



# Report of APFNet's Workshop on Sustainable Forest Resource Management

(17-28 October 2011)

**Sponsored by:**

*Asia-Pacific Network for Sustainable Forest Management and  
Rehabilitation (APFNet)*

**Organized by:**

*Southwest Forestry University (SWFU)  
Yunnan Academy of Biodiversity (YAB)  
Yunnan Academy of Forestry (YAF)*

**October 2011  
Kunming, China**

# TABLE OF CONTENTS

<b>Acknowledgement</b>	1
<b>Preface</b>	2
<b>1 Introduction</b>	3
1.1 Objectives	3
1.2 Participants	3
<b>2. Training themes and key activities</b>	4
2.1 Training themes	4
2.2 Workshop materials	5
2.3 Speakers and facilitators	5
<b>3. Summary of topics and main activities</b>	5
3.1 Opening ceremony	5
3.2 Overview of topics	6
3.3 Group work	15
3.4 Field excursion	17
<b>4. Evaluation</b>	18
ANNEX 1: Workshop Schedule	19
<i>Part 1: Indoor session</i>	19
<i>Part 2: Field Trip</i>	20
ANNEX 2: List of Participants and Resource Persons	21

## Acknowledgements

The Asia-Pacific Network for Forest Rehabilitation and Sustainable Management (APFNet), the Southwest Forestry University (SWFU), the Yunnan Academy of Biodiversity (YAB) and the Yunnan Academy of Forestry (YAF) wish to express their heartfelt gratitude to all the people who contributed their time and efforts to make the workshop a success. Special thanks go to Professor Shen Lixin and his team for their dedication and valuable assistance throughout the classroom portion of the workshop and the field trip. We are also grateful to the officials of the county, the forestry bureau, and the communities for their support and willingness to share ideas and experiences during the visits onsite.

Last but not least, we would like to convey our sincere appreciation to the participants, whose support and insights were invaluable in our collective efforts to understand the importance of sustainable forest management and the need to overcome obstacles which hinder its achievement, including weak institutions and law enforcement capabilities. With the support of APFNet, we are looking forward to collectively pursuing our common goal to achieve a better future.

***APFNet***

***SWFU***

***YAB***

***YAF***

## Preface

The workshop on Sustainable Forest Resource Management, as an integral component of APFNet's capacity building program in the region, was held in Kunming City, P. R. China, from October 17 to 28, 2011. Participants consisted of fifteen senior officers from government and a national university. Southwest Forestry University (SWFU), the Yunnan Academy of Biodiversity (YAB) and the Yunnan Academy of Forestry (YAF) organized and implemented the session, with guidance and full funding from APFNet.

By means of presentations, case studies, field tours and interactive discussion among participants and invited speakers, the workshop provided a regional overview of sustainable forest management; highlighted efforts to improve forest governance and law enforcement; identified key issues related to sustainable forest management; and outlined concrete steps to improve current conditions. The venue also served as an effective forum for decision-makers and other experts to share experiences, practices, knowledge and lessons. Thanks to the concerted efforts of all participants, organizers and collaborators, objectives were met.

This workshop is part of APFNet's efforts to build regional capacity for sustainable forest management over the medium and long terms. This report summarizes the goals, themes, key activities, and outputs of the meeting. Recommendations on the design and planning of future training programs are also presented.

**APFNet**

October, 2011

## 1. Introduction

Although the concept of sustainable forest management is now more appreciated and better understood, achieving it involves overcoming many obstacles and challenges. In the last few decades, many economies have enacted supportive legislation, are strengthening institutional capacity to address issues, and are measuring progress as they move forward. However, good governance often remains elusive and enforcement of laws and regulations is weak.

As part of APFNet's series on forest resources management under its capacity building programme, outcomes of this workshop will pave the way for future research and case studies. Suggestions from participants and invited speakers on course design, training methods, and outputs, for example, are appreciated. APFNet will use this information to improve subsequent training initiatives.

### 1.1 Objectives

The workshop aimed to share best practices and highlight successful models that can be replicated more broadly. It also sought to identify key challenges and opportunities in the Asia-Pacific region with regard to strengthening forest policy and legal frameworks, taking stock of current efforts and lessons learned to date. Based on the exchange of views and experiences among participants, recommendations will be made to address issues of key concern.

### 1.2 Participants

Fifteen representatives (4 female and 11 male) from 14 developing economies participated in the session: Bangladesh, Brunei Darussalam, Fiji, Indonesia, Malaysia, Mongolia, Myanmar, Nepal, Papua New Guinea, Peru, Philippines, Sri Lanka, Thailand, and Viet Nam. Participants were selected according to APFNet application procedures after -focal points issued announcements of the event.

Most participants were senior officials from forestry departments, while one participant was affiliated with a national university (see Annex 2 for a detailed list).



## 2. Training themes and key activities

### 2.1 Training themes

The 12-day workshop was conducted in English and course modules combined classroom lectures, case studies, presentations from participants, discussion of issues in working groups and a field trip. Consistent with the objectives, lectures covered sustainable forest management in the region, including in terms of governance and law enforcement. An excursion to several sites provided the opportunity for participants to interact with local forest managers and community leaders.

#### *Thematic presentations*

In addition to the topics noted above, presentations, followed by discussion, were given on the challenges associated with achieving sustainable forest management; forest legislation and certification; market incentives to promote SFM; sustainable cultivation and utilization of bamboo; and SFM in Canada and China.

#### *Field excursion*



A 4-day field excursion to various points of interest in and around Pu'er City was organized to showcase forest management and agroforestry practices. Highlights included a visit to a mixed coffee and tea plantation, the Caiyanghe Nature Reserve, nurseries for reforestation and wetland aquatic plants, and a forest of short rotation species for industrial purposes. Participants also attended the official opening of a branch office of the Yunnan Academy of Forestry in the Forest Science Research Institute of Pu'er City. They later toured a nursery of herbal medicine plants, witnessed a site which was converted from cropland to plantations and orchards, and visited a service center which assists farmers to transfer forest property rights and complete other transactions.

#### *Interactive discussion among participants*

Each participant reported on the development and status of forest management in his or her economy, highlighting areas of particular interest. This sharing of experiences and practices provided yet another opportunity for participants to increase their knowledge. In addition, working groups identified major issues and weaknesses, along with action that should be taken to address them. As a final exercise, they completed an evaluation of the different aspects of the workshop and made recommendations on ways to improve future sessions.



## 2.2 Workshop materials

Upon arrival, participants were given copies of the reports and powerpoint presentations which were submitted to APFNet prior to the workshop. They also received an overview of the programme, including the schedule of presentations and field visits, a profile of the resource persons, the list of participants, and background on the workshop and Kunming City. Details of the excursion and sites to be visited were also provided.

## 2.3 Speakers and facilitators

Based on the topics to be covered during the workshop, the organizers selected speakers to present and facilitate the sessions. Experts came from Canada, Malaysia, the United Kingdom, the FLEGT Asia Program of the European Forest Institute, the Yunnan Academy of Forestry and the Yunnan Academy of Biodiversity and State Forestry Administration.

# 3. Summary of topics and main activities

## 3.1 Opening ceremony

Professor Yang Yuming, former Vice-President of Southwest Forestry University (SWFU) and President of the Yunnan Academy of Forestry and the Yunnan Academy of Biodiversity, chaired the opening ceremony and warmly welcomed participants to Kunming City.

Professor Chen Baokun, Chair of the University Affairs Committee, added his welcome to the forestry experts and resource persons. He indicated that Yunnan Province was a tourist destination, known for its unique climate, cultural diversity and rich flora and fauna. It leads the economy in terms of forest cover and, due to significant reforestation and afforestation, forest area is increasing. In fact, the sector is a major source of income in the region. As the only forestry university in southern China, SWFU takes advantage of Yunnan's natural environment to carry out extensive work in forest management and protection, biodiversity conservation and sustainable development. Outcomes of this research promote partnerships with other economies and international organizations and enhance efforts being made in southwest China. The APFNet workshops, co-hosted by SWFU and other institutes, also provide an effective means to increase understanding, friendship and collaboration with others. He added that such venues are critical for the development of forestry in the entire region.

In addition, Professor Chen Baokun noted that, at the opening ceremony of the 1st APEC meeting of Ministers Responsible for Forestry in Beijing in September this year, President Hu Jintao expressed





his enthusiasm for increasing cooperation with other Asia-Pacific economies on forestry issues. The President also stated his intention to continue promoting and supporting the work of APFNet.

In closing, he expressed his gratitude to APFNet, and the authorities of Pu'er City for their significant contributions to the planning and organization of the meeting. Finally, he wished participants a safe and enjoyable stay in Kunming City and successful deliberations.

Mr. QU Guilin, Executive -Director of APFNet, thanked SWFU, the Yunnan Academy of Forestry and the Yunnan Academy of Biodiversity for their valuable assistance in organizing and hosting this workshop. He noted that such meetings were an integral part of APFNet's mandate related to capacity-building and information exchange - two of the four pillars on which it is founded. The other two areas are policy dialogue and pilot projects. He hoped that this fifth workshop would generate innovative ideas on how to address forest management issues that have been with us for many years. He also stressed the importance of learning from past lessons and of seeking better ways to balance development with protection - the theme of the recent APEC ministerial meeting on forestry. APFNet, as a new entity in the region and the world, is striving to add value to current initiatives and to contribute in unique ways to the ongoing efforts of economies. He added that, although we have much to learn from each other, we should avoid duplicating the approaches of others in their entirety because each nation has its own set of particular conditions and circumstances. Mr. QU ended his comments by suggesting new and emerging areas of interest for the region and the sector: the multi-functions of forestry and urban forestry.



### **3.2 Overview of topics**

In addition to presentations from participants, the workshop covered the following topics: challenges in sustainable forest management; good forest law and bad forest law - sustainable forestry and certification; market incentives to promote sustainable forest resource management; sustainable forest management in Canada; sustainable cultivation and utilization of bamboo resources; and sustainable forest management in China - forest governance and legislation.

### ***Challenges in sustainable forest management***

Dr. Thang Hooi Chiew, retired Deputy Director General of the Forestry Department in Peninsular Malaysia, highlighted some of the major challenges facing the sector today: sustainable management, conservation, valuation, certification, enforcement and governance, and international commitments. He noted that, in 1992, the United Nations Conference on Environment and Development marked a turning point in the global forest policy dialogue as economies endorsed two legally binding instruments (Convention on Biological Diversity and UN Framework



Convention on Climate Change) and launched negotiations for a third (UN Convention to Combat Desertification). Along with the International Tropical Timber Agreement (ITTA) and voluntary measures, these instruments provide a comprehensive framework for the sustainable management of forest resources. However, key issues remain: deforestation, forest degradation, loss of biodiversity, equitable benefit sharing, productivity of forest land, weak forest industry, and insufficient capacity to effectively plan and implement programs.



Criteria and indicators are critical tools to monitor progress towards sustainable forest management, identify topics for research, highlight areas in special need of support, and provide data to help make informed decisions. In terms of the conversion of forest land to other uses, such choices must be made only after a thorough assessment of economic, social and ecological aspects has been carried out. Harvesting practices and the transportation of forest goods must also be environmentally friendly if production is to be sustainable. Similarly, the valuation of non-wood forest products - especially those not traded in the market place - must be taken into account, including their importance for subsistence, rural employment and income supplements. The integrated management of watersheds must also be given greater importance. For instance, incentives should be provided to restore degraded areas as a means to increase food production and compensation should be paid for services made available through sound resource management upstream.

The current debate on climate change has prompted the need to review silviculture practices so as to minimize the incidences of wildfires and the devastation they cause. It has also raised the importance of establishing plantations of long rotation species for carbon storage and for use in products that are designed to last - buildings and fine furniture, for example.

Although an estimated 50% of all vertebrates, 60% of all known plants species and possibly 90% of the world's species are found in tropical forests, it is unrealistic to set aside extensive parks and nature reserves in remote areas since they are not viable in the overall context of sustainable development. Therefore, it is not so much about halting deforestation but more about securing a representative sample of primary forests in strategic locations, establishing biological corridors to link them, and protecting keystone species in production forests. Issues surrounding patents and intellectual property rights also need to be resolved on an urgent basis, as does the lack of mechanisms to share benefits equitably. In addition, mangroves and coastal forest ecosystems warrant special attention, given the critical function they perform in supporting important life processes and in protecting coastlines against typhoons and sea surges.

With regard to resource valuation, monetary aspects do not provide sufficient incentive to ensure the sustainable use of forests. On the contrary, they encourage over consumption of forest products and lead to environmental degradation. In fact, if such costs were internalized, it would dispel the assumption that the environment is a free good. National policies and development projects should include the cost of forest depletion in national accounting systems and development processes. The value of all forest goods and services also needs to be accurately assessed, especially those not traded in the market place such as watershed protection, carbon sequestration and biodiversity conservation.

Timber certification is now used more as a trade instrument to promote legality and sustainable forest management than to address the loss of tropical forests, as was the case in the early 1980s. This expanded role creates the risk that forests which are not certified but are sustainably managed could face consumer discrimination. Although certification is expected to promote economic and social equity, many small farmers and producers are unable to access the capital, information and markets that such schemes are meant to offer. In addition, as certification confirms certain standards are met in a given forest at a given time, in reality, it is based on the assumption that sustainable management will be practiced throughout the rotation of the forest stand - an assumption which may be false. Therefore, government policies and legislation must ensure that forest owners are committed to long-term forest sustainability.

In terms of forest law enforcement and governance (FLEG), the World Bank estimates that illegal logging on public lands in developing economies causes loss in excess of US\$10 billion annually. Governments lose another US\$5 billion in evaded taxes and royalties on legal timber harvests. Illegal activities also threaten livelihoods of forest-dependent people, undermine the rule of law and erode institutions. They also distort global markets, subject legitimate forest enterprises to unfair competition through price-cutting and discourage responsible investment in sustainable forest management. To arrest illegal logging and associated trade, a number of economies in the Asia-Pacific region are working with the EA FLEG, the Asia Forest Partnership, and the EU FLEGT. To strengthen implementation, they should simplify forest laws and remove contradictions, inconsistencies and overlaps. Clarity will enhance compliance, reduce arbitrary interpretation, and increase consistent application by the bureaucracy and judiciary. Full public disclosure of key documents as well as conditions for awarding forest concessions and issuing licenses are also required to achieve greater transparency and accountability, reduce corruption and ensure fair enforcement.



In summary, environmental aspects must be an integral part of forest management if it is to be sustainable and if it is to provide social and economic benefits. Moreover, practices should be carried out at the landscape level in order to optimize the full range of forest values - an approach that requires a delicate balance in the allocation of land to meet society's ever changing demands for forest goods and services.

### ***Good forest law, bad forest law: sustainable forestry and certification***

Dr. Berty van Hensbergen explained the different types of law such as proscriptive (sets out what people cannot do) and prescriptive (sets out how things must be done). He gave examples of bad laws where government owns all forests and trees, including those on private property, or where all silviculture treatment is forbidden. Examples of good laws are those which call for replanting after harvesting and forbid clear felling in high conservation areas.

He then described the management cycle: set objectives, analyze the situation, make plans, take action and evaluate outcomes. He stated that, in general, the purpose of forests is to satisfy human needs through the provision of goods and services. In this regard, different needs require different

objectives for different people. For this reason, governance regimes must be put in place. Since no one stakeholder has a single goal, various strategic tools are used: governments develop policies, draft legislation, offer economic incentives and impose economic penalties; non-government organizations lobby to change government policies by mounting awareness campaigns (negative publicity) and influencing consumers to buy environmentally friendly products; and businesses use management techniques and public relations experts as part of their operations.

He then made the distinction between hard policy and soft policy, the former entailing a punishable offense and the latter involving persuasion instead of force to encourage certain behaviour. Because policy processes involve people, they require that many views be reconciled. They focus on changing direction rather than starting over, information is usually incomplete and unintended consequences are often poorly understood. Policy is developed either through a top-down or a bottom-up approach. The first way is fast but has no legitimacy because the people it affects are not involved. The second way is slow and costly but has stakeholder buy-in.

The Forest Stewardship Council (FSC) develops standards and policies through participation, an approach which can take 3-4 years before a decision is made. As an initial step, members must agree on what constitutes responsible forest management and must share a vision about the future of forests. Because all outcomes of deliberations are voluntary, so is compliance. Therefore, their influence is limited: they cannot change the behaviour of people who do not subscribe to them; they cannot



change national laws; they cannot deal with illegal activities because such operations are excluded from certification; and anti-corruption measures can only be taken in the case of certified sources. However, these voluntary standards have gained legitimacy through wide stakeholder acceptance, their national and international scope, their alignment with global priorities, and recognition by respected governments as part of procurement conditions. Although they are only part of the solution, the fact remains that voluntary certification is here to stay.

In terms of the road ahead, proponents must engage more on the formal political stage and become more proactive in changing bad forest law and bad forest policy. Current schemes offer benefits to governments through voluntary regulatory compliance systems and they should form a greater part of efforts to reduce forest-based poverty if they are to meet their own stated goals. What is needed is an integrated approach that consists of:

- a regulatory framework that allows access to forest-dependent people
- a management system that provides them a sustainable flow of resources
- a harvesting and processing system that maximizes the value of resources and minimizes value loss during production
- access to markets and market information
- a market system that pays a fair price based on the true cost of sustainable production.

Dr. van Hensbergen concluded his presentation by stating that, if any of these factors are absent,

interventions will not be effective.

### *Market incentives to promote sustainable forest resource management*



Dr. Chen Xiaoqian described key aspects of the Forest Law Enforcement, Governance and Trade (FLEGT) program to eliminate the trade of illegal timber in the European Union (EU) market. She stated that deforestation is still high at 13 million ha per year and that illegal activities are one of the drivers. Forest loss is responsible for half the emissions in developing economies and almost 20% globally. Moreover, illegal activities are responsible for US\$15 billion in lost revenue annually and an estimated 16% in depressed timber prices. The EU is one of the largest consumers of timber in the world, importing the equivalent of 180 million cubic meters in 2007, valued at US\$40 billion.

The FLEGT action plan (2003) focuses on seven areas:

- support to timber exporting economies
- activities to promote trade in legal timber, including development of voluntary partnership agreements (VPA) between the EU and exporting economies
- the promotion of public procurement policies
- support for private sector initiatives
- safeguards for financing and investment
- legislation to support the plan
- conflict timber.

A VPA is a legally binding instrument between the EU and an exporting economy, the aims of which are to ensure trade in legal timber only and improve governance. The agreements define legal timber based on laws specific to each sovereign jurisdiction, offer the means for stakeholders to discuss and reach consensus on forest rights, provide assurances that exported timber is legally produced, and address development objectives of partner governments, including poverty alleviation. One of the key elements is a legality assurance system which entails verifiable control of the supply chain, including imports, by a third party. It requires sufficient capacity and tools to safeguard verification, licensing by the national authority and independent monitoring.

The EU Timber Regulation 2010, not yet in force, prohibits placing illegally harvested timber and products in EU markets; calls for EU traders to exercise due diligence; and imposes penalties for offenses which may include fines, seizure of timber and suspension of the authorization to trade. Among other requirements, EU importers must know where the timber products originated and have sufficient information to know that exporters comply with legality stipulations, consistent with FLEGT requirements.

Amendments to the US Lacey Act which were passed in 2008 allow the US to prosecute suppliers



in foreign economies. Under these new provisions, buyers in the US must take due care to ensure the legality of products, i.e., pay attention to red flags such as prices below market, absence of documentation and cash transactions.

Issues associated with the implementation of FLEGT and of amendments to the Lacey Act include the need to determine legality in terms of each economy's specific laws; define what is meant by independent monitoring; develop VPAs for economies as huge as China and Russia; clarify the relationship between the EU Timber Regulations and VPAs; and complete new forms which call for information on the economy of harvest when products are mixed.

### *Sustainable forest management in Canada*

Ms. McConnell noted that Canada is divided into 10 provinces and 3 territories.

Provincial governments own and regulate the natural resources within their boundaries but, in the case of the territories, one has responsibility for the management of lands and all natural resources while the other two manage forests only. Each jurisdiction has strict rules governing forest practices on public land - regulations and laws that were recently cited by an independent study as being among the most stringent in the world.



The federal government is responsible for foreign policy, international trade, federal lands and federal parks. It also has a lead responsibility for Indians and lands reserved for Indians, as stipulated in the Constitution Act, 1867. The mandate for environmental affairs, economic development, science and technology is shared among federal, provincial and territorial authorities.

In terms of the institutional framework, the Canadian Council of Forest Ministers, established in 1985, addresses common issues, provides leadership on national and international matters and sets direction for sustainable forest management. In 1992, Canada became the first economy to have a national forest accord between governments and non-government organizations. It is the basis for the National Forest Strategy which sets out a collective vision and goals to achieve the accord's commitments.

Canada has 10% of the world's forest cover and 30% of the world's boreal forest. Annually, less than 1% of its forests are harvested and, by law, all such activity on public land must provide for successful regeneration. Some 93% of forestland is publicly owned—77% under provincial or territorial jurisdiction and 16% under federal. The rest is owned privately.



Canada is the world's largest exporter of forest products, contributing more than CAD 20 billion to its balance of trade in 2008. The sector is an important source of jobs, especially in rural areas. However, in 2009, direct employment fell 13% over 2008 levels - the lowest in 20 years. This decline is a result of the soft housing market in U.S. and higher use of electronic media which causes a fall in demand for pulp and paper products.

By December 2009, 148.9 million hectares of forests were certified as being sustainably managed by one or more of three schemes: the Canadian Standards Association's Sustainable Forest Management Standard; the Forest Stewardship Council Standards; and the Sustainable Forestry Initiative.

With regard to criteria and indicators, Canada is a founding member of the Montréal Process, established in 1994. At the same time, with extensive input from stakeholders, the CCFM developed 6 criteria (and 46 indicators) specific to Canada's forests: biological diversity, ecosystem condition and productivity, soil and water, global ecological cycles, economic and social benefits, and society's responsibility.

The Canadian Forest Service initiated model forests in the early 1990s as experimental sites which bring together diverse interests and perspectives and act as a neutral forum to address issues and test new practices. Ten were established in 1992 and five more were added since then. At the Earth Summit in Rio, Canada's prime minister announced the International Model Forest Program and invited other economies to join. Today, there are 55 model forests in 23 economies.

Despite many successful initiatives, Canada's forest sector is facing ongoing challenges. For example, return on capital investments is low and competition in the international marketplace is becoming increasingly difficult. Moreover, changing public demand for alternative forest uses calls for new innovative approaches, as does the devastating impact of invasive species on forests. Climate change and other stressors also continue to pose problems in terms of forest management.

### *Sustainable cultivation and utilization of bamboo*



Professor Yang Yuming covered the following aspects in his presentation: the global distribution of bamboo resources; propagation and cultivation; traditional and modern utilization; and the development of artificial bamboo forests. He noted that bamboo, as a non-wood forest product, is an important resource for alleviating poverty. About 700 genera and 1200 species exist worldwide, covering about 30 million ha across all continents except Europe. Some 45 genera and 700 species are found in Asia, with Yunnan Province having the highest concentration. Of the many varieties, some grow as high as 30 meters and in areas up to 3000 meters above sea

level.

Professor Yuming then described how different parts of the bamboo plant are used - roots (art and handicrafts), leaves (juice, chicken feed and medicine), shoots (food), sawdust (energy), chips (pulp/paper), small poles (fiber for textiles) and culms (veneer, flooring, scaffolding, furniture and construction). He also reviewed the more common propagation techniques, both sexual (from seeds) and asexual (culm burial, culm cutting, branch cutting, aerial root inducement and tissue culture).

Bamboo plantations are often mixed with crops, tea, mushrooms, medicinal plants and rattan. For low yield plantations, improved technologies consist of four controls: for density of clumps and culms; for the number of clumps to be harvested; the season of harvest (depends on the type of bamboo); and for the age of the culm (4-5 years for furniture and construction). In terms of cutting

methods, five techniques are used on culms: keeping those on the outside of the cump, the young, the straight, the large and the sparse.

With regard to utilization, bamboo is one of the best resources to develop rural areas. The value of products reach US\$20 billion per year, annual exports are worth US\$6 billion and the industry provides 15 million jobs, in addition to seasonal employment. The production value per ha is three times that of wood

(US\$450 versus US\$1250) and revenue to the industry has grown from US\$0.6 billion in 1990 to an estimated US\$11.21 billion in 2009. Exports are destined mainly to Japan, United States and Europe, with the value of trade over the same period increasing from US\$0.17 billion to about 1.875 billion.



Challenges facing the industry include a shortage of raw material and a utilization rate of less than 20% in most producer economies. If the culm is used only for flooring, the absolute utilization rate is less than 12%. A rapid increase in prices (from 160 RMB/ton in 1985 to 830 RMB/ton in 2008 in Anji County) and stiff competition have drastically reduced profit margins and the capacity to develop new products. In 1992-93, it cost 86 RMB to produce a square meter of bamboo floor board which then sold for 250 RMB. In 2006-07, the production cost jumped to 103 RMB compared to a selling price of 110 RMB.

The technologies to cultivate bamboo have been continuously improving over the past 4 decades, moving from low yield (natural) to high yield (plantations), to directional cultivation and, finally, to ecological cultivation which mimics nature. The development of bamboo plantations is now closely linked to processing so as to supply high quality culms for high quality products to sell in domestic and international markets.

China has a long history of bamboo utilization and the natural conditions which support plantation development, a stable supply of resources and high quality production. The economy's opening up policy which focuses on capacity building and training provides much needed expertise and the model which has farmers and companies working together has proven effective in terms of the production chain.

In conclusion, development of the bamboo sector should be based not only on technical aspects but also on social and economic considerations. Plantations should be established well ahead of need in order to ensure a continuous supply. Processing of products should use material from local sources and rely on local transportation, local human resources, and local markets. Such products should be the natural result of good quality and cost rather than artificially generated. Moreover, domestic markets should be developed before international outlets.

### ***Sustainable forest management in China: forest governance and legislation***

Professor Zhang Songdan provided an overview of China's forest resources, including their status, characteristics and management. He noted that only about 14.5% of available land was suitable for reforestation so that new planting must occur in dry zones if the economy is to add 40 million ha by 2020. Although both forest cover and volume increased significantly since 1973, more than



67% of forest area is comprised of young and middle age stands which account for about 40% of the volume. China ranks first in the world with regard to plantations - almost 62 million ha - but 66% of its forests are natural. Although it is listed 6th in the world in terms of volume and 5th in terms of area, resources are insufficient to meet domestic demand, given the economy's huge population. Moreover, distribution is uneven: 7.38% in the northwest, 35.68% in the east and 17% in the west. Low quality is also a concern. Thus, current efforts focus on improving these

aspects, in addition to enhancing the value of all forest goods and services.

Legislation and policies guide forest management according to the principles of strict protection, active development, scientific management and sustainable use. Five systems are in place to achieve these goals.

The management of forest land: This system is the basis on which forest resources are developed and cultivated. Only the state or collectives can own such land but individuals are granted management and use rights through certificates of tenure. When requisition of state property or occupation of collective property is unavoidable, for example, for road construction and hydro projects, the least amount of forest land should be used. In addition, a fee for rehabilitation must be paid in advance and farmers must be given compensation. Only commercial forests can be transferred, not those classified as forests for public benefit. However, land use must remain the same once management or use rights change hands.

- 1) Forest utilization: China introduced a quota system to regulate harvesting in 1987. Licenses must be procured and annual timber plans must be approved before carrying out such activities in state forests. Measures have also been undertaken to achieve greater efficiency in processing and to promote the use of wood substitutes when appropriate. Moreover, coal mining companies and pulp and paper producers must contribute to a special fund to cover the cost of reforestation. The transportation of forest goods is strictly regulated through more than 4,500 checkpoints to ensure legality. However, many new highways have been built in the recent past, a situation which makes it difficult to control movement.
- 2) Forest resources inventory: China has more than 50 years of experience in conducting surveys, work it considers to be the foundation of sustainable management. The first class covers provinces and other large areas through both sampling and permanent plots. The State Forestry Administration completes it every 5 years. The second class deals with units at the level of state forestry bureaus, forest farms, natural protection zones and economies. The exercise is usually undertaken at 10-year intervals. The third class focuses on harvesting and regeneration of local operational units either through total surveys or sampling. Forest authorities conduct the fourth class yearly to monitor compliance with harvesting quotas and to verify afforestation and reforestation activities.
- 3) The State Forestry Administration takes charge of case management which entails registering and investigating complaints, determining their validity and taking action, if warranted.
- 4) Some 15 agencies have been created since 1989 to supervise forest management, implement reforms and help to achieve sound development of the sector across the economy.



### 3.3 Group work

Three working group sessions were convened during the workshop to discuss key sustainable forest management issues. Participants identified concerns they considered the most urgent, described the main aspects of each problem and proposed practical ways to address them. The table below summarizes deliberations.

ISSUE	DESCRIPTION	PROPOSED ACTION
Land tenure, including access/ use rights (encroachment)	Unclear boundaries and access/user rights give rise to conflicts Mandates of forest department and other land related sectors sometimes overlap or contradict Capacity of forest authorities to carry out responsibilities is weak	Demarcate forest land and clarify ownership/rights Strengthen relations amongst forest department and other sectors to improve coordination Allocate sufficient resources
Slash and burn agriculture	Opportunities to generate alternative income are lacking Insufficient attention is paid to forest rehabilitation and traditional knowledge Political commitment, public awareness and engagement of local communities are weak Appropriate technologies and forest extension services are not available	Develop alternative livelihood options (marketing) Establish rehabilitation programs and make greater use of traditional knowledge/practices to achieve SFM Mount publicity/education campaigns and offer incentives to encourage community participation Increase efforts to secure suitable technologies and extension services
Governance and enforcement	Land demarcation and land records are not completed in a transparent manner Political commitment and human resources are insufficient Cooperation with other law enforcement agencies and land authorities needs to be strengthened	Develop transparent and comprehensive land use plans Engage decision makers and allocate more resources for governance/enforcement activities Establish multi-sector committees to address common issues
National integrated land use policy and plans	National land use policies and plans are neither integrated nor coordinated	Develop a comprehensive land use policy and master plan

<p>Alternative livelihood options</p>	<p>The long gestation period or rotation cycle of trees/plantations require that alternative income generation opportunities for forest dependent people be explored</p> <p>Access to knowledge and technology is limited</p>	<p>Identify non-wood forest products and forest services (e.g., tourism, hunting, carbon trade, agriculture, fisheries, small business) that have the potential to earn income; enhance capacity of/empower stakeholders and communities</p> <p>Increase access</p>
<p>Human, financial and technical capacity</p>	<p>Weak capacity affects government, communities and the private sector</p> <p>It threatens the sustainability of forest resources and leads to environment degradation, lower yields, genetic erosion and extinction of species</p> <p>Lack of technical knowledge of the properties of wood can lead to uninformed decisions about the number of species harvested/ managed</p>	<p>Develop a strategy to build capacity which includes assessment of needs and identification of suppliers</p> <p>Secure sufficient funding for forest management from sources such as NGOs and donor agencies, including the private sector</p> <p>Conduct research on lesser known timber species</p>
<p>Involvement of private sector and investment climate</p>	<p>Government policies discourage investment when there has been an insufficient involvement of the private sector in the design of the policies</p> <p>Involvement is required in SFM and rehabilitation but the lack of incentives to the private sector discourages investments</p> <p>Uncertain political scenario, social instability, unclear land tenure rights discourage investments</p>	<p>Review government policies</p> <p>Involve all stakeholders in planning and policy formulation</p> <p>Provide incentives (tax and market) to attract private sector investment</p> <p>Provide investment funds e.g. lending agencies</p> <p>Remove political interference through legislation</p> <p>Consult concerned stakeholders on land tenure rights</p> <p>Develop an integrated national land use plan and policy</p>

Market linkages	<p>Lack of information on the use of and market demand for certain tree species leads to under utilization of the forest potential in terms of harvestable volumes and species (timber and non timber forest products-NTFP)</p> <p>Buyers do not know what producers have</p>	<p>Gather market intelligence</p> <p>Establish market linkages through trading partnerships or agreements</p> <p>Develop data base on species of timber and NTFPs for market</p> <p>Disseminate information on lesser known timber species and NTFPs</p> <p>Participate in exhibition and trade fairs</p>
-----------------	---	---

### 3.4 Field excursion

Following the classroom segment of the workshop, a four-day field trip took place from 23-26 October 2011. Participants journeyed to Pu'er City where they visited sites of interest in an area that once served as a major way station on the Ancient Tea-Horse Road. It is currently famous for its tea production. Located in the south of Yunnan Province, it is close to Lao PDR, Viet Nam and Myanmar. Cultural diversity flourishes here, with 61% of the population comprised of Hani, Yi, and Dai ethnic groups.



Participants first visited the 765-acre coffee plantations of Dakaihe Village where residents hold an average of 1.6 acres which earn them a profit of 3580 yuan per year. They next toured the 2453-acre Caiyanghe Nature Reserve which is designated to protect the tropical forest ecosystems of South Asia and is home to many diverse wild flora and fauna. They also witnessed a mixed coffee and tea plantation in Nandaohu Village as well as an 82-acre nursery which supplies more than 300 species of saplings for reforestation programs and urban landscaping in the region.

Another point of interest was the Manxieba Nursery which houses more than 200 species of aquatic and terrestrial plants for the conservation of wetlands and for commercial purposes. Participants also visited a forest of fast growing trees (pine and birch) which was established to test contemporary forestry practices and technologies for more effective and stable industrial

production. The itinerary included a visit to an 84-acre greenhouse of the Dendrobium orchid - a type that is traditionally used as herbal medicine. Some 280 tons of fresh stems and 1 ton of flowers are harvested annually, valued at 66.2 million yuan.



Unfortunately, due to rain, a visit to a demonstration site which converted cropland to low production plantations and orchards had to be cut short. However, participants were able to view the site from a distance, were briefed on its key features, and had an opportunity to ask questions.

## 4. Evaluation



A questionnaire was distributed at the end of the workshop to assess the level of communication and understanding among participants and to obtain their feedback and suggestions on the organization and design of activities (topics, field tour and communication), preparation of materials, arrangements for the field trip, accommodation, and secretariat services, for example.

Findings showed that participants were generally satisfied with the course design, materials and logistics. All indicated they learned a great deal from each other, from the resource people and from the secretariat staff. They also expressed an interest in receiving regular updates from APFNet. The main suggestions they made to improve future workshops are listed below:

- inform participants of their attendance at least 2 weeks in advance
- brief participants on the culture and tradition of the Chinese people of the area and give them a list of simple Chinese words (good morning, thank you, etc)
- allocate more time for discussion after each presentation
- include more best practices and lessons learned from other developed economies and non-government organizations
- plan more brainstorming sessions and group work
- invite more experts to give presentations
- extend the duration of the field trip and ensure sites relate to the workshop topic
- give participants handouts on the stops to be made during the field trip
- visit sites where SFM is carried out - e.g., harvesting and processing operations



## ANNEX 1: Workshop Schedule

### Part 1: Indoor session

Date	Time	Contents	Resources/Comments
16 October	Whole day	Transport service and registration	<b>MODERATOR:</b> YAB
Day 1 17 October	8:30-9:00	<b>Opening Ceremony</b> Introduction of the workshop	<b>MODERATOR:</b> APFNet/YAB/SWFU
	9:00-9:30	Tea break and group photo	<b>MODERATOR:</b> Prof. Yang Yuming
	9:30-11:00	<b>Lecture 1:</b> Challenges in sustainable forest management	<b>Resource person:</b> Dr. Thang Hooi Chiew <b>MODERATOR:</b> Ms. Rosalie McConnell
	11:00-11:40	Q&A and group discussion	
14:00-17:00	<b>Participant reports:</b> Bangladesh/ Brunei/ Fiji	<b>Presentation:</b> 35 minutes <b>Discussion:</b> 20 minutes <b>MODERATOR:</b> Ms. Rosalie McConnell	
Day 2 18 October	8:30-11:00	<b>Lecture 2:</b> Good forest law, bad forest law: sustainable forestry and certification	<b>Resource person:</b> Dr. Berty van Hensbergen <b>MODERATOR:</b> Ms. Rosalie McConnell
	11:00-11:40	Q&A and group discussion	
	14:00-16:30	<b>Participant reports:</b> Indonesia/ Malaysia	<b>Presentation:</b> 35 minutes <b>Discussion:</b> 20 minutes <b>MODERATOR:</b> Ms. Rosalie McConnell
Day 3 19 October	8:30-11:00	<b>Lecture 3:</b> Market incentives to promote sustainable forest management	<b>Resource person:</b> Dr. Chen Xiaoqing <b>MODERATOR:</b> Ms. Rosalie McConnell
	11:00-11:40	Q&A and group discussion	
	14:00-16:30	<b>Participant reports:</b> Myanmar/ Nepal	<b>Presentation:</b> 35 minutes <b>Discussion:</b> 20 minutes <b>MODERATOR:</b> Ms. Rosalie McConnell
Day 4 20 October	Whole day	Free day	
Day 5 21 October	8:30-10:00	<b>Lecture 4:</b> Sustainable forest management in Canada	<b>Resource person and moderator:</b> Ms. Rosalie McConnell
	10:30-11:40	Working groups on SFM issues	
	14:00-17:30	<b>Participant reports:</b> Peru/ Philippines	<b>Presentation:</b> 35 minutes <b>Discussion:</b> 20 minutes <b>MODERATOR:</b> Ms. Rosalie McConnell
Day 6 22 October	8:30-11:00	<b>Lecture 5:</b> Sustainable cultivation and utilization of bamboo	<b>Resource person:</b> Prof. Yang Yuming <b>MODERATOR:</b> Ms. Rosalie McConnell
	11:00-11:40	Q&A and group discussion	
	14:00-17:30	<b>Participant reports:</b> Thailand/ Viet Nam	<b>Presentation:</b> 35 minutes <b>Discussion:</b> 20 minutes <b>MODERATOR:</b> Ms. Rosalie McConnell
Day 7-10 23-26 October		Field trip (see schedule part 2)	<b>MODERATOR:</b> YAF/YAB
Day 11 27 October	8:30-11:00	<b>Lecture 6:</b> SFM in China: forest governance and legislation	<b>Resource person:</b> Mr. Zhang Songdan <b>MODERATOR:</b> Ms. Rosalie McConnell
	11:00-11:40	Q&A and group discussion	
	13:30-15:45	<b>Working groups on SFM issues</b>	<b>MODERATOR:</b> Ms. Rosalie McConnell

Date	Time	Contents	Resources/Comments
Day 12 28 October	9:00-9:30	<b>Workshop Evaluation</b>	<b>MODERATOR:</b> Ms. Rosalie McConnell
	9:30-10:00	Presentation of certificates	Prof. Yang Yuming
	16:00-18:00	VISIT TO SWFU	
Day 13 29 October		Departure	

**Part 2: Field Trip** (Pu'er City, 23-26 October, 2011)

Date	Time	Contents	Resources/Comments
Day 7 23 October	8:00	Departure from hotel	<b>MODERATOR:</b> YAB and YAF
	15:00-16:00	<b>Pu'er City</b> Visit observation deck overlooking the city	<b>MODERATOR:</b> Local forestry department YAB and YAF
	17:00-18:00	CHECK-IN	
	18:30-	Welcome address by local departments	
Day 8 24 October	8:30-10:00	Coffee plantations	<b>MODERATOR:</b> Local forestry department YAB and YAF
	10:00-12:00	Caiyanghe Nature Reserve	
	13:00-18:00	Mixed plantations of coffee and tea Nursery for reforestation Nursery of wetland aquatic plants Short rotation forest for industrial purposes	
Day 9 25 October	8:30-10:30	Forest Science Research Institute of Pu'er	<b>MODERATOR:</b> Local forestry department YAB and YAF
	10:30-12:00	Chinese herbal medicine plantation	
	13:00-15:00	Demonstration of conversion of cropland to low production plantations and orchards	
	15:00-16:30	Center for transfer of forest property and other services	
Day 10 26 October	10:00-21:00	Return to Kunming and hotel check-in	

## ANNEX 2: List of Participants and Resource Persons

### 2.1 Participants

**Mr. Ashit Ranjan Paul**

Divisional Forest Officer  
Tangail Forest Division  
Forest Directorate, Bangladesh  
Email: [aranjanpaul4158@gmail.com](mailto:aranjanpaul4158@gmail.com)

**Mr. Joffre Bin Haji Ali Ahmad**

Forestry Officer, Forestry Department  
Ministry of Industry & Primary  
Resources  
Brunei Darussalam  
Email: [joffre7579@gmail.com](mailto:joffre7579@gmail.com)

**Mr. Shahri Bin Haji**

Forestry Officer, Forestry Department  
Ministry of Industry & Primary  
Resources  
Brunei Darussalam  
Email: [shahri.hussin@gmail.com](mailto:shahri.hussin@gmail.com)

**Mr. Sailosi Setadra Kinivuai**

Forestry Officer,  
Fiji Forestry Training Centre  
Ministry of Fisheries and Forest, Fiji  
Email: [skinivuai@gmail.com](mailto:skinivuai@gmail.com)

**Mr. Suhardijono**

Head of Watershed Management  
Planning Division,  
Directorate of Watershed Planning and  
Evaluation, Indonesia  
Email: [suhardij@yahoo.com](mailto:suhardij@yahoo.com)

**Ms. Zamzurina Binti Zulkifli**

Assistant Secretary  
Ministry of Natural Resources and  
Environment, Malaysia  
Email: [zamzurina@nre.gov.my](mailto:zamzurina@nre.gov.my)

**Ms. Enkhjargal Natsagdorj**

Researcher and Lecturer  
National University of Mongolia  
Mongolia  
Email: [enkhjargal\\_spe@num.edu.mn](mailto:enkhjargal_spe@num.edu.mn)

**Mr. Tin Thein**

Assistant Director  
Natural Forest and Plantation Division,  
Forest Department  
Ministry of Environmental Conservation  
and Forestry, Myanmar  
Email: [tinthein80@gmail.com](mailto:tinthein80@gmail.com)

**Mr. Nandlal Ray Yadav**

District Forest Officer  
District Forest Office, Bardiya  
Nepal  
Email: [nryadav55@yahoo.com](mailto:nryadav55@yahoo.com)

**Mr. Alimel Bellet**

Inspection Supervisor  
PNG Forest Authority  
Papua New Guinea  
Email: [abellet@pngfa.gov.pg](mailto:abellet@pngfa.gov.pg)

**Mr. Luis Miguel Aparicio Alcazar**

Technical Coordinator  
General Directorate of Forests and  
Wildlife  
Ministry of Agriculture, Peru  
Email: [lparicio@minag.gob.pe](mailto:lparicio@minag.gob.pe)

**Ms. Luminada Cuasay Rotol**

Senior Forest Management Specialist  
Department of Environment and Natural  
Resources, Forest Management Bureau  
Philippines  
Email: [adarotol@yahoo.com](mailto:adarotol@yahoo.com)

**Mr. Herath Mudiyanseelage Ashoke  
Badara Herath**

Divisional Forest Officer  
Forest Department, Sri Lanka  
Email: [dfohambantota@yahoo.com](mailto:dfohambantota@yahoo.com)

**Ms. Benjamaporn Pugdeeyothin**

Foreign Relations Officer  
Royal Forest Department  
Thailand  
Email: [pudgee999@hotmail.com](mailto:pudgee999@hotmail.com)

**Mr. Nguyen Phuc Tho**

**Expert**  
Department of Nature Conservation  
Vietnam  
Email: [tho@kiemlam.org.vn](mailto:tho@kiemlam.org.vn)

### 2.2 Resource Persons

**Mr. Thang Hooi Chiew**

Chairperson  
Steering Committee of the National  
Forest Programme Facility in Malaysia  
Email: [hcthang@streamyx.com](mailto:hcthang@streamyx.com)

**Dr. Berty van Hensbergen**

President  
SSC (Svensk SkogsCertifiering)  
Email: [berty@wildhorus.co.uk](mailto:berty@wildhorus.co.uk)

**Dr. Chen Xiaoqian**

Coordinator  
EU FLEGT Asia  
Email: [xiaoqianbfu@gmail.com](mailto:xiaoqianbfu@gmail.com)

**Ms. Rosalie McConnell**

Consultant  
APFNet  
Email: [mcconnellrosalie2@gmail.com](mailto:mcconnellrosalie2@gmail.com)

**Prof. Zhang Songdan**

Deputy Director of General Department  
of Forest Resources,  
State Forestry Administration  
Email: [zhangsongdan@hotmail.com](mailto:zhangsongdan@hotmail.com)

**Prof. Yang Yuming**

President  
Yunnan Academy of Forestry  
Yunnan Academy of Biodiversity  
Email: [yymbamb@yahoo.com.cn](mailto:yymbamb@yahoo.com.cn)



## Asia- Pacific Network for Sustainable Forest Management and Rehabilitation

Add: 6th Floor, Baoneng Center, 12 Futong Dongdajie,  
Chaoyang District, Beijing 100102,  
P.R. China

Tel: +86 10 8421 8108

Fax: +86 10 8421 6958

Website: [www.APFNet.cn](http://www.APFNet.cn)

