enabling environment, and
- (2) better management of human and natural resources.

Ensuring that the benefits from forests reach people is a key element of success. Unless people derive real and tangible benefits from forests, the services they offer for people and nature will not be realized.

Enhanced coordination and cooperation with other economic and land-use sectors is essential. The forestry sector alone cannot take full advantage of the opportunities as forests are closely linked to other economic and land-use sectors. The potential solutions that forests now offer to global and local societies suggest that forestry can no longer operate in isolation, in other words forestry must work with and across other sectors.

### Box 1. Trees outside forests

In many Asian countries, industrial production relies on trees produced outside forests. For example in India, farmers supply wood to 600 veneer mills in Haryana and adjoining states, with 300 mills in the town of Yamunanagar alone. In Thailand, contract tree farming is vital for major paper and pulp producers; the three largest firms have more than 230 000 hectares of eucalypt plantations under this system. Contract farming creates new jobs, contributes to the development of industrial and handicraft sectors and establishes new markets.

Trees outside forests satisfy a wide range of household livelihood needs. They supply crucial products, such as fruits, seeds, nuts and fodder as well as non-food items such as medicinal products. Similar to forest ecosystems, they enhance environmental quality by reducing erosion, maintaining soil fertility, conserving ecosystems and providing shade.

Jukka Tissari, UPM



**Photo 1.** While some people regard demands for legal and sustainable forest products by various exporting countries and forest industry representatives as a novel non-tariff barrier, others have embraced the Due Diligence legislation of the European Union, the Voluntary Partnership Agreements (VPA) under the Forest Law Enforcement and Governance and Trade (FLEGT) programmes and the amendment of the Lacey Act in the United States. Some stakeholders perceive these mechanisms as essential tools for maintaining access to key high value markets in Europe and maintaining a competitive edge as demand for legally verified and sustainable timber products continues to grow.

## Chapter I – Forests and people in Asia

### Asian forests

Asian forests cover 549 million hectares, accounting for nearly 14 percent of the global forest area. However, their distribution in the region is uneven: China, Indonesia and India have about half of this area. Asia’s forests encompass a wide array of ecosystems including tropical and temperate forests, mangroves, montane and arid forests. The region also has some 200 million hectares of other wooded land, including scrubland and areas with limited tree cover.

At the aggregate level, there has been a positive trend in forest area increase since 2000: the increase over the last two decades is primarily due to large-scale afforestation in China and Viet Nam. China alone has accounted for 80 percent of the regional expansion of planted forests in the last five years. Elsewhere, particularly in Southeast Asia where the highest levels of biodiversity are found, deforestation rates remain high. At the same time improper logging and illegal practices contribute to the degradation of natural forest areas. Degradation often precedes deforestation.

Population pressure on Asian forests is heavier than in any other global region; forest area – including both plantations and natural forests – amounts to only 0.15 hectares per capita. As plantations replace natural forests, forest capacity to provide all the products and the wide array of ecosystem services of natural forests is reduced.

As tropical hardwood supplies continue to dwindle, expanding improved management practices will be critical to maintaining biodiversity and enhancing local livelihoods in and around existing natural production forests as well as reducing the region’s CO<sub>2</sub> emission levels.

Several countries have opted for partial or total bans on wood production from natural forests, often triggered by natural calamities such as floods and landslides and pay more attention to the importance of forests with high conservation value.

The management of degraded natural forests is technically and economically more challenging, thus wood production in the region has shifted towards planted forests. Reduced dependence on domestic natural forests for wood production is also attributable to diversification of income sources, forests becoming relatively less important in national economies, increased scope for wood imports at relatively lower prices and increased recycling of fibre for pulp and paper industries.

### People and economies in Asia

Asia is widely hailed as an economic success story and a major driver for powering global growth over the last two decades. The speed of economic growth in the region’s developing countries has surpassed global growth rates for several years. The World Bank contends that Asia is the most preferred region for Foreign Direct Investments (FDI).

However, economic growth has widened the gap between the rich and the poor. Asian societies show wide discrepancies in people’s empowerment and income, as large groups of the population have been left out of the development process. It is estimated that

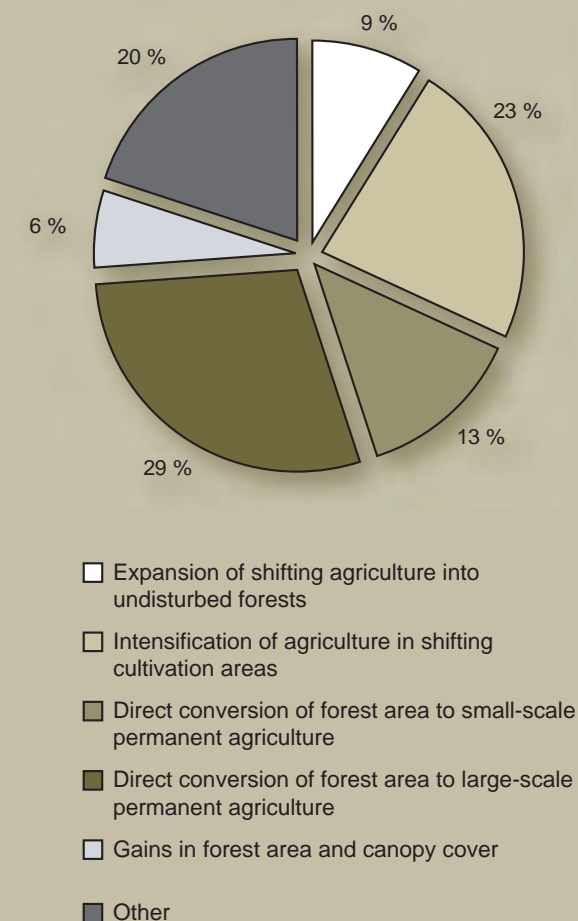
there are approximately 600 million poor people in the region living on less than US\$1 per day.

The forestry sector provides important employment, basic needs and ecosystem services to both rural and urban populations. The region’s urban population has increased fivefold since 1950. The United Nations projects that by 2025 Asia’s urban population will have increased by a further 670 million people from today’s figure of 1.8 billion; by 2025 urban dwellers in Asia will exceed the numbers of their rural counterparts. Rapid economic growth in urban areas is widening the rural–urban divide. With low incomes from agriculture, poverty reduction will remain a major challenge, especially in rural areas. Even in areas where forestry may not be able to lift people out of the poverty trap, it will be important for providing basic needs, especially for indigenous peoples and forest-dependent communities.

### Increasing demand and supply shifts for forest products and services

Essential demand drivers for industrial forest products – and increasingly for services – in most Asian countries are rapid expansion of the middle class and urbanization. The number of people likely to move into middle-income categories in the next two decades may reach 1 billion individuals in China and India alone.

Commercial forestry in Asia has traditionally targeted exports, but with the boom in consumerism, domestic and regional demand creates lucrative markets. For instance in India, education has received an increased budget allocation with more emphasis on school enrolment and better



**Figure 1.** Direct causes of forest area changes in Asia are due to intensification of agriculture and land acquisition for food and agrofuel crops, real estate developers, expanding infrastructure and mining activities, and less for encroachment into forests by landless farmers.

**Box 2. Water consumption and urbanization: changing diets and industry**

Almost 90 percent of individual water requirements is needed for food production. In China, per capita water requirements for animal products have increased by about 3.3 percent per year since 1996, following a shift in dietary trend towards animal products, particularly meat.

About 60 percent of China's 669 major cities are impacted by water scarcity, with 110 facing serious water shortages. Beijing is facing massive shortages of fresh water, partly because industries recycle only 20 to 30 percent of the water they use for production.

In most modern production facilities it takes 10 litres of water to make one sheet of A4 paper: 20 percent is water for processing purposes and 80 percent is water used to grow trees. In China and India water consumption can be ten times higher than this.

**Photo 3.** It is estimated that almost 75 percent of the wood produced in Asia is burned for fuel by households and small-scale enterprises. In South Asia, fuelwood accounts for 93 percent of total wood production, while in Southeast Asia, its share in total wood production is 72 percent. Subsistence consumption is high and alternative fuels are not commonly available at affordable prices.



**Photo 2.** Most of the world's population growth in coming decades will be in towns and cities, predominantly in the developing world. By 2025, out of the projected 27 megacities with over 10 million people, 15 will be located in Asia.



education, thus demand for paper is increasing. The recent boom in infrastructure development and housing construction will also require substantial inputs of wood products.

However it is not only the regional demand and supply that is determining the fate of Asia's forests, but the future is paralleled by global economic and environmental concerns. Wood production in Asian natural forests is being substituted by imports from the Russian Far East and by plantation timber from countries such as New Zealand, Australia, Chile and Southern Africa. Regional demand may outstrip increases in supply, with possible localized shortages of timber, leading to more imported forest products being processed in the region.

China has surpassed the United States as the world's largest pulp and paper consumer. For Asia's pulp and paper industry, an important fibre source will be recycled paper, imported pulp and pulpwood, in addition to fast-growing domestic pulpwood and non-wood fibres from annual plants and bamboo.

### Box 3. Inadequate coordination creating local conflict in Cambodia

In mid-August 2008, poor coordination among different government departments in Cambodia led the same area to be allocated as both a community forest and an economic land concession, triggering conflict between villagers of the Kbal Damrei Commune and the Sun Kuy Ty Company. The Kbal Damrei Commune perceived that it had management rights, given its de facto management of the land and its application for a community forest. Due to strong support from both the Forestry Administra-

While Asia will remain active in international fibre and roundwood trade to meet its growing industrial demand, more intensive management of all types of forests, specifically increasing plantation productivity, is needed to secure total timber supply.

At the same time rebuilding the domestic natural resource base, as well as conservation of existing resources will remain a high priority. Clear trends can be seen in increasing demand for amenity services, such as recreation and ecotourism, in addition to ecosystem services for water, clean air, erosion control and enhancement of soil fertility. Some benefits from ecosystem services are captured for immediate use but most of the benefits will accrue for future generations. Increased attention being given to ecosystem services indicates that society has developed better understanding of forest roles beyond timber production and the necessity to restore their protective functions. This is likely to affect forest management in the region significantly in coming years.

tion and their Commune Council, villagers believed that their management rights were in the process of being formalized; under Cambodia's Land Law, Article 23, their rights were already officially protected.

Nonetheless, the Provincial Governor of Kratie Province, who was either unaware of the community's application for a community forest or ignored it, granted the Sun Kuy Ty Company a 999-hectare economic land concession, vested with strong rights.

Inadequate coordination in land-use planning is common in Cambodia and other countries of the region, and is a primary cause of local conflicts.

## Chapter II – Creating an enabling environment to seize opportunities

A supportive and enabling environment must be created to make optimal use of the emerging opportunities that forests afford to people and the natural environment. Emphasis on developing physical infrastructure, such as transport and communication, while important, has proved to be insufficient. An enabling environment also includes diverse social structures and institutions of power and decision-making at all levels; this is reflected in clear and strong rights, good governance and fair benefit sharing.

In Asia, regulatory frameworks related to forest use and management are often ambiguous and weak. Many procedures are excessively complex and laborious. National forest policies and legislation are often outdated and incongruent with realities. The mismatch between policy and practice is an acute problem that also threatens the natural resource base.

Concomitantly there is the persistent problem of weak governance. Although moving towards decentralization and devolution is currently a trend, the state has largely maintained its power in forestry. A sensitive issue that needs serious attention is corruption. Poor governance and weaknesses in judicial systems also increase investment risks and weaken investor protection, for both large- and small-scale investors in tree planting or informal sector enterprises.

### Improved land-use planning

Land competition is a serious issue in Asia. More land is needed for agriculture to address global food security. Unless new methods for food production are developed, or dramatic improvements are made in the productivity of current agricultural systems, more land will have to be brought under food cultivation. Even where forests have been designated permanently for production or protection, they are often lost to economic land concessions, mining activities, or infrastructure and housing development. Large areas are needed for agrofuel and commercial agricultural crops such as oil-palm, rubber and coffee. Recent attention to the importance of forests and forest land use as either carbon sinks or potential sources of greenhouse gas (GHG) emissions needs to be considered within these contexts.

Competition over land tends to be more intense in areas with high local populations and subsistence needs or favourable natural conditions that attract investors and land developers. Where local populations lack statutory land rights, or where existing land rights are not protected, land-use conflicts are common. This occurs throughout the region, although some countries are affected more than others: for example in Indonesia, between 12 and 20 million people are estimated to be affected by forest conflict.

- Relating to land use, policies and legislation should abandon narrow sectoral approaches with clear distinctions between sectors. Integrated multisectoral land-use planning will be needed for sustainable landscapes to meet human and environmental needs.

- Successful land-use planning and established trade-offs between competing land uses require quantified long- and short-term costs and benefits, calculated for different land-use options. To maintain and enhance local ecosystem services needs fundamental understanding of the ecological interrelations of landscape units.
- Maintaining a balance between agriculture and forestry has become increasingly difficult due to rising farmland prices. Where land productivity is high, forests will come under increasing pressure for possible conversion to more lucrative crops including oil-palm and other cash crops, often for export.
- Where forest conversion is inevitable, forest land-use changes must be planned carefully with all relevant stakeholders and economic sectors to minimize adverse environmental impacts and to ensure that land conversion has a positive impact in the long term.

### Tenure reform

Tenure and/or the establishment of long-term user and management rights over land or forest provide opportunities for local communities or households to generate stable income; they may also be incentives for better resource management. Secure rights create a level playing field for all stakeholders and motivation for building a sustainable future.

In recent decades, tenure reforms and community involvement in forest management and governance through schemes such as forest land allocation,

**Photo 4.** Land use and land-use management are often transboundary issues. For example haze from wild-fires, wildlife enforcement networks and shared ecological corridors present transboundary challenges in the region. Shared ecosystem and water resources have become contentious in areas such as the Mekong River Basin and the Bay of Bengal.

joint forest management, co-management, community/social forestry and regional forest agreements have been a major policy shift in almost all Asian countries.

- Tenure reform offers a good opportunity for local people to benefit from forest management; however it has tended to bestow weak, ambiguous and short-term rights.
- Forests selected for allocation should still be of sufficiently good quality to ensure tangible benefits. For sustainable forest use and management, tangible benefits need to be comparable to benefits from alternative land use.
- Policies that support tenure reform are implemented and enforced inadequately due to weak governance at all levels. In some cases, tenure reform policies are weaker than other land-use determining policies, for example those concerning plantation development or mining.
- Many communities have been given fewer rights than responsibilities to manage forest resources. In



Sompone Bouasavanh

many cases, their rights cannot be fully exercised as they are constrained by regulations, high taxes and levies that reduce the potential benefits – this sometimes leads to conflict.

### Public sector reform

People and social structures shape governance. Within a good governance system, it is necessary to understand the economic, social and socio-economic structures and ongoing changes in society. The

demand for more societal transparency warrants less paternalistic forest authority and oversight.

The rapid social and ecological changes that are currently taking place pose a critical challenge to forestry public sector agencies and institutions. The increasing focus on issues such as forest rehabilitation, devolution and climate change mitigation requires a change in the roles of forestry institutions. Forestry institutions can no longer be solely dominated by a particular actor such as a government agency. The roles of government agencies will need to be redefined and representation in institutions re-examined.



#### Box 4. Comparing company–smallholder partnerships in Indonesia and Viet Nam

Company–smallholder partnerships, also referred to as outgrower schemes, promote small-scale tree planting to increase forest cover, increase the supply of plantation timber and create income.

In Indonesia partnerships have been seen essential to strengthen smallholder plantation development, and often emerged because of frequent conflicts between local communities and large-scale forestry companies. Pulp and paper companies do not really need smallholders – as their own plantations provide the needed raw material – and have been forced to accommodate the socio-cultural idiosyncrasies of diverse local communities, with their legal and/or customary rights to land.

In contrast to Indonesia, company–smallholder partnerships in Viet Nam are considered to be more of a tool to promote household economic development rather than a social goal per se. Due to their landholdings and tenure security, Vietnamese farmers have a stronger bargaining position and enter partnerships willingly. Since 1997 approximately 1.9 million hectares of forest land have been allocated to smallholder farmers; this empowers them to act more independently and be more profit-oriented than their Indonesian counterparts.

While in Indonesia, smallholders often see partnerships with companies as the main source of investment for developing their plantations, in Viet Nam 74 percent of the tree-planting enterprises are self-financed. Thus, in Viet Nam, partnerships seem to be based more on a business relationship where the company provides market access and smallholders provide the raw material for industry. Such a relationship, where clear profits are obtained by both parties, is a basic condition for successful partnership.

However, these cases highlight that secure land tenure by itself is not sufficient to promote small-scale tree growing. In Viet Nam, tree planting took off only when a market became accessible.

- Forestry institutions will require more pluralistic structures and processes to better reflect societal diversity and demands. Likewise, the roles of other stakeholders such as civil society organizations, research institutions and the private sector need to be assessed and incorporated in governance systems. The role of non-government institutions in general is increasing although in many countries their roles are still relatively minor.
- Voluntary and market-driven institutions, including timber and carbon certification organizations, are playing greater roles in forestry. New forestry-related climate change mitigation regimes such as REDD+ will need greater pluralism and inclusion if they are to deliver substantial reductions in forest loss and degradation as well as contributing to poverty reduction and income generation.

#### Box 5. The need for a socially and ecologically appropriate certification system for smallholders

Bamboo has traditionally been managed in mixed forestry systems by smallholders and commonly grown in homesteads; however there has been an increase in more intensively managed plantations in recent years. Currently China is the only country with Forest Stewardship Council (FSC) bamboo certification.

As of 2010, 48 000 hectares of bamboo forests, mainly large-scale and intensively managed plantations, were certified in China under the FSC scheme whilst 20 000 hectares suspended their certificates due to challenges in adhering to the principles and criteria. FSC bamboo certification has led to significant debate and division amongst industry experts in China and elsewhere.

India's pulp and paper industry is coming under increasing pressure to certify; at the same time many businesses want to raise the profile of bamboo pulp for its renewable qualities. However, studies in India in 2010 identified that the costs of certification would be prohibitive for bamboo

smallholders, even though only minor changes in management techniques would be required to reach necessary standards.

The FSC was originally created to ensure a legal and sustainable tropical timber supply chain from large-scale companies. FSC's Small and Low Intensively Managed Forests programme has not been sustainable, primarily due to the lack of market drivers, onerous administrative procedures and financial constraints. Although the scheme was broadened to include smallholders in 2006, third party auditing means the costs of certification outweigh the gains for smallholders. As bamboo is supplied mainly by smallholders and operates in timber markets that increasingly require certification, it is extremely challenging for the bamboo sector to certify sustainable practices using the FSC system. Moreover, bamboo management requires different approaches to silviculture.

Therefore a more equitable, socially beneficial and ecologically appropriate certification system needs to be developed to support the sustainable development of the industry that takes into account the needs of smallholders.

## RECOMMENDATIONS FOR CREATING AN ENABLING ENVIRONMENT

While there is adequate technical knowledge on approaches to SFM its implementation is constrained in many countries by weak policies and institutional arrangements. Disentangling bureaucratic and administrative functions and frictions that inhibit income generation and entrepreneurship in forestry and forest-based activities is a matter of urgency.

The forestry sector has yet to demonstrate strong leadership and political will to promote forestry development that is beneficial for people and nature.

- Reform should be strengthened to ensure people benefit from forest tenure. Coordinated and stable policy frameworks, enforceable rule of law, accountability and undistorted incentives among the economic sectors are prerequisites for an enabling environment for development.

- Harmonized trade-offs, also to meet long-term needs, can be identified only in close cooperation between and across sectors. Forestry, as well as any other sector, can no longer work in isolation and an integrated approach to land-use planning and management should be promoted.
- Public sector agencies and institutions need to be reformed to ensure flexibility, strategic management capacity, strong ‘sensory’ skills for proactivity and an institutional culture that responds to change.
- Formal access or rights to resources as such is not enough. Access must also be complemented by the necessary skills and capacities, capital and labour requirements to make full use of the resource as well as entry to markets.

## Chapter III – Better management of human and natural resources

Creating an enabling environment is essential, but cannot be expected to translate into changes on the ground without coordinated investments in field-level management. At the same time, policies that are not informed by field-level experiences and realities, seldom lead to the desired results. Equally, investments in management and capacity building of human resources are decisive to secure success in resource management. Success in productivity is increasingly important in view of diminishing resources and rising labour costs.

Beyond basic education and skills, Asia’s growing population and the skew towards younger generations in many countries emphasize the need for environmental awareness. This could foster an ‘environmentally smarter’ next generation of consumers and decision-makers, as well as help to ensure that environmentally sustainable practices succeed.

- Decent work is an important and sustainable way to reduce poverty. Education, training and social capacities open up possibilities for new jobs in all sectors. Without decent jobs – whether in the formal or informal sectors – the rapidly expanding urban youth, if no future is in sight, may become socially excluded and may create political and social conflicts and unrest.

- Intensified management of land and natural resources is a central part of any country’s survival strategy in Asia. While increased agricultural productivity can benefit forests by reducing land-use competition, it also facilitates production of ecosystem services on remaining natural forests and planted forests.
- Social trends are reflections of changes in public opinions, perceptions and lifestyles. Natural resource management needs to be responsive to changing attitudes and values concerning forests and trees by changing societies and expanding urban population.

### Field-level management of natural resources

Many field-level activities that determine the future of forests and forestry are often overlooked in national and international discussions. Further, conflicting inter- and extra-sectoral policies often cause confusion in implementation at the field level.

Although national and international policy processes have a critical role in driving positive change, practical management aspects should not give way to single-issue goals. Policy goals as well as funding programmes should reflect and be closely linked with practical management realities. The present enthusiasm for climate change mitigation and adaptation and forest law enforcement and governance, although inspiring, often tends to overlook the importance of sound forest management practices, such as reduced impact logging (RIL), fire management, forest demarcation, collection of forest statistics and monitoring.

- Local management activities often benefit from regional or national activities, be they improved legislation, regional and national communication networks, information and communication campaigns, or monitoring schemes.
- In view of sustainable landscape-level management, in some locations the balance between plantations and halting the degradation of natural forests seems to be rapidly disintegrating.
- Investing in field-level management of forests is necessary: re-investment mechanisms for securing proceeds from harvested forest products back to the resource base are largely missing.
- Clear demarcation of permanent forest areas is an important first step for many countries in Asia. However, demarcation of high conservation value forests and protected areas, in particular, is challenging under threats from population pressure, domestic migration and land-grabbing.

#### Box 6. Protected area policy in Thailand: demarcation as a driver of conflict

Forest management policy has shifted dramatically in Thailand over the past 30 years, moving from a focus on timber concessions to a focus on protected area establishment. Following the 1961 National Park Law and a 1989 ban on all logging, the Thai Government set a 1994 target for 25 percent of all land to be designated as protected. To date, 108 national parks have already been gazetted, 40 more are planned and as much as 80 percent of the land is under protection in some provinces.

In many cases, the land the state seeks to protect is already occupied. By the 1980s, 10 million people lived on national reserve forest and a more recent census found 460 000 households either living in protected areas or using resources from them. Through the National Park Law, people already using the land are deemed encroachers, subject to arrest or eviction, regardless of historical management. So while forest protection may have reduced deforestation while prioritizing protection over customary resource management, it has repeatedly led to conflict. Between 2002 and 2006, 89 percent of conflict over land in Thailand was driven by protected area policy.

#### Investment in science and technology

While resource constraints intensify, productivity increase becomes a key issue – be it in food security, energy generation or wood and fibre production. Science and technology can provide new knowledge and tools for strengthening human resources and overall better management of natural resources for the benefit of people and nature.

New science and technology tools such as GIS allow efficient forest monitoring and inventory, yet many of these technologies are not always implemented at the field level due to perceived high costs, poor planning, lax enforcement of regulations and resistance to change.

- There is a need for improved afforestation and reforestation methods to tackle degradation as well as methods to enhance and sustain ecosystem and amenity services in existing forests – both natural and planted forests.
- Innovative technologies are needed for productivity, material substitution and waste reduction in wood processing.



**Photo 5.** In a mixed rural landscape, a virtuous cycle is maintained by forests and trees that protect productive lands from erosion, maintain soil fertility and nutrient flows and purify and recycle water.

- Affordable energy paves the way to economic development. Advancement of new techniques in wood energy will put it among affordable alternative energy sources (solar, wind and biomass), although wood energy is not a solution in pockets with acute wood scarcity.
- Science has the task of foreseeing future changes in structures and functions of society and landscapes as well as keeping decision-makers well informed about possible or potential changes ahead.

### Investment in human resources

Asian people will continue to account for well over half of the world's population, providing both great potential and many complexities for the continent's future. Balancing between resource use and human development goals is a challenge requiring continued investment in human resources. The first requirement is solving the problems of poverty and disempowerment: fulfilling the basic human needs for food, shelter, health, education and rights is the first step towards sustainable development. Sustainability includes maintaining biodiversity in many parts of Asia with loss of forests exacerbated by rapid urbanization; forest-based cultures and languages are also threatened. Education, training and skills development will build robust societies and economies, providing decent work and social cohesion.

Unfortunately forest extraction and first-level processing provide mostly low-paying jobs with limited career prospects. Yet, forestry jobs require less capital and other inputs than jobs in other sectors such as information technology. Creating jobs in afforestation, reforestation and biodiversity conservation would enhance the national resource base in

rural areas and contribute to overall rural development. The enhanced resource base could also lead to new enterprises and infrastructure in wood product industries, biorefineries and, for example, aromatic oil extraction.

With growing urban populations there is a need for increased public awareness of the full range of opportunities offered by forests. With relevant public awareness and knowledge of the multiple benefits and sustainable use of forests, societal consensus would be an important driver for sound policies and effective policy implementation.

- Increased investment in forestry for strategic employment programmes and integration of these activities with rural development and national poverty alleviation programmes could help revitalize rural economies.
- Educating consumers on green, environmentally sound consumption requires new technologies and products – at a price reflecting the full costs of the products – so that real choices can be made between alternative or substituting products and in reducing waste.
- Specialist training in woodworking sciences, for example, has been replaced by more general curricula; many institutions are understaffed and partly idle. This situation is not inviting for recruits, new technologies, products or innovations.
- Social media and the Internet may prove the most efficient platforms for gauging consumers' preferences and in building awareness on forests' values. These media are currently championed by the critiques of forest utilization.

## RECOMMENDATIONS FOR BETTER MANAGEMENT OF HUMAN AND NATURAL RESOURCES

The basis for better resource management is to empower people to attach value to forests, to sustain their perpetual use for long-term benefits and to distribute the benefits fairly across the society. This is valid both locally and globally.

Better information dissemination and communication on forests across sectors to people and stakeholder groups are necessary cross-cutting tools to improve the appreciation of forests, forest products and people involved. Active communication will build up a positive public view on the role of forests and highlight forests and trees as potential incubators of undiscovered green products and services.

- Competition and more frequent conflicts over land and resource use will continue. Conflict management skills are badly lacking and collaborative management needs local-level training.

- Climate change dialogue, emissions and waste disposal problems have highlighted the importance of raw material and energy saving. Improved efficiency in raw material and energy use can only be reached through a concerted effort by consumers and industry alike.
- There is untapped potential for innovation in forestry-related sectors, specifically in the fringe areas of forestry, such as trees on farms, non-wood forest products, new wood-based chemical products and green energy.
- Innovations remain an important source of good management, growth and competitiveness. New approaches are needed to address competition over resources, unsustainable substitutes, increasing labour costs and new end-users. Social innovations are needed for sustainable management and resource use.

**Box 7. Addressing climate change will require political will, determination and courage.**

Changing temperature and precipitation patterns are already affecting forests throughout the world including those in Asia. However, the authors of this report believe that even greater irreversible threats to Asian forests over the next 10–20 years pose the concerns discussed here: weak governance and management of human and natural resources.

That said, nevertheless, it is clear that Asian forests should and must play an important role in addressing climate change for two main reasons: Deforestation and degradation contribute about 1/5 of the greenhouse gas emissions driving climate change. Halting deforestation and degradation through protection and improved management of standing forests (REDD+) is a key strategy to mitigate climate change and thus reduce the magnitude of long-term impacts on all sectors and for all people across the globe. Many aspects of REDD+ must be resolved to produce a fair, practical, and effective framework. However, given that there is significant donor interest – and already some commitment – and also that a large share of emissions in Asia come from

the forest sector, there is great potential for forests to contribute substantially to climate change mitigation.

Likewise, forests can make a substantial contribution to adaptation. Large, biologically diverse, and well-connected forests already provide resilience to climate variability and help reduce impacts of extreme events (e.g., mangroves protecting against storm surges). For the same reason, increased commitment to protection and sound management of natural forests can help maintain resilience to climate change impacts. In many parts of Asia, this commitment calls for concerted effort at many levels and must include increased coordination and collaboration across borders, agencies, and sectors.

Finally, if we want Asian forests to continue to contribute to climate change mitigation and adaptation, we must also help them adapt to the unavoidable impacts climate change will bring. Foresters must shift their view of climate as static, and of forest ecosystems as unchanging or possible to manage in the same way – despite shifting temperature and rainfall patterns and associated ecological changes. In short, foresters must learn to embrace not only the concurrent social changes but also uncertainty of ecosystem functions and start planning now to avoid catastrophic changes in the not so distant future.

**Photo 6.** Asia's pulp and paper industry consumes 26 percent less energy per tonne of end products, and 6 percent less energy per US dollar of value added earned of end products, than the world industry on average. An equally important measure is efficiency in using harvested wood and recycled fibre: Asia acquires 55 percent of its wood and fibre from sources outside of forests (recovered paper, trees outside forests, non-wood fibre, etc.)



Hannu Oinonen

**Box 8. Human Resource Development Fund in Malaysia**

There is a growing dependence by Malaysian woodworking and furniture industries on imported labour. Most workers in the timber industry receive on-the-job training. Consequently, the workforce can be characterized by its high mobility, and low skill retention. Labour productivity in the sector has been affected, which in turn has lowered the profitability of the industry as a whole.

In recognizing this problem, the government, through the Labour Ministry of Malaysia, established the Human

Resource Development Fund. All employers within the manufacturing sectors contribute a nominal amount towards this fund, and when their employees attend a training course, a portion of the fees is reimbursed by the fund. In this way, employers are encouraged to send their employees for skill enhancement.

The success of this fund in improving skill levels has been most encouraging and is a key reason why Malaysia is now regarded as an example of human resource development within the Asian region.

## Chapter IV – Moving Asian forests forward

Decisions taken on forests in Asia will have important repercussions on the fate of the world's forests well beyond the continent's own resource endowment. In spite of the complexities in Asian forests and their future uncertainties, there are key opportunities to make forests work for people and nature.

Increasing social and ecological vulnerability is encouraging Asian countries to shift to green pathways. To maximize benefits from Asian forests for people and nature, it is not necessary to abandon growth. A green- economy growth path emphasizes efficiency-enhancing alternatives, green energy and recycling of material, whether from consumption, forests or water.

Sustainable development calls for stable social and political environments that provide equal opportunities and remove inequities. Without political agreement over the position of forestry in national economies and firm plans for designation of areas according to needs and land capabilities, a foundation for investment in a sustainable future will remain underutilized.

To capture the full benefits of forests for people and nature, an enabling environment must be created to support sustainable landscapes with functional land use and good governance with due rights and institutions operating in collaboration rather than in



John Parrotta

frozen sectoral approaches. Better management and building up human capacities and maintaining natural resources are pivotal for such a vital shift. It is not only a question of what the forestry sector could do, but how broader society and the public sector should be involved. An enabling environment and sustainable management of human and natural resources calls for:

- Good communications and cooperation;
- Bringing forests to the attention of the general public;
- Raising the economic and political profile of the forests sector; and
- Leadership and political will to grasp the opportunities of today.

**Forestry cannot do it alone – the task is to work with and across other sectors.**

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