Contents

APFNet Workshop on Forestry and Rural Livelihood Development

(1 - 14 November 2017)

1. INTRODUCTION

APFNet's Thematic Workshops

The Asia-Pacific Network for Sustainable Forest Management and Rehabilitation (APFNet) was established with the main mission of promoting and improving sustainable forest management and rehabilitation in the Asia-Pacific region. One of the main missions of APFNet is to strengthen the human resource capacity. This is being accomplished through a number of programmes, including thematic workshops aimed to enhance knowledge especially through sharing of experience gained within and outside the Asia-Pacific region.

In order to further strengthen the implementation of these training workshops, APFNet has developed a five year strategic plan for 2016 to 2020 with the mission of adding green for Asia and the Pacific. Accordingly every year APFNet-KTC will organize two training workshops on the specific themes (1) Forest Rehabilitation and Management and (2) Forestry and Livelihood Development. Both these themes are key priority areas for almost all the economies in the region. After receiving a high appreciation from regional participants of the training workshops in 2016, APFNet-KTC is continually organizing the regular training workshop on "Forestry and Rural Livelihood Development" during 1 to 14 November 2017 in Kunming City, Yunnan Province, China.

Forestry and Livelihood Development

Forests and forestry play important roles in the livelihood of people in all societies, though the nature of livelihood derived varies in time and space. An estimate by the World Bank about 1.6 billion people are directly and indirectly dependent on forests for their livelihood, and the impact of forestry development on people's livelihood has been extremely varied; while some have helped to improve livelihoods through provision of goods and services as also income from forestry employment.

Most developing economies in the Asia-Pacific Region rely heavily on forest resources for livelihoods and economic productivity despite of economic development efforts in the region have also resulted in deforestation and forest degradation as well as marginalization of forest dependent communities, and forestry agencies are facing immense challenges in meeting the diverse demands on forests. Protecting the vast forest areas in the context of limited fiscal and human resources requires well-designed and well-implemented policies and programs that improve forest resources management contributing to livelihood improvement of local communities at the same time helping to restore degraded forest areas,

conserve biodiversity, and increase the income of local communities.

THE WORKSHOP

APFNet Kunming Training Center (APFNet-KTC) will organize this workshop to provide a better understanding of the forest-livelihood linkages and what may be done to enhance forest's contribution to improve rural livelihood.

Depending on availability of funds, the total number of invited participants will be limited to 15 from the APFNet member economies. The Workshop will be held from 1 to 14 November 2017 in Kunming City, China.

Objectives

The main objectives of the Workshop are to:

- Assess the linkage between forest management and rural livelihood improvement and explore the ways in which the livelihoods of rural communities might be improved through better forest management
- Provide an overview of the experiences and best forestry practices aimed at enhancing rural livelihood development
- Analyze and assesse implications of key policy, institutional and technological developments and the potentials and limitations for livelihood improvement through biodiversity conservation and climate change mitigation and adaptation measures.

Main Topics/Areas

The Workshop will attempt to provide a broad analytical framework to assess the current state of rural livelihood improvement specifically focusing on the following:

- Forests and livelihoods: Past, present and future.
- Policies and institutions in support of enhancing the livelihood roles of forests.
- Indigenous communities and traditional knowledge: Myths, realities and the way forward
- Payment for environmental services: Potentials and constraints in improving the livelihood of forest dependent communities
- Urban forestry and livelihoods
- Protected areas and livelihoods: People and wildlife from conflict to co-existence.

Debates and discussions during the Workshop will generate more questions and encourage critical thinking and analyses aimed to provide practical solutions that could help in improving the livelihood

contribution of forests.

WORKSHOP STRCUTURE AND TRAINING APPROACH

The workshop structure is designed to provide the maximum learning opportunity to the participants and the entire thrust will be on dialogue, group work, discussions and field observations. The following are the four key components of the Workshop:

- **Thematic lectures:**

  Invited experts will provide an in-depth assessment of different aspects relating to livelihood improvement and forest management.

- **Participant presentation:**

  Participants will make presentations which will outline experience in managing forests accommodating livelihood concerns at the national programme and project level.

- **Group work and discussions:**

  Group discussions including panel discussions and debates will be an integral component of the workshop and all participants are encouraged to actively participate in these. As part of the group work participants will be required to prepare policy briefs related to strengthening the livelihood contribution of forests.

- **Field trip:**

  Field trip to different areas in Pu'er City will provide an opportunity to learn how livelihood dimensions are taken into account in natural forest management, forest plantations and management of protected areas in different land use systems.

Workshop Outputs

The Workshop is expected to significantly enhance the knowledge of forestry professionals in designing policies and programmes helping to improve the contribution of forests and forestry to rural livelihood. Participant papers will be edited and published as an important information sharing source for future initiatives and development efforts; it will be disseminated on both APFNet and APFNet-KTC websites at same time. In addition, a synthesis report as another important workshop output with summarized key issues from workshop discussion will also be accessible to a wider audience.

PARTICIPANTS

The Workshop is open to senior policy makers and planners working with government ministries and departments, universities, research institutions and civil society organizations involved in the

management of natural resources, in particular forests. Priority will be given to those specifically involved in addressing the livelihood needs of rural communities and the nomination of female participants are highly appreciated in order to ensure a better gender balance.

For the invited participants, APFNet will cover the costs associated with the Workshop including round-trip economy class airfare for international travel, a full-board accommodation, costs of field trips and a small amount of per diem to cover sundry expenses. Participants/ sponsoring agencies will have to bear all other costs including costs of domestic travel, visa and other personal expenses.

WORKSHOP VENUE

Golden Spring Hotel (金泉大酒店 Jin Quan Da Jiu Dian in Chinese pronunciation)

Address: No.93 East Renming Road, Kunming City, Yunnan Province, China.

Tel: 86-871-63196888

CONTACT INFORMATION

For further details about the courses and the various arrangements please contact:

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2. WORKSHOP SCHEDULE

Part 1: Indoor Session (November 1-7 & 12- 14, 2017)

(Golden Spring Hotel, Kunming City, China)

Time	Agenda	Presenter/Speaker/Facilitator
DAY 1: (Wednesday/November 01, 2017)	**Arrival of Workshop Participants and Registration**	
DAY 2: (Thursday/November 02, 2017)		
08:30 - 09:00	**Opening Ceremony** • Welcome remarks • Vote of thanks	SWFU, YNPFD APFNet – KTC
09:00 – 09:30	**Group photo and Coffee break**	APFNet – KTC
09:30 – 10:00	• Overview of APFNet Thematic Trainings • Introduction to the course	Workshop Facilitator
10:00 – 10:30	**Ice breaker – Getting to know each other**	Workshop Facilitator
10:30 – 12:00	**Lecture 1:** Changing role of forests in people's livelihood: Past, present and future --- Q & A	Dr. C.T.S. Nair
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 15:30	**Lecture 2:** Production of wood and non-wood forest products and livelihood improvement --- Q & A	Dr. C.T.S. Nair
15:30 – 16:00	**Coffee break**	
16:00 – 16:45	**Participant Presentation 1:** Bangladesh	Mr. Imran Ahmed
16:45 – 17:30	**Participant Presentation 2:** Cambodia	Ms. Chhorn Savoeun
18:30 – 20:00	**Welcome dinner**	APFNet-KTC

DAY 3: (Friday/ November 03, 2017)		
08:30 – 08:40	Overview of presentation on Day 2	Selected Participants
08:40 – 10:10	**Lecture 3:** Forest governance and livelihood improvement: General trends in policies, institutions and forest management --- Q & A	Ms. Rowena Soriaga
10:10 – 10:40	**Coffee break**	
10:40 – 12:00	**Lecture 4:** People, wildlife and livelihoods: From conflict to co-existence --- Q & A	Dr. C.T.S. Nair
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 14:45	**Participant Presentation 3:** Fiji	Mr. Manasa Luvunakoro
14:45 – 15:30	**Participant Presentation 4:** Indonesia	Mr. Gamin
15:30 – 16:00	**Coffee break**	
16:00 – 17:30	**Group Discussion**: Poverty reduction through forestry: SWOT analysis of different options	Dr. C.T.S. Nair
DAY 4: (Saturday/ November 04, 2017)		
08:30 – 08:40	Overview of presentation and discussions on Day 3	Selected Participants
08:40 – 10:10	**Lecture 5:** Forests and livelihood of indigenous communities --- Q & A	Ms. Rowena Soriaga
10:10 – 10:40	**Coffee break**	
10:40 – 12:00	**Lecture 6:** Markets for environmental services and rural livelihood improvement: Opportunities and challenges for PES --- Q & A	Dr. C.T.S. Nair
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 –15:30	**Group Discussion**: Indigenous knowledge and livelihoods of forest dependent people	Ms. Rowena Soriaga
15:30 – 16:00	**Coffee break**	

16:00 – 16:45	**Participant's Presentation 5:** Indonesia	Ms. Dian Charity Hidayat
16:45 – 17:30	**Participant's Presentation 6:** Lao PDR	Mr. Souphida Chanthakhad
DAY 5: (Sunday/ November 05, 2017)		
08:30 – 08:40	Overview of presentations and discussions on Day 4	Selected Participants
08:40 – 10:10	**Lecture 7:** Engaging communities in forest protection --- Q & A	Dr. Michelle Hang Gi Wong
10:10 – 10:40	**Coffee break**	
10:40 – 12:00	**Group Discussion**: Protected areas management and livelihoods improvement: How do we strike a balance?	Dr. Michelle Hang Gi Wong
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 14:45	**Participant's Presentation 7: Malaysia**	Ms. Norliza Binti Md
14:45 – 15:30	**Participant's Presentation 8: Myanmar**	Ms. Nway Mon Mon Aung
15:30 – 16:00	**Coffee break**	
16:00 – 16:45	**Participant's Presentation 9: Nepal**	Mr. Badri Kumar Karki
16:45-17:30	**Participant's Presentation 10: Papua New Ginuea**	Mr. Oa Linden Koaba
DAY 6: (Monday/November 06, 2017)		
08:30 – 08:40	Overview of presentations and discussions on Day 5	Selected Participants
08:40 – 10:10	**Lecture 8:** Forest tenure reform in China --- Q & A	Prof. Shen Lixin
10:10 – 10:40	**Coffee break**	
10:40 – 12:00	**Lecture 9:** Bamboo: From a poor man's timber to the back-bone of thriving rural economies - The experience of China --- Q & A	Prof. Shen Lixin
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 14:45	**Participant's Presentation 11:** Philippines	Mr. Jerome Hewe Albia

14:45 – 15:30	**Participant's Presentation 12:** Sri Lanka	Ms. Wilasini Sathima Aluwihare
15:30 – 16:00	**Coffee break**	
16:00 –16:40	**Participant's Presentation 13:** Thailand	Ms. Sutthatip Chormali
16:40 –17:20	**Participant's Presentation 14:** Thailand	Ms. Areeyapat Petchara
17:20 – 18:00	**Participant's Presentation 15:** Viet Nam	Mr. Hoang Lien Son
DAY 7: (Tuesday/November 07, 2017)		
08:30 – 08:40	Overview of presentations and discussions on Day 6	Selected Participants
08:40 – 10:10	**Lecture 10:** Urban people, livelihood and forests --- Q & A	Dr. Preecha Ongprasert
10:10 – 10:40	**Coffee break**	
10:40 – 12:00	**Group Discussion**: Action plan for urban greening	Dr. Preecha Ongprasert
12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 14:30	**Group Work:** Information sharing on forest management and development in the Asia-Pacific economies. • **Group 1:** Cambodia, Lao PDR, Myanmar, Thailand, Vietnam; • **Group 2:** Bangladesh, Indonesia, Nepal, Sri-Lanka, Thailand; • **Group 3:** Fiji, Indonesia, Malaysia, Philippines, PNG.	Facilitators
14:30-15:30	**Group Work** 1. Profile of Forest and forestry management mechanism, including: - Governmental administrative system at deferent levels (local, regional/provincial and national levels); - Policy and legal regulation of forest management and forestry development, and; - Definition and types of forestland tenure and ownership.	Facilitators

15:30 – 16:00	**Coffee break**	
16:00-17:30	**Group Work** 2. Profile of Forest resources and its changing trend (Changes on forest area over last decade), including: - Timber logging and its management regime; - Forest plantation and rehabilitation; 3. Profile of forestry industry development, including: - Total forestry production outputs, - The ways of timber utilization and processing.	Facilitators
17:30 – 17:45	**Briefing on field trip**	Ms. Pan Yao
Day 8 to day 11: (Wednesday– Saturday/ November 08 – 11, 2017) Field Trip to Puer City and visit to different areas focusing on forestry and rural livelihood development		
DAY 12:Sunday /November 12, 2017		
08:30 – 09:00	Participants' views from field visit in Pu'er City	Ms. Pan Yao
09:00 – 10:00	**Group Work** 4. Profile of protection areas and biodiversity conservation, including: - Nature reserve or conservation/protection area, protection forests, national park, forest for other special purpose at different protection levels; - Protected rare and endangered animal and plant species.	Facilitator
10:00 – 10:30	**Coffee break**	
10:30 – 12:00	**Group Work** 5. Profile of Forestry Scientific Research Institutions, including forestry research institutions, with main research fields and outstanding achievements;	Facilitator

12:00 – 14:00	**Lunch**	Golden Spring Hotel
14:00 – 15:30	**Group Work** 6. Profile of Forestry Education Institutions, including independent forestry universities/colleges, or forestry related forestry universities/colleges and professional training agencies etc.	Facilitator
15:30– 16:00	**Coffee break**	
16:00 – 17:30	**Presentation of group work** • Group 1: Cambodia, Lao PDR, Myanmar, Thailand, Vietnam; • Group 2: Bangladesh, Indonesia, Nepal, Sri-Lanka, Thailand; • Group 3: Fiji, Indonesia, Malaysia, Philippines, PNG.	Participants' representatives
DAY 13 (Monday /November 13, 2017)		
08:30 –10:00	**Keynote Lecture:** Towards policy and technical approaches for improving forest conservation and livelihoods	Mr. Zhao Shucong (Board Director of APFNet, former Minister of SFA, China)
10:00 – 10:30	**Coffee break**	
10:30 – 11:00	An overview of the Workshop and Course evaluation	Ms. Pan Yao
11:00 – 12:00	**Closing Ceremony** o Award of certificates o Remarks o Vote of thanks	Mr. Zhao &Dr. Preecha Participants APFNet-KTC
12:00 – 13:30	**Lunch**	Golden Spring Hotel
16:00 –17:00	Visit Southwest Forestry University and APFNet KTC	APFNet-KTC
18:00 – 19:30	**Farewell dinner**	APFNet-KTC
DAY 14 (Tuesday/November 14, 2017)	Participants Departure	

Part 2: Field Trip Session (November 08 - 11, 2017)

(Pu'er City, Yunnan Province, China)

Wednesday / November 08, 2017

07:00 - 07:45	Breakfast at Golden Spring Hotel
07:50 - 08:00	Boarding bus
08:00 - 12:00	Drive from Kunming to Mojiang County
12:00 - 13:00	Lunch in Mojiang County.
13:00 - 15:00	Drive from Mojiang to Pu'er City and check-in at Man Cheng Hotel
16:00 - 17:30	Introduction to forestry development and management in Pu'er City
18:00 - 19:00	Dinner (hosted by Forestry Bureau of Puer City)
Evening	Free

Thursday / November 09, 2017

08:00 - 08:30	Breakfast at Hotel
08:30 - 09:30	Visit Pu'er Fine Variety Ecological Tea Garden
09:30 - 11:30	Cultivation Base for Rare and High Value Medicinal Herbs under Natural Forests (e.g. Dendrobium) and Dianrun Agriculture Science and Technology Co. Pty.
12:00 - 13:00	Lunch
13:00 - 17:30	Visit Reforestation Program of upland conversion, Agroforestry Practice of Coffee intercropping with Tea and Pu'er Forestry Research Institute
18:00 - 19:00	Dinner
Evening	Free

Friday / November 10, 2017

08:00 - 08:30	Breakfast at Marvelous Land Hotel
08:30 - 11:30	Visit the Demonstration Site of Logging Ban Programs of Protection Forests for Ecological Function in Wanzhangshan Forest Farm
12:00 - 13:00	Lunch
13:00 - 15:00	Visit Forestry Industry Enterprises (e.g. Rosin and Colophony)

15:00 - 17:00 Visit Private Owned Plywood Processing Factory

18:00 - 19:00 Dinner

Evening Free

Saturday / November 11, 2017

08:00 - 08:45 Breakfast at Hotel

08:45 - 09:00 Check-out

09:00 - 11:30 Drive from Pu'er City back to Kunming,

11:30 - 12:30 Lunch in Mojiang County

12:30 - 16:30 Mojiang County to Kunming City

16:30 - 17:00 Arrive in Kunming and check-in at Golden Spring Hotel

18:30 - 19:30 Dinner

Evening Free

Profile of Kunming City

Kunming, the capital of Yunnan Province (Fig.1), dates back more than 2400 years and owes its importance as the gateway to the celebrated Silk Road that facilitated trade with Tibet, Sichuan, Myanmar and India. Today, the city is the political, economical and cultural center of Yunnan and the provincial center for transport, science and technology. Consequently, it has become the most popular spot for tourism in Southwest China. Kunming enjoys a pleasant climate and does its best to live up to its title of 'the City of Eternal Spring'. The average temperature is expected to be 15ºC-23ºC during September, with slightly lower temperatures in the morning and evening.

Fig.1

Some 25 ethnic minorities such as Yi, Bai, Miao, Dai, Hani inhabit the region and each group has its own festivals - the Torch Festival and the Golden Temple Fair, for example. The hugely successful 1999 International Horticultural Exposition enhanced Kunming's influence in the world and, as a result, more and more foreigners come to discover this enchanting part of China. Its alluring highland scenery bewitching karst landform, varied and exotic habitats and customs, and places of historical interest can be found at major scenic spots such as Dianchi Lake, Stone Forest, the Village of Ethnic Culture, and Grand View Pavilion. Kunming is also renowned for many delicious local dishes, the most famous being Across the Bridge Rice Noodles and Xuanwei Ham. You can enjoy them both at local restaurants or the night markets where you will find many pubs, bars and cafes that serve good quality meals.

3. LIST OF PARTICIPANTS

No.	Name	Nationality	Gender	Position/Organization	E-mail
1	Imran Ahmed	Bangladesh	Male	Assistant Chief Conservator of Forests, Forest Department, Ministry of Environment and Forest	imranforest@gmail.com
2	Chhorn Savoeun	Cambodia	Female	Officer of Institute of Forest and Wildlife Research and Development, Forestry Administration, MAFF, Cambodia	savoeun89@yahoo.com
3	Manasa Luvunakoro	Fiji	Male	Principle Forestry Officer, Ministry of Finishries and Forest	mluvunakoro@gmail.com
4	Gamin	Indonesia	Male	Trainer, Education and Training Centre for Environmental and Forestry of Kadipaten, West Java	gamingessa@gmail.com
5	Dian Charity Hidayat	Indonesia	Female	Junior Researcher, Research and Development Centre for Social, Economic, Policy and Climate Change, Ministry of Environment and Forestry	dian.charity@gmail.com
6	Souphida Chanthakhad	Lao PDR	Male	Officer, Planning and Cooperation Division, Department of Forestry, Ministry of Agriculture and Forestry	khad.spd@hotmail.com
7	Norliza Binti Md	Malaysia	Female	Conservator of Forest, Forestry Department Peninsular Malaysia (FDPM)	norliza@forestry.gov.my
8	Nway Mon Mon Aung	Myanmar	Female	Range Officer, Forest Research Insititue, Yezin, Nay Pyi Taw	2008monmon@gmail.com
9	Badri Kumar Karki	Nepal	Male	District Forest Officer (Under Secretary), District Forest Office, Doti, Department of Forests, Ministry of Forests and Soil and Conservation	karkibkumar@gmail.com
10	Oa Linden Koaba	PNG	Male	Community Forestry Officer, Community Forestry Section, Field Serivces Directorate, PNG Forest Authority	oalinden53@gmail.com
11	Jerome Hewe Albia	Philippines	Male	Development Management Officer - IV, Department of Environment and Natural Resources - Cenro Bayugan City, Agusan Delsur	jeromealbia99@gmail.com
12	Aluwihare Wilasini Sathima	Sri Lanka	Female	Divisional Forest Officer, Kandy District (Assistant Conservator of Forests), Forest Department, Sri Lanka	dfokan@yahoo.com
13	Sutthatip Chormali	Thailand	Female	Forestry Technical Officer, Senior Professional Level, Protected Area and Rehabilitation Office, Department of National Parks, Wildlife and Plant Conservation	chormali5354@gmail.com
14	Areeyapat Petcharat	Thailand	Female	Forestry Technical Officer, Senior Professional Level, Forest Biodiversity Division, Forest Research and Development Bureau, The Royal Forest Department	Areeyapat57@yahoo.com
15	Hoang Lien Son	Viet Nam	Male	Director, Forestry Economic Research Centre, Vietnamese Academy of Forest Science	hlson2000fsiv@gmail.com

4. PROFILE OF RESOURCE PERSONS

1) Dr. C.T.S. Nair (ctsnair47@gmail.com)

Dr. C.T.S. Nair, who was with the Indian Forest Service, is currently a freelance consultant in natural resources management. He has a multi-disciplinary background with Bachelor's degree in zoology (University of Kerala, India) , Post-Graduate diploma in forestry (Indira Gandhi National Forest Academy), Master of Philosophy in Applied Economics (Jawaharlal Nehru University) and doctorate in Forest Economics (University of Wales, Bangor, United Kingdom).

Having worked in several countries in various capacities for over four decades, Dr. Nair has a highly diverse experience profile. With the Indian Forest Service he served as Divisional Forest Officer with the Kerala Forest Department and as Forest Economist and later as Director at the Kerala Forest Research Institute. He has also worked in the Ministry of Environment and Forests, Government of India as Deputy Inspector General of Forests, in charge of forestry research and education and forest policy.

Dr. Nair was with the Food and Agriculture Organization of the United Nations for about 20 years and worked in various capacities, including as Forest Economist in Sudan, Senior Programme Advisor (Forestry Research Support Programme for Asia-Pacific- FAO Regional Office, Bangkok), and in various capacities in the Forestry Department, FAO Headquarters, Rome, including as Senior Forestry Officer (Economic Analysis), Chief of the Planning and Statistics Branch, Chief of the Forest Economics Service and Chief Economist of the Forestry Department).

After his retirement from FAO, in April 2010 Dr. Nair rejoined the Kerala Government as the Executive Vice President of the Kerala State Council for Science, Technology and Environment and as the Principal Secretary, Science and Technology Department, retiring from the position in June 2011. During that period he also served as the Chairman of the Kerala State Coastal Zone Management Authority, overseeing the implementation of zoning regulations under the Environment Protection Act.

Dr. Nair continues to be active in forests and forestry in the Asia-Pacific region, especially in policy analysis and capacity building. He coordinated FAO's Sixth, Seventh and Eighth Executive Forest Policy courses held in Thimphu in 2013, Nadi in 2014 and Nay Pyi Taw in 2015. He also coordinated and facilitated the APFNet workshops on degraded forest rehabilitation and biodiversity conservation and rural livelihood improvement held in Kunming during July and November 2014.

Dr. Nair has over 100 publications dealing with economics, policy and institutional analysis. Some of his notable contributions include the "Forestry Outlook Study for Africa (including 5 sub-regional outlook reports)", "People, forests and trees in West and Central Asia: Outlook for 2020", "Asia-Pacific Forests and Forestry to 2020" South Asian Forests and Forestry to 2020", and the "State

of World's Forests 2009". He has also written extensively on policy, economics and institutional issues including on forest administration, research and education.

2) Ms. Rowena Crispina Lacuesta Soriaga (rsoriaga@gmail.com)

Rowena Soriaga has been working with natural resource management and rural development concerns over the past 23 years, mainly through the Environmental Science for Social Change (ESSC) and Asia Forest Network (AFN). In ESSC, she has been involved in the design and implementation of projects focused on various aspects of sustainable development especially in rural environments. Through AFN, she has contributed to various collaborative regional knowledge products including: (i) Where is the Future of Cultures and Forests, a thematic paper on Indigenous Peoples and Forest Management in 2020 for FAO's Asia-Pacific Forestry Sector Outlook Study II; (ii) Forest Lives, a report synthesising Lessons on sustaining communities and forests from the EU-UNDP-SEARCA Small Grants Programme for Operations to Promote Tropical Forests, (iii) Making Forestry Work for the Poor, an APFNet-supported assessment of the contribution of forestry to poverty alleviation in Asia and the Pacific, and (iv) Role, Contribution and Effectiveness of Local Governments in Forest Law Enforcement and Governance in ASEAN, a policy paper of the ASEAN Regional Knowledge Network on Forest Law Enforcement and Governance.

She currently serves as ESSC Program Development Specialist and AFN Adviser while contributing to the implementation of two projects: (i) as PES/REDD+ specialist for Generating Advancement for Upland Peoples (GAUP) in Pantaron Range, Mindanao, Philippines, and (ii) as task force secretariat for ECOJESUIT@UNFCCC COP23. She also provides consulting services to several government, civil society and multilateral institutions mainly covering Southeast Asia.

Rowena obtained her BS Business Economics degree from University of the Philippines and Master in Development Management degree from the Asian Institute of Management.

3) Dr. Michelle Hang Gi Wong (hangiw@yahoo.com.hk)

Dr. Michelle Hang Gi Wong is a Senior Conservation Officer at Kadoorie Farm and Botanic Garden, a well-established charity in Hong Kong that focuses on scientific research, nature conservation, nature education, and promoting sustainable living. She has spent the last four years in managing conservation projects in China. The projects often involve collaborating with nature reserves to improve reserve management, conduct biodiversity survey, habitat restoration, stakeholder engagement and public outreach. In some cases, she works directly with communities and private land owners for conservation. She had a Bachelor Degree in Biology (Auckland University, 1997-2000), Master Degree in Environmental Management (Hong Kong Polytechnic University, 2001-2002), and a Doctoral Degree in Ecology (Yunnan University, 2005-2010). She worked as a Post-Doctoral Fellow (Institute of Geographical Sciences and Natural Resources, Chinese Academy of Sciences, 2011-2015) to analyze climate and climate change impacts on wildlife. And was later worked as a Project Officer

for Zoological Society of London (2013-2015) and a Senior Conservation Officer for Kadoorie Farm and Botanic Garden (2016-present). She has been a consultant for APFNet-KTC since its establishment in 2012. In this workshop, she is going to share some of her team's experiences in community engagement for nature conservation.

4) Prof. Shen Lixin (yafslx@qq.com)

Prof. Shen Lixin, as executive director currently working for APFNet Kunming Training Center (APFNet-KTC) as well as faculty of Southwest Forestry University (SWFU) based in Kunming City, Southwestern China. He used to be executive vice director of Yunnan Academy of Biodiversity (YAB) from 2011 to 2014 and worked for National Plateau Wetland Research Center(NPERC) at Southwest Forestry University (SWFU) as research professor during 2010 to 2011.

Prior to joining SWFU in 2010, Prof. Shen Lixin used to be Assistant President of Yunnan Academy of Forestry (YAF) and director of forests research institute of YAF. He has conducted numerous researches for nearly thirty years on forest resources management, wetlands and protected area management, biodiversity conservation, degraded forest restoration, poverty alleviation and rural livelihood development. In addition, he has worked on international projects for biodiversity conservation through protected area management in Southwest China and Southeast Asia as well as on cross-cultural, cross-border projects involving trans-boundary resources use and conservation.

5) Dr. Preecha Ongprasert (preecha_ong@yahoo.com)

With a long experience in Forestry, Mr. Preecha Ongprasert currently works as Director of International Convention and Commitment Division, Internal Forestry Cooperation Office, Royal Forest Department, Thailand.

<u>Educational background</u>

- BSc (Wildlife Management): Faculty of Forestry, Kasetsart University
- MSc (Forest Biology): Faculty of Forestry, Kasetsart University
- PhD (Urban Forestry): School of Agriculture and Forest Sciences, University of Wales, Bangor, United Kingdom

<u>Working experiences</u>

- 1991-1995: Researcher, Faculty of Forestry, Kasetsart University
- 1995-1998: Forest Officer, Permission Division, Royal Forest Department
- 1998-2010: Forest Officer, Bureau of Community Forest Management, RFD
- 2013-2015: Director, Training Division, Central Administration Bureau, RFD

- 2011-present: Director, International Convention and Commitment Division, International Forestry Cooperation Office, RFD
- 2015-present: Chairman, Regional Model Forest Network-Asia (RMFN-Asia)
- 2015-present: Chairman, APFNet Council

5. OUTLINES OF KEYNOTE LECTURES

Lecture 1: Changing role of forests in people's livelihood: Past, present and future

--- by Dr. C.T.S. Nair

This keynote lecture aims to provide an overview of how people's dependence on forests have changed over time, how it varies depending upon the context and what needs to be done to enhance the livelihood roles of forests.

While forests form an important livelihood asset for millions of people providing food, fuel, medicines, materials for shelter and a wide array of life sustaining ecological services, it is important to examine for whom, when, and how they could contribute to livelihood improvement. Livelihood dependence on forests varies over space and time. While those living within and close to forests rely on forests for most of their basic needs, direct dependence tends to decline in the context of urbanization and socio-economic development. Forest- livelihood linkages are therefore highly context specific and dynamic and caution needs to be exercised in generalizing and extending experience from a particular context.

Notwithstanding their livelihood importance, for a long time timber production remained the main objective of forest management. This "exclusion approach" pushed livelihood activities to the informal/ illegal domain. Emphasis on adoption of sustainable forest management in the post-1990 period brought the social dimensions of forests to the forefront and livelihood issues of forest dependent communities became an important concern. However many challenges exist in ensuring that the full livelihood potential of forests is realized. Some of the major challenges in this regard are:

- Inadequate information on the extend of livelihood dependence on forests: This has led to generalizations based on scant and sometimes inaccurate information;
- A significant share of livelihood is derived in the subsistence segment for which no reliable information is available. While the importance of forests is widely recognized, absence of data precludes their consideration in the planning process.
- Livelihood aspects are not fully streamlined into forest policies, plans and programmes.
- Most often livelihood is related to access to and control of resources including the access to knowledge. This continues to be a challenging task considering that tenure reforms are progressing very slowly in many countries.

- Livelihood is very much dependent on the appropriate combination of different assets/ income portfolios. Asset and income diversification options are not available to many forest dependent communities.

Global, national and local initiatives have helped to highlight livelihood relevance of forests encouraging appropriate changes in policies, programmes and plans. What will happen to the livelihood relevance of forests largely depends on several factors. In many economies direct role of forests in providing livelihood has declined significantly in the context of urbanization, industrialization and the growth of services sectors. It is possible to visualize different scenarios as regards direct reliance on forests for livelihood, depending on the growing significance of other assets – human capital, physical capital, financial capital and social capital. Climate change related events could have significant impacts on forest-livelihood linkages, especially when land and other physical assets are adversely affected, forcing people to rely on forests.

Key take home messages from the presentation are:

1. Forests-livelihood linkages are multiple, highly context specific and extremely dynamic.
2. Direct dependence on forests for livelihood is declining, although still millions of people continue to depend on forests for a wide array of livelihood needs.
3. Absence of reliable data remains a major challenge in making a realistic assessment of the livelihood contribution of forests, partly because of the preponderance of informal transactions.
4. The long term trend as regards forests and livelihood relates to the shift from production of livelihood goods – food, fuel, medicines - to the provision of ecological services and fulfilment of aesthetic and cultural needs.
5. Different scenarios could be visualized as regards the future of forests-livelihood linkages. Under certain contexts the significance of forests for meeting livelihood needs will remain important; there could also be situations where the importance of forests for provision of livelihood goods may decline significantly.

Lecture 2: Production of wood and non-wood forest products and livelihood improvement

--- by Dr. C.T.S. Nair

Adopting a value chain approach, this lecture provides an overview of the livelihood contributions of production, processing and trade of wood and non-wood forest products and the emerging opportunities and challenges.

Production of wood and other products (including non-wood forest products) and their processing, transport and trade form the most important value generating activities in the forest sector and thus vital to improve people's livelihood. A wide array of forest production systems exist each having its specific impacts on value generation and livelihoods. Forest products are either consumed directly or

enter into different value chains. Many rural communities rely on direct collection and use of several forest products. Some of the products are traded locally, nationally or globally undergoing value addition at each stage. The presentation addresses the following aspects:

- The concept of value chain and how a value chain approach could be adopted to analyze livelihood implications of production, processing, transport and trade of different forest products.
- Different types of forest product value chains.
- Factors that determine the share of value that can be captured by rural communities and its implications on policy and other interventions and how to enhance the share of value added accruing to rural communities.
- Emergence of global forest value chains and its impact on livelihoods (new opportunities as also challenges from global competition).
- Positive and negative aspects of value chains in the informal (and thus often illegal) domain.

On the whole there has been no significant effort to adopt a value chain approach to analyze forestry and most of the thrust has been on the initial stages of supply of forest products. Also forestry generally tends to ignore the value addition aspects and thus overlook the potential of forestry to increase rural income. Ultimately whether someone is able to benefit from a given value chain or not is dependent on the policy, legal and institutional environment and the relative bargaining power. Often rural communities are unable to benefit from value chains on account of the inadequate understanding of the value chain and limited bargaining power.

Considerable efforts are being made to formalize informal forest products value chains and most of the certification programmes and initiatives like FLEGT aim to develop formal value chains. It is assumed that formal value chains help to enhance sustainability as also economic viability. However often such formalization adds to the costs, reducing income earned by producers, especially when the transaction costs of formalization are high. Important take home messages from the presentation are:

- Enhancing income of rural communities from production and processing of wood and non-wood forest products will be effective only if there is a clear understanding of the value chains and how value is shared by different factors of production.
- Absence of understanding of the nature of value chain limits the ability of rural communities from realizing the full potential of emerging opportunities.
- Merely focusing on the production of raw material – whether it be timber, wood fuel or non-wood forest products – is insufficient to enhance income to rural communities.
- Value chains undergo rapid changes in the context of globalization. It is important to understand the implications of this to enable communities to take advantage of the opportunities as also to counter potential negative impacts.

- Improved access to information is key to enhancing the opportunity of small holders to participate in global value chains and to derive benefits.
- Benefits from formalization of value chains need careful analysis. From the livelihood perspective it could sometimes have negative impacts.

Lecture 3: Forest governance and livelihood improvement: Trends in policies, institutions & forest management

--- Ms. Rowena Soriaga

Policies and institutions determine how forests are managed, and governance determines how policies and institutions are established and applied on local people and their livelihood resources. Whether forest management will fulfil livelihood objectives or not is thus dependent on the combined effect of policies, legislation, institutions and governance both from within and outside the forest sector. Key global developments have influenced changes in forest policies, institutions, governance and management over the past three decades, though with varying paces of change and impacts on livelihoods. This lecture will explore the following topics: (a) what is governance and why it is important to livelihood improvement; (b) principles and pillars of good governance; (c) changes in forest policies, legislation and institutions and their impacts on livelihoods; (d) governance challenges; (e) governance improvement initiatives that enhance livelihood contributions of forests.

The presentation will set the stage for the following key messages:

- Governance reform is necessary for social and economic development to lead to rural livelihood opportunities.
- Poor governance is a recipe for conflicts and unsustainable use of resources.
- Good governance embodies six basic principles: participation, accountability, transparency, effectiveness, efficiency and fairness.
- Forest governance challenges tend to be reflective of larger governance issues that compound the complexity of forest governance reform.
- Strategies to improve forest governance should always take into serious account the broader environment beyond the forest sector

Lecture 4: People, wildlife and livelihoods: From conflict to co-existence

--- by Dr. C.T.S. Nair

Managing human-wildlife conflicts has emerged as a major challenge in biodiversity conservation in most countries. People living close to forests are particularly affected by animals, severely undermining their livelihood. Overlap of human and animal habitats, especially when animals forage

into human habitations, results in damage to crops and other property as also injuries and death. In many areas this has created significant antagonism to conservation efforts, leading to setting fire to protected areas, killing of animals and so on. While it is almost impossible to totally eliminate conflicts, it is possible to reduce and keep conflicts at a manageable level. This lecture discusses the causes of conflicts, the measures adopted to mitigate and minimize conflicts and what may be done to keep them at an acceptable level

Causes of conflicts

- Several factors have led to an increase in human-wildlife conflicts. Conflicts are particularly severe in countries/ regions where human population density is high and people have to depend on natural resources for their livelihood. The most affected by human-wildlife conflicts are the rural population living within or adjacent to forests.
- Often the boundaries of protected areas are not demarcated taking into the actual needs of animal and human populations. There are many instances where villages have been included in protected areas enhancing the chances of human-wildlife conflicts.
- Most of the causes of human-wildlife conflicts can be traced to disturbances in the habitats of animals. Roads, railways, reservoir projects and agriculture projects have resulted in altering habitat conditions including fragmentation of habitats affecting migratory paths. Inevitably this has led to foraging outside the natural range of animals, leading to human- animal conflicts.
- Degradation of habitat due to fire and other factors also reduce the carrying capacity of the habitat. In many areas human-animal conflicts peaks during certain seasons when food and water availability declines forcing animals to transgress into farming areas.

Conflict management

A wide array of practices are being adopted to manage human-wildlife conflicts. Much of the thrust is to minimize the overlap between human and animal habitats and include creation of physical barriers, such as trenches, electric fences, etc. Where conflicts stem from an increase in the number of animal population, relocation and culling have been resorted to. Villages within protected areas are highly vulnerable to human-animal conflicts and in such situations relocation of such villages away from protected areas is one option. Putting in place a system of compensating the damage is extremely important and in many cases the antagonism against conservation stems from the failure to address the grievances of the affected people in a timely manner.

Sharing benefits of conservation

Unfair distribution of costs and benefits associated with conservation is a major factor contributing to the people’s antagonism. Often people living in the vicinity of forests have to bear most of the costs

while benefits from wildlife tourism are accruing to visitors, tour operators and governments and other agencies managing the protected areas. Effective involvement of local communities in conservation efforts conferring benefits from wildlife based tourism could partly compensate the loss stemming from the costs on account of damage caused by wildlife. In fact this is a key area of action to create a positive view of wildlife and there are several examples of community managed conservation areas where wildlife is considered as an asset than a liability.

Adoption of a landscape approach

While the nature of human-wildlife conflicts and the mitigation measures are context specific, ultimately a landscape approach enabling people and animals to co-exist is unavoidable. Policies and legislations governing wildlife management need to be flexible to the changing environment. People's perception that their livelihoods are given a low priority vis-à-vis conservation, could create a very negative attitude to wildlife conservation. At the end society as a whole should be able to compensate those who are bearing most of the costs of conservation.

Building a culture of tolerance

Eventually building a culture of tolerance and accommodation becomes inevitable if people and wildlife have to live in harmony. There are several examples of cultures and societies where people have accepted wildlife as an integral part of the environment and accommodate their presence through necessary adaptation. These provide valuable lessons on how conflicts can be minimized and kept at acceptable levels and the needs of humans and animals are fulfilled from the same space.

Important take home messages from the presentation are:

- Most often the human-wildlife conflicts are managed on a reactive basis addressing the symptoms and seldom there are attempts to address the fundamental causes.
- Every country should have a clear strategy to address human-wildlife conflicts that accepts the fact that human beings have to share space with animals.
- If conservation is considered as important obviously the public at large should compensate those who are affected by wildlife (and hence the justification for publically funded compensation programme)
- Much more efforts need to be made to understand animal behaviour and ecosystem responses to human interventions and to develop preventive and mitigation measures based on better science
- There is a need to promote a culture of tolerance/accommodation.

Lecture 5: Forests and livelihoods of indigenous communities

--- by Ms. Rowena Soriaga

Two-thirds of around 350 million indigenous peoples in the world live in Asia Pacific. Many of them are traditionally dependent on forests for their livelihoods, but there is an increasing trend of moving away from this dependence as a way of coping with risks and uncertainties, and also to take advantage of opportunities coming their way, which are not much. While indigenous peoples are benefiting from the global attention on tackling sustainable development issues, inequity is still increasing due to various social, political, economic and environmental forces. The sustainable livelihoods framework has helped broaden the concepts of poverty and wellbeing, allowing indigenous peoples to express aspects of their life where poverty exists, and aspects where they are better off than others. Indigenous peoples represent 75% of world's diverse cultures and can play a huge role in forest conservation that benefits global society. This lecture will explore the following topics: (a) context of Indigenous Communities in Asia-Pacific forests; (b) forces helping and hindering sustainability of forest cultures; (c) forests in livelihood strategies and wellbeing of indigenous peoples' today; (c) status of efforts to empower indigenous communities at the global, regional, national and local levels; and, (e) potentials in improving forest conservation for the larger benefit of society through supporting livelihoods of indigenous peoples.

Lecture 6: Markets for environmental services and rural livelihood improvement: Opportunities and challenges for PES

--- by Dr. C.T.S. Nair

Payment for ecological services is often considered as a win-win option helping to protect the environment and to enhance income of rural communities. The presentation examines the evolution of PES, how PES is put into practice and the opportunities and challenges in making it relevant to enhancing the livelihood of rural communities.

Increased awareness about the ecological services of forests has led to a shift in forest management objectives giving greater attention to forest's functions like watershed protection, climate change mitigation and adaptation, biodiversity conservation and provision of amenity values. Large tracts of forests earlier managed for wood production have been set aside for the provision of ecological services. Natural disasters like floods and cyclones have encouraged a number of countries to impose logging bans and to manage forests entirely for their environmental values. Similarly climate change concerns are impacting forest policies, and most countries have included forests as a key component in their climate change adaptation and mitigation strategies.

A shift from wood production to provision of ecological services raises the question as to who will pay for the provision of ecological services and to what extent payments for ecological services will help to improve the livelihoods of rural communities. Traditionally the costs of conservation have been

borne by the public at large - by governments which was justified considering that there are no markets for ecological services, and, further that most of the environmental services accrue to society as a whole, including future generations. However in recent decades, there has been a significant effort to bring environmental services within the purview of market mechanism so that beneficiaries pay for the provision of such services which in turn provides the necessary incentives to the suppliers of such services, namely forest owners. Several countries have put in place systems for payment for ecological services. This presentation addresses some of the pros and cons of the experience of PES implementation focusing on the following:

- Conditions under which PES is able to generate adequate income encouraging the provision of environmental services; and
- Factors that help to ensure that a significant share of PES helps to alleviate poverty and to improve the livelihood of rural communities.

There are several examples of PES in respect of watershed protection, carbon sequestration, biodiversity conservation and provision of amenity values. Various estimates are available about the potential value of PES in the future, though there are uncertainties as to whether these will be fully realized. More importantly there are many uncertainties as to how much of the realizable potential will accrue to those whose livelihoods need improvement which will depend very much on to what extent they are participating in the provision of the services either as owners of forests or as participants in the delivery of services.

Important take home messages as regards development and implementation of PES are:

- Whether the full potential of PES to contribute to livelihood improvement will be realized or not depends on (a) The larger socio-political, economic and institutional environment; and (b) the socio-economic conditions of the households.
- Ownership of land and forests is an important requirement for realizing PES benefits by rural communities. Tenure reform is hence most critical.
- There is a need to consider the opportunity costs of provision of ecological services. Income from PES may not be commensurate with the income from foregone opportunities.
- PES is highly context specific: “One size fits all” approach is bound to fail.
- Developing a PES system in itself is an extremely challenging task. It requires a wide array of policy, institutional and technical interventions to work in unison. Livelihood improvement makes it all the more complex.
- Bundling of different environmental services and adoption of a landscape approach could help to address some of the economic challenges in enhancing the livelihood role of PES.

Lecture 7: Engaging communities in forest protection

--- by Dr. Michelle Hang Gi Wong

Engaging communities in forest protection is not an easy task. From a conservation organization's point of view, every time is an experiment, with no guarantee of result. But from our experience, we have come up with some lessons learned and some rules of thumb through the years. Livelihood development and education will always be the key ingredients. And project success rely heavily on building trust and respect with the communities, and being creative in bringing in new approaches and techniques to solve their problems, fulfil their needs, or make better use of what the communities have. In this lecture, Dr. Wong will introduce her organization, briefly explain the role of communities in conservation, and share some experience and lessons learned of her team in engaging communities in forest protection.

Lecture 8: Forest tenure reform in China

--- by Prof. Shen Lixin

Forests provide important livelihood sources for local communities and play a key role in rural livelihood development. In many parts of the world, however, unclear forest property rights and weak local governance are key drivers of deforestation and forest degradation. Over past decades, many developing countries have undertaken forestland tenure reform with a view to reducing land use conflicts and providing incentives to local communities to improve forest resource management.

In this context, the experiences that China has gained with recent rural collective forest tenure reforms can guide forest conservation and poverty alleviation, as well as offer important lessons for other developing countries that are addressing issues related to unclear forest tenure. The objectives of the forest tenure reform are to increase the confidence, initiative, and ability of communities to manage forest sustainably, and to clarify and transfer forestland tenure and ownership of forests to individual households by issuing certificates, valid for 70 years. All collective commercial forests and waste hills/fallow suitable for forestation are targeted but nature reserves and protected forests are excluded. Clear transparent and participatory processes are used, where all villagers discuss details of the reform and at least two-thirds agree to implementation.

In general, the reform has been overall completed during the period of 2008 to 2014; it has achieved the goals with positive impacts on collective/community forest management (CF).

- Farmers can apply for mortgage loan of Forest Tenure by using use right of forest land, forests ownership (or use right) as collateral to financial institutions loans.
- The country has the area with clear tenure of 27.02 million hectares, accounting for 99.05 percent of the total collective forestlands.

- The area with forest tenure licenses issued is 26.04 million mu, accounting for 96.37% of the forestlands area with clear tenure, and more than 8,970 million individual farmer households have received the forest tenure certificates.
- and farmers can apply for mortgage loan of Forest Tenure by using use right of forest land, forests ownership (or use right) as collateral to financial institutions loans, and the loan by using forest tenure certificates as mortgage is over RMB 100 billion yuan in 2015.

Lecture 9: From a poor man's timber to the back-bone of thriving rural economies - The experience of China

--- by Prof. Shen Lixin

According to archeological discoveries, bamboo research and utilization in China has a history 5,000~6,000 years old, and known as a "Country of Bamboo Civilization" by the West and the Chinese people have been very fond of bamboos since ancient times. Being upright and modest, bamboos offer people an excellent subject for poetry, painting, and gardening. Bamboos have made major contributions to the development of the historical culture of China, and advances in science and technology are in return constantly pioneering new fields for bamboo utilization.

Although China has attached great importance to the development of bamboo plantations since the 1950s, the resource was sold mainly as raw material until the country began processing in 1985. The area of plantations grew from 3 million ha in 1976 to 5.1 million ha in 2009 and now forms the basis of an important rural industry. China has about 500 species of bamboo but only 50 are used for industrial purposes, products such as flooring, decoration board, furniture, charcoal, fiber, handicrafts, and shoots are exported mainly to Japan, North America and Europe.

In China, different parts of the bamboo plant were used - roots (art and handicrafts), leaves (juice, chicken feed and medicine), shoots (food), sawdust (energy), chips (pulp/paper), and small poles (fiber for textiles). Challenges facing the industry include a shortage of raw material and a utilization rate of less than 20% in most producer countries. If the culm is used only for bamboo flooring, for example, the absolute utilization rate is less than 12%. In addition, a rapid increase in prices of raw materials and labor costs is also Challengeable.

Lecture 10: Urban people, livelihood and forests

--- by Dr. Preecha Ongprasert

Urban forestry is a new paradigm for sustainable forest management. The management itself has to integrate various disciplines such as forestry, architecture, horticulture, engineering, agriculture, etc. to ensure the long term management.

In order to make a linkage with urban people and livelihood to the urban forestry, it is necessary to

understand the philosophy, scientific, and social dimensions of urban forestry management.

As a consequence, the presentation for the above-mentioned topic will include 4 topics as listed below:

1. Concept and Definition

   - Definition of the term “urban”

   - Definition and concept of “urban forestry:

2. The discipline of urban forestry

   - A new approach to the potential of urban forestry in developing countries

   - Urbanization in the third world: development and trend

   - Growing environmental concern

3. Potential of urban forestry indifferent urban zones

   - Biographical zonation

   - Land ownership and tree resources

   - A simple spatial model for urban forestry

4. Potential benefits for urban livelihood and problem

   - Material benefits

   - Environmental benefits

   - Potential problems

ATTACHED FILES:

1. PPT FILES OF KEYNOTE LECTURES

1) Changing role of forests in people’s livelihood: Past, present and future

--- by Dr. C.T.S. Nair

2) Production of wood and non-wood forest products and livelihood improvement

--- by Dr. C.T.S. Nair

3) Forest governance and livelihood improvement: General trends in policies, institutions and forest management

--- by Ms. Rowena Soriaga

4) People, wildlife and livelihoods: From conflict to co-existence

--- by Dr. C.T.S. Nair

5) Forests and livelihood of indigenous communities

--- by Ms. Rowena Soriaga

6) Markets for environmental services and rural livelihood improvement: Opportunities and challenges for PES

--- by Dr. C.T.S. Nair

7) Engaging communities in forest protection

--- by Dr. Michelle Hang Gi Wong

8) Forest tenure reform in China

--- by Prof. Shen Lixin

9) Bamboo: From a poor man's timber to the back-bone of thriving rural economies - The experience of China

--- Prof. Shen Lixin

10) Urban people, livelihood and forests

--- by Dr. Preecha Ongprasert

2. PPT FILES OF PARTICIPANT PRESENTATIONS

1) **Bangladesh:** Improving forest dependent livelihoods through NTFPs and home gardens: A case study from Satchari National Park

2) **Cambodia:** Overview of the contributions of forests to poverty alleviation in Cambodia

3) **Fiji:** Forestry and rural livelihood development

4) **Indonesia:** Dynamics of social forestry in Indonesia

5) **Indonesia:** Social forestry in Indonesian protected areas

6) **Laos:** Forest and rural livelihood development in Lao PDR

7) **Myanmar:** Study on contribution of Non-timber forest products (NTFPs) income to rural livelihood in Myanmar: A case study in Popa Mountain Park

8) **Nepal:** Community Forestry program and livelihood of local people: An Experiences from Doti district, Nepal

9) **Philippines:** The Green National Program in the Philippines

10) **Sri Lanka:** Forest management and livelihood concerns at the economy level

11) **Thailand:** Promotion and Development of Community Participation in Forest Conservation Area Project

12) **Thailand:** Using Choice Experiments to Estimate Non-Use Values: Case Studies of the Wild Asian Elephant and the Dugong in Thailand

13) **Viet Nam:** Management of watershed protection forest based on the Muong ethnic minority communities, Vietnam

3. READING MATERIALS

A. Reading materials provided by Dr. C.T.S. Nair

1) Arild Angelsen et al 2014. Environmental income and rural livelihoods: A global comparative analysis, World Development, Open-access article, http://dx.doi.org/10.1016/j.worlddev.2014.03.006

2) FAO, 2009. Challenges and opportunities for China's small and medium forest enterprises (SMFEs), Forest Connect – Diagnostic Studies on Small and Medium Sized Forest Enterprises 4, FAO, Rome.

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5) FAO 2014. State of World's Forests: Enhancing socio-economic benefits from forest, Food and Agriculture Organization of the United Nations, Rome.

6) FAO, AFN and APFNet. Making forestry work for the poor: Assessment of the contribution of forestry to poverty alleviation in Asia and the Pacific, FAO Regional Office for Asia and the Pacific, Bangkok

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14) United Nations 2016. Report of the Special Rapporteur of the Human Rights Council on the rights of indigenous peoples, UN General Assembly. Seventy-first session, A/71/229

15) Vira B, Wildburger C & Mansourian S. 2015. Forests, trees and landscape for food security and nutrition: A global assessment report, IUFRO World Series Vol 33, IUFRO, Vienna.

B. Reading materials provided by Ms. Rowena Soriaga

16) Arild Angelsen et al 2014. Environmental income and rural livelihoods: A global comparative analysis, World Development, Open-access article, Available at:

http://dx.doi.org/10.1016/j.worlddev.2014.03.006

17) FAO 2009. Where is the future for cultures and forests: Indigenous peoples and forest management in 2020, Working Paper No APFSOS II/ WP/2009/23, Prepared by the Asia Forest Network.

18) FAO 2010. Forest policies, legislation and institutions in Asia and the Pacific, Trends and emerging needs for 2020, Asia-Pacific Forestry Sector Outlook Study II, Working Paper No APFSOS II/WP/2009/34, FAO Regional Office for Asia and the Pacific, Bangkok.

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C. Reading materials provided by Prof. Shen Lixin

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APFNet Workshop on
Forestry and Rural Livelihood Development

Changing role of forests in people's livelihood: Past, present and future

Dr. C T S Nair

INTRODUCTION

- Forests provide a wide array of products and services that are important in people's livelihood.
- High dependence on forests for livelihood under certain conditions.
- Increasingly forest policies are emphasizing the livelihood dimensions of forests and accommodating these in management practices.
- Need to ensure that forest management mainstreams the UN Sustainable Development Goals (SDGs)
- We need to have a good understanding of different aspects of livelihood implications of forest management.
- It is in this context that APFNet has chosen rural livelihood improvement as the theme of one of its two annual workshops.

YOUR QUESTIONS

What are your questions on livelihood – forest linkages?

- **Each person to write down one most important question relating to the role of forests in meeting livelihood needs of rural communities.**

KEY ISSUES

- **Are forests really critical in meeting the livelihood needs of rural communities?**
- **Why are people dependent on forests for livelihoods?**
- **What is the scope and efficacy of a forest-centric livelihood improvement programme? Does an increase in the number of forest-dependent people an indication of improvement in well-being?**
- **Could we expect a continued increase in the importance of forests as a means of livelihood in the future?**
- **Or do we want people to become less dependent on forests for their livelihoods?**

STRUCTURE OF PRESENTATION

- **Why livelihood issues have become important?**
- **Changing perceptions about forest's role in livelihoods.**
- **Opportunities and challenges in enhancing the livelihood roles of forests.**
- **Meeting livelihood from forests: Different approaches.**
- **Take home messages.**

LIVELIHOOD ISSUES GAINING IMPORTANCE

- **Increased understanding of the role of forests in providing livelihood security.**
- **A very large number of people still live below the poverty line.**
- **Overlap of distribution of forests and distribution of poverty – "Rich forests – poor people" syndrome.**
- **Failure to mainstream livelihood consideration undermines conservation and sustainable management of forests.**

LIVELIHOOD ASPECTS

- **Two aspects of forest related livelihood issues have received considerable attention:**
  - **The number of people who are dependent on forests for livelihood.**
  - **The degree of dependence.**

EXTEND OF FOREST DEPENDENCE

- **In one way or the other, we all are dependent on forests directly and indirectly. However here the focus is the more direct forest dependence of those who have very limited alternatives.**
- **Estimates of people dependent on forests for their livelihood:**
  - **One of the earliest estimate is by the World Commission on Forests and Sustainable Development (1997) – 350 million people are almost entirely dependent on forests for their subsistence and another 1.00 billion rely on trees and woodlands for food, fuel, fodder, etc. in varying degrees.**
  - **World Bank in 2002 estimated the number of forest dependent people as 1.6 billion.**
  - **More recent assessment – Chao 2012 – puts the number of forest dependent people as 1.2 to 1.6 billion.**

The number of forest dependent people could be much lower than this

EXTENT OF FOREST DEPENDENCE

- **Studies on the degree of dependence on forests:**
  - **There have been several studies that attempted to measure the extent of forest dependence.**
  - **Degree of dependence is linked to the social, economic and ecological settings and hence highly context specific.**
  - **As the socio-economic conditions change over time, so will forest dependence.**

FOREST'S CONTRIBUTION TO LIVELIHOOD

DIRECT USE OF SUBSISTENCE PRODUCTS
- Food, medicines, fuelwood and other products that are supporting subsistence consumption
- Shelter, cultural products
- Forests for health and healing.

EMPLOYMENT AND INCOME
- Sale of products directly to consumers with out much value addition
- Employment and income through value addition (forest industries)
- Income from provision of ecological services

PROVISION OF ECOLOGICAL SERVICES THAT ARE CRITICAL TO LIVELIHOOD
- Water, biodiversity

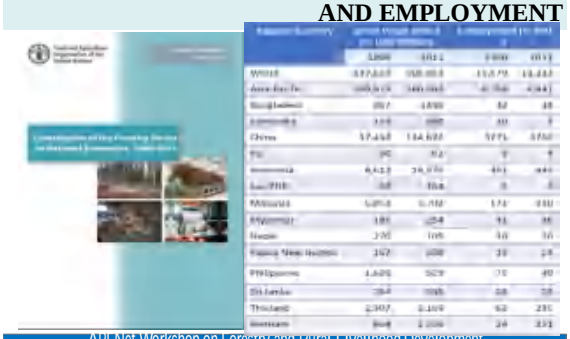
FOREST'S CONTRIBUTION TO LIVELIHOOD

- **. Diverse nature of forest dependence:**
  - **Provision of livelihood on a regular and continuing basis (For example forest dependent communities derive a significant share of their livelihood from forests).**
  - **Forests as a livelihood safety net: Especially when other sources of livelihood becomes difficult (People relying on forests as a short term option).**
  - **Forests helping to build other forms capital and thus escape from poverty.**

ASSESSMENT OF LIVELIHOOD CONTRIBUTION: THE CHALLENGE

- **Modern forestry has primarily evolved to manage forests for timber production, especially for trade or industrial processing.**
- **Success in forest management largely determined on the basis of volume of timber produced or revenue generated.**
- **Fulfilment of livelihood needs takes place in the informal domain, which is not captured in national forest statistics.**
- **Anything that is not measured is more likely to be neglected.**

FOREST SECTOR'S CONTRIBUTION TO GDP AND EMPLOYMENT



ASSESSMENT OF LIVELIHOOD CONTRIBUTION: CHALLENGES

- Defining forest dependence: There are no objective and accurate measures of forest dependence. Many types of dependence, which varies across space and time and it is unclear whether the numbers are comparable.
- Inadequacy of information to determine the actual level of dependence. Even when data is collected, quality variations are quite significant.
- GDP and employment estimates capture only a fraction of the actuals.
- A significant share of livelihood benefits have not been quantified and valued.

In 2011, the number of people employed (full time equivalent) in forestry in the formal sector is estimated as 13.2 million. In addition it is estimated that another 41 million are employed in informal activities in the forest sector.

LIVELIHOOD: SOME BASIC ISSUES

- Livelihood and hierarchy of needs.
- Different assets and their implications on livelihood
- Forests – A natural capital generating a stream of goods and services directly and indirectly impacting livelihoods.
- Explaining the "Rich forests – Poor people" Syndrome

LIVELIHOOD: DEFINITION

- In very simple terms a livelihood is "a means of making a living. It encompasses people's capabilities, assets, income and activities required to secure the necessities of life"
- Sustainable livelihood: "A livelihood is sustainable when it enables people to cope with and recover from shocks and stresses (such as natural disasters and economic and social upheavals) and enhance their well-being and that of future generations without undermining the natural environment and resource base".

HIERARCHY OF HUMAN NEEDS

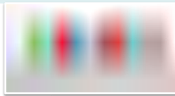
- While considering livelihood, we need to understand that there is a hierarchy of needs as elaborated by Abraham Maslow in 1943.
- There are different types of needs, the most fundamental being physiological needs – food, water, air, clothing, shelter, etc.
- Once needs at a lower level are satisfied, humans strive to satisfy the needs at the higher level.

A SYSTEM APPROACH TO LIVELIHOOD: ANALYSIS

For a better understanding of livelihood aspects we need to focus on the following:

- Assets people depend up on.
- Strategies they develop to use the assets to make a living.
- The larger context within which a livelihood is developed; and
- Factors that make a livelihood more or less vulnerable to shocks and stresses.

LIVELIHOOD ASSETS AND CONTEXT



ASSETS

- Natural capital (Land, forests, minerals, energy, etc.)
- Human capital
- Physical capital
- Social capital
- Financial capital

CONTEXT

- Social and political organization
- Governance
- Policy and policy processes
- Institutional arrangements
- Service delivery

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APPROACHES TO IMPROVE LIVELIHOOD

- **Natural capital route: Access to products and services: Through rights over forests or rights to specific products**
  - **For subsistence consumption.**
  - **For sale of products/ services for income.**
- **Human capital route - Income from employment**
  - **Production of wood and other products and services (logging, plantation related activities, forest conservation, etc.)**
  - **Value addition – Processing of wood and other products.**

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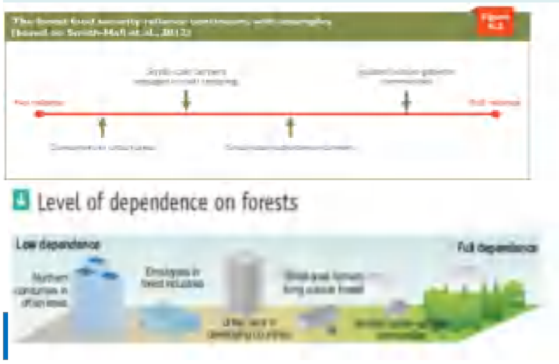
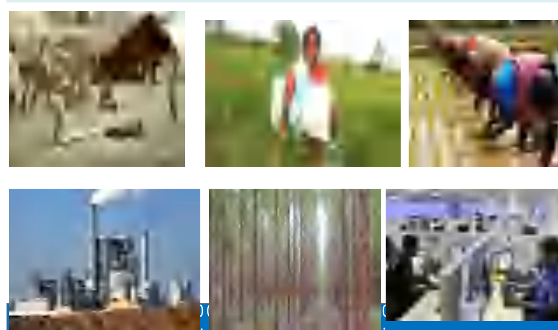
FOREST-LIVELIHOOD CONTINUUM



FORESTS AND LIVELIHOOD IN A CHANGING CONTEXT



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FORESTS AND LIVELIHOOD IN A CHANGING CONTEXT

Pre-agrarian societies	• Almost complete dependence on forests for livelihood. • Primarily subsistence oriented
Agrarian societies	• Significantly reduced dependence – Mostly seasonal tree products, employment and income
Industrial societies	• Direct dependence on forests declines. Emphasis on producing raw materials that contributes to livelihoods through income from employment in manufacturing and raw material production.
Post industrial society	• More focused on environmental values, especially amenity, health benefits etc., and the provision of clean water, air, etc.

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A MOSAIC OF COMMUNITIES AND LAND USES

- **What we see is a mosaic of interdependent land uses and communities that thrive on different land uses/ resources.**
- **Essentially it is a landscape continuum generating a wide array of products and services.**

Forest	Shifting cultivation	Agroforestry	Single species crop production
Direct Roles		**Indirect Roles**	
• Food, fruits, vegetables, fodder, forage (bush meat) • Wood for cooking • Shelter		• Income generation through sale of wide array of products or through employment in production, processing and trade • Ecosystem services	

TAKE HOME MESSAGES

- **Forests – livelihood linkages are multiple, highly context specific and extremely dynamic.**
- **The long term trend indicates that the direct dependence on forests for livelihood is declining, though millions of people still rely on forests for livelihood in varying degrees.**
- **Absence of reliable data on the extent of forest dependence is a major limitations in assessing the livelihood role of forests.**
- **Need to shift from forest-centric to people-centric approaches. Livelihood should be looked at from the demand side (from the side of people) and not from the supply side (from what is produced by forests)**

TAKE HOME MESSAGES

- **In the past forests were an important source of livelihood products, including food, medicines, fuel, shelter and so on in addition to several environmental services.**
- **While some people continue to depend on forests for subsistence products, production and processing a wide array of products and value addition have become an important source of livelihood.**
- **This is also changing and increasingly environmental services are becoming more critical components of livelihoods. The healing power of forests is getting increased attention in many societies.**
- **A major challenge however will be managing forests for all these to fulfill the livelihood needs of different segments of society, whose perception about livelihoods is different.**

Thank you

(2) Production of wood and non-wood forest products and livelihood improvement
--- by Dr. C.T.S. Nair

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Forestry and Rural Livelihood Development

Production of wood and non-wood forest products and livelihood improvement: The value chain approach

Dr. C T S Nair

INTRODUCTION

- Forests produce a wide array of products with very diverse end uses.
- Most of the value is realized from end uses by consumers.
- Mere production will not generate a value; Value arises from actual use of products by consumers
- All products goes through a series of processes/ transactions before it reaches the final consumer.
- Production, processing and transport generate substantial employment and income.
- But very rapid changes are taking place in forest products value chains.

STRUCTURE OF PRESENTATION

- How do we generate values?
- Definition of value chain and value chain analysis.
- Some examples of forestry value chains
- Value chain and livelihoods
- Participation in value chains
- Take home messages

VALUE GENERATION

- As foresters we attempt to generate value through a wide range of activities:
  - Logging natural forests and production of industrial timber.
  - Forest plantations.
  - Production of non-wood forest products through collection from the wild or through cultivation.
  - Growing trees and other products under integrated land uses – Agroforestry.
- But such efforts address only a small part of value generation at one end and fails to take into account the totality. For a proper understanding of the issues, especially in the context of livelihood improvement, we need to have a good understanding of the entire value chain.

VALUE CHAIN - DEFINITION

- A value chain is a sequence of related business activities.
- Shows the links between different operators.
- Helps to understand/ determine the economic flows between different stages along the "production – consumption continuum" and in the process every economic dimension is captured.

DIFFERENT TYPES OF VALUE CHAINS

- Some value chains are very short – This is the case of subsistence consumption where the producer and consumer is the same.
- Some value chains are very long and transcend national boundaries.
- Increasingly local value chains are being replaced by global value chains.
- Such a shift negatively affects those involved in local value chains.

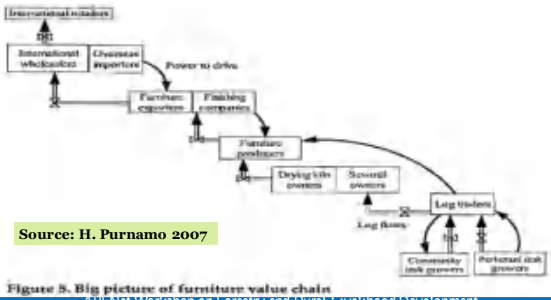
SUPPLY CHAIN AND VALUE CHAIN

Source: Fearne. 2009

ANALYSIS OF VALUE CHAINS

- Chain mapping – Tracing the product flow
- Quantification
- Economic analysis
- Assessment of opportunities and constraints in the value chain – SWOT analysis.

TEAK VALUE CHAIN - INDONESIA



Source: H. Purnamo 2007

Figure 5. Big picture of furniture value chain

TEAK FURNITURE VALUE CHAIN - INDONESIA

Actors	Share of net value added per m³ Let product (%)
Teak growers	5.6
Log traders	0.0
Sawmill owners	0.0
Drying kiln owners	0.2
Furniture producers	3.6
Furniture finishers	1.2
Furniture exporters	13.4
Overseas importers	5.1
International wholesalers	21.9
International retailers	46.7
Total	100.0

EXAMPLES OF VALUE CHAINS - EXERCISE

Each group to discuss and prepare a diagram of a value chain representing:

1. **Tropical timber production from natural forests and its end uses.**
2. **Firewood value chain.**
3. **Medicinal plants value chain.**

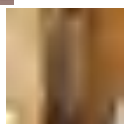
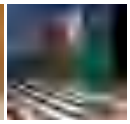
HONEY VALUE CHAIN

An example of addressing different aspects of honey value chain

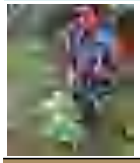
- **Keystone Foundation (Mobilisation and technical support)**
- **Adimalai Pazhamkudiyinar Producer Company (Production)**
- **Last Forest (Marketing)**

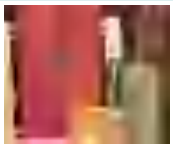
BAMBOO VALUE CHAINS

- With a product like bamboo one could think of multitude of value chains offering immense livelihood opportunities.
- Livelihood role of each value chain will be quite different.


HAND MADE PAPER VALUE CHAIN



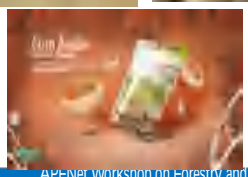


	Lokta collector	Paper maker	Product maker	Exporters/ importers / wholesalers and retailers in Europe
Value added per standard 40 gsm sheet	1	6	33	230
Percentage of final value (Final value NPR 270)	0.4	2.0	12	85.6

Source: GTZ/PSP-RUFIN 2007. Handmade paper in Nepal – Upgrading with value

GUM ARABIC VALUE CHAIN




VALUE CHAIN AND LIVELIHOODS

- What determines the distribution of values at different stages?
- Why the poor get only a small fraction of value added?
- Upgrading value chains.

MULTIPLE VALUE CHAINS AND LIVELIHOODS

- Most often rural communities depend on multiple value chains
- Some may be very short contributing to subsistence consumption – Others may be local, national or global vale chains.
- Multiple value chains reduce the risks associated with dependence on single value chains.

FACTORS DETERMINING LIVELIHOOD CONTRIBUTION OF VALUE CHAINS

- Ownership/ Control of critical assets - Land, labour, machinery, finance, etc.
- Technology and skill employed.
- Knowledge about value chains.
- Entrepreneurship.
- Scale of operation.
- Control over the different stages in value chain.

TAKE HOME MESSAGES

- Enhancing income of rural communities from production and processing of wood and non-wood forest products will be effective only if there is a clear understanding of the value chains and how value is shared between different factors of production.
- Absence of understanding of the nature of value chains limits the ability of rural communities from realizing the full potential of emerging opportunities.
- Merely focusing on the production of raw material - whether it be timber, wood fuel or non-wood forest products – is unlikely to enhance income to rural communities.

TAKE HOME MESSAGES

- Value chains undergo rapid changes in the context of globalization. It is important to understand the implications of this to enable communities to take advantage of the opportunities as also to counter potential negative impacts.
- Improved access to information is key to enhancing the opportunity of small holders to participate in global value chains and to derive benefits.
- Benefits from formalization of value chains need careful analysis. From the livelihood perspective it could sometimes have negative impacts.

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Thank you

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(3) Forest governance and livelihood improvement: General trends in policies, institutions and forest management --- by Ms. Rowena Soriaga

Forest Governance and Livelihood Improvement

general trends in policies, institutions and forest management

Rowena Soriaga
with inputs from CTS Nair

APFNet Training Workshop on Forestry and Rural Livelihood Development
1 – 14 November 2017 Kunming, Yunnan, PR China

Outline

1. What is governance? Why it is important to livelihood improvement?
2. Principles and Pillars of Good Governance
3. Changes in forest policies, legislation and institutions and their impacts on livelihoods
4. Governance challenges
5. Governance improvement initiatives that enhance livelihood contributions of forests

1. Definition and Importance of Governance

WHAT IS GOVERNANCE?

refers to "all processes of governing, whether undertaken by a government, market, network, family, tribe, formal or informal organization or territory and whether through laws, norms, power or other means".

- Term is derived from the Greek word *Kubernao* meaning to steer or pilot. It is a process whereby an organization or society steers itself.
- Concept is used in almost all types of organizations – at different spatial levels, sectors, ownership, etc.

GOVERNANCE – MORE DEFINITIONS

UNDP Definition

"The exercise of authority (political, economic and administrative) to manage a country's affairs at all levels. It comprises the mechanisms, processes and institutions through which citizens and groups: (1) articulate their interests, (2) exercise their legal rights, (3) meet their obligations, and (4) mediate their differences."

- This definition underlines the "process" nature of governance, which happens on all geographic levels, global to national to local.
- It is a dynamic interplay between different actors: governments, individuals, civil society organizations, private sector.

WHY IS GOVERNANCE IMPORTANT?

Governance consists of a number of systems and sub-systems operating at different spatial and sectoral dimensions.

- **Global governance: Consists of an array of conventions, agreements, protocols that operates at the global level.**
- **National governance: Policies, legislation, institutions and the systems to oversee how a country is steering its development.**
- **Sub-national/ local governance: Local level systems responsible for managing resources locally.**

In a globalized world there are strong linkages between what happens at the global, national and sub-national levels.

Governance at different levels have direct and indirect implications on rural livelihoods.

IMPACTS OF POOR FOREST GOVERNANCE

Poor forest governance affects livelihoods of local communities in a number of direct and indirect ways. These could be:

- Economic loss
  - Loss of income to undermining government's ability to support livelihood related investments.
  - Increases costs and inefficiency.
  - Import of illegally procured products undermines competitiveness of domestic manufacturing.
- Environmental damage
  - Environmental damages from poor governance affects the livelihood of local communities, especially as it reduces the supply of a wide array of goods.
- Social problems
  - Access to resources by the poor are significantly reduced.
- Undermines social cohesion, accentuating conflicts.
- Makes legitimate activities unviable.

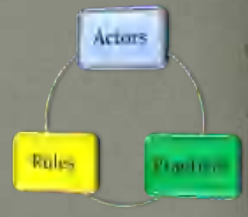
2. Principles and Pillars of Good Governance

GOOD AND BAD GOVERNANCE

FOREST GOVERNANCE FAILURES

Since its early beginning as law enforcement, the concept of governance has broadened to cover almost all activities of the government as also other players. Some examples of governance failures are:

- Illegal logging;
- Land encroachment;
- Illegal trade of various products;
- Tax evasion;
- Money laundering;
- Corruption;
- Syphoning funds from conservation and developmental activities;
- Inefficient management of forests.



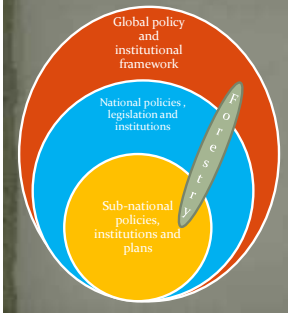
GOOD GOVERNANCE PRINCIPLES AND PILLARS

Principles	PILLARS OF GOVERNANCE		
Participation	Policy, legal, institutional and regulatory framework	Planning and decision making process	Implementation enforcement and compliance
Accountability			
Transparency			
Effectiveness			
Efficiency			
Fairness			

3. Changes and Impacts

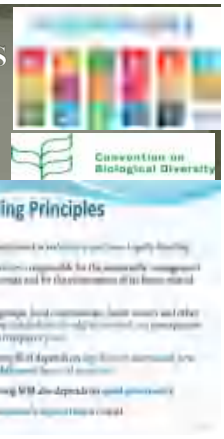
Changes in forest policies, legislation and institutions and their Impacts on livelihoods

THE LARGER FRAMEWORK



- In considering the livelihood dimensions of any resource use, we need to consider the linkage between developments at various spatial levels – global, national and local.
- These linkages affect all sectors including forestry and could have positive and negative impacts on the livelihood contribution of forests.

GLOBAL DEVELOPMENTS



Changing perspectives about social and economic development and associated efforts (SDGs)

Various agreements and conventions (CBD, UNFCCC, UNFF)

Globalization, growth of trade via trade-related agreements (new markets for products, opportunity to import timber and other products, etc.)

Policies, legislation and plans in other countries (For example logging bans, agriculture development plans)

THE NATIONAL SITUATION

- Parallel to the global situation, several national policies jointly impact forests and forestry and the objectives of forest management, including meeting livelihoods.
- It is critical to understand how the larger framework at the national level – which includes several policies – in fact a hierarchy of policies - which affect socio-economic development, including the livelihood of the people.

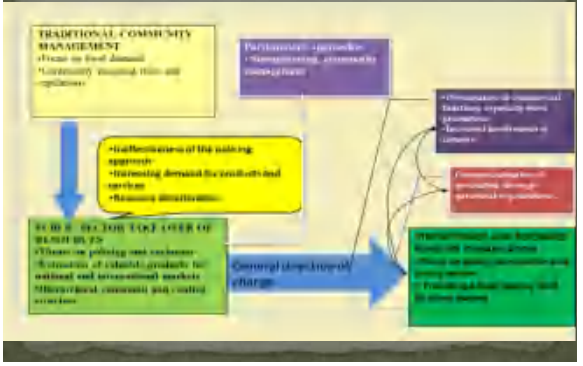
LIVELIHOOD IMPACTS OF FOREST POLICIES

Overall situation	Focus of forest policies	How livelihood aspects were addressed
Resource abundance and low demand.	Most needs were met even in the absence of an explicitly stated policy	Livelihood needs were met without any planned efforts.
Increasing demand for timber for industrial needs and revenue	Timber focused management of natural forests, and curtailment of rights of local communities.	Up to some point livelihood aspects were accommodated. Logging provided some additional source of income
Continued expansion of forest industries and increasing timber demand.	Large scale plantations – Thrust on fast growing species.	Significant negative impact on livelihood on account of curtailment of access to resources.
Growing concern about social and environmental issues. National poverty reduction strategies	Policies giving increased emphasis to enhancing livelihoods	Increased emphasis on community participation.

IMPACTS OF FORESTRY LEGISLATION

- Forest laws, rules and regulations form an important tool for implementing forest policies. Many countries have brought about changes in the legislation.
- General trend in forest legislation is towards redefining forest ownership. One major thrust is towards increased devolution of responsibility to local communities. Several countries have made significant progress as regards forest tenure reform, which is key to enhancing the livelihood focus of forestry.
- Path-breaking legislative changes have been brought about in several countries enabling increased participation of local communities and farmers in managing forest and tree resources, helping to enhance their livelihoods.
- Yet reform of rules and regulations is a relatively slow process and this causes considerable tension between new policies and old legislation.
- There are also instances where vestiges of outdated legislation lingers on leading to conflicts.

INSTITUTIONAL ARRANGEMENTS



4. Governance Challenges

Governance challenges when addressing livelihoods

INEQUALITY, RESOURCE SCARCITY AND GOVERNANCE

Inequalities in societies tend to generate severe governance challenges that particularly affect rural livelihoods.

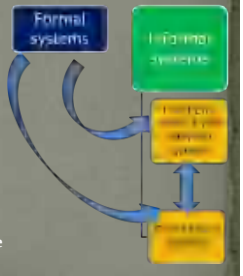
- High consumption needs of the better off tends to undermine the access of the poor to essential livelihood means.
- This exists globally, nationally and even locally.
- Governance rules are most often written and rewritten permitting increased access to resources by those with greater ability to pay.

In a resource scarce situation, the problem becomes much more complex

- Queue jumping to access a larger share of resources becomes much more widespread.

GOVERNANCE & INFORMAL SECTOR

- Two broad systems:
  - Formal = widely accepted, legally approved systems.
  - Informal = operating outside the formal, legally-sanctioned rrangements.
- Strong linkages exist between formal and informal systems. Often, people who are apparently part of the formal system have close links with the informal actors.
- Informal sectors and activities continue to be robust and a significant part of the forest-livelihood aspects come under the domain of informal arrangements.



FOREST GOVERNANCE CHALLENGES

Certainly, a lot of progress has been made in shifting policies, legislation, institutions and management practices in favour of meeting the livelihood needs of rural communities. However, many challenges persist and the pace of change is extremely varied due to:

1. The science base of policies remains weak. Most often, policies are formulated without a proper analysis of critical issues.
2. Contradictions between different policies, largely because of fragmentation of policy processes and lack of understanding of inter-sectoral linkages.
3. Even within a given sectoral policy, objectives could be contradictory and policies seldom indicate how trade-offs are established between competing objectives.

FOREST GOVERNANCE CHALLENGES

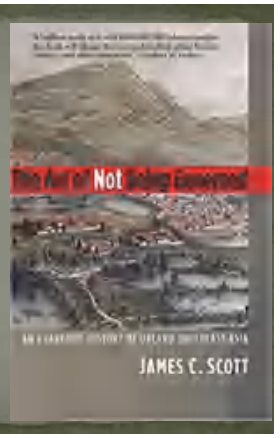
4. Bringing about changes in legislation and institutional framework is a slow process. This severely affects the implementation of new policies.
5. There is always a constant tussle between old rules and regulations and new ones as also between old and new institutional arrangements.
6. Tools are available to undertake systematic analysis of the impact of different interventions on livelihoods. Unfortunately, tools like social and environmental cost benefit analysis are seldom applied in determining priorities.

Government challenges in relating with Indigenous Peoples

- Diverse cultures; multiple identities
- Diverse livelihoods; majority live on state forest lands
- Dispersed without collective coherence and social presence

Challenges to governance

- Remote, geographically and historically
- Many are not part of the national "system", without social documentation (birth certificate, access to basic services and governance)
- Lack economic connectivity
- Limited recognition of cultural practices
- Subject to hardships of seasonal disasters



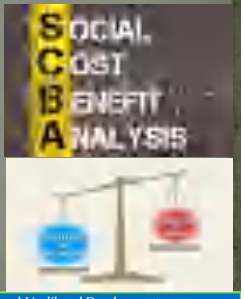
5. Initiatives

Governance improvement initiatives that enhance livelihood contributions of forests

CONVERGING POLICIES

MAINSTREAMING LIVELIHOOD CONSIDERATIONS IN FOREST MANAGEMENT

- There are well established analysis techniques to assess the livelihood impacts of programmes and projects.
- Improved cost-benefit analysis could clearly indicate whether management practices and interventions are benefitting the intended target groups.



IMPROVING GOVERNANCE

TAKE HOME MESSAGES

- Governance reform is necessary for social and economic development to lead to rural livelihood opportunities.
- Poor governance is a recipe for conflicts and unsustainable use of resources.
- Good governance embodies six basic principles: participation, accountability, transparency, effectiveness, efficiency and fairness.

Take Home Messages

- Forest governance challenges tend to be reflective of larger governance issues that compound the complexity of forest governance reform.
- Strategies to improve forest governance should always take into serious account the broader environment beyond the forest sector.

APFNet Workshop on
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People, wildlife and livelihoods: From conflict to co-existence

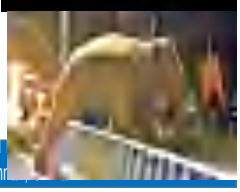
Dr. C T S Nair

INTRODUCTION

- Human – wildlife conflict has emerged as a major challenge as regards conservation and rural livelihood improvement efforts in many countries.
- Human habitations adjoining forests are highly vulnerable to wildlife caused damages to life and property.
- For those living at the subsistence level, loss of property and life has severe consequences.
- Often this becomes a political issue.
- Those at the receiving end of wildlife damage oppose conservation efforts including the efforts to create protected areas.

STRUCTURE OF PRESENTATION

- Drivers of human-wildlife conflicts.
- Impact of human-wildlife conflicts
- Managing conflicts .
  - Preventive measures
  - Mitigation measures
  - Enhancing tolerance limits.
- Take home messages.



DRIVERS OF HUMAN-ANIMAL CONFLICTS

- Overlap of wildlife-human habitats is the fundamental cause of human wildlife conflicts.
- Higher human population densities imply higher overlap of human and animal territories.
- Such overlap could be seasonal or throughout the year:
  - Seasonal overlap could be due to seasonal changes in the availability of food and water. Especially during periods of water shortage, animals tend to move into areas where water is available and most often these could be human habitats.
  - Continuous overlap is caused by high population densities of human and animals as also incorrect delineation of forests, especially protected areas.
  - A decline in the number of natural predators could be a major factor in the increase in herbivore population.

DRIVERS OF HUMAN-WILDLIFE CONFLICTS

- Man-made drivers:
  - Occupation of land close to wildlife habitats which increases the probability of damage by wildlife (Expansion of settlements close to forests).
  - Tampering with migratory corridors/ routes of animals.
  - Poor management of tourism which affects animal behavior.

DRIVERS OF HUMAN-WILDLIFE CONFLICTS

- Success of wildlife conservation efforts and consequent increase in wildlife population spilling over to areas outside forests.
- Poaching reducing the natural prey populations has led to cattle lifting by carnivores like tiger and lion. Also incapacitation of animals by poachers have triggered predation of cattle and human beings.
- Very poor understanding of the behavior of animals, especially among those who primarily live in urban environments.

IMPACT OF CONFLICTS

- **The people living close to forests are the most affected by human animal conflicts. The high dependence of rural communities also implies that increasing conflicts will have a devastating impact on their livelihoods:**
  - **Damage to crops – especially from elephants, deer, wild-boar, monkeys, etc.**
  - **Destruction of property – houses and other infrastructure are damaged by animals like elephants.**
  - **Death and threats to life – especially from carnivores.**
  - **Disruption of normal life (For example in many villages close to forests people are forced to stay indoors and even accessing schooling and medical facilities becomes a challenge)**

IMPACT OF CONFLICTS

- **There are also instances of animals straying into urban areas and causing death of people and damage to property.**
- **The frequency of animals moving to human populated areas has increased in recent times.**

MANAGEMENT OF HUMAN-WILDLIFE CONFLICTS

- **Human-wildlife conflicts are rather a symptom of a more fundamental problem of poor environmental management.**
- **Conflicts exist in almost all countries and it is impossible to totally stop them, considering that humans and animals will have to co-exist.**
- **All that can be done is to manage the conflicts so that the extent of damage is kept at an acceptable level.**
  - **Preventive measures**
  - **Mitigation of damage**
  - **Enhancing the tolerance limits**

PREVENTIVE MEASURES

- **Minimize the overlap of animal and human habitats.**
- **Ensure that human habitations are not encroaching into animal habitats.**
- **Relocation of villages inside forests/ protected areas.**
- **More realistic determination of boundaries of protected areas.**
- **Establishing connectivity and corridors to enable movement of animals.**

PREVENTIVE MEASURES

- **Improved management of protected areas based on a better understanding of ecology, in particular the carrying capacity of the area.**
- **Barriers to prevent the incursion of animals into human habitations – fences (including electric fences, live fences) trenches, etc.**
- **Culling animals and above the carrying capacity.**
- **Driving away animals.**

MITIGATION MEASURES

- **Capture and relocation of animals or killing animals known to cause the problem.**
- **System of compensation to recoup the damage or loss (either through government funded programmes or insurance schemes)**

CORE ELEMENTS OF A SUCCESSFUL COMPENSATION PROGRAMME

- Quick and accurate verification of damage.
- Prompt and fair payment
- Sufficient and sustainable funds.
- Site specificity
- Clear rules and guidelines and transparent process.
- Measures of success

ENHANCING TOLERANCE LIMITS

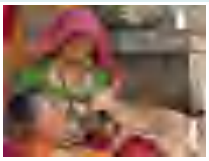
- **Making wildlife as a source of income:**
  - **Potential to enhance income from wildlife based tourism.**
  - **Once there is realization that wildlife is a source of income, the attitude of people could change significantly.**
  - **Several examples where local communities are managing protected areas and deriving income from wildlife based tourism (For example Community Based Protection Oriented Ecotourism in the Periyar Tiger Reserve in India .**

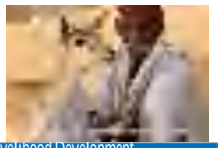
MAKING WILDLIFE A SOURCE OF INCOME

- **CAMPFIRE (Communal Areas Management Programme for Indigenous Resources) was initiated in 1986 to encourage local community management of wildlife, especially to reduce conflicts in resource use and enhancing income to local communities.**
- **Ensuring that income from trophy hunting, photography, game viewing, etc. accrue to local communities.**
- **By 2002 CAMPFIRE Association covered 35 rural districts, 777000 households and 244,000 km2 of communal lands, with actual wildlife production covered 85400 households over an area of 34,000 km2.**
- **Revenue sharing agreement between the various stakeholders.**
- **Very low income on a per household basis; but for the ward and district institutions the revenue appeared to be quite critical.**

PROMOTING CO-EXISTENCE

- **While traditional forest dwelling communities had a good understanding of animal behavior, recently settled people fail to understand the "rules of the jungle" nor they are keen to understand them.**
- **Education and awareness generation – With a better understanding of animal behavior a lot of the problems can be avoided.**





TAKE HOME MESSAGES

- **There are clear indications of an increase in the frequency and severity of human-wildlife conflicts.**
- **Most often the human-wildlife conflicts are managed on a reactive basis – largely knee-jerk responses – to deal with the symptoms on a short term basis. Seldom there are attempts to address the fundamental causes.**
- **Every country should have a clear strategy to address human-wildlife conflicts that accepts the fact that human beings have to share space with animals.**
- **If conservation is considered as important obviously the public at large should compensate those who are affected by wildlife (and hence the justification for publically funded compensation programme)**
- **Much more efforts need to be made to understand animal behaviour and ecosystem responses to human interventions and to develop preventive and mitigation measures based on better science.**
- **Need to promote a culture of tolerance/ accommodation**

Thank you

(5) Forests and livelihood of indigenous communities --- by Ms. Rowena Soriaga

FORESTS AND LIVELIHOODS OF INDIGENOUS COMMUNITIES

Rowena Soriaga
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APFNet Training Workshop on Forestry and Rural Livelihood Development
1 – 14 November 2017 , Kunming, Yunnan, PR China

Outline

1. Context of Indigenous Communities in Asia-Pacific forests
2. Forces helping and hindering sustainability of forest cultures
3. Forests in livelihood strategies of indigenous peoples today
4. Status of efforts to empower indigenous communities at the global, regional, national and local levels
5. Potentials in improving forest conservation through supporting livelihoods of indigenous peoples

1. Context of Indigenous Communities in Asia-Pacific Forests

Who are indigenous peoples in today's global world?

Indigenous Peoples…

1. self-identify as indigenous or tribal
2. typically aspire to remain distinct culturally, institutionally and geographically, rather than assimilate fully into national society
3. usually live within, or maintain an attachment to, geographically distinct ancestral territories*
4. tend to maintain distinct social, economic, and political institutions within their territories
5. recognised by other groups, or by State authorities, as a distinct collectivity

* special cases - due to migration, whether forced or voluntary

References: IFAD; UNPFII; ILO; FAO

Over 370 million Indigenous Peoples…

- represent 75% of world's diverse cultures
- occupy 50%-65% of the world's lands [22]
- cultivate 65% of crop varieties consumed worldwide
- host 80% of world's biodiversity in ancestral domains
- 15% of them are fully dependent on forests to live

Indigenous Peoples in Asia-Pacific

- represent more than 75% of Indigenous Peoples in the world, estimated 260 million peoples
- many are highly dependent on forests, not only for subsistence and economic purposes, but more so for sustaining cultural, social and political life

Cultural Diversity, Social Marginality and Forest Dependence: Southeast Asia

Country	# ethno-linguistic groups	% living on forestlands	% national population	Regions where IPs are the 'majority'
Cambodia	24	nd	1.34%	Rattanakiri, Mondulkiri...
Indonesia	365 – 700+	nd	20%-29%	Kalimantan, Sulawesi, West Papua...
Lao PDR	49 - 160	nd	35%-70%	spread out across the country
Malaysia	97	40%	12%	Sabah (66%), Sarawak
Myanmar	135	nd	30%-40%	Shan, Kachin, Rakhine...
Philippines	110	66%	10%-15%	Cordillera (91%) Sierra Madre (31%) Mindanao (42-52%)
Thailand	34	nd	1.5%	northern Thailand, borders w/ Myanmar & Laos
Vietnam	54	nd	13.8%	northeast, northwest, central highlands

Cultural Diversity, Social Marginality and Forest Dependence: South Asia and Pacific

Country	# ethno-linguistic groups	% living on forestlands	% national population	Regions where IPs are the 'majority'
Bangladesh	54	nd	2%	North, southeast, CHT
India	461-635	nd	>8.2%	Northeast
Nepal	59-123	nd	36-50%	In 27 of 75 districts
Sri Lanka	nd	nd	<1%	southeastern, eastern
Australia	~200 ?	nd	3%	Northern Territories Torres Straits
Fiji	4+	nd	~55-60%	
PNG	800+	nd	Majority	

Sources: [illegible], UN DESA, UN ESCAP

2. Forces helping and hindering sustainability of forest cultures

Culture and Awareness

Trends

↑ sense of connectivity of all people, however, naïve, simplistic or trivial

↑ mega shift in social attitude = acceptance & respect in mainstream cultures of 'others' who were once seen as 'worlds apart'

Drivers

External:

✓ International human rights and media driving attitude and action in various ways

✓ Awareness of historically discriminatory attitude and inconsiderate treatment driving shifts to responsible attitudes.

✓ Constitutional changes in some countries

Identity, Movements & Dependence

Trends

↑ drive for self-determination
↑ venues to learn, exchange and act
↑ rediscovery of spiritual relations to forests & complementarities of traditional and contemporary faiths
↑ knowledge management influencing policies and programs

↑ consensus that a universal definition is not necessary
↑ movements calling for national accountability
↑ integration of traditional political systems in state governance

↑ dependence for subsistence and livelihood in many forest areas
↓ forest product value addition, marketing
• cultural and social dependence on forests decreasing in some areas, but increasing actions to uphold this in others

Drivers

External:

√ focus on social, economic and cultural aspects of human rights
√ art, ideas and media as support base
x resource depletion and unfavorable access rights
x national suspicion of a culture's allegiance to the state
? conservation movements (positive and negative relations)
? social mechanisms & policies
? institutional frameworks

Internal:

? local food and finance cycles
? occasions for cultural expressions
? socio-economic wellbeing
? disaster risk response
? training and capacity development
? sustainability of capacity and capability
? historical intercultural relations
? migrant expansion or migration

Well-being and Livelihoods

Trends

Compared to mainstream cultures:
↓ subjective well-being
• wealth, health and formal knowledge (↑ in some countries; ↓ in others)
• ↑ traditional forest-related knowledge but ↓ next generation of most IPs
↑ opportunities to interact with other indigenous groups
Livelihood strategies:
↓ forest-based in situ livelihoods (hunting, pastoral, swidden)
↑ non-forest based in situ livelihoods (NTFPs, vegetable & fruit farming)
↑ ex situ livelihoods (off-farm jobs, migration...)
↑ new forms of in situ forest-based livelihoods (PES, tree farming)
↑ all-season roads & transport
↑ market arrangements and facilities
↑ community conservation links with national interests

Drivers

External:

✓ MDGs to SDGs
✓ recognition of traditional knowledge in natural resource management
✓ inclusive models of conservation
✓ new approaches to social forestry
✓ disaster risk reduction measures (ENSO, monsoons, typhoons...)
✓ addressing hydrological and nutrient impact of soil exhaustion and erosion
x global trade and banking laws
x national economic development policy
? national forestry ministries
? other social & resource ministries

Internal:

x demographic issues - health, education
x land use change – crop determination
x increase in downstream impact
? access to market, trade and tourism
? environmental degradation and protection
? demographic changes – migration

Rights & Policy

Trends	Drivers
✓ Increasing international recognition of IPs ✓ Increased tenure in some countries ✓ Increased and secured access rights and mechanisms for production and marketing ✓ Varying national acceptance across the region	*External:* ✓ decentralization or autonomy allowing more effective recognition ✓ mechanisms for conflict management and safeguards ✓ international forums open to IPs' voices and agendas ✓ support to fair trade and marketing x national, international and business pressures for large-scale extraction x arms & violence threatening daily stability *Internal:* ✓ Indigenous Peoples' advocacy and self support ✓ Indigenous peoples' impact on environment and conservation

UNPFII summary of environmental issues *

- Land rights in law, but not in reality.
- Implementation Gap: Much talk, little action.
- Costs of unsustainable development
- New technologies force resettlement
- Severe impact on women
- Climate change threatens existence of indigenous peoples

Indigenous Peoples & Protected Areas

- "Protected areas have the potential of safeguarding the biodiversity for the benefit of all humanity; however, these have also been associated with human rights violations against indigenous peoples in many parts of the world."
- 'fortress conservation' → rights-based conservation
- Indigenous peoples rights and environmental laws as complementary rather than exclusionary rights

Source: UN Human Rights Council Special Rapporteur Report on rights of indigenous peoples, Jul 2016

3. Forests in livelihood strategies of indigenous peoples today

Sustainable Livelihoods Framework

FAO, 2005

Patterns of Well-being

- Lower subjective well-being (compared to mainstream cultures) but slowly increasing with opportunities to interact with other indigenous groups
- Lower wealth, health and formal knowledge (compared to mainstream cultures) but increasing in some countries and decreasing in others
- Higher traditional forest-related knowledge (compared to other cultures) but vanishing in next generation of most IPs

Trends in traditional livelihood strategies

BEFORE	NOW
Livelihood for subsistence (food, water, shelter)	Livelihood for (food, water, shelter, education, communication…)
Hunting and gathering predominant	Hunting and gathering disappearing
Rotational farming is common	Permanent agriculture increasing as shifting agriculture is illegal in many countries
Livelihood mostly in situ (on-farm)	Livelihood from both in situ and ex situ (off-farm in secondary and tertiary sectors)
Long fallow period for swidden farms	Fallow period getting shorter due to various pressures

The changing role of forests in rural livelihoods

BEFORE	NOW
Land and forests abundant Material wants are few	Many forest people with expanding needs Migration – in and out of forests
Forestry largely focused on technical aspects	Broadened definition of forestry today incorporating community needs; Increased recognition of indigenous peoples;
Timber production is a main contributor to national revenue	National policy is comprehensively defining all resources on state forest lands
State forests managed from the center	Decentralization defining resource uses not only at national but also local level
National development plans focus on state forest lands for revenue generation	National development plans need to relate to Sustainable Development Goals and other global agreements

Emerging Livelihood Opportunities

- PES
- REDD+
- Eco-Tourism
- Small-scale forest enterprises (wood and non-wood)

Will indigenous peoples be able to tap emerging livelihood opportunities?

4. Status of efforts that empower indigenous communities

Global

- 2000 UN Permanent Forum on Indigenous Issues
- 2002 UNESCO Universal Declaration on Cultural Diversity
- 2007 UN Declaration of Rights of Indigenous Peoples *
- 2010 UNFCCC REDD+ safeguards *
- 2010 UN FAO Policy on Indigenous and Tribal Peoples *
- 2010 UN CBD Mechanisms promoting effective participation of indigenous and local communities
- 2015 UNISDR Sendai Framework
- 2015 UN Sustainable Development Goals
- 2015 UNFCCC Paris Accord
- 2016 IUCN WCC Hawaii Declaration

- Civil society initiatives – IWGIA, Global Indigenous Youth Caucus, Rights and Resources Institute, International Land Coalition…

UN Declaration on Rights of Indigenous Peoples, 2007

UN DRIP has 46 articles upholding:

1. Rights to life, integrity and security (Art. 7-10)
2. Spiritual, linguistic, cultural, education rights (Art. 11-16)
3. Labor rights; right to development, subsistence and health; rights of women, children and disabled (Art. 17-24)
4. Rights to lands, territories and resources (Art. 25-30)
5. Intellectual property rights; free, prior and informed consent (FPIC); treaty rights (Art. 31-37)

Regional

- ASEAN Human Rights Declaration, 2012
- ASEAN Inter- Governmental Commission on Human Rights (AICHR)
- Asia-Pacific Forum of National Human Rights Institutions
- Inter-American Commission on Human Rights
- African Commission on Human and Peoples' Rights

- Asian Indigenous Peoples Pact (AIPP)
- Indigenous Peoples' Task Force on ASEAN (IPTF)
- People's SAARC Declaration, 2014
- Coordinator of Indigenous Organisations of the Amazon Basin (COICA)

5. Potentials in improving forest conservation through supporting livelihoods of indigenous peoples

APFSOS 2020 scenarios

A	Increased marginalization and loss of cultural communities
B	Cultural outmigration to urban poverty and loss of cultural roots
C	Conflict with economic development, lacking grievance & redress mechanism
D	Growing self-governance but weakened by market forces
E	Supportive policies and institutions for endogenous empowerment

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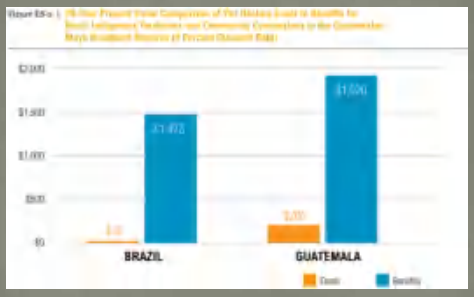
Scenarios and Drivers

Scenarios	Harmonized Policies	Available Natural Resources (Forest / Other NR)	Traditional Knowledge & Capacities Harnessed	Management Support Provided	Socio-Economic Inclusion
A	×	✓/×	×	×	×
B	×	×/✓	×	×	×
C	×→✓	✓	→✓	×→?	×→✓
D	✓	✓	✓	→✓	×→?
E	✓	✓	✓	✓	→✓

Environmental Potential

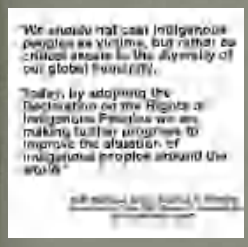
Source: WRI, 2015,

Economic Potential



Source: WRI, 2015.

Social Potential



"The UN Declaration contains no new provisions of human rights. It affirms many rights contained in international human rights treaties but which have been denied to indigenous peoples."

– Les Malezer, Chair, Global Indigenous Peoples Caucus
Speech during UN General Assembly, 13 Sep 2007

human rights-based approach

Take Home Messages

- Indigenous Communities are integral to the rich cultural and ecological diversity of Asia-Pacific, and forests are integral to the survival of indigenous communities.
  - The disappearance of a culture can be just as serious, or even more serious, than the disappearance of a species of plant or animal. (LS 145)
  - The imposition of a dominant lifestyle linked to a single form of production can be just as harmful as the altering of ecosystems. (LS 145)

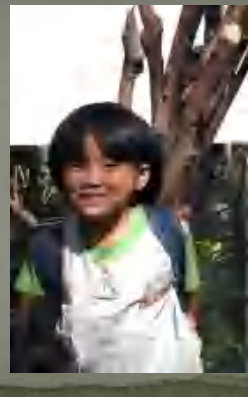
Take Home Messages

- Survival and sustainability of forest cultures are influenced by trends and drivers in: (1) culture and awareness; (2) identity, dependence and movements; (3) wellbeing and livelihoods; (4) rights and policy.
  - Indigenous peoples are moving towards diversifying livelihoods in response to these internal and external forces.
  - From solely relying on traditional forest-based in situ livelihoods, many now look for other forms of livelihoods within and outside forests.

Take Home Messages

- Chances of conserving forests and sustaining ecological services increase when indigenous peoples are treated as principal dialogue partners especially when large projects affecting their land are proposed.
  - Efforts are needed at the global, regional, national and local levels to show special care for indigenous communities and traditions that help to nurture nature and culture.
  - Actions needed: (1) close gaps in participation; (2) establish accountability; (3) practice transparency; (4) implement effective & efficient programs & projects; (5) ensure fairness.

☺Jian Kenun
☺Sekian Terima
☺Poningkuanangan
☺Pousikou
☺Kopiunsapatan
☺Selamat Maju Jaya
☺Kotohuadan
☺Daghang Salamat
☺Thank you!



(6) Markets for environmental services and rural livelihood improvement: Opportunities and challenges for PES --- by Dr. C.T.S. Nair

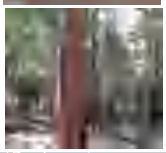
APFNet Workshop on
Forestry and Rural Livelihood Development

Markets for environmental services and livelihood: Opportunities and challenges for PES

Dr. C T S Nair

INTRODUCTION

- Very few of us have been able to escape the jargon "PES" or Payment for Ecological Services" which has emerged as an important approach for natural resources conservation.
- Ecological services like watershed protection, biodiversity conservation, carbon sequestration, and amenity values are seen as more important and valuable than production of wood and other products.
- It is in this context that we need to have a closer look at PES focusing on its effectiveness in managing land to provide ecological services and at the same time livelihood improvement of rural communities.



PURPOSE OF THE SESSION

- Provide an overview of the principles underlying Payment for Ecological Services (PES)
- Discuss the experience of enhancing resources for forest management through PES.
- Analyze the opportunities and challenges for PES in contributing to sustainable forest management.
- Assess the conditions under which PES could help to improve rural livelihoods.

ISSUES ADDRESSED

- Justification for PES
- Current state of PES - Different ecological services and how systems of PES applied.
- Making PES work for livelihood improvement.
- Take home messages.

RATIONALE OF PES

- Although forest derived ecological services are critical to life, society fails to give adequate importance to sustain and improve their availability. Products and services that have a market price gets precedence.
- Land and forests have alternative uses which generate immediate and direct income.
- Most of the environmental services are externalities, not easily captured by resource owners.
- Internalizing such benefits through payment to resource owners by beneficiaries, will incentivize land owners to protect the environment.

HOW TO DEVELOP PES

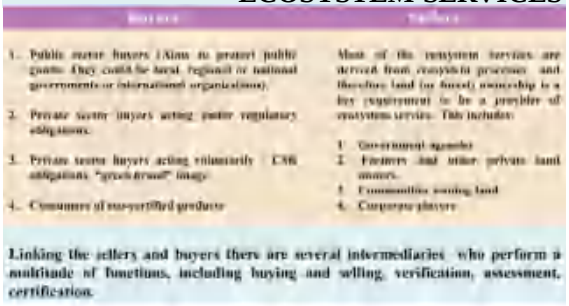
- Systems of PES are created through:
  - Policy interventions (Government directives or legislation) mandating payments.
  - True markets emerging through direct interaction between sellers and buyers
- Invariably in most cases policy interventions - in varying degrees have been responsible for creation of markets for environmental services.

MARKETS FOR ECOSYSTEM SERVICES

- **Environmental services for which PES systems have been attempted:**
  - **Watershed protection:** **Largely local / national market**
  - **Carbon sequestration:** **Global/ national market**
  - **Biodiversity conservation:** **Future markets**
  - **Amenity values:** **Local, national or global**

There have been several PES initiatives with varying outcomes. PES tends to be relatively easy if there is a direct link between providers and users of environmental services and if the services can be quantified.

BUYERS AND SELLERS OF ECOSYSTEM SERVICES



Linking the sellers and buyers there are several intermediaries who perform a multitude of functions, including buying and selling, verification, assessment, certification.

PES FOR WATERSHED PROTECTION

- **PES for watershed protection has received the most attention.**
- **The emphasis is to pay land owners in the uplands to ensure the land use practices does not cause any adverse impacts on the quantity and quality of water.**
- **Several countries are implementing PES for watershed protection at different scales. Most of the payment is mediated by public or private utility companies dealing with electricity and drinking water supply.**
- **However most of the watershed protection PES are lump-sum payments, not linked to the actual environmental services provided.**

AN OVERVIEW OF WATERSHED PROTECTION PROGRAMMES (2015)

Description	Asia	Latin America & Caribbean	Oceania	World
Operational programmes	169	47	6	419
Value (USD)	14.2 Billion	65.9 Million	52.3 Million	24.6 Billion
Land area managed (Ha)	426.6 million ha	2.8 million ha	26,000 ha	486.7 million ha

Source: Forest Trend's Ecosystem Market Place 2016

AN OVERVIEW OF WATERSHED PROTECTION PROGRAMMES

- **In 2015 governments, water utilities, companies and communities spent about USD 24.60 billion for green infrastructure to improve water supply.**
- **A total of 419 programmes in 62 countries invested in the natural ability of forests, wetlands and other ecosystems to ensure clean and reliable water supplies.**
- **This covered about 487 million ha globally.**
- **Land A total of USD 15.8 billion was paid as subsidy to land holders for good stewardship and another USD 7.6 billion was spent on the protection of public lands.**

Source: **Forest Trend's Ecosystem Market Place 2016**

AN OVERVIEW OF WATERSHED PROTECTION PROGRAMMES (2015)

- **Globally China dominates the system of payment for watershed services. Public support for watershed improvement amounted to USD 13.5 billion in 2015.**
- **Vietnam's PFES is another most important system for watershed protection. Some 355000 rural households received payments to improve watersheds through water utility providers.**
- **Mexico is another leader in compensating land owners for watershed services accounting for about USD 60 million or about 70 percent of the watershed PES in Latin America and the Caribbean.**
- **In 2014 Peru has passed a law – Payments for Ecosystem Services Law – which provides the legal framework between land managers and beneficiaries of ecosystem services.**

CARBON SEQUESTRATION

- Payment for carbon sequestration is primarily an outcome of UNFCCC and the various policy regulations to limit emissions, especially the cap and trade arrangements.
- There are two approaches to reduce carbon mission:
  - A tax on carbon so that there is an incentive to go for low carbon foot-print products and services.
  - Implement a system of offsets through a cap and trade system enabling the development of a carbon market.
- In 2017 there are 47 carbon pricing initiatives – 23 on carbon taxes and 24 on emission trading schemes.

CARBON SEQUESTRATION

- The total value of ETS in 2017 is estimated as USD 32.8 billion. The value of carbon tax in 2017 is USD 19.4 billion. Carbon Tax and Emission Trading covered about 14.57 percent of the global GHG emissions in 2017.
- Carbon taxes varies from US$ 2.36 (Estonia) to US$ 139.6 (Sweden) per tonne of Co2.
- Emission trading – Unit value for EU-ETS in 2017 is USD 6.24 for one tonne Co2 equivalent. For the national schemes it varies from USD 6.73 in the case of Switzerland to USD 18.14 in the case of Korean ETS.
- There are some 18 sub-national ETS – some pilot – whose value per unit varies from USD 0.23 (Chongqing Pilot ETS) to USD 23. 97 in the case of Alberta SGER.

DISTRIBUTION OF CARBON TAX AND EMISSION TRADING SCHEMES

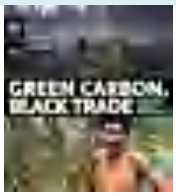
(Source: World Bank and Ecofys 2017)

CARBON SEQUESTRATION

- Broadly two kinds of emission trading schemes have emerged:
  - Regulated compliance market; and
  - Voluntary carbon market
- Regulated compliance market accounts for most of the emission trading.
- The share of voluntary markets remains low – just about USD 191 million in 2016.
- The largest regulated compliance market is the EU-ETS. China is in the process of developing a national system in compliance to its commitment to the Paris Agreement and this could become the largest compliance market in the world.

CARBON MARKET CHALLENGES

- Market volatility. Carbon prices have declined over the last few years undermining the reliability of market mechanism to reduce emissions.
- Very high transaction costs: This significantly affects the market participation of small producers.
- Data requirements are substantial.
- Governance of carbon markets : High potential for fraud and malpractices. The Interpol has identified carbon trade as highly susceptible for fraud, money-laundering and illegality.



PES FOR BIODIVERSITY PROTECTION

BIODIVERSITY CONTRIBUTES TO:

- **PRODUCTIVITY:** More diverse plant systems tend to be more productive.
- **RESILIENCE:** Diversity promotes stability as they are more resilient to external disturbances.
- **INSURANCE:** Diversity provides insurance against catastrophic events.
- **KNOWLEDGE:** Biodiversity can be used as a source of knowledge to develop new products in the biotechnology industry or pharmaceuticals.

PES FOR BIODIVERSITY PROTECTION

- Development of PES for biodiversity conservation is much more challenging, considering that the beneficiaries of conservation are invariably future generations.
- Biodiversity generates two types of values
  - Values for the present generation by way of various products
  - Values for future generations
- In general values accruing to present generations are amenable to assessment.
- This is however not the case with the values accruing to future generations, which remain extremely challenging.
- Considerable difficulties exist in identifying beneficiaries among future generations and the precise nature of benefits they derive.

PES FOR BIODIVERSITY CONSERVATION

- Different approaches have been adopted to encourage biodiversity conservation through rewarding/ compensating those conserving biodiversity. These include:
  - Payment for bioprospecting rights.
  - Private protected areas.
  - Conservation easements; and
  - Biodiversity offsets
- Globally the Nagoya Protocol of the CBD provides the framework for accessing and equitable sharing of benefits from biodiversity.
- However, many challenges – mostly in the realm of governance – persists in making biodiversity conservation economically viable and more importantly to enhance its contribution to rural livelihoods

PES FOR AMENITY VALUES

- Amenity values is one of the fastest growing segment of the PES and there are many examples where use of forests to provide amenity values have significantly helped to improve the livelihood of rural communities.
- Umpteen examples of community managed ecotourism improving the livelihoods of rural and urban communities.
- Growing demand for out-door experience from among a rapidly growing urban population have created new income opportunities.
- The challenges:
  - Ensuring sustainability and preventing the degradation of the site
  - Equitable sharing of benefits

CHALLENGES IN THE DEVELOPMENT OF PES

- Development of ecosystem services markets are related to the state of social and economic development. Even in most developed economies PES markets remain undeveloped.
- Main challenges
  - Policy, legal and institutional issues
  - Technical problems
  - Economic aspects: Some PES efforts have high transaction costs which could far exceed the benefits.
  - Potential for aggravating poverty
  - Potential for accentuation of forest related conflicts

MAKING PES TO WORK FOR LIVELIHOOD IMPROVEMENT

Livelihood improvement through PES has to deal with multiple challenges – Economic, social, institutional and technical. It has to satisfy a number of necessary conditions including:

- Effective regulatory framework.
- Favourable land and resource tenure.
- Industry and consumer preference.
- Public sector support.
- Effective local institutions.
- Knowledge and knowledge sharing arrangements

MAKING PES TO WORK FOR LIVELIHOOD IMPROVEMENT

"***Without proactive efforts to shape ecosystem payment systems and markets, there is no reason to believe that low-income land-stewards will receive more than a small share of the spending***"

Milder J C *et al* 2010

TAKE HOME MESSAGES

- **Whether the full potential of PES to contribute to livelihood improvement will be realized or not depends:**
  - **The larger socio-political, economic and institutional environment;**
  - **The socio-economic conditions of the households.**
- **Ownership of land and forests is a key issue as regards realizing PES benefits by rural communities. Tenure reform is hence most critical.**
- **Need to consider the opportunity costs of provision of ecological services. Income from PES may not be commensurate with the income from foregone opportunities.**
- **PES is highly context specific: "One size fits all" approach is bound to fail**

TAKE HOME MESSAGES

- **Developing a PES system in itself is an extremely challenging task. It requires a wide array of policy, institutional and technical interventions to work in unison.**
- **Enhancement of livelihood through PES makes it much more complex.**
- **Bundling of the different environmental services and adoption of a landscape approach could help to address some of the economic challenges in enhancing the livelihood role of PES**

Yet the much touted win-win option of improving livelihood through PES will continue to be challenging and we will have to reform the governance system to make it effective.

APFNet Workshop on Forestry and Rural Livelihood Development
1-14 November, 2017 Yunnan, China

Thank you

APFNet Workshop on Forestry and Rural Livelihood Development
1-14 November, 2017 Yunnan, China

(7) Engaging communities in forest protection --- by Dr. Michelle Hang Gi Wong

Engaging Communities in Forest Protection

Michelle Wong
Senior Conservation Officer
Kadoorie Farm and Botanic Garden
Nov 2017

Conservation at KFBG

- Kadoorie Agricultural Aid Association established in 1951 – "Helping People Help Themselves": providing training, agricultural inputs, interest-free loans.
- In 1956, a farm of 148 ha established to demonstrate crop production and animal husbandry techniques, and improve livestock breeds.


The Kadoorie Brothers

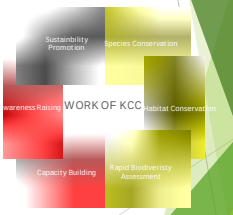
- In 1995, Kadoorie Farm and Botanic Garden established for flora and fauna conservation, organic agriculture demonstration, environmental education and promote sustainable living in Hong Kong and beyond.
- Since 1998, the work has been extended to other parts of China.
- Since 2017, the work has been extended to Cambodia.

Conservation at KFBG

- Mission: To harmonise our relationship with the environment.
- Vision: A world in which people live sustainably with respect for each other and nature.

Conservation at KFBG

- Kadoorie Conservation China
- Established in 1998
- To minimize biodiversity loss and promote sustainability in China



The Role of Communities in Conservation

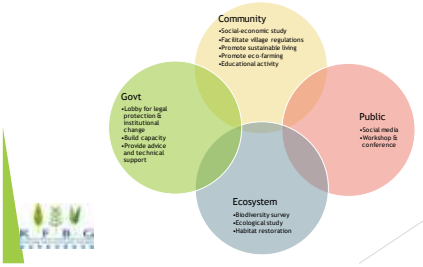

Community forest

- Livelihood
- Village regulations
- Non-government agreements
- Culture and customs
- Awareness
- Education

The Role of Communities in Conservation

- Affect livelihood and customs
- Laws and regulations
- Law enforcement
- Create conflict
- Awareness
- Education

Our Conservation Projects



Case Study 1: Hainan Yinggeling

- The biggest stretch of primary rainforest on Hainan Island
- Ecology little known before KCC led a 60 scientists, 3 months expedition in 2005
- Protected Area was set up in 2006, size of NR 500 km^2
- Upgraded to a National NR in 2014
- 6 villages inside NR
- 2 in the core zone moved out in 2017

Yinggeling: Community-based Conservation

- No-Catch Zone
  - Overfishing by dynamite fishing and poisoning
  - Encourage villages to reserve the widest and deepest river section
  - Governed by communities regulations
  - Organized workshops and conduct school activities

Yinggeling: Community-based Conservation

- Community-Engaged Fish Conservation
  - Relocate threatened endemic fish population (*Garra hainanensis*) to fish sanctuary, where the species was lost
  - Direct reward for having the Fish Sanctuary
  - Outreach campaign on freshwater conservation
  - Invite students and villagers in the rescue and release

Yinggeling: Community-based Conservation

- Composting Toilets
  - Improve hygiene while providing compost
  - A welcoming idea that could not be widely adopted

Yinggeling: Community-based Conservation

- Eco-Pig Farming
  - High quality local breed
  - Deep bedding to absorb and break down of waste: rice husks, straw, soil, charcoal, kitchen waste; produce compost
  - Improve feed to improve meat quality

Yinggeling: Community-based Conservation

- Building with Rammed Earth
  - Houses were built with mud and grass, not durable
  - Technique of using stabilized rammed earth - soil, cement, lime; compressed
  - Strong, waterproof walls require only 1/8 the energy consumption of fire bricks

Yinggeling: Community-based Conservation

- Rice-Duck Farming
  - Minimise the use of chemicals on controlling pests and weeds
  - Duck waste act as fertilizer
  - Swimming aerate the soil
  - Diversify farm produce

Yinggeling: Community-based Conservation

- Rubber Agroforestry
  - Planting cardamom and dumpling leaf
  - Reduce use of herbicide
  - Reduce soil erosion and water runoff
  - Increase income
  - Diversify farm produce
- Bee-Keeping
  - Conserve the Hainan Chinese bee (*Apis cerana hainanensis*)
  - Motivate forest protection
  - Less productive, sold for higher price with "organic" and "forest friendly"

Yinggeling: Community-based Conservation

- Training on
  - Nature appreciation
  - Basic ecology
  - Permaculture techniques
  - Waste separation & management
  - Compost making
  - Constructed wetland
  - Eco-design
  - Sustainable living etc.

Yinggeling: Community-based Conservation

- Co-management scheme
  - Workshop for sustainable living and production for each village
  - Come up with eco-design for each village
  - Co-management Committee

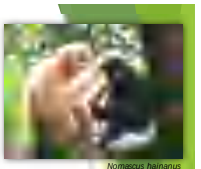
Yinggeling: Community-based Conservation

Video

Yinggeling: Community-based Conservation

- Lessons Learned:
  - Professionalism, long-term dedication and diversify inputs required to gradually increase awareness and change behavior
  - Demonstration is the best approach to promote
  - Keep their attention on what they have, not what they have not
  - *** Improve livelihood ***
  - ** Educate young children **
  - * Train the trainers *
  - Start with activities that can result in direct, rapid, tangible impacts
  - Self motivation may fail to develop

Case Study 2: Saving the Hainan Gibbon



Nomascus hainanus

- Bawangling is home to the last population of Hainan Gibbon (*Nomascus hainanus*)
- Only 13 remained in 2003; now 27
- Ethnic minorities: Li and Miao
- Strong hunting traditions
- Traditionally used gibbons for food and medicine

Hainan Gibbon Project: Community Work

- Community Monitoring Team
  - Complement shortfall of the authority
  - Raise awareness, improve knowledge & techniques, boost morale
  - Increase exposure
  - Identify the right persons - reliable, well respected in the community (from both ethnic groups)
  - Wardens influence the community

Hainan Gibbon Project: Community Work

- School Fun Fair
  - Involve schools and local government
  - Recruit local volunteers
  - Attract media attention
  - News, street gossips, souvenirs (stickers, badgers) - create strong and rapid impacts

Hainan Gibbon Project: Community Work

- Murals
  - Community participated art project
  - Help create a loving atmosphere
  - Community feel proud and special

Hainan Gibbon Project: Community Work

- Agroforestry and Bee-keeping
  - Plant *Alpinia oxyphylla* (medicine) under rubber
  - Keep bees under rubber
  - Bees pollinate *Alpinia*

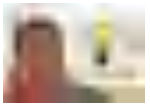
Hainan Gibbon Project: Community Work

- Lessons Learned:
  - Identify the right persons to train
  - Local people change local people
  - Make good use of traditional and local stories and wisdoms
  - Picture speaks louder than words
  - No single solution, understand and develop approaches outside 'their' box!

Indicators

- Level of participation
- Participant feedbacks
- Management authority feedbacks
- Self-motivation (project sustainability)
- Replicability
- Public awareness and opinions (media)
- Ecological threat reduction
- Ecological indicators
- No, we never evaluate awareness with standardize questionnaires, but we are planning to try using mind maps on our next school fun fair

Conclusions



- Aims:
  1. Improve livelihood
  2. Educate children
  3. Train the trainers
- Approaches:
  1. Professionalism (new and exciting ideas)
  2. Long-term dedication (understand, care and demonstrate)
  3. Diversify inputs (strengthen and diversify impacts)
- Rules of thumb:
  1. Always involve management authority in the activities!
  2. Projects build on trust and respect!
  3. Look into new agricultural ideas/techniques!

(8) Forest tenure reform in China --- by Prof. Shen Lixin

Forest Tenure Reform in China

Prof. Shen Lixin

APFNet Kunming Training Center (APFNet-KTC)

Yunnan, China, November 2017

Basic information:

- Definition of Forest Resources
- Administrative system of Forestry Sectors
- Land Tenure and Ownership

1. Definition of Forest Resources

According to National Forest Law (1998):

(1) Forest resources consist of *timber, bamboo, forestry land and other wild plants and animals* living in the forests, and,

(2) Forest resources belong to *State* except those parts belonging to *Collectives Entities (communities /collectives).*

2 . Administrative system of Forestry Sectors

3. Land Tenure and Ownership

- In general, both arable and forestland was defined as State owned and Collective or Community owned officially after 1949 in China.
- The forests tenure in China involves ownerships and use rights of forestland as well as trees or forest resources above the land before reform.

Total land area in China: 960 million hectares

- The hilly areas account for 69% of the total land area and are home to 56% of the total population in China.
- Large portions of hilly areas have been classified as "forestland" or land areas for forestry development, even though many hilly areas are not forested or barren.

Forest land area:

- 310.46 million hectares (32.4% of total land area);
- National Forests coverage 21.63% (2015).

State owned forestland (41% of total forestland)

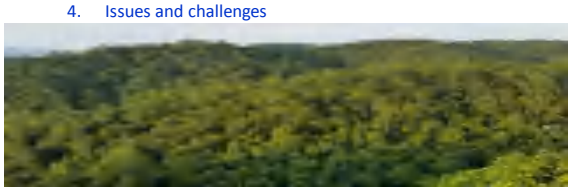
- Commercial/Production forests,
- Nature Reserves, National Park, and Protection Forests for ecological benefits(water conservation, shelter belt etc.)
- Forests Contracted to individuals.

Collective/community owned forestland (59% of total)

- Collective forests (including holy hills, sacred forests),
- Contracted Forests for self use and Responsibility Forests before reform, or forests allocated to individuals (Private/Individuals' Forests) after reform .

Overview of Historical changes and New Reform of Collective Forest Tenure in China

1. The main historical changes of forest tenure systems
2. The reform of collective forest tenure system
3. Achievements of reform
4. Issues and challenges



1. The main historical changes on forest tenure system

- **Privately owed system**

  Before the establishment of New People's Republic of China in 1949, the privately owed system was the dominated system both for land resources and forests resource.

- **Four phases**

  After 1949, the changes of land tenure and forest ownership could be divided into four phases since 1950's up to now.

- **1st rural land reform :**

  Both land and Forests allocated to individual households in the early 1950s until 1958.

- **Collective period :**

  Highly centralized system from 1958 to early 1980s.

- **"liangshandaohu"**(*contracted and responsible forests*)

  Started in 1982 to 2008 (next to land contracted responsibility system in 1979/2nd "rural land reform").

- **The reform of rural collective forest tenure system**

  Officially started from 2008 to 2014 nationwide.

Issues before reform of rural collective forests tenure

- Despite of forest tenure system has been changed several times since the early 1950's, but the ownership and rights to use and benefit from collective forests was still not clarified by the ambiguity tenure systems among individual farmer households.
- The ambiguity of forest tenure system has been a main problem for community forest management and interfered with sustainable development of community forestry.
- As a result, either the village collectives or individuals couldn't be motivated to manage collective forests efficiently.

3. New reform of rural collective forest tenure

(Started in 2008 until 2014)

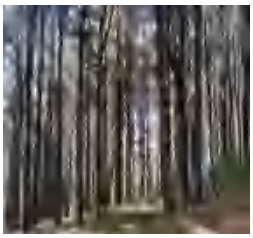
3.1 Initiatives

3.2 Objectives

3.3 Targets

3.4 Guide principles

3.6 Operating procedures



3.1 Initiatives

- The forest reform of "*liangshandaohu*"(contracted and responsible forests)in early 1980s improved collective forest management than collective period, but the collective forest tenure was still intangible or abstract to local people.
- Individual households lack a real ownership on rights to contracted and responsible forests, and also lack of necessary laws to protect benefits from forest resources under their management.

In order to promote effective development of CF:

- Central Government made the decision on Accelerating Forestry Development on July 2003. An important reform on collective forest tenure system then started experiments as pilots in Fujiang, Lianoning and Zhejiang provinces in 2003 and followed by Yunnan, Guizhou and Sichuan provinces in 2006.
- A nationwide program of reform for rural collective forest tenure system launched when Central Government issued the official document on "fully accelerating the reform for rural collective forests tenure system" in July 2008.

3.2 Objectives

- The ongoing RCFTS aims to increase the confidence, initiative, and ability of local communities to participate in the sustainable community forestry management than before.
- improving the previous forest management mechanism by clarifying and transferring forestland tenure and ownership of forests from collectives to individual households with the fixed duration of seventy years by issued tenure certificate based on the contract of forest allocation.

3.3 Targets

- The reform targets all collective forests and waste hills/fallow suitable for forestation.
- The collective forests recognized as nature reserves, and forests under the national forest protection program are excluded from the reform.
- An emphasis is focused on the equal allocation of forestland among individual households based on the number of family member.

3.4 Tasks

The reform ensures individual farmer's "four rights" as following:

- the right to information regarding forest ownership and use arrangements;
- the right to independently manage forest resources;
- the right to transfer ownership of forest resources and use rights of forestland;
- the right to benefit from ownership or use right of forest resources.

3.5 Guide principles of reform

Five principles :

1. ensure the use of clear and transparent processes. the reform details must to be discussed by all villagers and approved by at least two-thirds of eligible villagers.
2. Extensive community participation in all stages, especially in the decision-making process of forest tenure allocation;
3. Respect to customary tenure arrangements, as well as consistence with previous policy provisions on forest tenure;
4. Ensuring the transparent processes for tenure reform in order to let local people understand the rights and responsibilities associated with forest ownership and management.
5. More attention to be paid to timing and careful management of the tenure transfer process.

3.6 Procedures of Forest Allocation

1. Field inventory /investigation of forestland

2. Boundary mapping and delimiting

3. Field re-checking and confirmation with individual farmer

4. Intermediation of forestland disputes between households

5. Creating documental files and preparing for issuing forest tenure certificates

6. Open ceremony for delivering official certificates

7. Presenting forest tenure certificate to farmer households.

Expected results

With the issued tenure certificate officially:

- Individual households have the legal guarantee for their benefits after reform,
- Allow to transfer the forests tenure to others freely by the ways of sub-contract, rent/sale, auction, mortgage and joint venture within the contracted period,
- The forests contract will be renewed once the term of seventy years was finished.

4. Achievements of reform

In general, the reform has been overall completed during the period of 2008 to 2014, it has achieved the goals with positive impacts on collective forest management (CF).

- the reform was popularly accepted by individual households, because of farmers not only received the actual use right of forestland for seventy years, but also gain the ownership of forest resources on the contracted forestland.
- Farmers can apply for mortgage loan of Forest Tenure by using use right of forest land, forests ownership (or use right) as collateral to financial institutions loans.

Main achievements:

- The country has the area with clear tenure of 27.02 million hectares, accounting for 99.05 percent of the total collective forestlands.
- The area with forest tenure licenses issued is 26.04 million mu, accounting for 96.37% of the forestlands area with clear tenure,
- more than 89.7 million individual farmer households have received the forest tenure certificates.

- 1,610 forest tenure service centers have been established at county level, and 19 provinces have formulated a management regulation for the operation of forest tenure transfer.
- Total of 140,000 Forestry Cooperatives have established at community level, the percentage of farmers involving forestation in 2014 has increased 34.67 % over 2009.
- Farmers have gained loan as productive capital for forestry based livelihoods development than before, and the loan by using forest tenure certificates as mortgage is over RMB 100 billion yuan in 2015.

6. Issues for discussion

- **Fairness of Forestland allocation**

  The distribution of collective forestland usually through the approach of random lottery for the equal size of land area while the volume and volume of forests, trees quality and accessibility of location are not considered during the allocation, it is difficult to allocate forestland fairly to individual households due to the quality differences of forestland and value difference of forests or, which results some farmers obtained forestland better than others.

- **Lower compensation for ecological protection Forests**

  Those villages where collective forests were recognized as forests under the national forest protection programs, which couldn't get the benefit as much as others despite of government paid certain amount of incentive as compensated for the ecological functions. The current yearly compensations of RMB 300 yuan per hectare is still quite lower. (RMB75 yuan /per hectare only in 2010)

- **Customary forest management should be respected during the reform**

  Forests are important and irreplaceable source for traditional cultural and religion for indigenous and ethnic communities, such as the holy hills, sacred forests. Traditionally, they are always owned by the community and considered a public resource of community. The emphasis on individual ownership of those forests may, consequently, undermine traditional and customary forest management .

- **Un clear definition of traditional fallow and swidden fields**

  For the slope fallow or swidden fields used to be used for shifting cultivation traditionally in minority ethnic group region, there is no clear definition of the land use types between forestland and farming land for a long time. As a result, many slope swidden fields were recognized as forestland by the reform, which is not allowed to reclaim those land for farming activity again except forestation.

- **Assessment of Forest assets during forest tenure transfer**

  The current reform allows individual households to sell or transfer both forestland and forests tenure to the outsiders like commercial companies and private sectors. A challenge is how to evaluate the real economic value of forests and forestland.

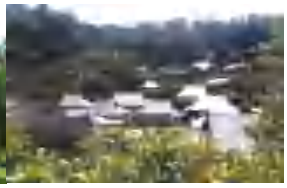
- **Large-scale forestland possessed by company and enterprise causes farmer losing forests & land.**

  In order to make money to improve their living condition, some farmers have sold their forests immediately after forests was allocated. One of issues is more and more villages and farmer households will lose their forests and forestland with the increased transferring of forest tenure to outsiders, especially for poor and venerable groups in rural areas.

- **Others**

  Still need to study, like strict control quota of timber logging etc.

What have happened after reform in rural community?



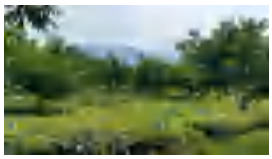
Case 1: **Individuals investment**

Mr. Long Youlu, a farmer in ethnic village, he did not invest anything on his waste hills which contracted from collective in 1999 before forest reform in April 2008.

He invested RMB180, 000 yuan for tree plantation on his forestland after reform in 2009, he said that he will make the waste hills become forests and leave it to his young generation as a valuable property.

Year 2009

Year 2014



Case 2: Mortgage loan

Mr. Hang Yongqiang, a villager in Yongping County, he has received amount of RMB 500,000 yuan as mortgage loan from bank by using his forest tenure certificate as collateral in 2008.

He was using the loan for the plantation development of walnut intercropping with Tea on his contracted forestland, he said that it was impossible to apply for bank loan without forest tenure certificate as mortgage before the reform.

Case 3: Rosin collection

Because lack of clear right on forest management, there was no income from NTFPs collection in collective forests before the reform in Nanluo village.

Presently, each household earned at least RMB 2,000 yuan by collecting rosin from Pine trees after trees allocated to individuals in 2008, and most farmers is now paying more attention on forest management than before.

Case 4: Wild Mushroom and honey

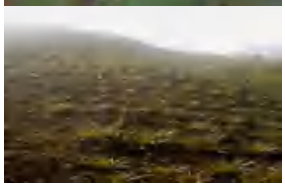
Intensive Forest management has improved with clear ownership, rights and responsibility after reform.

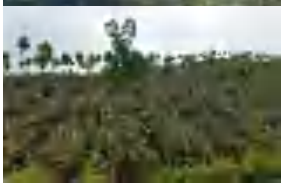
The output of wild mushroom, honey from allocated forests to individuals in Nanhua County has increased up five times compare with 2007.

Artificial reforestation

Artificial reforestation

Land use changes after the reform






2009
2015

(9) Bamboo: From a poor man ’s timber to the back-bone of thriving rural economies – The experience of China --- Prof. Shen Lixin

Bamboo: From a poor man's timber to the backbone of thriving rural economies – The experience of China

Prof. Shen Lixin

APFNet Kunming Training Center (APFNet-KTC)
Southwest Forestry University (SWFU)

Yunnan, China November, 2017

Geographical Distribution of bamboo Resources in the world

Geographical Distribution: Tropics and subtropics of Asia, Africa, America and Australia.
Core area in the world : Asia and Pacific Region

Species distribution of the bamboo in the world

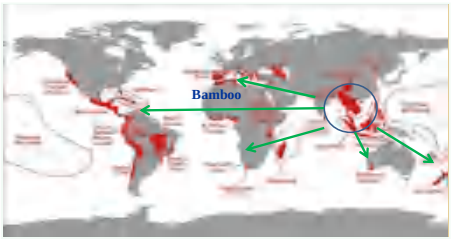
Geographical area	Sub-tribes	Genera	Species
Asia	**6**	**45**	**ca.600**
America	4	21	400
Africa	2	4	15
Madagascar	2	6	20
Australia	2	2	5
Pacific Islands	2	2	4
Total	**9**	**ca.70**	**ca.1100**

Richness and Diversity of Bamboo Resources

----- 70-genera, ca.1100 species in the World

Geographical area	Sub-tribes	Genera	Species
The world	9	70	ca.1100
Asia	6	45	ca.600
China	5	40	ca.500
Yunnan	4	30	ca.250

Original Place of Bamboo in the World



Homeland of Bamboo: South-Central China, Southeast Asia.

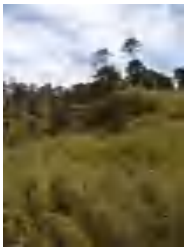
Discovery of Bamboo Fossil

Location:
Longling County of Yunnan Province in Southwest China.

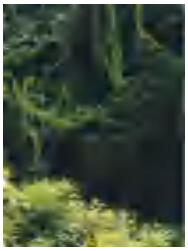
First case of bamboo fossil in the world discovered in 2003.

Bamboo diversity of based on morphology and habit

Arbor



Shrub



Vine-climbing

Herbaceous

Epiphytic

Bamboos based on Rhizome type

单轴散生竹林
Monopodium rhizome bamboo

合轴丛生竹林
Sympodial rhizome bamboo

复轴混生竹林
Mixturepodial rhizome bamboo

Bamboos based on Rhizome type

Monopodium rhizome bamboo

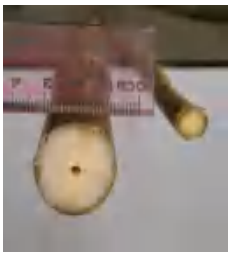
Sympodial rhizome bamboo

Bamboo classified based on origin

天然竹林
Natural bamboo forests

人工竹林
Bamboo plantation

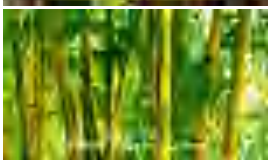
Other special bamboo types



Almost solid bamboo species

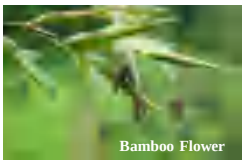
Solid bamboo species
(as hard as iron)

Ornamental Bamboos

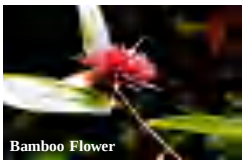


Ornamental Bamboos

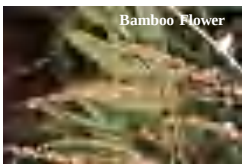
大佛肚竹 Bambus vulgaris cv. wamin



Bamboo Flower

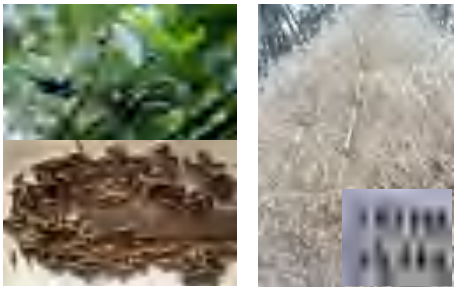


Bamboo Flower



Bamboo Flower

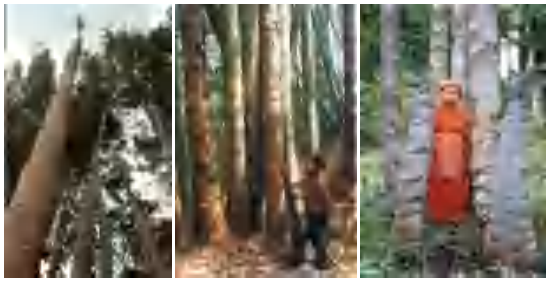
Bamboos Fruits



Bamboos Seeds

Largest Bamboo in the World

Dendrocalamus sinicus (H_{max}=30m D_{max}=30cm)



1. China's Bamboo Industry

Despite of long history to use bamboo resources from ancient time, the industrialization of China's bamboo making begins very late.

- Before 1980, China's bamboo industry was mainly based on traditional manual processing, besides using it as raw material for papermaking. Bamboo farmers sold raw bamboo as their main mode of operation which was mostly used in civil architecture、knitted commodities、handicraft articles and farm implements.
- Since 1985, China has begun to introduce bamboo-processing machines in mainland from Taiwan.
- Up to 1990s, with the development of bamboo processing machines, most of which are made by the companies in mainland, bamboo industrial processing has been extensively used in all provinces where bamboo is produced.

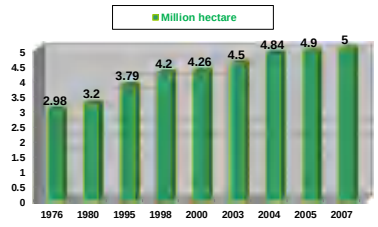
1.1 Bamboo Plantation Increases Rapidly

Since 1950s, the Chinese Government has attached great importance to the development of bamboo plantations.

- Till 1980, the total area of bamboo plantations of the country has reached 3.20 million ha.
- In the next 20 years, the national annual increase of bamboo plantations is 50,000 ha in average.
- Up to year 2007, the total plantation area reached 5.0 million ha.

Increase of China's Bamboo Plantation Area

中国竹林面积增长



Traditional Utilization

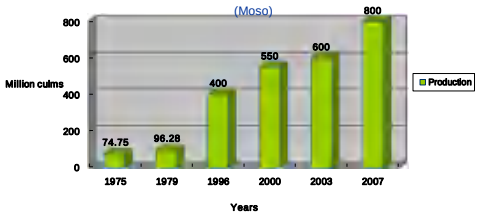
- Bamboo shoots
- Construction
- Art products
- Furniture
- Horticulture and ornamental
- Paper pulp

Modern Utilization (Industrial production)

- Plywood \Veneer Board
- Charcoal
- Bamboo juice (Health care products)
- Bamboo food
- Bamboo fiber
- Bamboo floorboard

1.2 Moso Bamboo Raw Material Production Increases Rapidly

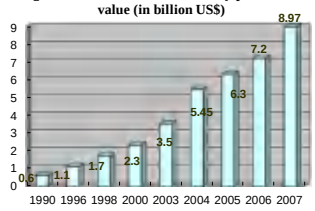
Increase of China's Bamboo Raw Material production in Culms (Moso)



1.3 Bamboo Industry Become One of The Important Rural Industries

The yearly output of China's Bamboo Industry Increases Rapidly, from 0.6 billion USD in 1990 to 8.97 billion USD in 2007.

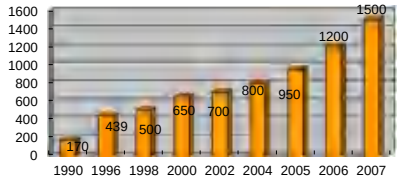
Figure 3: China's bamboo industry production value (in billion US$)



1.4 The Export of Bamboo Products

Bamboo Products (such as bamboo floor, decoration board, laminated bamboo furniture, bamboo charcoal products, bamboo fiber products, bamboo handicrafts, and bamboo shoot) are exported mainly to Japan, North America and Europe; and the export value increased from 0.17 billion USD in 1990 to 1.5 billion USD in 2007.

Figure 4: China's bamboo product export (in million US$)

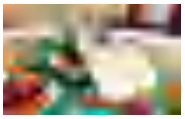


1.5 Bamboo Shoot Industry

Bamboo shoot is the other important product, and mechanization and industrialization of bamboo shoot processing started from 1990. The annual output of fresh bamboo shoot is about 5 million ton, of which 40% are treated in industrial processing.

- 60% of bamboo shoot produced were sold on domestic markets, others were exported besides exporting to Japan、Korea、China's Hong Kong and Taiwan,
- The bamboo shoot has been exported to the market in American and Europe since 2000 .





2. Research and Development of Technologies and Products

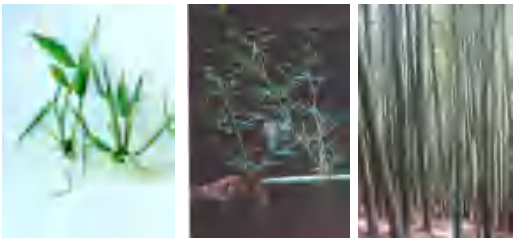
There are over 300 bamboo experts in China, conducting researches in different fields, they have achieved a series of advanced technologies.

2.1 Bamboo Taxonomy and Flora

There are 500 species of bamboo which belong to 40 genera in China

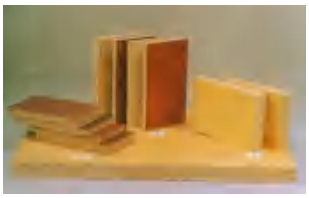
2.2 Fundamental studies of bamboo's ecology, physiology and anatomy

2.3 Technologies of High-Yielding Bamboo Propagation and Plantation, as well as Pest and Diseases Control.

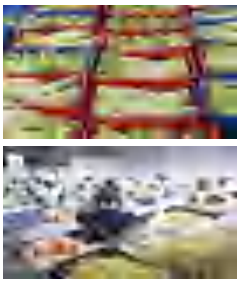


2.5 Bamboo Processing Technologies

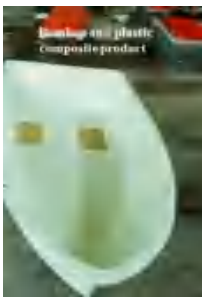
China has developed a series of bamboo panel products, up to date, the annual bamboo panel productivity of China is 40-50 million m2



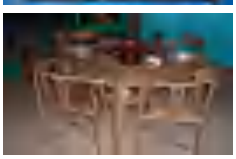
2.6 Bamboo Shoot Processing

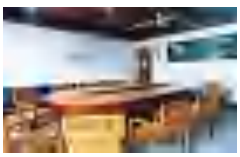


2.7 Bamboo Composite Materials



2.8 Laminated Bamboo Furniture



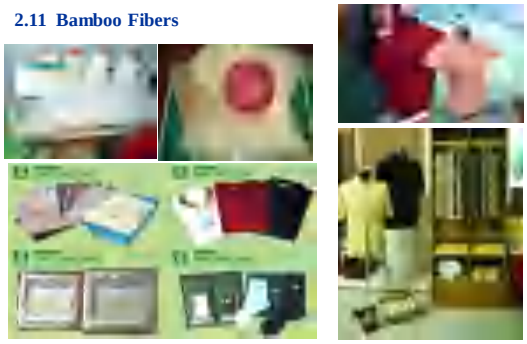


2.9 Bamboo Leave Extracts and Their Utilization

The main ingredient used as medicine is flavones.

2.10 Bamboo Charcoal and Coal Tar Studies

2.11 Bamboo Fibers



2.12 Architecture and Horticulture

Part 3
The Supply Chain of Bamboo Industry and Fully Utilization of Bamboo Materials

1. Challenges of The Bamboo Industry in China

1.1. The price of raw bamboo materials increases

Take Anji County as a example, the raw materials price of Moso Bamboo has reached RMB 1,000 in 2010 from RMB 160 in 1985.

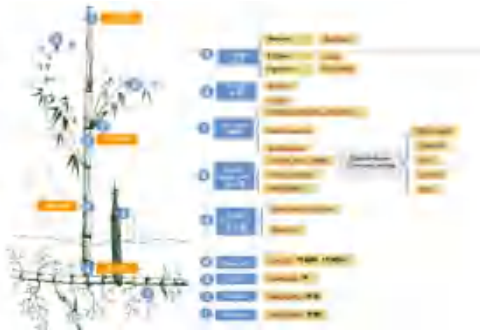
1.2 Raw materials of bamboo becomes short in supply

For example, 80% of raw material are imported in Anji County from other areas in China.

1.3 Single product process brings low utilization rate of raw material and wasted material

Great challenges is posed on the efficient utilization of raw materials, if all the materials are used for only one product, for example, bamboo flooring, the utilization rate of the culms is only 25-30%, while the absolute utilization rate is less than 12%.

2. Integrated Utilization of Bamboo



2.1 Primary Processing Factory

- Key of the supply-chain of the Bamboo Industry
- A Revolutionary of Bamboo Processing

2.2 Utilization of Base Part

2.3 Utilization of Middle Lower Part (1)

2.3 Utilization of Middle Lower Part (2)

2.4 Utilization of Middle Upper Part (1)

2.4 Utilization of Middle Upper Part (2)

2.4 Utilization of Middle Upper Part (3)

2.4 Utilization of Middle Upper Part (4)

2.5 Utilization of Upper Part

2.6 Utilization of Bamboo Culm and Wasted Materials

2.7 Utilization of Bamboo Powder (1)

2.7 Utilization of Bamboo Powder (2)

2.8 Utilization of Bamboo Particles

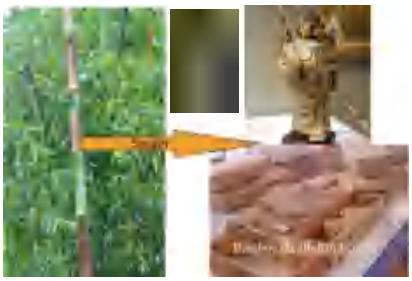
2.9 Utilization of Other Parts Besides the Bamboo Culm
----- Full Utilization of the Bamboo Biomass

a) Extracts of Bamboo Leaves ---flavones products

b) Bamboo Roots and Rhizomes Utilization

c) Bamboo shoot utilization

d) Bamboo sheath utilization

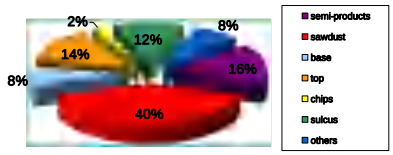


e. Wasted Parts of Bamboo Culms

2.10.A Case Study of A Primary Processing Factory

- Total raw material per day: **25 tons**
- Processed into:

Utilization rate of primary processing



(1). Utilization Rate for Different Parts

- Semi products （16%）: totally 4 tons (strips etc)
- Sawdust（40%）: 10 tons
- Base（8%）: 1.8-2.0 tons
- Top（12-16%）: 3-4 tons
- Wasted chips（2%）: 0.5 ton
- Sulcus （12%): 3 tons (groove under a)
- Others: （ 8%）: 2 tons (evaporation and dust)

(2). Costs (per day)

- Raw material: 700 RMB/ton * 25tons=17500 RMB
- Labor: 1400
- Insurance: 30 RMB/person/month, 200 RMB/day
- Fuel: 2.5 tons per day
- Depreciation: 66 RMB/day
- Tax: 425 RMB/day

(3). Profit (per day)

- **RMB 2195 yuan from raw materials processing**

  The value increase for each tons of raw material is 171.4 RMB after pre-processing, the , the increase rate is 24.5%.

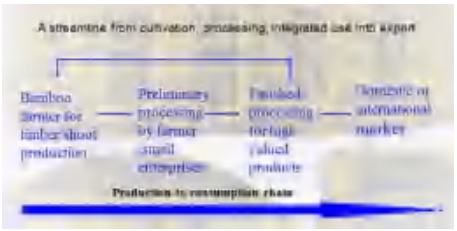
- **Other benefits**

  Bamboo farmer's income from branches, leaves, top part and sheaths is about 2,500 RMB/ha every two years

  The income from shoots (winter, spring and rhizome) is about 19,300 RMB/ha per two years.

(4) Production-to-consumption chain

A streamline from cultivation, processing, integrated use into export.



4. Some Experiences From China

- Local governments actively involved in making strategic plans for bamboo cluster development, and try to make it as an important part of local economy and sectors development.
- Production development strategies, including in short term, mid-term and long term; and proper government supporting policies, including land policy, forest contract responsibility management system, tax and investment policy etc.
- The bamboo development project should be including protection and rehabilitation of natural bamboo stands, improvement of bamboo species structure and development of bamboo nursery and plantation.

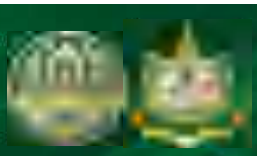
3. Some Experiences From China

- When proposing bamboo development strategies, marketing network construction, local customs, bamboo resources and market demand should be taken into consideration.
- Study on Bamboo taxonomy and field inventory of bamboo resources, as well as scientific and technical research and development, should be conducted before identifying the utilization strategy .
- The land tenure or ownership and using rights of bamboo forests should be clarified at household level; otherwise, it will become the biggest hint for the further development of the bamboo sector and the protection of bamboo resources.

Summary

Despite of long history on bamboo cultivation and utilization, China's bamboo industrial development started with traditional, small scale and easy products at the beginning, and large scale and industrial processed production thus developed when technical supports from scientific research institutions, enterprises and experts are available.

(10) Urban people, livelihood and forests --- by Dr. Preecha Ongprasert



Urban People, Livelihood and Forests

Preecha Ongprasert
Director of International Convention and Commitment Division
International Forestry Cooperation Office
Royal Forest Department, Thailand

APFNet Workshop on Forestry and Livelihood Development
7 November 2017, China

Outline of the Talk

1. Concept and Definition
   - Definition of the term "urban"
   - Definition and concept of "urban forestry:
2. The discipline of urban forestry
   - A new approach to the potential of urban forestry in developing countries
   - Urbanization in the third world: development and trend
   - Growing environmental concern
3. Potential of urban forestry indifferent urban zones
   - Biographical zonation
   - Land ownership and tree resources
   - A simple spatial model for urban forestry
4. Potential benefits for urban livelihood and problem
   - Material benefits
   - Environmental benefits
   - Potential problems

Outline of the Talk (cont.)

5. Social and cultural aspects
   - A participatory approach
   - Gender aspect
   - Cultural and religious aspects
   - Local knowledge and attitudes
6. Urban tree practices
   - Aboricultural practices
   - Urban tree inventory
7. Examples of best practices in urban forest management
   - Singapore
   - Thailand

1. Concept and Definition

1.1 Definition of the term "urban"

1. The United Nations (1991)
   - over 20,000 people as 'urban'
   - over 100,000 as 'cities'
   - over 5 million as 'big cities'.
2. Hardoy and Satterthwaite (1986)
   - 5,000 as an urban centre,
   - less than 20,000 being 'small urban centres'
   - 20,000 to 100,000 being 'intermediate urban centres'
3. What about Pacific Island countries where population less than 20,000?
4. Thailand: administrative territory of municipality (2,200 municipalities)

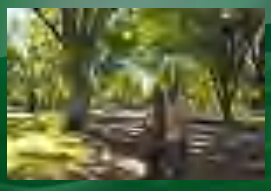
1.2 Definitions and concepts of "urban forestry"

- Urban forestry was conceptualized in the late 1960s in North America, and grew out of what was initially termed environmental forestry.
- The definition of urban forestry (Grey and Deneke, 1986)
  "*Urban forestry is the management of trees for their contribution to the physiological, sociological, and economic well-being of urban society. Urban forestry deals with woodlands, groups of trees, and individual trees, where people live - it is multifaceted, for urban areas include a great variety of habitats (streets, parks, derelict corners, etc) where trees bestow a great variety of benefits and problems*"
- Peri-urban forestry is loosely defined as forestry on the fringe of urban settlements

2. The discipline of urban forestry

2.1 A new approach to the potential of urban forestry in developing countries

1. Focus on the trees themselves; the potential benefits that may be expected from their cultivation in an urban environment
   - how they may be managed to maximize the urban tree
   - what threats an urban environment pose to their survival



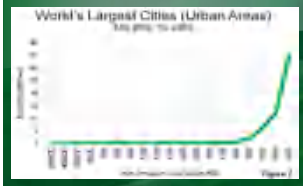

2. The discipline of urban forestry

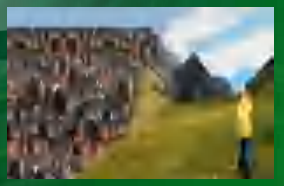
2.1 A new approach to the potential of urban forestry in developing countries

2. Focus on the residents of urban areas, their needs and the nature of their invariably diverse living conditions, and then to consider how trees might be of benefit to them
   - wide variety of disciplines, including urban forestry, arboriculture, community forestry, landscape architecture, geography, sociology and economics.


2.2 Urbanization in the third world: development and trend

- United Nations (1991): in mid-1990, 45% (2.4 billion) of the people of the world were living in towns or cities, and that this will have increased to 51% in the year 2000 and 65% in the year 2025.
- In developed countries, in mid-1990 some 73% of the population was classified as urban, 37% in less developed countries.



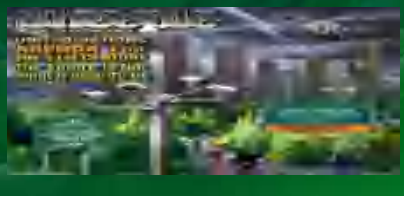


2.2 Urbanization in the third world: development and trend

"*Fuelled by changes in the countryside, high rates of fertility, falling death rates and rapid cityward migration, most Third World countries have been transformed from rural to urban societies in two or three decades. The larger cities have been expanding rapidly, often doubling in size every fifteen years.*" (Gilbert and Gugler, 1992)

2.3 Growing environmental concerns

- With the rapid growth of Third World towns and cities, there have been huge accompanying environmental problems
- The Earth Summit in Rio de Janeiro (1991) focused global attention on environmental problems, and many of those that are found in Third World cities feature in Agenda 21, one of the Summit's documents



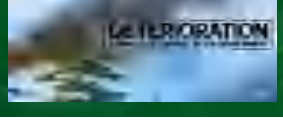
3. Potential of urban forestry indifferent urban zones

3.1 Biographical zonation

- Urban environment which has been heavily modified by man so that some living organisms are eliminated while others invade, colonize and multiply.

-Much urban soil being fill, or rubble, or compacted soil on which it is difficult for many native plants to become established.

-Introduction of exotic species and modification of the plant nutrient status of soils by fertilizers, compost, dumping of wastes or pollution.



3.2 Land ownership and tree resources

1. **Tree planting on land privately owned or occupied**
   - tree planting is a symbol of land ownership: ; trees planted for ornamental and material benefits

3.2 Land ownership and tree resources

2. **Tree planting on company land**
- Much potential for tree cultivation may exist as a means of creating a successful corporate image (offices surrounded by landscaped greenspace generally create a more favourable impression than concrete): trees around premises planted for environmental enhancement

3.2 Land ownership and tree resources

3. **Tree planting on public land**

-Most trees on 'public' land are generally planted and/or maintained for environmental purposes in Third World cities
-Different tree species and spatial arrangements are chosen according to different specific objectives

3.3 A simple spatial model for urban forestry

1. **Fuelwood**

-The primary source of energy in many towns and cities of the Third World is wood fuel, either as wood or charcoal.
-Poorer people collect small twigs and leaves to be burned for fuel.
-Most wood fuel is brought in from peri-urban areas or beyond

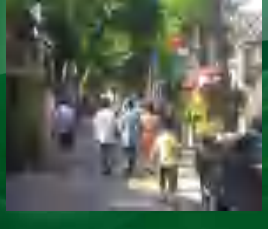
3.3 A simple spatial model for urban forestry

1. **Fuelwood**

-FAO funded 'green-belt' projects in periurban areas in Africa, on the outskirts of Ouagadougou (Burkina Faso) and Kinshasa (Zaire), N'Djamena (Chad), Nouakchott (Mauritania), Maputo (Mozambique), etc.
- Peri-urban plantations around Addis Ababa of Ethiopia provide an example of how *Eucalyptus* plantings may come represent a very important source of fuelwood for an urban population.

2. Food

- Some of the trees provide food - particularly fruits, edible leaves, shoots and even flowers.
- In Beijing, persimmon and walnut trees are grown in parks,
- Housing Authority of Singapore has a policy of growing fruit trees in housing areas for the benefit of elderly people



2. Food

- In Bangkok, fruit trees like jackfruit, mango, tamarind have planted along the main road in Bangkok since 1885
- Planting edible plants in front of household in Bangkok


2. Food

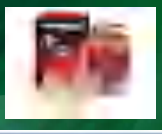
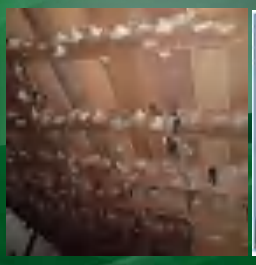
- Urban agriculture is an important source of food and income for many residents of Third World towns and cities,
- Food-producing trees are often found combined with other food crops in agroforestry systems.
- An example is provided by the floating urban gardens in Bangladesh


2. Food

- Growing plants within the buildings in Germany

2. Food

- Bird nest for swollows in Thailand


2. Food

-In the Pacific islands, homegardens are a ubiquitous feature of urban areas.
-In Kiribati, the main staples are coconut, bread-ruit, *Musa* clones, pandanus, and *Ficus tinctoria*, papaya, citrus species, avocado, guava, *Annona*, *Syzygium* and *Terminalia* spp., *Spondias dulcis*, and *Pometia pinnata*.


2. Food

-Consumption of fruit and vegetables from homegardens can alleviate a serious health problem from the consumption of traditional foodstuffs and towards imported foods of inferior nutritional value in Pacific Island countries.
-In Solomon Islands, people without homegardens were found to have a lower intake of iron and vitamins A and C.
-In Kiribati campaigns have been held to promote homegardening and the consumption of both traditional foods and the edible leaves of local trees such as *Morinda citifolia*, *Pisonia grandis* and *Polyscias* spp.

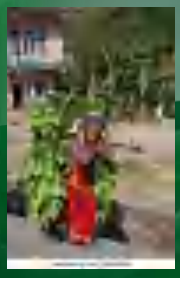


3. Fodder

-Livestock raising is a common practice in many towns and cities of some Third World countries
-Six Kenyan cities found that 17% of all households kept livestock with them in the urban area where they live.
-Totally 1.4 million head of livestock were kept in all towns in Kenya

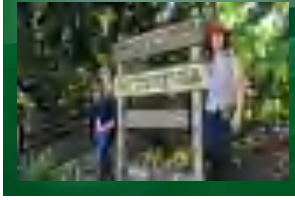

4. Grazing for livestock

- Urban greenspaces and peri-urban forests provide grazing to livestock belonging to urban residents
- In Nepal, fodders cutting from urban tree foliage is common



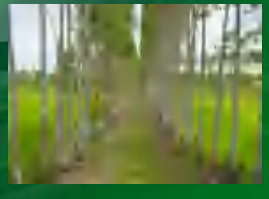

5. Timber and poles

- Urban settlements consume many timbers for the construction of buildings and furniture.
-In Baltimore, *Paulownia* is cultivated for export to Japan as veneer timber.
-Britain urban foresters are actively examining the possibility of using the various exotic species grown in urban areas as a source of craft and timber




5. Timber and poles

- In Europe, peri-urban forests used primarily for recreation are also managed for limited timber production.
-Peri-urban forests and plantations in developing countries probably consists mostly of supplying poles rather than larger timber,
e.g. fast-growing tree species such as *Eucalyptus* spp or bamboo

5. Timber and poles

- Street trees in Beijing provided material for temporary shelters after catastrophic earthquakes which occurred in 1976


6. Spices, fibre, medicines and other non-timber products

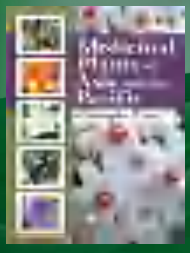
- In Asian and African countries, some amenity trees are used by local people for medicinal
-Some species of *Melaleuca* in Sri Lankan towns (originating from Australia), the bark is reportedly an important ingredient of ayurvedic medicine


6. Spices, fibre, medicines and other non-timber products

- In urban homegardens, trees valued for spices, fibre, mushroom cultivation, perfume, handicrafts, dyes, etc.

-Thaman (1987) reports medicinal plants to be a "critical economic and cultural resource" in the Pacific Islands

-Of the 93 medicinal plant species found in native urban gardens in Fiji, Tonga, Kiribati and Nauru, 55% were trees and another ten were woody shrubs

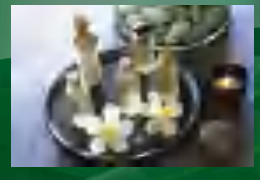


6. Spices, fibre, medicines and other non-timber products

- Sacred or perfumed plants were also widely cultivated for income generation as well as household use, their flowers, leaves, fruits and bark being sold for use by the tourist industry

-Mushrooms being cultivated in urban forests

-Trees may also provide materials for building shelters. The leaves of palms are commonly used as roofing by many poor urban dwellers

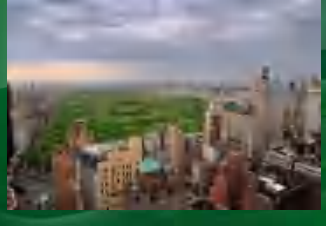


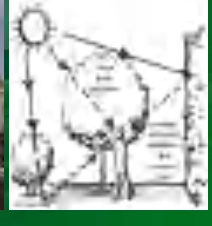
4.2 Environmental benefits

1. **Landscape enhancement**

-In urban settlements, trees are planted for the purpose of enhancing their visual character and adding variety and richness to urban landscapes from different foliage and blossoms, heights, colours and shapes

-Trees can enhance the living environment by reducing glare and reflection.





4.2 Environmental benefits

1. **Landscape enhancement**

-Urban forestry and the concept of a "green city" can be a source of civic pride and used to attract investment into an area

-Well-known examples is Singapore, garden festival programme in Netherland,

-The potential role of businesses in supporting urban forestry because of the economic benefits to be gained from an attractive urban environment

4.2 Environmental benefits

1. **Landscape enhancement**

-Tree species under which Lord Buddha gained enlightenment, *Ficus religiosa*, is commonly allowed to grow wherever it comes up in Sri Lankan towns and in other countries where Buddhism is strong.

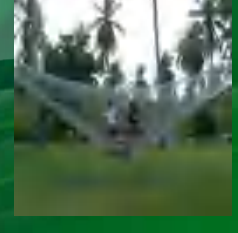
-Jim (1991) "*Trees constitute an important ingredient of the cultural landscape of human settlements…. Amenity trees in a given city can….be interpreted as an interplay between nature and culture.*"

4.2 Environmental benefits

2. **Recreation**

-Urban parks and peri-urban forests are an important recreational grounds

-At a smaller level, even a small patch of ground supporting a few trees can have great recreational value to children as a playground



4.2 Environmental benefits

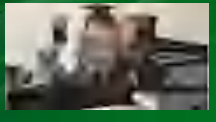
3. **Educational value**

-Urban parks, and particularly botanical gardens with their wide collection of trees and other plants, have a huge educational potential as an education tool
-The remnant rainforest park at Bukit Temara, Singapore is used extensively as an educational resource for students.
-In Hong Kong the Urban Services Department has established tree trails in some of its parks


4.2 Environmental benefits

4. **A sense of well-being**

-Ulrich (1990), people derive quantifiable benefit from the passive experience of viewing trees, the positive effects being both psychological and physiological.
-*"Compared to urban scenes lacking vegetation, views containing trees and other vegetation elicit preference or liking and can have positive influences on a range of other important feelings having a central role in psychological wellbeing.…many scenes dominated by trees foster [psychological] restoration because they elicit positive feelings; reduce negatively toned emotions such as fear, anger, and sadness; effectively hold interest; and, accordingly, might block or reduce stressful thoughts."*

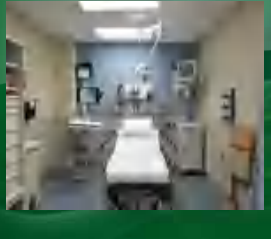



Moving the meeting from the meeting room to be under the tree shading, can reduce some conflict among the group and get conclusion of the meeting quicker

4.2 Environmental benefits

4. **A sense of well-being**

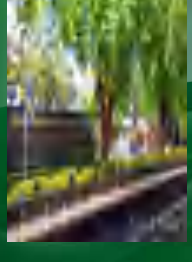
-*"Twenty-three surgical patients assigned to rooms with windows looking out on a natural scene had shorter postoperative hospital stays, received fewer negative evaluation comments in nurses' notes, and took fewer potent analgesics than 23 matched patients in similar rooms with windows facing a brick wall."*




4.2 Environmental benefits

4. **A sense of well-being**

-Somdet Chaopraya Institute of Psychiatry Hospital in Bangkok, Thailand
"Big trees conservation for psychiatric patients treatment and rehabilitation"




4.2 Environmental benefits

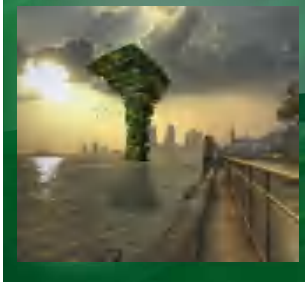
5. **A habitat for wildlife**

-The diversity of habitat provided for wildlife by urban forestry is valued in many developed countries, and particularly by conservation groups.
-Different cultures and in different groups of the same society (wildlife conservation concerns being often a prerogative of the middle classes).
-In India, there is a considerable conservation lobby, among whom urban parks and gardens are valued as a wildlife habitat
-*Ficus* spp. in Bangalore parks provides food for birds and small mammals


4.2 Environmental benefits

5. **A habitat for wildlife**

- Urban wildlife architect



4.2 Environmental benefits

6. **Climatic modification**

-Trees can have a significant and quantifiable effect on the immediate local climate
-Miller (1988) divides potential climatic modification into two main categories; direct effect on human comfort, and effect on the energy budget of urban buildings.

4.2 Environmental benefits

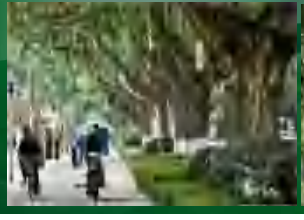
6. **Climatic modification**

- "Heat island" describes built up areas that are hotter than nearby rural areas.
- The annual mean air temperature of a city with 1 million people or more can be 1–3° C warmer than its surroundings.
- In the afernoon, the difference can be as high 12° C.
- Heat islands can affect communities by increasing summertime peak energy demand, air conditioning costs, air pollution and greenhouse gas emissions, heat-related illness and mortality, and water quality

4.2 Environmental benefits

6. **Climatic modification**

- Chinese urban foresters claim to have markedly altered the climate of some cities through widespread tree planting
-Since 1949, some 34 million trees are reported to have been planted in and around Nanjing city with the specific objectives of reducing summer temperatures and generally regulating the local climate; purifying the air; and beautifying the environment.



4.2 Environmental benefits

6. **Climatic modification**

-In Nanjing, a drop in the average summer temperature from 32.2° C to 29.4° C over the period 1949 to 1981 is directly attributable to the cooling effect of trees planted during this time.
-Over the 32 years, some 23 trees per city inhabitant were planted.
-Tree plantings have included block afforestation of degraded hillsides, windbreaks, triple rows of trees along railways, and the lining of street sides.

4.2 Environmental benefits

6. **Climatic modification**

- Tree plantings have included block afforestation of degraded hillsides, windbreaks, triple rows of trees along railways, and the lining of street sides.

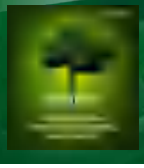
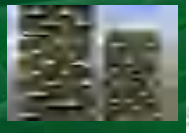
4.2 Environmental benefits

7. ***Energy budget of buildings***

- Surrounding vegetation to reduce the costs of the winter heating and summer cooling of buildings.

-Miller (1988) "*..vegetation can significantly affect building heating budgets. Windbreaks have been found to reduce home heating costs by 4 to 22 percent, depending on site windiness and how airtight the structure is. On the other hand, vegetation that shades a home in winter can increase heating costs*"

-Costs of air-conditioning a building can be reduced by up to 50 – 60%, depending on the location of the building and the trees around it

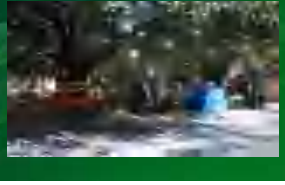

4.2 Environmental benefits

8. ***Human comfort***

- Perhaps the most important contribution of trees to human comfort in hot countries is shade, both directly and indirectly (by covering surfaces that reflect heat).

-They also provide protection from heavy rain, and for the urban poor are a commonly used shelter, both at night for sleep and during the day.

-street trees in Third World towns and cities are often used by small businesses for the shelter that they provide to the trader and client alike

4.2 Environmental benefits

8. ***Human comfort***

- 400 avenue trees growing along a 4.6 km stretch of the Barrackpore Trunk Road in Culcutta of India, 142 were associated with some kind of human activity as religious (52 trees), public utility (54 trees) and economic (99 trees).

-The most common activities classified as public utilities were benches for rest (14 trees), and notice boards/advertisements (10 trees)

-Frequently recorded economic activities were tea shops (14 trees), pan shops (13 trees), barbers shops (9 trees), tyre shops (6 trees) and cobblers (4 trees).


4.2 Environmental benefits

8. ***Human comfort***

-Species chosen for street planting should be evergreen to ensure shade throughout the year.

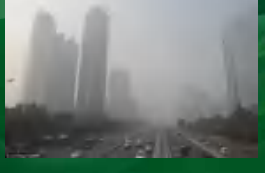
-Other desirable characteristics were that the trees should be native, fast growing, sturdy enough to withstand storms, have a high probability of survival, and should provide fruit and nesting facilities for birds

4.2 Environmental benefits

9. **Air quality**

-Recently, Beijing has recorded an annual average concentration of sulphur dioxide that was more than twice the WHO recommended average, with peak concentrations during the winter.

-Air pollution may be compounded by local conditions, notably air inversions (warm air lying over cold air) which trap polluted air over cities or towns for prolonged periods. Examples of this phenomena include Mexico City and Kathmandu, Nepal.




4.2 Environmental benefits

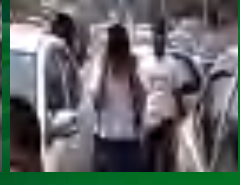
9. **Air quality**

-The Capital Iron and Steel Corporation in Beijing is now considered to be "just like a garden".
-Over the 12 years prior to 1991, the Corporation has planted 3,390,000 trees, such as white poplar, paulownia, Chinese little-leaf box, pine and bamboo. It has also planted out an area of 904,000 m^2 with grass and 8,590,000 flowers.
-The walls of the tall buildings inside the factory grounds are covered with climbing plants, the vertical green area reaching 46,500 m^2.
-In 1990 the output of steel increased 2.37 times over that in 1979. The amount of smoke and dirt emitted dropped by 50%.
-The sky above the plant is now reportedly always clear and bright and the air is clean, providing favourable working and living conditions for the factory employees as well as improving the quality of the environment throughout the region.


4.2 Environmental benefits

10. **Noise reduction**

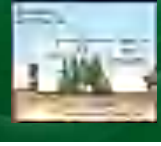
-Noise in urban environments is always found at high frequencies (short wavelengths)
-In Mexico City it is reported that noise levels intermittently reach 100 dB(A)
-Loss of hearing can be caused after prolonged exposure (of more than eight hours) to noise levels of 85 – 90 dB(A)
-Trees may help to reduce it to possibly more acceptable levels, especially if combined with other measures aimed at controlling noise emissions

4.2 Environmental benefits

10. **Noise reduction**

-Cook (1978) found that trees and other vegetation in conjunction with landforms reduced highway noise by 6 – 15 dB, while trees in combination with solid barriers reduced noise by 5 – 8 dB
-Noise pollution is reduced by trees through five mechanisms, notably sound absorption, deflection, reflection, refraction and masking.
-Trees absorb high frequencies at a greater rate than low frequencies, meaning that they selectively remove the frequencies most distressing to human ears.
-The effectiveness of noise deflection, reflection and refraction depends on the configuration in which trees are planted

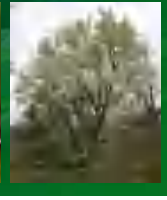


4.2 Environmental benefits

11. **Erosion control**

-Tees and forests in controlling soil erosion is that of their use as a watershed catchment cover
-Trees can help control such soil movements will depend to a certain extent on the nature of the slope and local conditions.
-Raindrops falling from a tree canopy may easily reach terminal velocity before they hit the ground



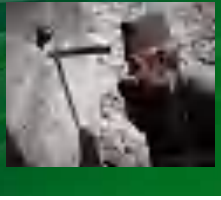


4.2 Environmental benefits

12. **Watershed management: peri-urban forests as catchment cover for urban water supplies**

-FAO has supported watershed management schemes for the urban water supplies of Kathmandu, Nepal; Freetown, Sierra Leone; and Tegucigalpa, Honduras
-In Kathmandu (the 144 km^2 Shivapuri watershed), the management of peri-urban water catchment areas for the benefit of urban water consumers can engender a clash of interests

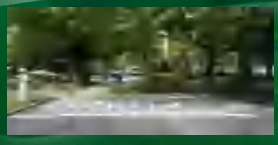




4.3 Potential problems

1.Cost

-Urban forestry initiatives beyond small homegardens can cost a large amount of money to implement.
-For examples, large saplings require intensive care
-Maintenance costs, in particular irrigation, can be very high
-Poorly run tree planting campaigns can also prove to be very costly, if mortalities are high as a result of inadequate or misdirected support




4.3 Potential problems

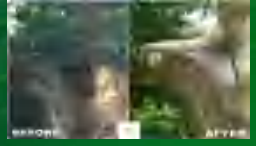
2. Threats to human safety

-Poorly planted or inappropriate tree species can hazard to urban inhabitants
-Direct falling branches or the falling over of the entire tree
-In Kenya, "*trees blocking highways and falling on roofs of houses are common in urban areas*." Onganga (1992)


4.3 Potential problems

2. Threats to human safety

-Indirect threats to human safety caused by trees include branches catching in overhead power lines, tree canopies obscuring vision and thus causing accidents, and trees serving as a screen for assailants.
-Careful planting and choice of species, regular maintenance and a clear line of responsibility for dealing with dangerous trees would help to increase human safety

4.3 Potential problems

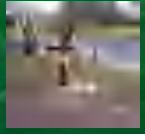
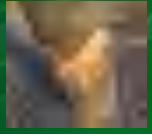
3. Structural damage

-The roots of street trees often cause the cracking of roads and pavements and sometimes water pipes.
-Urban trees can also cause structural damage to buildings, both at foundation level due to their roots, and through the falling of whole trees or branches.
-Careful species choice and maintenance can minimize the problem


4.3 Potential problems

4. Vandalism and browsing

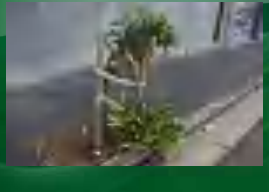
-Damage may be inflicted on trees from intent to destroy, disregard, a consequence of harvesting tree products, browsing livestock, etc.
-Gaining local people's support for and active involvement in tree cultivation can minimize the problem
-Experience from observations of street trees in Bangalore, India. "*The extent of mutilation is clearly inversely proportional to the extent of tree cover in a locality. The fewer the trees, the more insidious the process of destruction…*" (Gadgil and Parthasarathy, 1977)

4.3 Potential problems

4. Vandalism and browsing

-"*It is common in Kenya, during funerals of important people or when a home team wins a prestigious cup, for people to cut trees and carry branches as a sign of sorrow or victory. One day's riot can leave an entire park stripped of thousands of trees*."
(Onganga, 1992)




Vandalism to Dipterocarp trees in Chiang Mai of Thailand

4.3 Potential problems

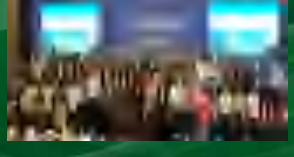
5. Unorganised waste disposal

-*"Urban forests are considered by many people as the most ideal place to dump industrial waste. This is a major problem which is not easy to solve in Kenya because it involves very rich and influential people. Waste from tires, bottles, and other industrial by-products quite often covers several acres that otherwise could be used for tree planting. These waste products have also become a health hazard to the urban dwellers"* (Onganga, 1992:219).

5. Social and cultural aspects

1. Participatory approach

-*"Combining the interests and concerns of all sections of the urban community into an overall strategy and management plan for the urban forest is essential"* (Johnston, 1992)
-People's needs, opinions and preferences should be incorporated into the planning and management process



5. Social and cultural aspects

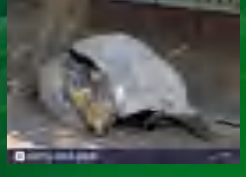
1. Participatory approach

-Local participation may be assisted through tree warden or similar schemes, whereby individuals volunteer to take responsibility for the care of trees planted in their area.
-In Longyan of South China, within commercial areas, shopkeepers have encouraged to ensure that nearby trees are well tended

5. Social and cultural aspects

2. Meet the needs of the poor

-Uurban trees already provide poor people with shade, recreation, fuel and food, among other benefits
-Fuelwood collection from peri-urban areas may also be an important source of cash income
-In Delhi, poor people gain income from the harvesting and sale of a number of products from trees



5. Social and cultural aspects

3. Gender aspects

-The main participants urban agriculture are women (Niñez, 1985).
-In Lima of Peru, men being more interested in cash production while women are more interested in subsistence production
-In West Africa, women are generally the main traders of produce from homegardens (Diarra, 1975).

5. Social and cultural aspects

4. Cultural and religious aspects

-"Many traditional beliefs do not hold strong in urban settings with mixed populations.
-Trees in urban landscapes can be of high cultural significance, and cultural or religious beliefs may strongly influence their management.
-In Calcutta, if a street tree was worshipped, its chances of survival were "almost 100 per cent"

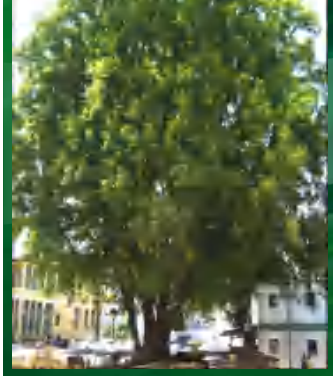
6. Urban tree practices

6.1 Aboriculture

-A discipline regarding to individual tree management
-A specialist will be called as "Arborist"
-Well-trained in multi-discipline related to tree care and management
-Skillful in mechanical utilization
-Full awareness in public safety
-Understanding "Art" and "Beauty of nature"
-Skillful in tree climbing

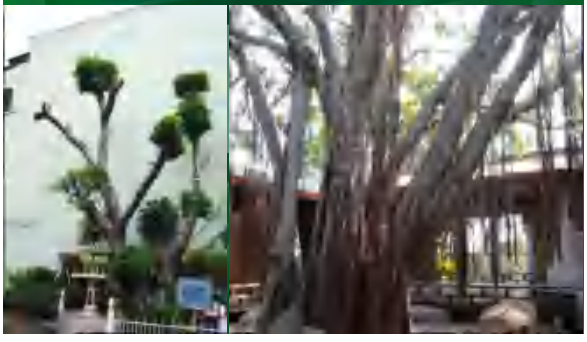


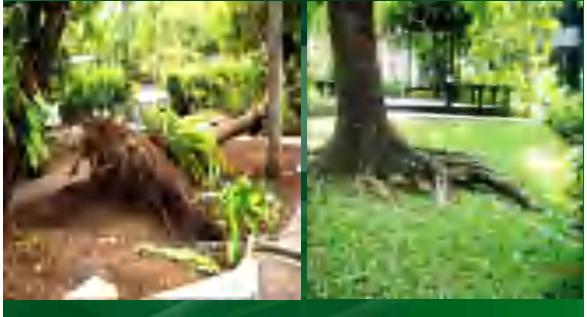

Ficus tree in the National Bank of Thailand, Bangkok



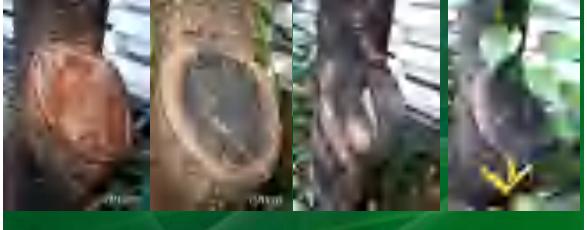
Understanding tree habitat, physiology and biology before bringing the tree to plant in the urban areas

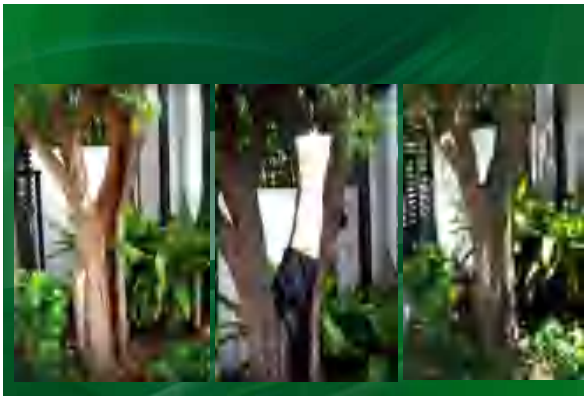

Example of bringing evergreen tree to plant individually in urban town





Resulting from correct way of tree pruning





6.2 Urban tree inventory

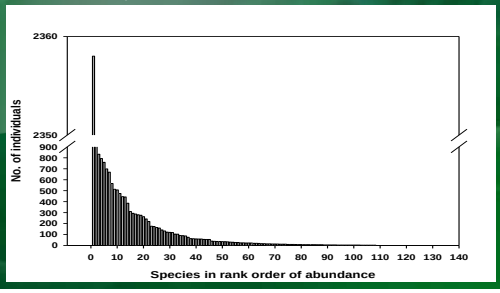
-Sustainable urban forest management

1) Species diversity
2) Healthy tree
3) Enough crown cover of local stand to be genetic source for conservation

Rule of 10-20-30 for species diversity (Santamour, 1990) Urban trees should be composed of more than:
1) 10% of single species
2) 20% of single genus
3) 30% of single family

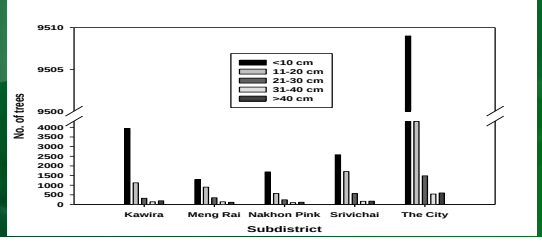
Street tree composition of Chiang Mai Metropolitan (2007)
(Wind shield technique)

Largerstroemia loudnii found moer than 14.8% of the city street following with *Pterocarpus indicus* 6.9%, *Largerstroemia floribunda* 5.2% and *Cassia fistula* 4.9%



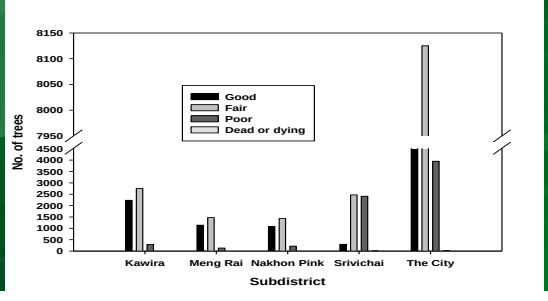
Street tree composition of Chiang Mai Metropolitan (2007)

- 87% of Chiang Mai's street trees composed of tree with dbh lower than 20 cm
- Large tree such as Samanea saman, Delonix regia, Ficus religiosa, Tamarindus indicus, Dipterocarpus alatus, etc. still remained within old settlements and public lands



Street tree composition of Chiang Mai Metropolitan (2007)

- Over 70% of Chiang Mai's street trees maintained their good helth condition



6. Examples of best practices in urban forest management

1. Singapore: Country level


9% nature reserve
1986 – 35.7% vs 2007 – 46.5%
Over 70 m² person


Singapore - How green?
Area under vegetation cover (km²)
Class
June 1986
June 1997
Aug 2007
Total Vegetated Area
Total Land Area
% Area Vegetated
46.59%
Streetscape Transition
NOW


Successful Greening Experience
City in a Garden
quality
Integrated approach


Commitment and Leadership
- Building on a Legacy of 40 Years
'Greening ... a big part of Nation Building'
– strong leadership + steadfast commitment + adequate resources
Garden City Action Committee
- closely monitored by the Prime Minister
- Greening -> upgrade to a world class city and attract talent

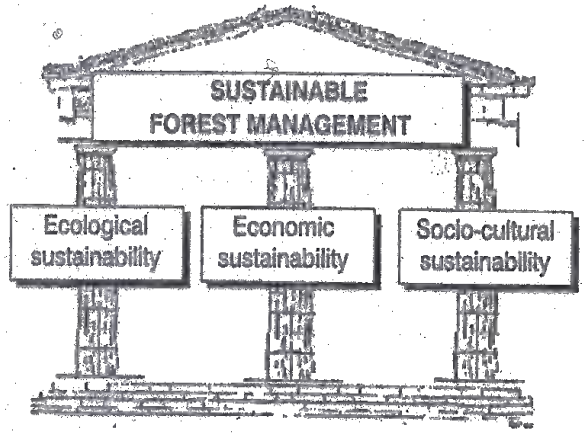

Policy Commitment
"Quality of Life
competitive
Greening
- managed the value of development
- must be in at the beginning of the planning process, not just decorative
- needs perseverance and determination and people of the same mindset


Singapore - Achievement
- From Garden city to
City in a Garden
- Greening- quality of environment ->Competitiveness
- Emphasis on Quality
- Integrated approach

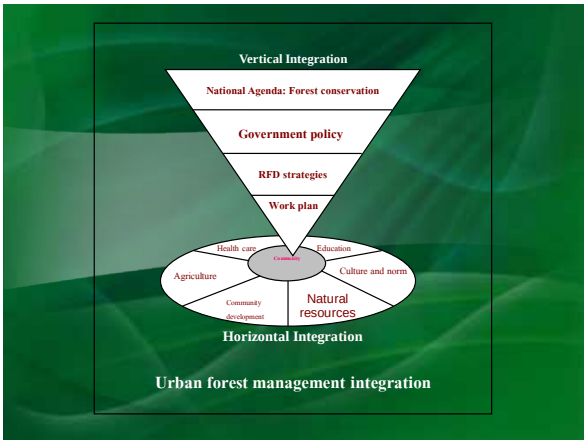
6. Examples of best practices in urban forest management

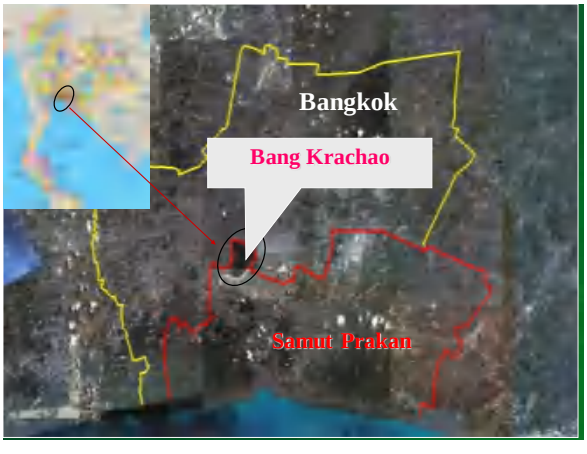
1.Thailand: Community level

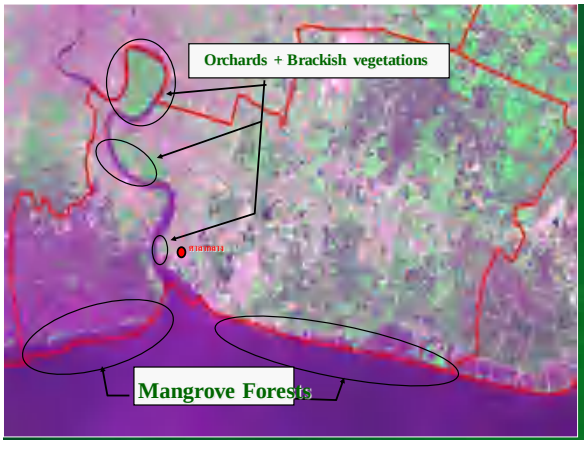
Bang Kchao, Prapadaeng District
Samut Prkarn Province
(Urban community management)

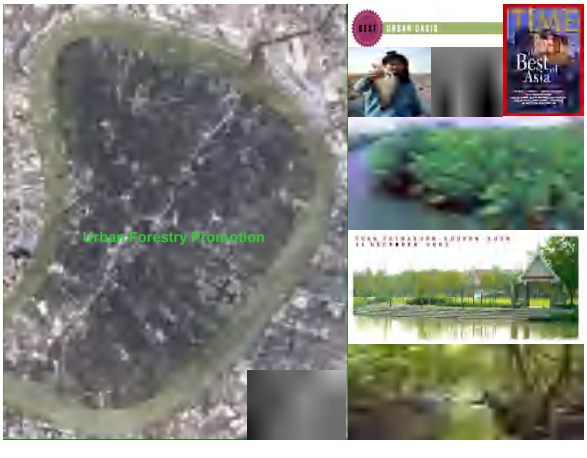



Integrated roles of Partnerships in sustainable urban biodiversity rehabilitation
People
Participate in decision making, doing, and responsible
Government sector
Response to the needs of all stakeholders
Strength
Community
Create learning process KM, alliance
Educational institution
Document, analyze, Connect to worldwide
Business sector
Corporate social responsibility (CSR)
Network
Empower
Religious institution
Mental centre
Media
Means and channels for two-way communication
Learning process
Local administration organization
Cooperate and support local activities


Vertical Integration
National Agenda: Forest conservation
Government policy
RFD strategies
Work plan
Health care
Education
Agriculture
Culture and norm
Community development
Natural resources
Horizontal Integration
Urban forest management integration


Bangkok
Bang Krachao
Samut Prakan


Orchards + Brackish vegetations
Mangrove Forests

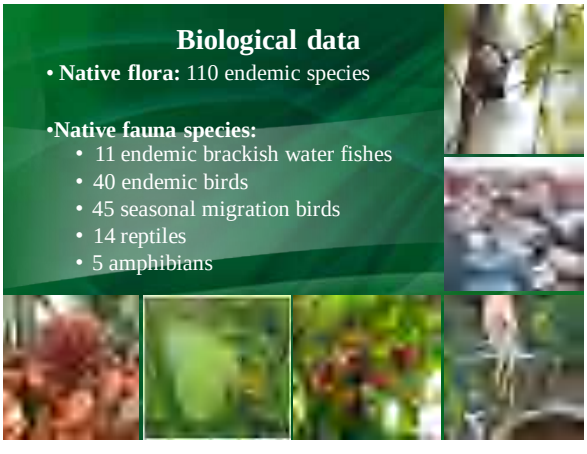

Urban Forestry Promotion
BEST URBAN OASIS
TIME
Best of Asia

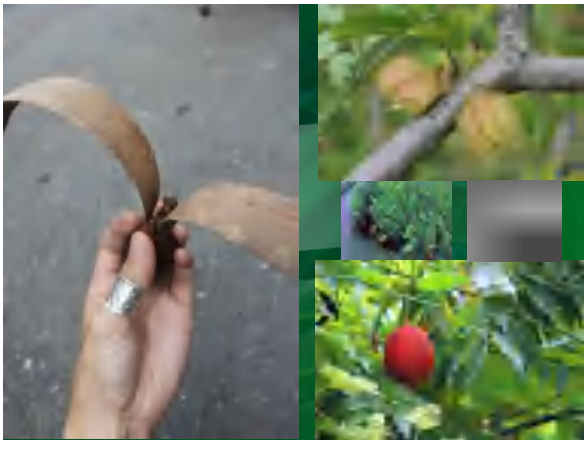

WE KEEP THIS GREEN AREA FOR WHOM?

Biological data

- **Native flora:** 110 endemic species

- **Native fauna species:**
  - 11 endemic brackish water fishes
  - 40 endemic birds
  - 45 seasonal migration birds
  - 14 reptiles
  - 5 amphibians





In 2006: Voted by Time Magazine as "the best urban oasis of Asia"

Best of Asia 2006

BEST URBAN OASIS

Management Dimension

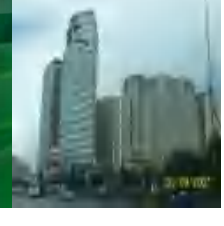
- The largest green area close to Bangkok
  - 1987: Cabinet agreed to preserve it as a green area for Bangkok and suburban areas
  - 1991: The Cabinet declared the " Garden in the Middle of the Metropolis Project" to the public
  - 1992-1999: The Government purchased 1,276 rai (225 ha) or 546 parcels of land from local inhabitants
  - 2002: Establishment of "Suan Sri Nakhon Khuen Khan Park" covering 148 rai (25 ha)

Total land area: 1,920 ha
State lands: 546 plots
Approx. 225 ha
Population: 24,650
Village: 68
Household: 2,635

Relevant Law and Regulation Dimensions

- 1992 City Planning Act
- 2002 Ministerial Decree

•The followings are prohibited
(1) Land allotments
(2) Multiple joined houses
(3) Condominiums
(4) Large dwelling construction
(5) Commercial buildings
(6) Factories



Requirements
• 6 m buffer along streams
• 15 m space along main road

Green Area Management Dimension

Sri Nakhorn Khuan Khan Green Area Management Center

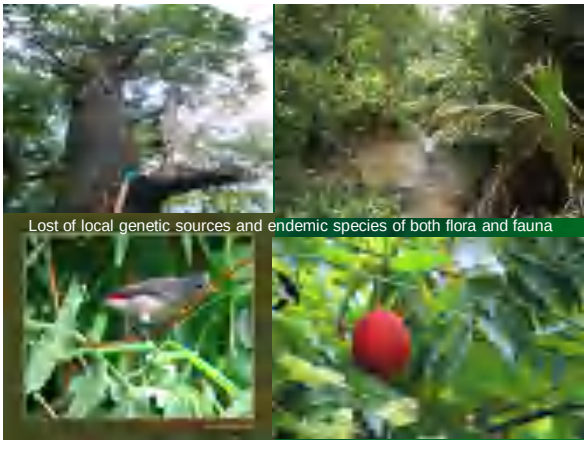
Problem arising within the area

1. Increasing of non-residents or temporary migrants
2. Community fragmentation
3. Ecosystem transitioning from irrigation system establishment
4. Increasing of pollutions from residential and industrials
5. Lost of local genetic sources and endemic species of both flora and fauna
6. Invasion of exotic species
7. Lost of traditional agriculture practices


Increasing of non-residents or temporary migrants
05/09/2007

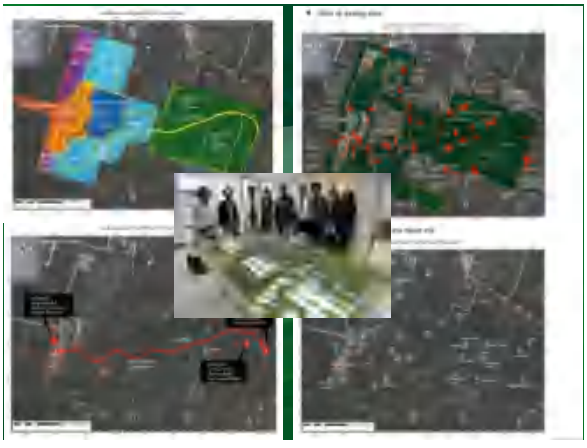

Increasing of pollutions from residential and industrials
IKONOS


Lost of traditional agriculture practices


Lost of local genetic sources and endemic species of both flora and fauna


Strategies application to promote biodiversity conservation and rehabilitation

Improving information and facilities for management



Local knowledge conservation

Art and cultural conservation: weekend school for kids

Seedlings of more than 60 endemic species a year are prepared for distribution with in community nurseries

Local seed tree conservation by youth group

Rehabilitation campaigns


Corporate Social Responsibility (CSR) from Business Sector
Merck Forest


Local school curriculum implementation
and outdoor classroom

Eco-tourism promotion

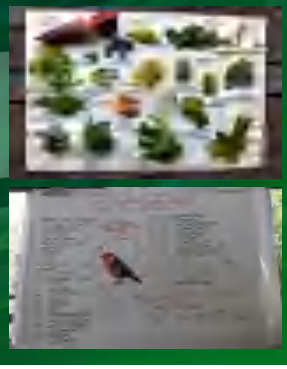
Research-based implementation program

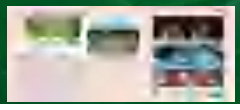
Academic research cooperation program

Chemistry: Chantarakasem U.
Botany: Chulalongkorn U.
Ecotourism: Hua Cheaw U.
Land-use: Kasetsart U.
Public health: Mahidol U.
Forestry: Kasetsart U.
City Planning: King Mongkut U.

Summary results of Bio-Blitz

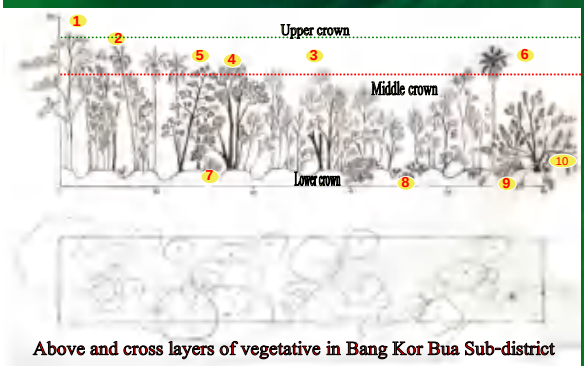
Mammal	10 spp.
Bird	83 spp.
Reptile	16 spp.
Amphibian	8 spp.
Fish	25 spp.
Molluck	51 spp.
Insect	123 spp.
Non-vertebrate	34 spp.
Plant	170 spp.
Algae and plankton	42 spp.
Fungi	58 spp.
Lichen	17 spp.
Total	**637 spp.**



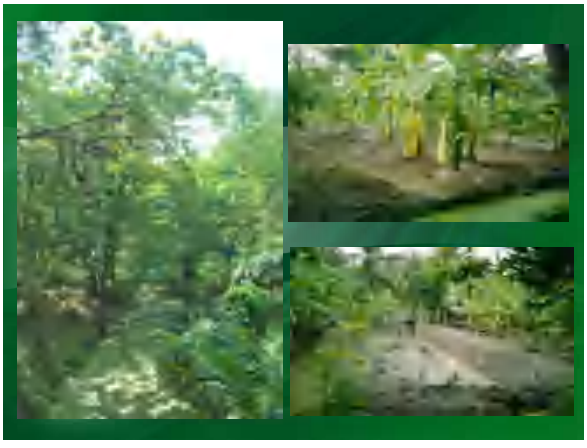


Ecosystem rehabilitation

1 = *Acacia lebbec* 2 = Betel nut 3 =Acacia sp. 4 =*Strebus asper* 5 =*Terminalia catappa*
6 = *Intsia bijuga* 7 = *Cycas rumphii* 8 = *Acanthus ebracteatus* 9 = Nypa palm
10 = Coconut

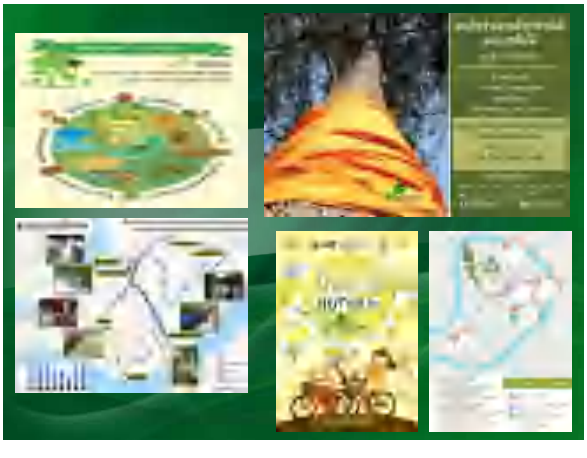


Above and cross layers of vegetative in Bang Kor Bua Sub-district



Ecosystem restoration of cork tree (*Sonneratia caseolaris*) for enhancing habitat of Firefly (5 spp. Which 2 spp. are new world records)

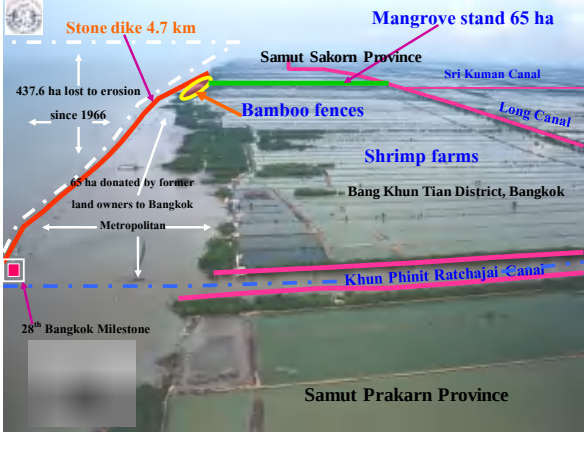
Public outreach campaigns

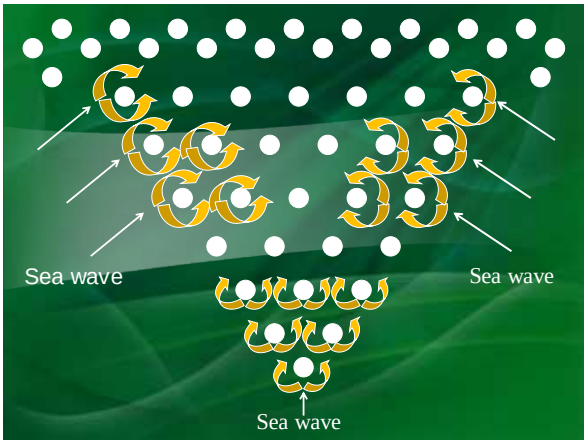


6. Examples of best practices
in urban forest management

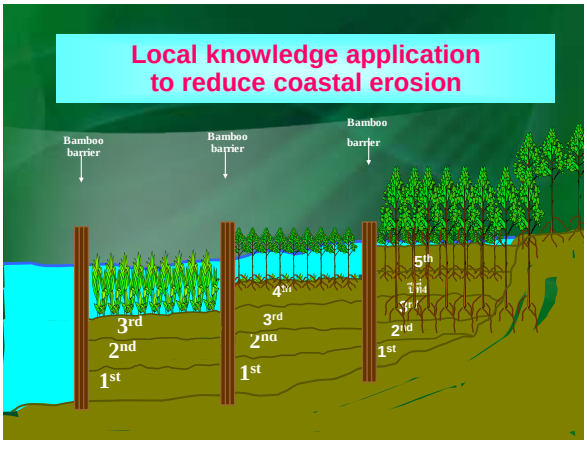
1.Thailand: Community level

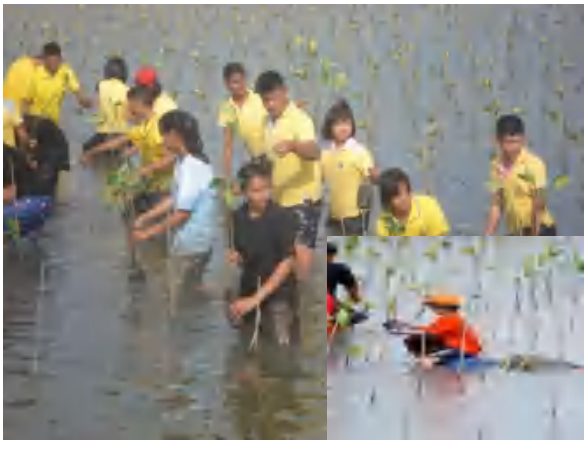
Bang Khuntian Community,
Bang Khuntian District, Bangkok
(Local knowledge application
for minimizing coastal erosion)




Sea wave
Sea wave
Sea wave


Artificial forest stand for sediment retention


Local knowledge application to reduce coastal erosion
Bamboo barrier
Bamboo barrier
Bamboo barrier
5th
4th
3rd
2nd
1st
3rd
2nd
1st
3rd
2nd
1st



Challenges

- Overlapping in responsibility of the area management schemes causing difficulty in integrating activities among designated agencies
- Urban development planning and problems resolutions have been obscured
- Instability of political atmosphere makes no concrete and effective to continue developing scheme
- Increasing demands of land transferring to other purposes would make unsecure to maintain green area and urban biodiversity conservation

Attached file: PPT Files of Participant Presentations

(1) Bangladesh: Improving forest dependent livelihoods through NTFPs and home gardens: A case study from Satchari National Park

Improving Forest Dependent Livelihoods Through NTFPs and Home Gardens: A Case Study from Satchari National Park

Imran Ahmed
Deputy Conservator of Forests
Bangladesh Forest Department

Bangladesh

- Covering an area of 147570 square km
- Population density 1252 per sq. km.
- Surrounded by India in the west and east, Myanmar in the southeast, and the Bay of Bengal in the south.
- The country lying between 20 ^{0} 34' and 26 ^{0} 38' north latitude and between 88 ^{0} 01' and 92 ^{0} 41' east longitude
- a low-lying active delta traversed by the numerous branches and tributaries of the Ganges, Brahmaputra and Meghna rivers.

Introduction

- *Non-timber forest products (NTFPs) and home gardens play crucial role in the livelihoods of people living in most tropical countries.*
- The contribution of non-timber forest products have a positive impact on rural livelihoods
- Their use is less ecologically destructive than timber harvesting
- More intensive management of forests for such products could contribute to both development and conservation objectives

- Home gardens have a long tradition in many tropical countries. They consist of an assemblage of plants and many include trees, shrubs, vines and herbaceous plants, growing in or adjacent to a homestead or home compound
- Such gardens play an important role in the livelihoods of rural poor and in the rural economy of the country
- Home gardens also play a significant role in forest conservation by providing for subsistence needs of local populations

- This study focuses on the contribution of NTFPs and home gardens in improving rural livelihoods and forest conservation in and around the newly declared Satchari National Park

Background
Satchari National Park (SNP)

- One of the 43 protected areas of Bangladesh.
- The word “Satchari” comes from “seven streams “(locally called ‘chara’) and refers to the streams that flow through the forest.
- The park is situated nearly 130 kilometres northeast of Dhaka, the capital.
- The area of the park is about 243 ha and is comprised of Forests of Raghunandan Hills Reserved Forests within the Satchari Range.
- The Raghunandan Hill reserve Borders the park on its north western side, while India lies to the south of the park. Tea estates, coffee and rubber plantation, and rice fields abut other adjacent areas of the park.

Map of Satchari National Park

Study Objectives

- The aim of the study was to illustrate the role and importance of NTFPs to local people's subsistence and income and to find out the potential of NTFPs as well as home gardening in Forest conservation and poverty alleviation among the people living in and around Satchari National Park.

Methodology

- The study was based on a literature review and primary data collection.
- Focus group discussions (FGD) were conducted to construct community maps and community profiles
- Intensive household surveys were conducted in the four sample villages

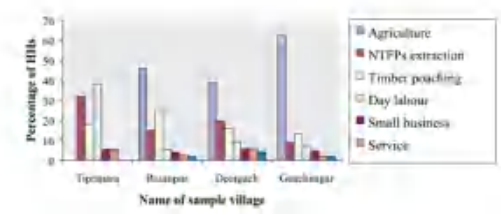
Results

- Community livelihoods in and around Satchari National Park

Name of village	Approximate No. of households	Location	Union	Level of dependence	Forest practices
Tiprapara (Forest Village)	18	Inside SNP	Paikpara	Major	collect fuel-wood, house building materials, fruits and other NTFPs, cultivate lemon and others
Ratanpur	156	outside SNP	Sahajanpur	Medium to major	mainly involved in illegal tree felling and majority of households collect fuel-wood
Deorgach	316	outside SNP, east	Deorgach	Medium	mainly collect fuel-wood, some involved in illegal tree felling
Goach Nagar	328	outside SNP, west	Sahajanpur	Minor medium	same as above

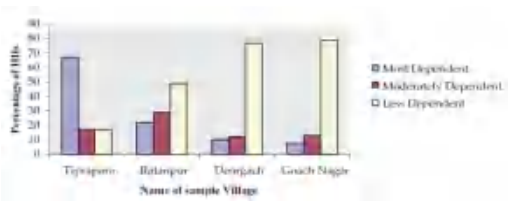
Results

Households involved in various livelihood activities in and around Satchari National Park



Results

Dependency of households on forest

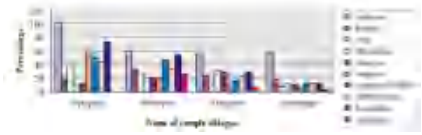


Different NTFPs exploited from SNP and adjacent forest by local households

Products/ Service	Origin	Amount of collection (based on peoples perception)
Fuel-wood	All woody species	High
Bamboo	Bamboosa vulgaris	Medium
	Melocannabaccifera	
Fruits	Artocarpusheterophyllus	Low
	Artocarpuschaplasha	
	Artocarpuslakoocha	
	Citrus limon	
	Syzygium spp.	
Menda bark	Litseamonopetala	Medium
Taragota	Ammomumaromaticum	Medium
Sun grass	Imperata cylindrical	Medium
Forage and fodder	Various species	Low
Herbal remedy	Different medicinal plants	Low
Rattan	Calamusguruba	Low
	Daemonoropsjenkensianus	
Broomsticks	Thysanolaena maxima	Medium
Kumbi Leaf	Careyaarborea	Medium
Sand	Sylhet sand	Medium
Honey	Apis florae	Very low
	Apisdorsata	
Bush meat	Gallus gallus	Very low
	Susscrofa	

Results

- NTFP Diversity and Households dependency on NTFP collection



Results

People's perception of the impact of NTFP collection on Forest Conservation

- "We have collected NTFPs from Satchari since prehistoric times, but it doesn't damage the forest ecosystem as illegal felling does. Moreover, we collect NTFPs seasonally, so it has enough time to recover."
- "NTFP collection keeps the forest safe from sudden fire and also destroys harmful organisms. It also accelerates the growth of seedlings and saplings by reducing the competition for nutrition."

Results

Status of Home-garden in and around SNP

- A total of 39 species were found in the home-gardens of the study area.
- None of these species were ubiquitous.
- 10 timber species, 9 fruit species, 5 species that produces both timber and fruit, 12 vegetable crops and 3 multipurpose species and medicinal plants were recorded from the home-gardens.
- Around 70% of the species grown in the study area are edible. Most villagers have a tendency to grow fruit and timber rather than vegetables in their home-gardens. For timber production people usually prefer fast growing species.
- The livelihood benefits of home-gardens go well beyond simply meeting subsistence needs. In many cases, the sale of products produced in home-gardens significantly improves the household's financial status.

Discussion

- In the Satchari area villagers collect a large number of NTFPs - more than 14 products were identified. Some NTFPs including the medicinal plants hold real potential for livelihoods and as an incentive to conserve forest.
- The study suggests that the sale of NTFPs and NTFP-based products provide an important source of cash income for the villagers in and around SNP. The most important point is that NTFPs represent a significant component of their livelihoods strategies
- Home gardens provide livelihood benefits in terms of nutrition and daily subsistence. The data in the study identified 39 different species in home gardens in the Satchari area, of which approximately 70% are edible. All of the wealthier people in the study depend on their at home gardens for fuel wood and other forest products from the forest to home Gardens.
- home gardens could play an important role in forest protection by shifting the dependency for food and income from the forest onto home gardens

Conclusion

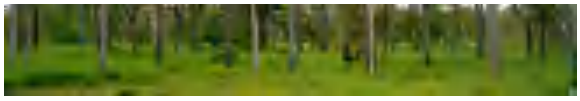
- NTFPs, NTFP-based products, and home gardens in and around SNP play important roles in improving the livelihoods of forest dependent people and forest conservation.
- the production and sale of NTFPs and NTFP-based products provide an important source of cash income for villagers in and around SNP.
- households in villages with diversified home are less dependent on the national park for forest products.

Recommendation

- This study suggested some new policy avenue such as enriching forest and buffer zones with commercially important NTFPs, which may be used for establishing NTFP-based small-scale enterprises.
- Protected area management strategies should be coordinated with the overall development of communities that depend on the protected areas.
- Management plans should give these people the right to collect forest resources in sustainable way, enable them to enrich the park and the buffer areas with different subsistence crops (i.e., NTFPs, fruits, vegetables), and give them incentives like seeds and seedlings to develop their home gardens.

Overview of the contributions of forests to poverty alleviation in Cambodia

Chhorn Savoeun[1*], Kim Sobon[2], Say Sinly[3]
[1]Institute of Forest and Wildlife Research and Development, Forestry Administration
[2]Department of the Forest Plantation and Private Forest Development, Forestry Administration
[3]International Cooperation Department, Ministry of Agriculture, Forestry and Fisheries



Contents

1. Introduction

- The forests of Cambodia include evergreen, semi-evergreen, deciduous, mangrove, bamboo and others forest in various conditions from closed to disturbed and mosaic formations.
- There are also re-growth and plantation forests as well as open forest types including evergreen shrub land and dry deciduous shrub land.
- Forest is divided into state forest and private forest. State forest is permanent forest reserve classified into production, protection, and conservation forest. Private forest is mostly forest plantation and economic land concession.
- National Institute of Statiatic (2015), indicated that an approximately 82% of the households lived in rural areas and a large majority of these households have engaged in rice-based agriculture, collection of forest products, and livestock raising.
- In order to achieve the goal of reducing poverty and sustainable use of forest resources, the sustainable livelihood approach provides a useful means for understanding forest-based livelihood development.

2.Forests and Livelihoods

- The contribution from forestry to Cambodia's GDP is limited, but heavily under estimates the livelihood contributions with range from NTFPs to timber for buildings and other subsistence-based products, as well as environmental services benefiting other economic sector and the nation as a whole.
- Forest incomes come from different uses of land that can be natural forest or plantations.
- Large areas of unmanaged yet, productive forests can play a direct role in improving livelihoods and the national economy, providing employment through forest management activities and NTFPs processing enterprises.
- There was a steady reduction in the rural poverty rates from about 53% in 2007 to about 21% in 2011.

3. Improving Forestry Management and Use

- The forestry sector contributes around 5 percent to GDP, with potential for expansion. Forestry Management reform has been implemented by the RGC to respond to the need for sustainable management of forest resources.
- A sub-decree on community forestry been developed and provide a potential for better support to forest development community.
- The RGC is now focusing on the enforcement of the Forestry Law, including aspects on procedures, forest demarcation, elimination of illegal logging, and enlargement of natural forest conservation areas for eco-tourism.

4. Poverty and Forestry in National Policy

- The RGC is strongly focused on implementation of the Forestry Reform Programme.
- The policy goal is to manage and use forest resources in a sustainable way, aiming to take the maximum advantages from their contribution to poverty reduction and socio-economic growth.
- The following documents were formulated in National Policy:
  - National Forest Program, 2010-2029.
  - National Poverty Reduction Strategy 2003-2005
  - National Strategic Development Plan 2014-2018
  - Forestry Strategic Development Plan 2017-2030.
  - Rectangular Strategy Phase III, 2013-2018.
  - Cambodia Sustainable Development Goals 2017-2030.
  - Agricultural Sector Strategic Development Plan 2014-2018.
  - Cambodia Climate Change Strategic Plan, 2014-2023.
  - Joint Monitoring Indicators, 2014-2018.

5. Past and current contribution of forestry to poverty alleviation Traditional forestry

5.1. Traditional forestry

- Indigenous and local communities who living within or near the forest, using and depending on Timber and NTFPs for their subsistence and livelihoods.
- A large proportion of rural population in the country still live in or near forest and assumed that forest resources play very important role for their livelihood.
- The NIS survey in 2015 estimated that the share of households with forestry and hunting activities is higher in the mountain and plain zone, at 88 percent and 78 percent, respectively than Tonle Sap and Coastal zone, the corresponding share is lower, at 76 percent and 60 percent.
- NIS (2015) indicated that the most common activity was Non-timber Forest Products (such as root crops, wild fruits and vegetables) collecting at 38 percent, firewood at 37 percent, and besides these activities such as rattan, bamboo, palm leaves and other fibrous material collecting.

5.1. Traditional forestry (Con.)

5.2. Community forestry

- In Cambodia, community forestry gradually developed since the mid-1990s through small pilot projects supported by the government and mainly by national and international NGOs.
- There are about 580 Community Forestry initiatives mostly supported by various NGOs (FA_d, 2017).
- The forestry law and sub-decrees promote communities' participation in forest management, including the decision making process for formulating management plan and internal rules.
- Community forestry is based on the idea that appropriate involvement by local people in forest management will enhance the livelihood of sustainable use of forest resources and create alternatives for enhancing people's livelihood.

6. Community-based production forestry

- As a strategy toward and poverty alleviation, the Community-based production forestry (CPF) program is an innovative form of forest management.
- The Wildlife Conservation Society in partnership with FA has been piloting CPF in Keo Seima protected forest.
- The system combines aspects of commercial forest management with community forestry and aims to demonstrate that a community based enterprise
- The Community-based production forestry initiative aims to combine biodiversity conservation with the maintenance of local livelihoods.
- Based on this model, community-based forest enterprises (CFEs) be set up at the village level that can be awarded the timber harvesting rights.

7. Commercial and industrial forestry

- In Cambodia, large quantities of timber are used for the construction of houses and buildings and for the manufacture of furniture, bridges, wagons, and sleepers.

8. Forest Concessions

- During the 1990s and early 2000s, approximately 6.8 million ha were managed under a concession regime that contributed much less than expected (only 4-12%) to the national GDP.
- The export of logs peaked in 1995 with about 590,000m^3, then declined to 74,000m^3 in 2000, and was almost zero in 2007.
- No more forest concession in Cambodia since 2007.

9. Payments for environmental services and carbon payments

- Forests provide a range of environmental services that provide benefits for communities within and outside the immediate area of the forests.
- Mlup Baitong, an environmental NGO, has been working with the villagers in Chambok to establish a community-based ecotourism (CBET) initiative with the dual aims of sustainably managing natural resources and improving the livelihoods of the people.
- Through capacity building activities, the villagers are more aware of the problems caused by deforestation.
- With the community's cooperation and facilitation by the authorities, Mlup Baitong provided training courses to community members for capacity building on forest management and for raising awareness about the importance of natural resources and their relation to ecotourism.

10. Forest-based Income

- A case study done with this community found that there were 60-70% of the CF members who depended on forest resources. Overall, the income was from 600,000-700,000 Riel/year or 400-450 dollars/year per family, and this made up 50-60% of the total income for a family.
- About 30% of total families in the CF could even earn further income from selling small and big poles and sawed wood, and their income could increase to 2.5-3 million Riel/year or 500-750 dollars/year.
- The study reveals that people worried about deforestation, especially a loss of high commercial trees such as Dalbergia cochinchinensis (rosewood), which was the main target for illegal loggers.
- Because of higher demands for timber and charcoal, the forests in the area were degraded, which led to less income for those who depended on NTFP collection.

11. The Way Forward

- Provision of trainings on manufacturing skill and marketing would improve their small enterprises through the integrated commune investment plan or CF development plan, since CF members lack technical skills for manufacturing NTFPs as handcrafts and furniture.
- Provision of trainings on sustainable forest uses and management at the CF and commune level would improve their skills to collect forest resources properly in the sustainable ways so that it can help to minimize negative environmental impact.
- Investment projects are needed to integrate livelihood improvement into the forest-based livelihood development plan at commune level and CF.
- Alleviating poverty depends not only on the forest but also on other sectors such as education, business, agriculture, health, and social networks.

12. Conclusion

Result from the study show that forest can make a significant contribution to the welfare and livelihoods of local households in Cambodia.

• Forest resource management approaches need to prioritize direct access of local communities to benefit from forest resources, especially in high-value forest management areas and including protected areas.

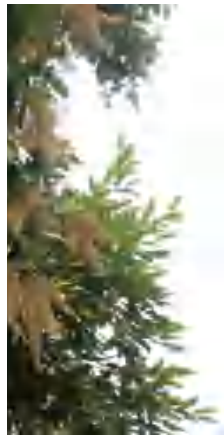
• Commercial forest management options should be considered and optimized to ensure the forestry sector's contributions to poverty alleviation and socio-economic development.

12. Conclusion (con.)

• Improving the lives and livelihoods of the rural poor should be a top government priority, including equitable access to common property resources as a critical source of income security.

• The RGC should develop and deliver support services to rural communities, including community forestry and agro-forestry and support for the development of NWFPs for rural livelihoods and food security.

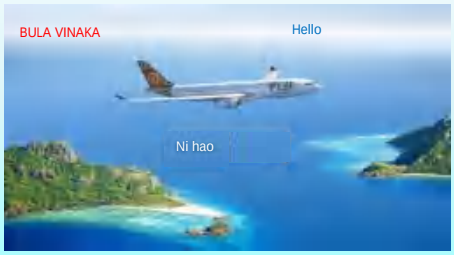
• Communities themselves must be closely involved in the development of systems and processes under which their forest will be managed and this requires the development of partnerships with other stakeholders.



Thank you

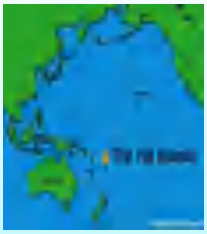
（3） Fiji: Forestry and rural livelihood development

APFNet Training Workshop on Forestry and Rural Livelihood Development



Kunming City, China on 1-14 November, 2017

APFNet Training Workshop on Forestry and Rural Livelihood Development



Fiji Islands is geographically located in the southern Pacific Ocean, northwest of Australia and about 1,500 kilometers directly north of New Zealand.

- Some 110 of the country's 332 islands are inhabited.
- Population is 907,341 based on the latest UN estimates. (www.worldometers.infor)

The two largest islands, Viti Levu and Vanua Levu, account for more than 85% of the country's 18,270 square kilometers of land area.

The Forestry Sector Contribution

- The Forestry sectors' contribution to the Gross Domestic Product (GDP) is expected to dramatically increase to $100 million within the next 5 years due to the value adding processing and production line from the Mahogany and Pine plantation forests.
- The foreign earnings from the export of timber and other wood based products averaged $42 million a year in the last decade. In 2004, earnings totaled $37 million.
- This contributes 2.3 per cent to the countries Gross Domestic Product (GDP).

Forest Cover

- The forestry sector in Fiji has a total forest cover of 1,054,419 ha, covering 58% of the total land area. This consists of:
- 899,229 ha of native forest,
- 116,488 ha of plantation forest (52,419 ha of hardwood plantations, 25,327 ha of softwood plantations and
- 38,742 ha of mangrove forest).

- The native forest consists of:
- 5,738 ha of nature reserves,
- 16,109 ha of forest reserves, and
- 1,300 ha of recreational parks

INTRODUCTION

The people depend largely on the trees and forest resources for subsistence and income generation

Local communities are losing more than tree alone through logging e.g. the changing micro environmental benefits, clean water and soil stability and other biological diversity.

THE APPROACH

Sustainable forest management is a potential aspect that has been favorably incorporated in to the forestry management plan to enable holistic approach in addressing the diversity of needs whether economical, ecological or social.

Organizations responsible for Forest management in Fiji

	Government agency	Non Government Organisation
1	Ministry of Agriculture	Nature Fiji/Mareqeti Viti
2	Ministry of Forests	Partners in Community Development, Fiji
3	Ministry of Environment	Live and Learn
4	National Trust of Fiji	Community & vanua groups
5	Provincial offices	Conservation International

Fiji effort to address state of poverty and livelihood

One of the key areas of the Government focus is to ensure effective and meaningful participation of forest resource owners in the social and economic development of their forest resource.

Under the Government's affirmative action programme, various forms of assistance are channeled through several Government agencies and financial institutions, to ensure economic participation of forest owners in this regard.

- The development of community-based forest management projects;
- non-timber forest products,
- cottage industry;
- sustainable forest management techniques in which community participation is vital,
- ecotourism opportunities.

Government and NGOs Projects

The reforest project is expected to have an extra 7.5 million trees spanning six thousand hectares of forestry plantations and woodlots in a major boost for livelihoods in the main islands of Fiji.

Will work with local communities to convert degraded grasslands and idle degraded land into productive forests. This will help expand forest carbon sinks and at the same time stabilize and restore the forest ecosystem and its important services, such as the provision of clean water and wild foods. stabilise micro-climate, protection of soils, and protection or enhancement of biological biodiversity.

uses an approach enabling the local community (who own and controls resource management of the Project Area forests) to continue to have access to their forest, and engage with several non-timber commercial resource management activities within the Project Area.

Nakavaudra Forest Carbon

initiated in 2008 by FIJI Water LLC and Conservation International (CI). One of the project's main objective is to establish a first of its kind community restoration project that would enable local community landowners the opportunity to participate in the emerging carbon market, and alternative livelihoods through jobs from restoration activities (in the short term) and sustainable harvesting of timber (in the long term).

Sisi Initiative Site Support Group

manages natural resources around the periphery of the Natewa Tunuloa Important Bird Area. The organization has established a 600-hectare community protected forest and developed alternative livelihood options for the area's indigenous landowners

Mechanisms to encourage increased participation

1. Encourage total participation of resource owners and resource users in all aspects of the forestry sector.
2. Improve knowledge and raise awareness of resource owners and resource users on forest ecosystem values and sustainable forest management.
3. Raise awareness of resource owners and resource users to optimize tangible and intangible benefits from sustainable forest management.
4. Train resource owners in technical and planning aspects of sustainable forest management.
5. Resource owners ensure sustainable management of their forest resources.

Major causes of poor performance of livelihood projects

PROJECTS FAILURE

livelihood programmes provide too little support to communities, and yet expecting too much from them.

local communities had the project presented to them, and they were not involved in its design, had no ownership of its outcomes, and did not receive tangible (or short term) benefits

development projects provide technology and funding without a thorough analysis of the range and distribution of local skills required to sustain the project

Factors that have contributed to success.

1. Using participatory techniques and involving local communities in improving environmental management and environmental sustainability
2. Wide community involvement in pre-planning, design, implementation and monitoring.
3. Partnerships in environmental management projects facilitate institutional strengthening by enabling dialogue, information exchange; technical assistance and reducing duplication and competition for scarce resources.

The Way Forward

THE WAY FORWARD

Strengthen coordination, implementation and monitoring of poverty alleviation programmes including partnership agreement between government, the civil society, and the private sector

Forest management should be implemented in a way that local communities are actively involved in its planning, implementation, monitoring and evaluation.

Through active participation in the administration and implementation of sustainable forest management, the resource owner should receive stable income from forest products and diversified employment opportunities.

The Government will develop guidelines and a scheme for compensation of landowners dedicating their land for protection and conservation purposes.

THANK YOU ALL

QUESTION

(4) Indonesia: Dynamics of social forestry in Indonesia

GAMIN
Trainer
The Ministry of Environment & Forestry of Indonesia

DYNAMICS OF SOCIAL FORESTRY IN INDONESIA

APFNet Workshop Kunming City, China, 1-14 November 2017

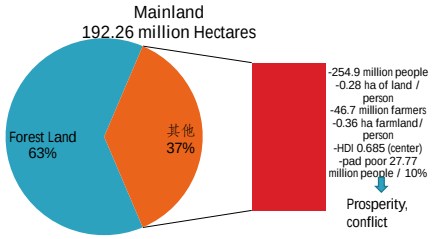
Outline

- Introduction
- Social Forestry Strategy for Poverty Reduction and Improvement of Welfare
- Case Study
- Lessons Learnt
- The Way Forward
- Summary

Introduction

- Bio-geophysical, social, and economic
- History of interventions in forestry focusing on livelihood improvement
- Scale of effort in comparison with state of the poverty

Bio-geophysical, social, and economic



History of interventions in forestry focusing on livelihood improvement

Since 1982 up to now 2017

- Mantri-Lurah Program
- Village Community Forest Empowerment-PMDH
- Community Based Forest Resources Management-CBFM (PHBM)
- Community Forestry (HKm), Village Hutan (HD), Community Plantation (HTR), Kemitraan and Customary Forest (HA)

Scale of effort in comparison with state of the poverty

- Can not yet significantly raise community welfare

This paper describes:

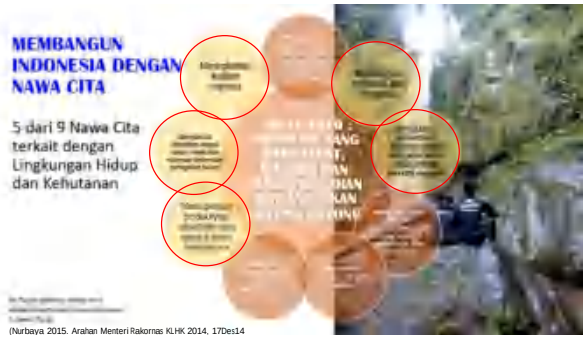
- 1)the dynamics of the development of social forestry in Indonesia,
- 2) its impact on the welfare, and
- 3) its role on reduction of forest tenure conflicts.

Social Forestry Strategy for Poverty Reduction and Improvement of Welfare

1. Government Policy Related to Social Forestry
2. Social Forestry Programs
3. Target and Achievement of Social Forestry up to 2016
4. Social Forestry Target and Achievement After 2016 to Now

Government Policy Related to Social Forestry

- Indonesia's current government, the period 2014-2019, led by Jokowi-JK launched 9 (nine) "Nawa Cita" to realize "sovereign, self-governing Indonesia and personality based on mutual cooperation".
- Five of the nine "Nawa Cita" are related to the environment and forestry (Nurbaya, 2015).
- Two of the five "Nawa Cita" related to the environment and forestry are directly related to the welfare of the community, namely: 1) building Indonesia from the periphery, and 2) improving the quality of human life of Indonesia.
- The Government of Indonesia has targeted social forest allocation covering 12.7 million hectares of forest area (PSKL, 2017).



(Nurbaya 2015. Arahan Menteri Rakornas KLHK 2014, 17Des14

Social forestry programs

By Perum Perhutani (Java & Madura Island)
- Mantri-Lurah Program
- Village Community Forest Empowerment-PMDH
- Community Based Forest Resources Management-CBFM (PHBM)

By Ministry of Forestry (now Ministry of Environment and Forestry)
- Community Forestry (HKm),
- Village Hutan (HD),
- Community Plantation (HTR),
- Forestry Partnership, and
- Customary Forest (HA)

Achievement of Social Forestry up to 2016

Programs (By Perum Perhutani)	Policy Results		
	Community Involvement	Distributed land area (Hectar es)	Location
PHBM Plus	5,278 villages (97%) of 5,386 villages in Java and Madura Island in the vicinity of forest areas.	2.216.225 hektar	Banten Province, West Java, East Java

Target and Achievement of Social Forestry up to 2016

No	License	Area (Hectare)	Number of Right, Lic / MoU	Number of Province
1	Village Forest Management Right	471,451.00	93 Right	12
2	Community Forestry License	432,613.36	498 Lic	20
3	Community Forest Plantation License	768,859.73	2781 Lic	28
4	MoU Forestry Partnership	44,010.16	29 MoU	5
	Total	607,269.63		

Target: 2.5 million hektar (2009-2014)

Source : (KemenLHK, 2016)

Target: 12.7 million hektar (2015-2019)

Target and Achievement of Social Forestry after 2016

No	License	Area (Hectare)
1	Village Forest Management Right	Indicative Map of Social Forestry Area (PIAPS)
2	Community Forestry License	
3	Community Forest Plantation License	
4	MoU Forestry Partnership	
5	Customary Forest	
	Total	-

Case Study Site

- Community Forest in Sukakarya Village
- Village Forest in Muara Megang I Village
- Both are around KPH (FMU Lakitan
- Located in Musi Rawas Regency South Sumatera

Lessons Learnt

1. The Role of Social Forestry in Improving the People's Welfare
2. The Role of Social Forestry in Reducing Tenurial Conflict
3. Obstacles to the implementation of Social Forestry in the field
4. Factors Supporting the Success of Social Forestry

The Role of Social Forestry in Improving the People's Welfare, Social/Conflict, Ecology

Programs (By Perum Perhutani)	Policy Results		
	Public welfare		Forest Sustainability
	Economic	Social / Conflict	Ecology
PHBM Plus	Rp.252,34 billion (Profit sharing W / Non W), Rp.7.469.09 billion or an average of Rp 679.01 billion per year (intercropping)	-Acomodate workforce 6,304,467 people, value of Rp.705,71 billion, - Encourage the business opportunity of 13,500 business units in various sectors	The existence of forest is maintained in accordance with the rules of silviculture and conservation and forest is sustainable

The Role of Social Forestry in Improving the People's Welfare, Social/Conflict, Ecology

Programs	Policy Results		
	Public welfare		Forest Sustainability
	Economic	Social / Conflict	Ecology
Community Forest (HKm)	Rising from NTFPs and nature tourism	- People are more calm trying legally - The forest is recognized by the community	Increase variation of plant species and land cover
Village Forest (HD)	Not yet felt the result	-More calm society trying legally - The forest is recognized by the community	Increase variation of plant species and land cover

Obstacles to the implementation of Social Forestry in the field

Programs	
Community Forest (HKm)	There are 3 things: 1) There are other parties want to take care of, 2) The tourism office makes rules that have not been agreed, 3) The tourist attraction is less well maintained
Village Forest (HD)	There are 4 things: 1) HD boundary in the field does not exist yet, 2) HD boundary outside the village area, 3) Village limit has not been agreed on by neighboring village, 4) No budget for HD boundary
Forest Partnership (Kemitraan)	There is no fund in KPH to buy rubber sap from partnership

Factors Supporting the Success of Social Forestry

- The political will of the government
- Participation of various parties, including non-government institutions
- The political situation in the run-up to the elections after the 2019 period is also considered to be a factor driving the achievement of social forestry targets as the government for the period 2014-2019 would want to provide good reporting on its partisanship.

The Way Forward

- The need for intensive assistance in the utilization and marketing of non-timber forest products in the short term. This is because the results of the timber long enough to be perceived benefits.
- The need for periodic evaluations to ensure that management rights do not change hands.
- Need assistance in the implementation of the organization to avoid conflicts in the field management, especially after the program has been perceived benefits.
- The village government and the rights holder group or the management permit need to budget and schedule the arrangement of work area boundaries in the field. If there is a boundary problem with the village area, in order to resolve the village boundary first.
- The need for community awareness of the benefits of clearing land without burning.

Summary

- Social forestry policies can be recorded in several phases: by the Director of Perum Perhutani 2007 to 2011, the ministry of forestry since 2001 to 2004, period of 2007 to 2014 and 2016.
- The social forestry program : Mantri-Lurah, Social Forestry, Integrated Village Community Development (PMDHT), PMDH, PHBM (CBFM) , and PHBM Plus.
- MoF: Community Forest, Vilage Forest, Community Plantation Forest, Forest Partnership, and Customary/Indigenous Forest

Summary

- Social forestry conducted by Perhutani opened community access to 2,216,225 hectares of land. Social forestry at the MoF targeted at 2.5 million ha in 2010-2014 reached 607,269.63. The target of social forestry in 2015 to 2019 is 12.7 million hectares which is still Indipatif Maps (PIAPS).
- The role of perceived social forestry can increase both perceived and potential income in the field. In terms of sustainability of social forestry forest can increase the variation of plant species and increase land cover. Social forestry is declared to reduce tenurial conflicts through employment, safeguarding and providing peace of mind in forested areas because it has management legality

Thank you for Your Attention

.

(5) Indonesia: Social forestry in Indonesian protected areas

SOCIAL FORESTRY IN INDONESIAN PROTECTED AREAS

Dian Charity Hidayat, SE,MSE,MA

Research and Development Center of Social Economic Policy and Climate Change
Ministry of Environment and Forestry

INTRODUCTION

Some forests in Indonesia are conserved due to their **erosion and flood preventive function, reservoir storage, plantation and animal ecosystem, soil fertility conservation, and oceanic intrusion prevention**.

- Protected forest remains more less 25 percent from total forest area in Indonesia or 29,6 million hectares (Kehutanan, 2015).
- Indonesian widest protected forests are Papua dan Kalimantan Island (31,84% and 23,70%).

Island	Protected Forest Areas	Percentage (%)
Sumatera	5.629.305,65	18,97
Jawa	734.939,66	2,48
Bali	95.766,06	0,32
NTB	430.485,00	1,45
NTT	684.403,00	2,31
Kalimantan	7.031.608,00	23,70
Sulawesi	4.408.681,00	14,86
Maluku	1.211.314,00	4,08
Papua	9.446.872,00	31,84
Total	29.673.374,37	100,00
Source: Statistic of Ministry of Environment and Forestry, 2015 (modified)		

Tabel1. Protected Forestry Area in Several Island of Indonesia

2

DEFORESTATION IN PROTECTED FOREST

The rate of deforestation tends to decrease.

- **2003 – 2006** : timber was still taken from natural forests
- **2007** : Timber was supplied from production forest, after Government established Forest Management Unit ("Government Regulation Number 6 Year 2007 on Forest Management and Preparation of Forest Management Plans and Forest Utilization," 2007).

3

POVERTY

Poverty is considered as a major root cause of degradation on protected areas.

- According to Social Forest Conservation Directorate of Ministry of Environment (2015), around 12 million of the poor lives in surrounding the forest areas.
- Meanwhile, according to 2015 Indonesian Central Statistic Bureau (BPS), the number of household living in the forest surrounding is increasing up to 900.000 families in 2004 – 2014. Equal to the increase by 80,000 households each year.

Graph 1. Number of Household Living in Surrounding the Forest Areas

4

Key Elements

To fight against poverty, government implements Social Forestry program :

Both of Community Forest and Hutan Desa (Village Forest) have rights to :

- ✓ **Get facilitated to improve the ability** to organize, formulate work plans, apply permits and conduct forest cultivation to increase production, access to markets and capital, and develop forest and forest product utilization.
- ✓ **Forest area cultivation** except in the protected coverage, eg : bees breeding, mushrooms, herbal plants, decorative plants, etc.
- ✓ **Environment service utilization**, eg : water flow utilization, natural tourism, plant and environment conservation, and carbon saving.
- ✓ **Non-wood Forest product utilization**, eg : rattan, bamboo, sago, Nypa fruticans, honey, resin, fruits, and swallow bird nest.

5

LESSON LEARNT

Social Forestry implementation benefits :

A. Tenure Conflict Solution
B. Farmers Income Level
C. Ecotourism Potential

6

A. Tenure Conflict Solution

Cause :

the **imbalances of forest utilization** among communities, plantation and mining companies, the inequities of allocation of forest areas and the lack of legitimacy of forest areas that are entitled to community management. (Safitri, 2012)

Recommendation :

the implementation of village forest and community forestry programs (Sylviani & Hakim, 2014).

Proposed Solution : *Community forest program.*

- people can still use protected forests to improve their living standards
- government program to reduce poverty

7

B. Impact to Smallholders Income Level

How the system increase the income level :

- Harvesting non-timber forest product : coffee, rattan, resin, birds' nest, etc. → production
- Intercropping with multi purpose tree species (MPTs) as far as no cut trees and hunt protected animals.→ Production
- The development of community forest's cooperation in order to control the price and shorten the flow of marketing :
-

Diagram2. Expected Value Chain

8

C. Ecotourism Potential

- There are several protected areas that have ecotourism potential and still undeveloped yet.
- While ecotourism demand now is increasing.
- Well-managed ecotourism is believed to support sustainable management of protected forests while improving the welfare of the people.
- However, in order to build a sustainable ecotourism, a good planning, human resources training, supportive policies and stakeholder cooperation are required.
- For example, Pink Beach in Lombok Island.

9

10

Case Study

Economic value	The Total Economic Value of Ecotourism (Rp/year)
Willingness to Pay	34.343.066.074
Value Paid	20.597.525.000
Consumer Surplus	13.745.541.000

Purpose Solution

- ➢ Management of ecotourism management
- ➢ Ecotourism promotion and visitor education
- ➢ Policies and cooperation between sectors.

11

Thank You . . .

谢谢

12

(6) Laos: Forest and rural livelihood development in Lao PDR

FOREST AND RURAL LIVELIHOOD DEVELOPMENT IN LAO PDR

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APFNet-KTC, Yuabban, China 1-14 November 2017


OUTLINE

- Introduction
- Forest In Economic Development
- The Situation of Lao Poverty
- Rural Development and Poverty Reduction
- Economic Sector Development from Agriculture and Forestry
- The Poverty Eradication and Forestry in National Policy
- The Roles and Contribution of Forests and Forestry Sector in Lao PDR
- The Importance of NTFPs for the Rural Economy
- Forest Strategy to the year 2020
- Rural Development and Poverty reduction Target to 2020

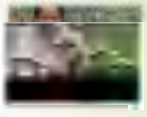
INTRODUCTION

Lao PDR a land-locked country, shares borders with China, Myanmar, Thailand, Cambodia and Vietnam

- Land area: 236,800 sq. km, 70% is mountainous
- Population: 6.8 mil.; annual growth rate: 2.1%; 68 % living in rural areas and heavily forest dependent
- Economy: a lower-middle income country with GDP (2015) annual growth 7.9% ; GDP Per Capita: US$1,740

FOREST IN ECONOMIC DEVELOPMENT

- [illegible] resource-based where forest sector contributes:
  - ~2.1% of the GDP (2011) and directly employed ~ 8,000 people
  - Forest products contribute > $350 million a year in terms of gross production and consumption
  - NTFP contributes 61-79% of non-rice food consumption by weight, 44% of subsistence value, 55% of cash income, and 46% of the total household economy



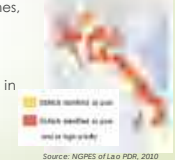
FOREST AREA (million ha)

- Total allocated forest areas: ~16 (70%)
  - Protection Forest: 8.2 (national+ Provincial + district protection forests)
  - Conservation Forest: 4.7(national + provincial+ district conservation forests)
  - Production Forest: 3.1(state production forest)

THE SITUATION OF LAO PDR POVERTY (1)

- In general, there is a big poverty gap between rural and urban areas. That the average national poverty line is very close to the average rural poverty line indicates that the highest poverty incidence remains in rural areas
- For concentrating poverty eradication schemes, the Government of Laos (GoL) identifies 72 districts as poor and a core group of the 47 poorest districts has been selected for priority investments. All identified districts are located in remote and mostly forest areas

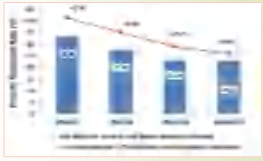

Source: 7th NSEDP of Lao PDR (2010-2015)


Source: NGPES of Lao PDR, 2010

THE SITUATION OF LAO PDR POVERTY (2)

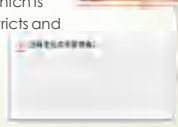
- Recent estimates from the Laos Expenditureand Consumption Survey (LECS5) show that the proportion of poor people- those hose consumption is less than the national poverty line, declined by 4.3 percentage points from 27.56 percent in 2007/8 to 23.24 percent in 2012/13 and declined to 23 percent in 2015 (UNDP. 2015).

Poverty Reduction in Lao PDR 2002/3-2014/15



RURAL DEVELOPMENT AND POVERTY REDUCTION (1)

- "3 builds" directive (building provinces to become strategic units, districts to become comprehensively strengthened units and villages to become development units), which is being piloted in 52 districts and 109 targeted villages

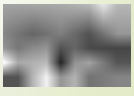


RURAL DEVELOPMENT AND POVERTY REDUCTION (2)

This piloting is ongoing and has contributed to strengthening local capacity and poverty reduction.

- The political system at the village and Village group level has been significantly strengthened.
- The government has focused on building necessary infrastructure such as road access to districts and village to village

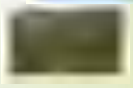
However, LECS5 indicates that the poverty rate fell from 27.6 percent in 2007-2008 (LECS4) to 23.2 percent in 2012-2013, and it is expected to remain at approximately 20 percent in 2015.



Economic Sector Development From Agriculture and Forestry

Agriculture and forestry was one of the sectors that generated a number of significant achievements despite the impacts of natural disasters, fluctuation of agricultural product and production input prices, and others. The Forestry achievement shown:

- **Management of Production and Plantation Forest**: At present there are 51 NPA that cover 3.1 million ha.
- **Forest Restoration**: There was 164,096 ha in the production areas, accounting for 20 percent of the Five Year Plan target (817,400ha).
- **Tree plantation**: At present, the total plantation is 437,705 ha or 87.5 percent of the plan target by 2020 (500,000 ha).



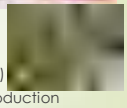
THE POVERTY ERADICATION AND FORESTRY IN NATIONAL POLICY

- The GoL recognizes that forest resources are essential for poverty eradication
- It is clearly spelt out in one of the NGPES strategic objectives "maintaining a healthy and productive forest covers as an integral part of the rural livelihood system, and generating a sustainable stream of forest products"
- To materialize the objective, sustainable forest management is one of the four development goals of the Agriculture and Forestry Development Strategy to the year 2020 'Sustainable forest management for preserving biodiversity, improving national forest cover, providing valuable environmental services and fair benefits .

THE ROLES AND CONTRIBUTION OF FORESTS AND FORESTRY SECTOR IN LAO PDR

- In addition, Lao forests made a significant though unmeasured contribution through benefits provided to the rural population. Most rural households, especially the poorest, depend heavily on forests not only for timber for house construction and other purposes but also for food, fodder, fencing materials, medicines and condiments.
- Villagers also often derive cash income from sale of NTFPs and, in many areas, harvesting of forest resources is one of the few available economic activities. NTFPs consumption and sales often equate to more than half of family income.
- The forest sector is of great importance on employment generation, and although exact estimates are not available, the sector provides several thousand jobs in log extraction, transportation and processing, with the rural population and the poor amongst those benefiting most.

THE IMPORTANCE OF NTFPS FOR THE RURAL ECONOMY



NTFPs play a central role in the rural economy of the Lao PDR by providing the following items, amongst others:

- Protein (wild meat, fish, frogs, shrimp, soft-shelled turtles, crabs and molluscs)
- Calories, vitamins and dietary fiber (mushrooms, bamboo shoots, fruits and vegetables)
- Materials for house construction and handicraft production (bamboo, rattan, broom grass)
- Traditional medicines
- Cash income (from sale of NTFPs or product there from)

FOREST RESTORATION AND REHABILITATION PROJECT ACTIVITIES IN LAO PDR

- *Sustainable Forestry and Rural Development Project (SUFORD):* The project initiative, which started in 2003 with an expected 5 years project period., covering a total area of about 655.000 ha. The objective particularly focus on
  - Strengthening the policy, legal and incentive framework for sustainable participatory management and
  - Improving rural well-being and livelihood through sustainable forestry and community development
- *Sustainable Forest Management in Northern Park of Lao PDR-APFNet:* The project will mainly carry out land use planning, restoration and rehabilitation of degraded forest land, NTFP development, forest law enforcement and trans-boundary biodiversity conservation to promote and facilitate the sustainable forest management in the three targeted provinces, and mainly focus on helping local authorities and communities to sustainably manage forest resources

FORESTRY STRATEGY TO THE YEAR 2020

- Over Goal:
  - increased forest areas to cover 70% of the total land area
- Strategic Measures:
  - Maintain and improve the quality of current forests;
  - Restore degraded forests inside and outside the three forest categories;
  - Support the expansion industrial tree plantations;
  - Conserve biodiversity, especially endangered plants and wildlife species including their unique habitats;
  - Improve the Forest and Forest Resources Development Fund (FRDF);
  - Strengthen Forest law Enforcement Governance and Trade (FLEGT).

RURAL DEVELOPMENT AND POVERTY REDUCTION TARGETS TO 2020

- The poverty rate decreases to 10 percent by 2020
- The poor families rate remains at not more than 5 percent by 2020
- The remaining poor villages are less than 10 percent of all villages
- The remaining poor districts are less than 10 percent of the total number of districts
- Establish developed families to be more than 50 percent of the total number of families
- Group big villages to form small rural towns, achieving three small rural towns in each district.

SUMMARY

Lao forests made a significant though unmeasured contribution through benefits provided to the rural population. Most rural households, especially the poorest, depend heavily on forests not only for timber for house construction and other purposes but also for food, fodder, fencing materials, medicines and condiments. NTFPs consumption and sales often equate to more than half of family income.`

Thank you for your kind attention!

(7) Myanmar: Study on contribution of Non-timber forest products (NTFPs) income to rural livelihood in Myanmar: A case study in Popa Mountain Park

Study on Contribution of Non-timber forest products (NTFPs) income to rural livelihood in Myanmar

A case study in Popa Mountain Park

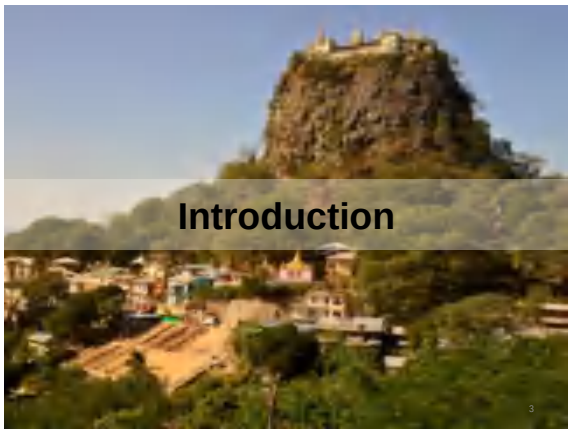
Nway Mon Mon Aung
Range Officer
Forest Research Institute
Myanmar

1

Outlines

- Introduction
- Materials and methods
- Key elements relating to the case study and lesson learn
- Summary

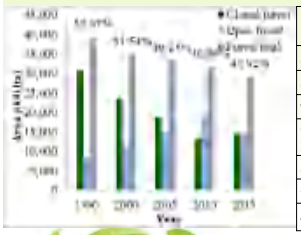
2



Introduction

3

Introduction



Classification	Area (,000 ha)	% of total country area
Closed forest	14585	21.56
Open forest	14456	21.36
Total forest	**29041**	**42.92**
Other Wooded land	15080	22.28
Others	21634	31.97
Water body	1903	2.81
Total	**67658**	**100**

- **under state-owned national forests or Permanent Forest Estates (PFE)**
  - ✓ **Reserved Forest (RF),**
  - ✓ **Protected Public Forest (PPF),**
  - ✓ **Protected Area Systems (PAS). (10%)**

4

Introduction (Cont.)

Distribution of Major Forest Types in Myanmar

5

Non-timber forest products (NTFPs)

- **"any product or service other than timber"**
- Biological matter of wild plants, i.e. fruits and seeds, vegetative textures (bulbs, leaves, flowers, bark, roots) as well as various small stems and firewood (*Cunningham, 1996*).

6

Livelihood

- A mean of gaining a living.
- To be more specific,
- "adequate stocks and flow of food and cash to meet basic needs" (Chambers and Conway, 1991: p.5).
- ✓ A livelihood is sustainable when it can cope with and recover from stresses and shocks, maintain or enhance its capabilities and assets, without undermining the natural resources base (Scoones, 1998: p.5).

7

Few studies of dependency of local people on forest

- Pyi Soe Aung et. al. (2014) >>>
  - ✓ contributing to about 50 % to 55% of the total household income in two study villages
- Moe and Liu 2016 >>>
  - ✓ NTFPs income contributes 44.37%, and farm income and non-farm income contribute 32.55% and 23.07% to the total household income
  - ✓ low income households get over 75% of income from NTFPs

8

Objectives

- to understand the contribution of NTFPs to local people livelihood living around the Popa Mountain Park
  - To find out the different types of non-timber forest products that households collected for subsistence and cash income
  - To estimate the value of NTFPs that households benefitted from selling of different NTFPs
  - To determine the socio-economic characteristics that influence the household dependence on NTFPs

9

Materials and methods

10

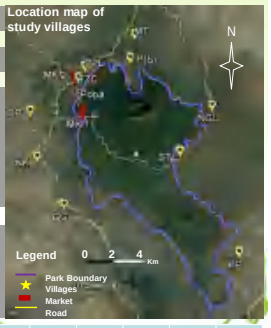
Study Area

Locality	Mandalay Region
Coordinate	N 20^0 53', E 95^0 14'
Size	129 km^2
Altitude	285-1490 m
Temperature	12° C (min)- 42 $^\circ$C (max)
Rainfall	1143 mm
Forest type	Tropical deciduous forest Evergreen hill forest
Population	About 50,000 (44 villages)
Livelihood	Agriculture (Seasonal Crop and fruits tree)

11

Selection of Study Villages

- ✓ Purposive sampling
- ✓ Focus Group Discussion
- ✓ Market Survey
  - **MK1**- Souvenirs from PMP (Medicinal plants, flowers, cultivated fruits)
  - **MK2**- Flowers, Cultivated fruits, vegetables
- ✓ representativeness of the region
- ✓ the dependence on forest resources
- ✓ proximity to the local market place
- ✓ accessibility



Villages Name	TZC	CP	P	ST	TP(S)	MT	KP	NGL	NK	GG	Total
No. Sampled HHs	8	13	21	5	23	25	25	25	15	25	184

Data Collection Methods

Direct Observation
- To cope with the real situation of the households and NTFPs dependent activities

Focus group discussions
- Information such as history of village, seasonal calendar of different crop activities, resource status, extraction activities and local market prices

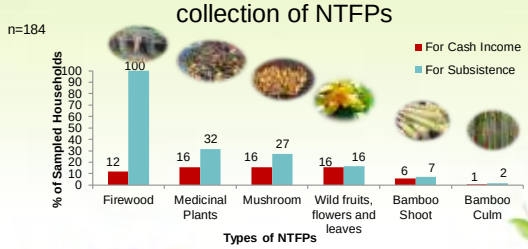
Key informants interviews
- Village heads, elders, collectors and sellers and local healer

Households face-to-face Interviews (Semi-structured questionnaires)
- NTFPs use, estimated income from the various categories of NTFPs and other income sources such as agriculture, livestock and off-farm employment

Types of NTFPs

- Medicinal plants (31 species) (e.g.*Cissus repens Lam.,Premna integrifolia L.)*
- Firewood (*Tectona hamiltoniana, Terminalia oliveri*)
- Wild fruits, flowers and leaves (*Michelia champacaL., Dipterocarpus tuberculatus* Roxb.,*Ficus spp.,Emblica officinalis* Gaertn)
- Mushroom
- Bamboo Culm (*Dendrocalamus strictus*)
- Bamboo Shoot

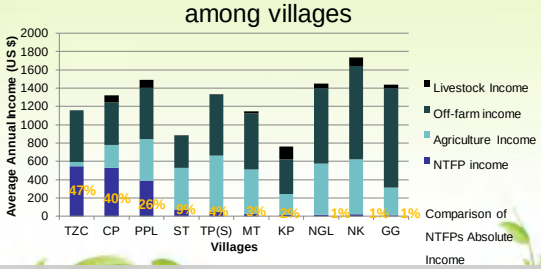
Proportion of Households who make collection of NTFPs



Proportion of sampled households who make collection of NTFPs

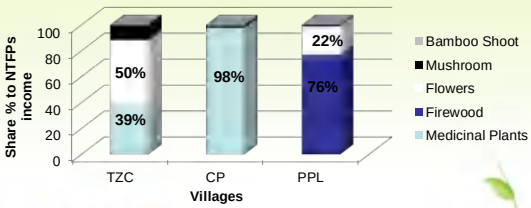
- ✓ All sampled households collected the firewood for consumption.
- ✓ 12 % collected for cash income
- ✓ 16% of households get cash income - medicinal plants, mushroom, wild fruits, flowers and leaves
- ✓ For subsistence,
- ✓ 32% - medicinal plants, 27% - mushroom and 16% - wild fruits, flowers and leaves

Comparison of NTFPs absolute income among villages



- ✓ NTFPs absolute income show the significant difference ($p<0.01$, $X^2= 110.91$)
- ✓ NTFPs contributes 1% to 47 % of total annual income
- ✓ TZC – 47% of total income - US$ 543
- ✓ CP – 40% of total income -US $ 526
- ✓ PPL – 26% of total income - US $ 389

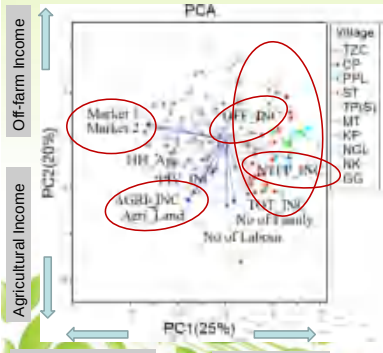
Different target products among highly dependent villages



Income Share % of different products to NTFPs income

- ✓ TZC - Flowers contribute 50% to NTFPs income, Medicinal plants (39 %)
- ✓ CP - Medicinal plants (98%)
- ✓ PPL - Firewood (76%)
- ✓ Different target products among villages

PCA of Household Characteristics



- ✓ PC 1 represent the relationship between NTFPs income and proximity to market
- ✓ 3 villages, TZC, CP, PPL show significant high NTFPs income
- ✓ PC 2 represent the variation in agri-land and show significant (+) relation with agricultural income

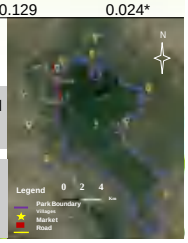
Regression Model explain NTFPs income

Forward stepwise multiple regression against NTFP income and household characteristics

Dependent Variable= NTFPs absolute income

Variables	B	SE B	Beta	p value
Proximity to Market	-6779.65	619.06	-0.623	0.001**
HH head age	-3359.8	1478.94	-0.129	0.024*

N= 184, R= 0.65, R^2 = 0.42, Adjusted R^2= 0.41, F= 64.96, *; p <0.05, **;*p* < 0.01



- ✓ Proximity to the market and Age of household head are (-) related to NTFP income

- Head Ages range - 25-87 years
- Collectors of NTFPs are men especially households head. Younger household head are more able to access forest and likely to receive more income.

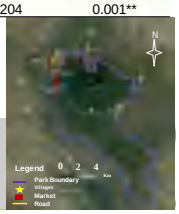
Regression Model explain NTFPs Relative Income

Forward stepwise multiple regression against NTFP relative income and household characteristics

Dependent Variable= NTFPs relative income

Variables	B	SE B	Beta	p value
Proximity to Market	-0.444	0.0420	-0.583	0.001**
Off-farm income	-5.62E-06	0.0001	-0.244	0.001**
Agriculture Income	-6.64E-06	0.0001	-0.204	0.001**

N= 184, R= 0.68, R^2 = 0.46, Adjusted R^2= 0.45, F= 51.58, *; p <0.05, **;*p* < 0.01



- ✓ Proximity to local market place, off-farm income and agricultural income show (-) relationship to NTFPs relative income

Summary of Results

- ✓ Types of NTFPs
  - ➢ Six types of NTFPs are collected
  - ➢ Firewood: the common product collected by all households from the park
  - ➢ Medicinal plants, firewood, flowers and mushroom: important cash income source
- ✓ Cash income from NTFPs
  - ➢ NTFPs contribute up to 47% of total household income depending on types of products and level of extraction
  - ➢ NTFPs income vary among the villages
- ✓ Factors relating to NTFPs income dependence
  - ➢ Proximity to market is the most influencing factor to explain variation in NTFPs income

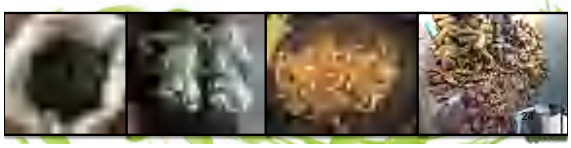
The way forward

- **For conservation of forest resources in PMP:**
  - the distribution of NTFPs resources especially for medicinal plants
  - develop and designated zonation plan for extraction of medicinal plants and firewood
  - awareness raising for local people

For development of the livelihood of local people:

- provision of training and skills to be able to produce value-added products
- NGOs, INGOs and park managers should collaboratively take into account to find the way how the local community can diversify their livelihood

Thank you very much!



（8）Nepal: Community Forestry program and livelihood of local people: An Experiences from Doti district, Nepal

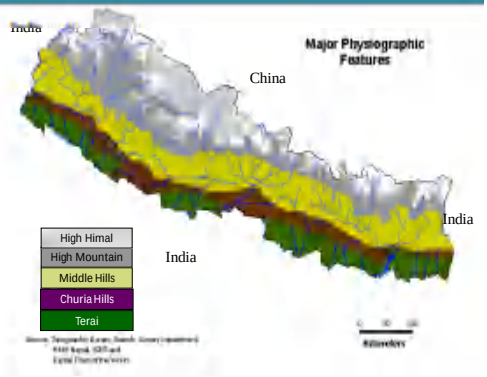
Community Forestry program and livelihood of local people: An Experiences from Doti district, Nepal

Badri Kumar Karki, Nepal
DFO, DOTI

Outline of Presentation

- Brief introduction of Nepal
- Forestry organization
- Policy Evolution in Forestry
- Introduction of Community Based Forest Management
- Introduction of Doti District.
- Community Forestry Program in Doti
- Contribution of community forestry in livelihood
- Issues and challenges
- Way forward

NEPAL

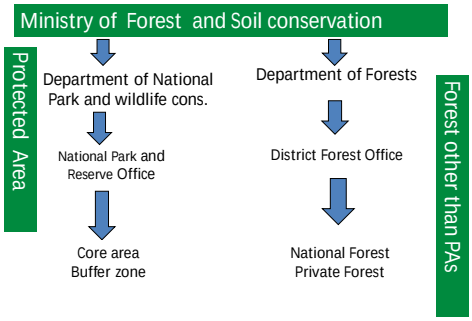


Demography & Other Features

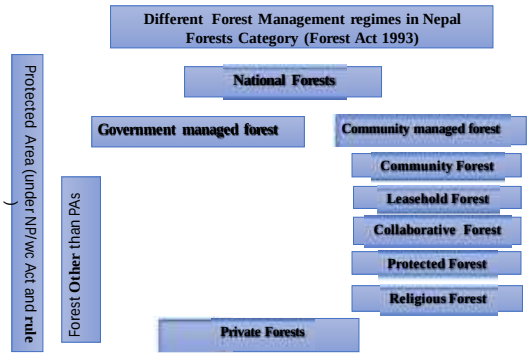
- Area : 147,181 Sq. Km. (land-locked)
- Population : about 27 million , growth rate : 1.35 % per annum
- 126 ethnic groups, 123 languages spoken
- Altitude range: 57 m to 8,848m (Mt. Everest)
- **10 of world's 14 peaks over 8000 meter**

Nepalese Biodiversity Scenario

Institutional Arrangement For The Forest Resource Management in Nepal



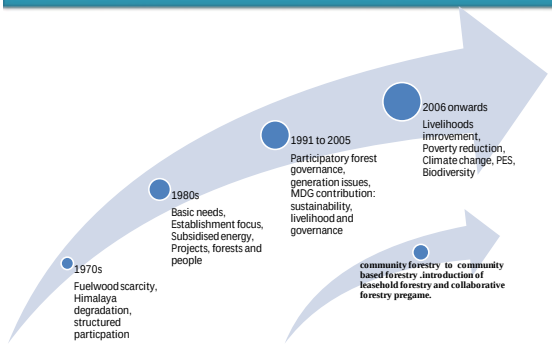
Forest management regime in Nepal



Policy Evolution in Forestry

- ❖ 1950 - 1970;
- Nationalization of Forests
- ❖ 1970- 1990;
- Introduction of participatory forest management (CF)
- ❖ 1990- 2000;
- Master Plan for the Forestry Sector (1990), participatory forestry
- Promulgation of a new Act (1993) and Forest rules 1995 giving more rights to users
- Revised forest sector policy 2000
- Leasehold Forest Policy 2002 to address equity issue
- Collaborative Forest management in terai and guideline 2007.
- Community Forestry guideline, 1995(revised 2008,2013) to address equity and other issue in community forestry.

Community Forestry Themes over time



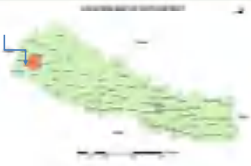
Area of forest under community based forestry program at National level

S.N.	Management regime	No of group/ forest	Handed over forest area (hacter)
1	Community Forestry	19916	1,879,998
2	Leasehold Forestry	7240	42337
3	Collaborative Forestry	28	70423
4	Protection Forest	8	133685
			2,126,443

Source : Hamro ban, Annual report of Department of forest August 2017

Doti District

- Geographical location = 28°54' 29°28' latitude 80° 30' - 81°14' longitudes.
- The total area = 2,054 sq. km.
- Total Population=211,750
- Females (54.04%) =114,498
- Males (45.93%) =97,252
- Household no=41,440
- Population density =105 / sq. km
- Average life expectancy= 53 years
- Average family size =4.99



Poverty index of Doti district

poverty rate (P0) = 46%

Extreme poverty (P1) = 11%

intensity of poverty (P2) = 4%

Forest Map of Doti

Landuse of Doti

S.n.	Particulars	Area (hac.)
1	Total area of district	205463.00
2	Forest Area (including Khaptad NP 9445.10)	1,49083.00
3	Other wooded land (including Shrubland)	3915.00
4	Other Land (Agriculture land and others)	52465.00

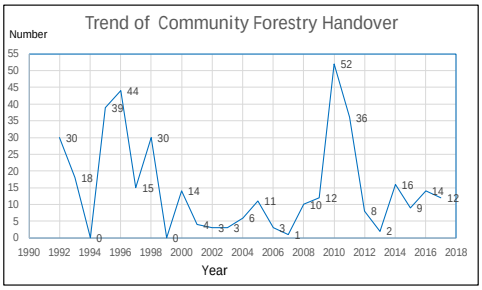
Forest Type of Doti

S.n.	Species	Area Ha.
1	Chir pine forest	38069.40
2	Chir pine mixed forest	37400.20
3	Hill Sal forest	26240.80
4	Lower Temperate oak Forest	22323.10
5	West Himalayan Fir hemlock oak	2303.60
6	Mountain oak Rhododendron	2546.40
7	Lower Tropical Sal and mixed broad-leaved forest	37.00
	Total	1,28,920.50

Community Forestry Program in Doti

- Program started in 1992.
- Total area handed over to community = 57972,00 hac
- Total number of CFUGs = 389
- Households involved = 31132 (population involved: 198585)
- Average size of Community Forest User Group = 80.03 hh
- Average size of the Community Forest = 149.02
- Average CF area per household = 1.86

Community Forestry Program in Doti

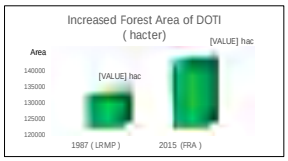


Contribution of community forestry in livelihood

- Improved Forest condition and supply of forest product.
- Increased income from sale of forest product.
- Increased employment opportunity .
- Increased investment in pro-poor activity and community development(infrastructure).
- Capacity development, empowerment and social inclusion(women and marginalized people)

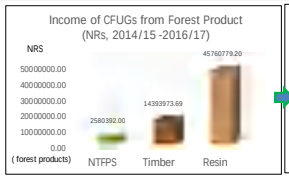
Increased forest area , improved forest condition and biodiversity

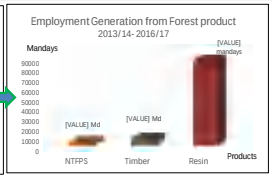
1.Forest area increased . increased by 7.7 percent in the interval of 28 years

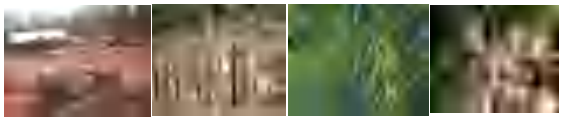


2. Improved Biodiversity : many species are regenerated with some threatened species and remarkable changes have been found in ground coverage with different herbs, shrubs and ground grasses and clippers. At the same time, the presence and movement of wild animal has increased. More frequent sighting of animal as well as the increasing incident of human wildlife conflict is the evidence of increased wildlife number

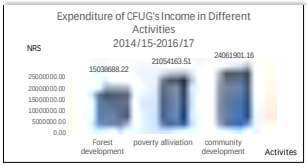
Increased income and employment opportunity







Increased Community Development, Pro-poor Activities



Capacity Development, empowerment, social inclusion

1. 2733 user were trained in FY 2014/015 to 2016/17 to enhance capacity and skill in different field

2. Elected representatives of CF (11*389=4279) make decisions on forest, funds and other activities and engaged in different committees and network.

3. 389 women are working in major post of CF (executive committee) and taking active part in decision making process.

4. Recently held local level election many of them won leadership positions mainly one woman in chairperson of Municipality and one woman in vice chairperson in VDC.

Issues and challenges

- Exclusion
- Infrastructure development is main priority
- Weak enforcement of provision of community forestry guideline in poverty alleviation.
- Politicization, elite domination in decision making
- Non-transparent resource mobilization
- Conservation focused forest management
- Weak linkage between resources and forest enterprise.
- Emerging issue of benefit sharing between FUG and local government.

Lesson learnt from the Community Forestry Program

- Sustainable forest management can be a tool for livelihood improvement of rural people. But it solely can't address all livelihood issue of poor people
- Strong Enforcement of community forestry guideline is necessary to mobilize the resource in livelihood of community.
- The need based income generating activities are more effective than the program imposed from outside
- Private public Partnership is very important and essential for forest based enterprise development in community forestry.

Lesson learnt from the Community Forestry Program

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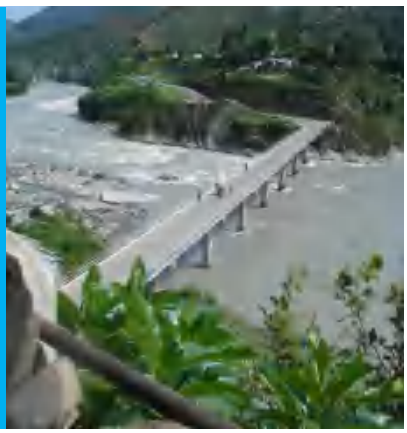
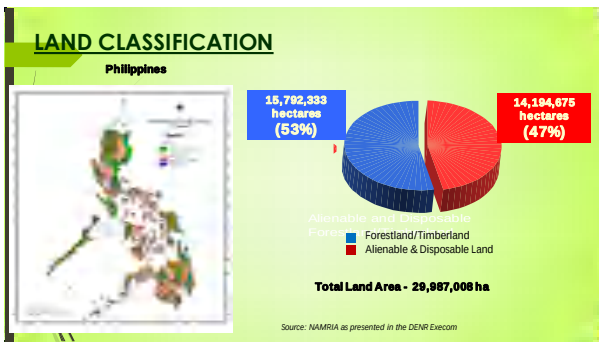
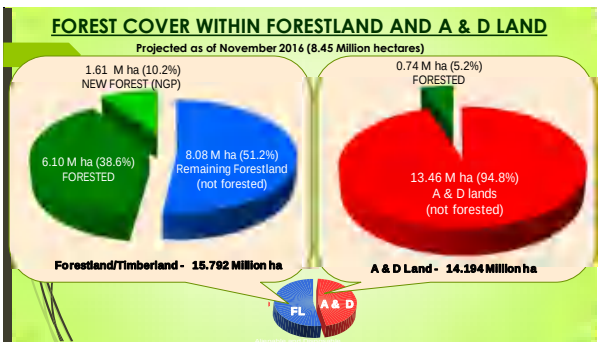
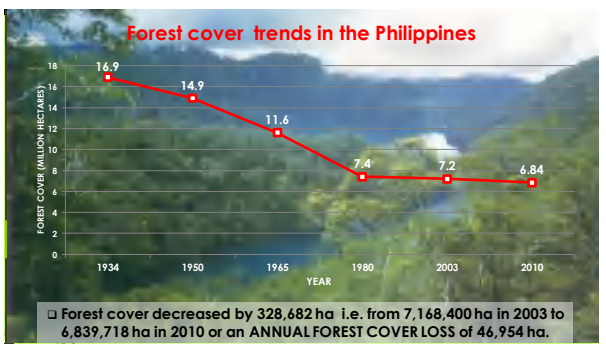
THANK YOU FOR YOUR ATTENTION

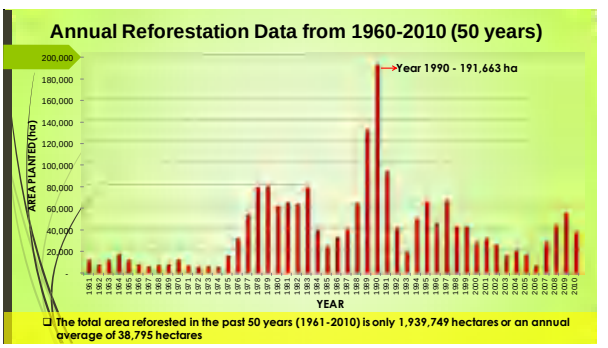


(9) Philippines: The Green National Program in the Philippines









NATIONAL GREENING PROGRAM

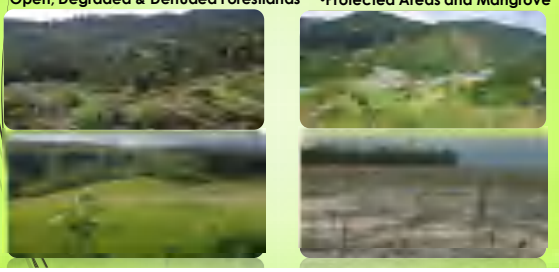
Coverage

The National Greening Program shall plant some 1.5 Billion trees covering about 1.5 Million hectares for a period of six (6) years from 2011 to 2016.

15

NGP AREAS FOR DEVELOPMENT

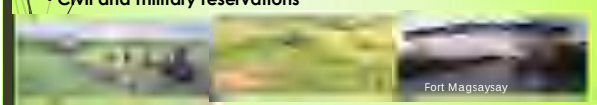
• Open, Degraded & Denuded Forestlands •Protected Areas and Mangrove



NGP AREAS FOR DEVELOPMENT

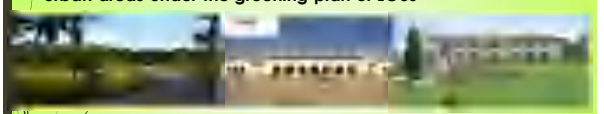
• Ancestral domains

• Civil and military reservations

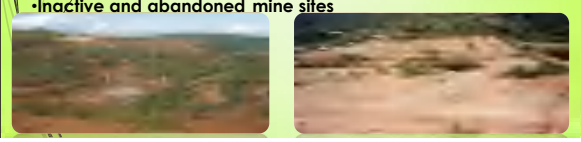


NGP AREAS FOR DEVELOPMENT

•Urban areas under the greening plan of LGUs



•Inactive and abandoned mine sites



NATIONAL GREENING PROGRAM

NGP: BEYOND REFORESTATION

OUR MISSION
- Poverty Reduction
- Food Security
- Environmental Stability
- Biodiversity Conservation
- Climate Change Mitigation & Adaptation

Bringing together agencies, efforts, people:

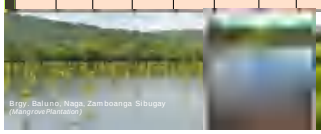
Convergence Works.

NGP MILESTONES

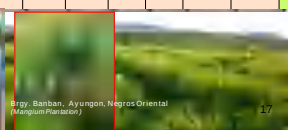
NATIONAL GREENING PROGRAM

Accomplishments in AREA PLANTED (ha) CY 2011 –2016

2011		2012		2013		2014		2015		2016		Total	
Target	Accom	Target	Accom	Target	Accom	Target	Accom	Target	Accom	Target	Accom	Target	Accom
100,000	128,558 (129%)	200,000	221,763 (111%)	300,000	333,160 (111%)	300,000	334,302 (111%)	300,000	360,357 (120%)	247,683	242,507 (98%)	1,447,683	1,620,647 (120%)



Brgy. Baluno, Naga, Zamboanga Sibugay
(Mangrove Plantation)



Brgy. Banban, Ayungon, Negros Oriental
(Mangium Plantation)

17

Caraga Administrative Region 13 was created by virtue of Republic Act No. 7901 on February 23, 1995 by President Fidel V. Ramos. This new born region is a region with colorful historical background represented by the famous Balanghai Boat. Caraga is an extensive land mass covering five (5) provinces in the north-eastern seaboard of the island of Mindanao.

The Department of Environment and Natural Resources (DENR)-Caraga Region was formally established on October 13, 1995. It manages an area of 1,913,842 hectares of which 30 percent are alienable and disposable lands and 70 percent are timberlands. The region is composed of five provinces namely Agusan del Norte, Agusan del Sur, Surigao del Norte, Surigao del Sur and Dinagat Islands.

Map showing the administrative map of Caraga Region

Agusan del Norte - 288,438 hectares
Agusan del Sur - 829,719 hectares
Surigao del Norte- 201,710 hectares
Surigao del Sur - 513,770 hectares
Dinagat Island - 80,205 hectares

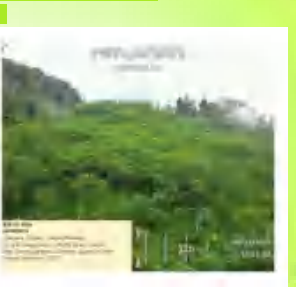
Prior the implementation of the NGP, series of Information, Education and Campaign (IEC) were conducted to the different People's Organization (POs), Local Government Units (LGUs), Colleges, State & Universities (CSUs) and other stakeholders who are qualified as NGP partners

In support to this noble program of the government, Caraga Region has able to accomplish a total of 104,648.10 hectares covering the period CY 2011-2016 with equivalent of 98,692,529 seedlings of various species.

Map showing the NGP sites of CY 2011-2016 within Caraga Region CY 2011-2016

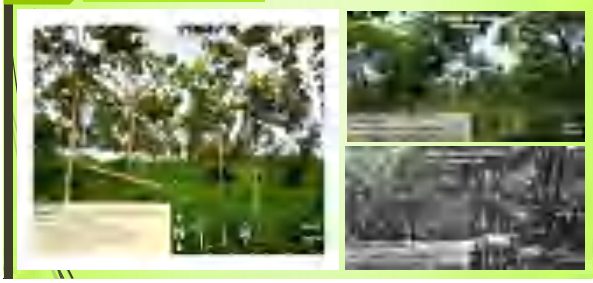
GEO-TAGGED PHOTOS BY COMMODITY

FALCATA (*Paraserianthes falcataria*)



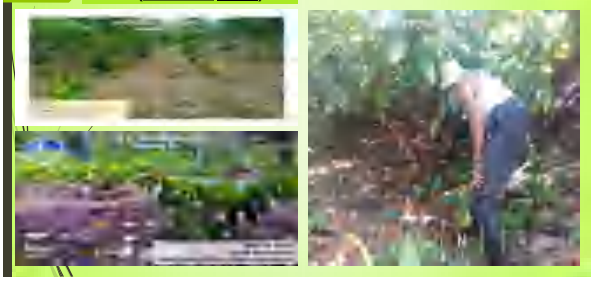
GEO-TAGGED PHOTOS BY COMMODITY

RUBBER (*Hevea brasiliensis*)



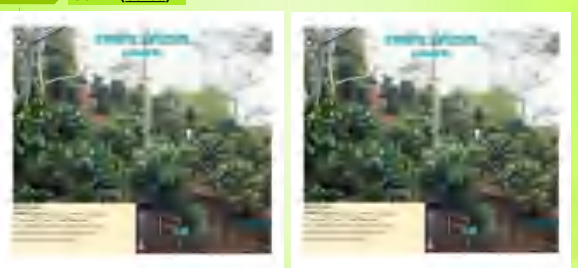
GEO-TAGGED PHOTOS BY COMMODITY

CACAO (*Theobroma cacao*)



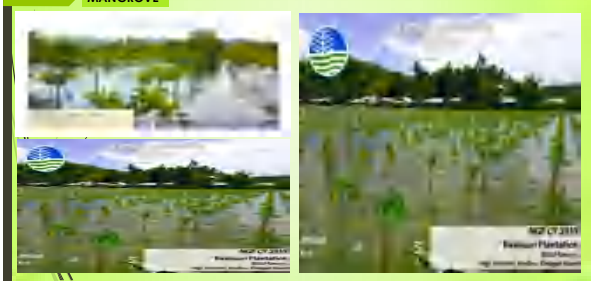
GEO-TAGGED PHOTOS BY COMMODITY

COFFEE (*Coffea*)



GEO-TAGGED PHOTOS BY COMMODITY

MANGROVE



In Caraga Region, a total of 207,028 jobs generated during the implementation of National Greening Program (NGP). As poverty-reduction driven program, NGP engaged site-based individual and organizations in the seedlings production, site preparation, maintenance and protection and such other activities. Many were employed from the technical and labor force throughout the implementation of the program.

Drift of Jobs generated covering CY 2011-2016

PROVINCE	No. of Jobs Generated							GRAND TOTAL
	2011	2012	2013	2014	2015	2016		2011-2016
						Target	Accom.	
Regional Total	5,009	4,649	9,918	31,547	54,141	38,507	101,764	207,028
Regional Office	2	3	3	4	15	10	15	42
Agusan del Norte	434	537	1,691	7,472	16,664	7,801	16,442	43,240
Agusan del Sur	2,416	2,265	5,545	13,887	24,270	14,442	44,088	92,471
Dinagat Islands		77	88	394	1,067	1,726	6,695	8,321
Surigao del Norte	819	588	804	5,259	4,596	2,926	22,153	34,219
Surigao del Sur	1,338	1,179	1,787	4,531	7,529	11,602	12,371	28,735

CARAGA REGION NGP BUDGET

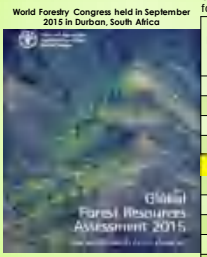
% SURVIVAL RATE OF NGP PLANTATION FROM 2011-2015

REGION	% SURVIVAL RATE					
	2011	2012	2013	2014	2015	Average
R13	81%	82%	89%	95%	91%	90%

MILESTONE

- In this FAO Report, the Philippines ranked fifth (5th) among 196 countries of the world with the highest annual forest area gain from 2010 to 2015.

World Forestry Congress held in September 2015 in Durban, South Africa

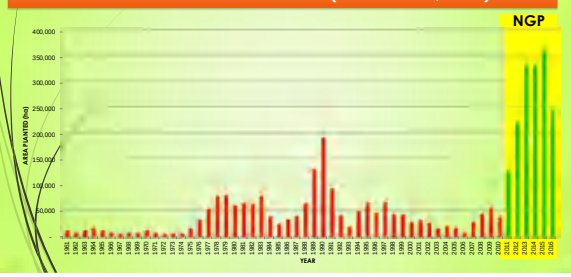


Countries reporting the greatest annual forest area gain (2010-2015)

No.	COUNTRY	ANNUAL FOREST AREA GAIN	
		AREA ('000 has)	As of 2010 forest area
1	China	1,542	0.8
2	Australia	308	0.2
3	Chile	301	1.9
4	USA	275	0.1
5	Philippines	240	3.5
6	Gabon	200	0.9
7	Lao PDR	189	1.1
8	India	178	0.3
9	Viet Nam	129	0.9
10	France	113	0.7

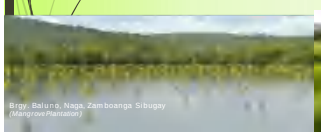
NGP Accomplishment

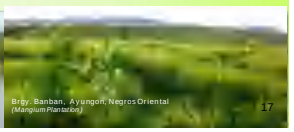
ANNUAL REFORESTATION DATA (1961-Nov. 4, 2016)



MILESTONE

- By the end of 2016, it is projected that a total of **1,609,703 hectares** will be planted with **1,364,191,762 seedlings.**
- With the expansion of the program under Executive Order No. 193 dated November 12, 2015, we will be able to cover the remaining target under the Year 2017 budget proposal.



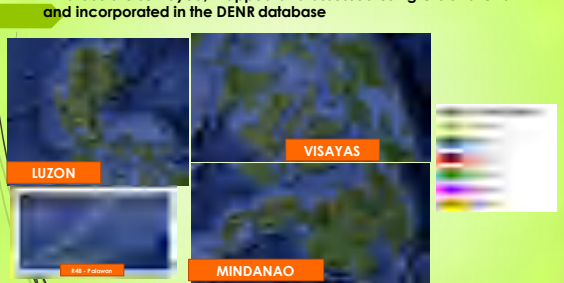


17

GOOD GOVERNANCE

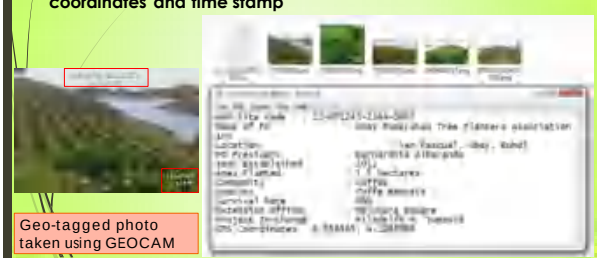
MEASURES FOR NGP

- All areas are surveyed, mapped and assessed using GIS and GPS and incorporated in the DENR database



NATIONAL GREENING PROGRAM

- All Program Sites Geo-tagged complete with geographic coordinates and time stamp

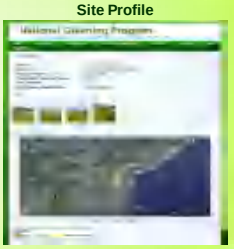


Geo-tagged photo taken using GEOCAM

NATIONAL GREENING PROGRAM

❑ **WEB BASED ACCESS TO NGP CODED MAPS AND GEOTAGGED PHOTOS**

Site Profile



www.ngp.denr.gov.ph

SAMPLE SITES

11-074602-0722-0008 **Ayungon, Negros Oritental**

11-071242-0015-0004 **Calape Bohol**

NATIONAL GREENING PROGRAM

❑ **Map coding** of all NGP Sites in accordance to PSGC accessible through the NGP Website (*www.ngp.denr.gov.ph*)

NGP CODE FORMAT

YEAR	RESPONSIBLE DENR FIELD OFFICE	PLANTING SITE NUMBER	AREA
YY	RRPPCC	NNNN	AAAA

CODE	CODE NAME	DESCRIPTION
YY	Year	code based on the last two digit numbers of the year when the NGP plantation was established
RRPPCC	Responsible DENR Field Office	code based on the Philippine Standard Geographic Code (PSGC)* for each DENR Field Office responsible for the site
NNNN	Planting Site Number	code based on assigned numeral by continuously numbering all NGP Plantation Sites established for the specific year per Region
AAAA	Area	code based on the area of the NGP Planting Site in hectares rounded off to the nearest ones

NGP PLANTING SITE CODING SYSTEM

Example:

12.4 hectares, NGP Plantation Site 342, established on June 6, 2011 in Jones, Isabela .

	YEAR	REGION	PENRO	CENRO	PLANTATION NUMBER	AREA
SITE DETAILS	2011	Cagayan Valley	Isabela	Jones is under CENRO San Isidro	342	12.4
SITE CODE	11	02	31	29	0342	0012

NGP PLANTATION SITE CODE

11-023129-0342-0012

❑ Submission of Certificate of Site Development

YEAR	No of Sites
2011	13,453
2012	21,353
2013	27,325
2014	4,738
2015	5,880
2016	3,732
TOTAL	76,481

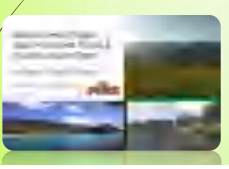
..... GOOD GOVERNANCE

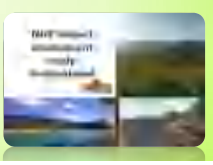
❑ Annual 100% monitoring of all NGP sites are performed by the respective Regional Offices and all reports are subscribed and under oath.

❑ Funds are directly released to the PENROs from the start of the year for immediate site protection and development.

..... GOOD GOVERNANCE

❑ An independent third party audit was done by the National Economic and Development Authority (NEDA) through the Philippine Institute for Development Studies (PIDS). The report of which was presented in several fora.





NATIONAL GREENING PROGRAM

..... GOOD GOVERNANCE

- **Compliant with procurement law**

WAY FORWARD

- Sustain the greening program under the **Enhanced National Greening Program** that will prioritize key conservation and watershed areas using endemic species; production forest areas for high value crops, timber and fuelwood in partnership with the upland communities, LGU specially the Barangays, Municipalities, Provinces, Civil Society Organizations and the Private Sector

WAY FORWARD

- Continue as priority the program of **forest rehabilitation** and **forest protection** which are the key elements in the **70% commitment in the Intended Nationally Determined Contribution (INDC)** submitted in accordance to Paris accord and signed at the United Nations in New York last April 21, 2016.
- We should continue our efforts to reduce carbon emission, but we should **sustain our carbon absorption capacities or carbon sink program** that only our remaining Natural Forest could provide. But this is not for free, as **we need to continue to provide public investment** coupled with serious implementation of forest rehabilitation and forest protection efforts of government particularly the Department of Environment and Natural Resources.

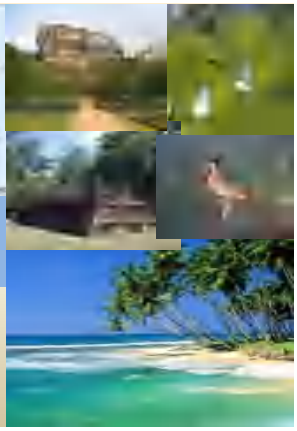
Thank You!

(10) Sri Lanka: Forest management and livelihood concerns at the economy level

Forest management and livelihood concerns at the economy level

Sri Lanka

Sathima Aluwihare
Assistant Conservator of Forest
Forest Department -Sri Lanaka



•Sri Lanka is located in the Indian Ocean

•Lies between 6^0 52'' North Latitude 79^0 52''' East Longitude

•Land area is 65,610 km^2

•Middle income earning country with a per capita GDP of US $ 3,625

•Population 20.1 million

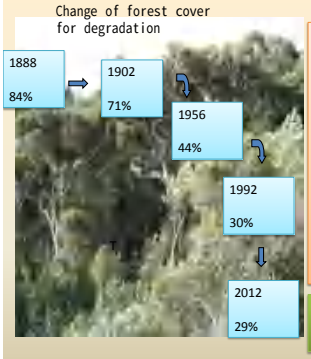
•Labour force is 8,973,000

•Unemployment rate is 4.6of the labour force.

Forest Cover of Sri Lanka

Forest Type	Extent-ha	Percentage
Lowland Rain Forests	123,302	1.9
Moist Monsoon Forests	117,885	1.8
Dry Monsoon Forests	1,121,392	17.1
Montane Forests	44,758	0.7
Sub Montane Forests	28,513	0.4
Riverine Dry Forests	2,425	0.0
Mangrove Forest	15,669	0.2
Savannah Forest	68,043	1.0
Open and Sparse Forest	429,485	6.5
Total	1,951,472	29.7

Change of forest cover for degradation



Reason

Causes for forest degradation and deforestation

- Land scarcity
- Agricultural expansion and other development projects
- Resettlement programs
- Chena cultivation
- Plantation Agriculture
- Encroachment
- Forest Fires
- Development programs with out proper planning
- Illicit felling and overexploitation of NTFP

Policy reforms
Low enforcement
Management changes

Poverty alleviation, policies programs and land tenure in relation to livelihood improvements of the forestry sector

- The Government of Sri Lanka has declared year 2017 as the poverty alleviating year
- Divineguma, Samurdhi, and Gamaneguma are the special programs to alleviate poverty of the country
- Beneficiaries 1.45 million households with low income (27 percent of the total population
- With regard to forestry sector, the Forest Department has also implemented various strategies and has taken various policy decisions to improve the livelihood of rural people
- Community participation was addressed for the first time by the new set of policies introduced in 1980 -Community Forestry Project"

Key Programs in Operation

The Forest Department has been involved in community forestry activities for many years and the following are the key programs currently in operation.

- **Village reforestation Program**
- **Joint Forest Management Program**
- **Home Garden Development Program**

POLICY Reforms

1929-Forest policy
1980-National forest policy
1995-Natinal forest policy

Low Enforcement

1885-Forest low

MANAGEMENT CHANGES

Forestry sector master plan

National Forest Policy - 1995

- To conserve forests for posterity with particular regard to biodiversity, soils, water, and historical, cultural, religious, and aesthetic values
- To increase the tree cover and productivity of the forests to meet the needs of present and future generations for forest products and services
- To enhance the contribution of forestry to the welfare of the rural population, and strengthen the national economy, with special attention paid to equity in economic development

Foreign Funded Projects Implemented in the Country

Donor Agency	Duration	Name of the Project
Participatory Forestry Project (PFP)	1993-2000	Asian Development Bank, World Bank, Australian Government
Participatory Forest Management Project (PFMP)	1996-1998	Overseas Development, Government of UK
Upper Watershed Management Project (UWMP)	1998-2004	Asian Development Bank
South West Rain Forest Conservation Project (SWRFCP)	2000-2005	United Nations Development Program (UNDP)-Global Environment Facility (GEF)
Forest Resource Management Project (FRMP)	2000-2008	Asian Development Bank
Protected Area Management and Wild Life Conservation Project (PAM&WLCP)	2001-2007	Asian Development Bank, UNDP-GEF, and Government of Netherlands
Sri Lanka Australia Natural Resource Management Project (SLANRMP)	2003-2009	Australian Agency for International Development (AusAID)
Sri Lanka Community Forestry Program (SLCFP)	2012-2016	Government of Australia

Community Forestry Project (1982-1990)

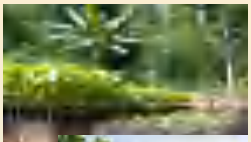
The first community participated forestry project implemented by the Forest Department.

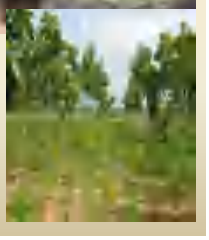
The objective

To increase replanting in degraded areas and create employment opportunities for the poor people who live in the fringe of the forests.

Activities

establishment of farmers woodlots
multipurpose tree planting in home garden,
protective woodlots
fuel woodlots





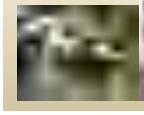
Participatory Forestry Project (1993-2000)

Objectives

- Self-sufficient in timber and wood products while maintaining an ecological balance.
- Rehabilitation
- Income generation

Achievements

Farmers' woodlots	-4045 ha
Protective woodlots (gvt lands)	- 1520 ha
Miscellaneous tree planting	- 320 ha
Home gardens	- 9000 ha
Establishment of private nurseries	- 1100
Trainings	- 3500



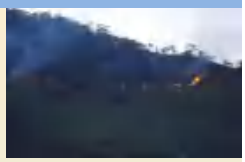
Upper Watershed Management Project (1998-2004)

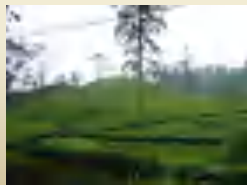
Objectives

- To increase the income of the people in the catchments areas and thereby to reduce poverty
- Strengthening the capabilities of institutions and user groups

Achievements

Buffer zone planting	-4000 ha
Establishing small timber farms	- 3000 ha
Developing Home gardens	- 15000





South West Rain Forest Conservation Project (2000-2005)

- Objectives
- sustainable use of non timber forest products and improved forest protection.
- Strengthened community institutions to involve the community in decision making and Integrated buffer zone community development focusing on biodiversity conservation and livelihood problems.
- provided seed money to run small credit operations among group members of the community.

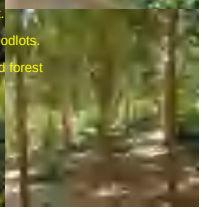
Forest Resource Management Project
(2000-2008)

Objectives

- Demarcation of forest boundaries.
- Upgrade the living status of people.
- Buffer zone planting.

Achievements

- Establishment of **8600 ha** of community based smallholder Agro forestry Woodlots and Social Forestry development.
- Improved Management of **7300 ha** of Existing Farmer woodlots.
- Rehabilitation and Management of **12,600 ha** of degraded forest plantations.
- Private sector Pilot Leasehold Management of **6000 ha** plantations.



The Protected Area Management and the Wild Life Conservation Project (2001-2007)

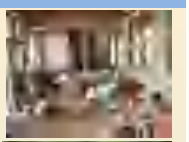
Objective

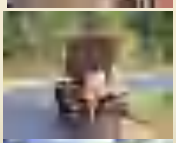
to empower buffer zone communities, development and implementation of conservation aspects and reduce dependency on natural resource.

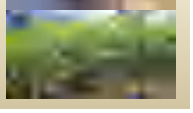
Sri Lanka Australia Natural Resources Management Project
(2003-2009)

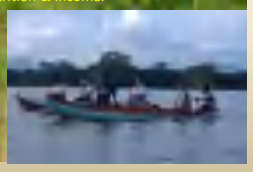
Objectives

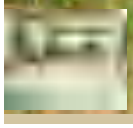
- Strengthening CBOs and NGOs through training.
- Establishment of village nurseries managed by community groups and/ or local entrepreneurs.
- Strengthening of local communities for the management of forest areas.
- Community based rehabilitation of small tanks and improved management of water resources aimed production, nutrition & income.







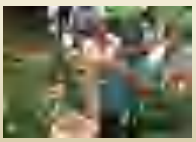




The Sri Lanka Community Forestry Program (2012-2016)

Goal

To improve the management of Natural Resources to support livelihoods and contribute to poverty reduction in the Dry and Intermediate zones of Sri Lanka



Mechanisms to encourage increase community participation

- preparation of Site specific Forest management plans including reforestation, home garden development micro finance, micro enterprise development, gender equality minor infrastructure
- The payments done for direct, labour infrastructure development
- Resource sharing directly to registered Community Based organizations

Overall outcomes

- The famers have legal ownership of the planted trees and maintain them until the rotation period is over
- The families which are engaged in the Sri Lanka Community Forestry Program have improved their income levels and livelihoods with such incentives granted
- The community forestry concept is widely recognized and accepted
- attitude of the Forest Department staff from field level to
- central level and community members have changed towards the participatory approach
- Empowering women is considered as an effective strategy of rural poverty eradication.

Major courses for poor performances

- Forest Department with limited human and other resources
- Lack of community support has
- Lack of financial resources
- Inadequate knowledge on improved extension capacities.
- Poor legal provisions available

Factors have contribute to the success of community projects

- preparation of site specific management plan
- The site section criteria
- The officers who involved in community forestry should gain a broad knowledge on community forestry

Way forward

- Improve Legal provisions to improve the benefit sharing mechanism
- Improving the knowledge of forest Department officers
- Effective stability and continuity of collaboration between forest department and community.
- Improve voluntary participation.

(11) Thailand: Promotion and Development of Community Participation in Forest Conservation Area Project

Promotion and Development of Community Participation in Forest Conservation Area Project

Background of the project

The Department of National Parks, Wildlife and Plant Conservation (DNP) is responsible for the conservation and rehabilitation of forest, wildlife and plant in conservation forest areas. The DNP has promoted people participation in local resource management to reduce the conflict in land use and develop their livelihood.

The project has been operating since 2006. It has already been done at 52 provinces, 1,534 villages within the conserve forest buffer zone. In the 2017 fiscal year, It plan to work with 236 villages.

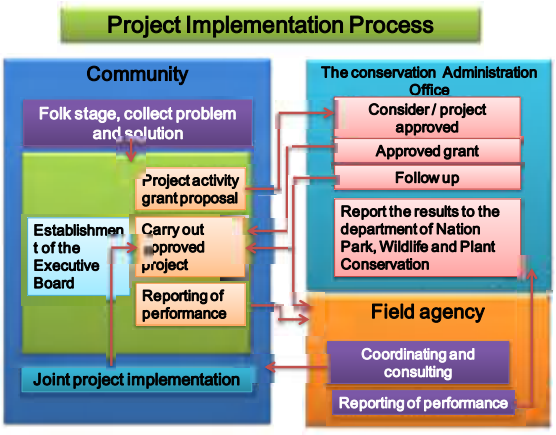
- Objective
- 1. To promote the strength of the community in forest conservation to be able to conserve the forest and sustainable development.
- 2. To enhance the efficiency of community forest conservation and develop the livelihood of the community.
- 3. To promote and develop participation in the management of natural resources of the community.

Operations

- The community participation and development program in the conservation forest consists of the following steps:
- Step 1: Field agency for watershed conservation and management
  - select the participating villages, which are around forest area that have never participated in the project or participated in the project less than 4 times
- Step 2: The Community has appointed the executive board.
- Step 3: The villagers had a meeting to hear about the village's problem and make a project to solve it. The project will be submitted to the executive board.

Operations (continue)

- Step 4: The executive board considers and approval of the project. The Conservation Administration Office give a grant to the village.
- Step 5: The field agency is responsible for providing technical advice and information.
- Step 6: Field agency monitor the activity of the project.
- Step 7: Report of performance



Activities

- Each village will receive a grant of 9,524 Yuan (50,000 Baht) per year for a period of not more than 4 years, and receive academic knowledge. There are 6 main activities:
- 1. Watershed conservation activities
- 2. Forest fire control activities
- 3. Watershed ecosystem rehabilitation activities
- 4. Folk stage activities for the conservation of natural resources and the environment
- 5. Land use conservation activities
- 6. Activities that support the conservation of natural resources and environment

Community Participation Award

- The Community Participation Award is an award given to outstandingly participating villages that can serve as a model for other villages to conserve forest resources alongside their occupation. The Community Participation Award has been successfully implemented since 2012.

The qualify of the villages participating in the contest

- 1. A participating village
- 2. Conservation and rehabilitation of resources effectively
- 3. Continued implementation of the project after receiving the budget
- 4. Can be a model of conservation and rehabilitation of forest resources
- The winner will receive a cash value of 5,715 Yuan (30,000 Baht).

Ban Khao Lak

- Ban Khao Lak located at Moo 7, Nam Phut Sub-district, Trang Province. Project area of 3220 hectares. There are 187 households and over 600 people. There is ecotourism activities (rafting) in the community. They have divided income from tourism to continue forest conservation activities.

Ban Khao Lak, Moo 7, Nam Phut Sub-district, Trang Province.

The executive board consists of 43 people, 37 men and 6 women.

Problems

- Illegally cutting (Eagle Wood) (Aromatherapy)

- The less care of canal that supply water to village

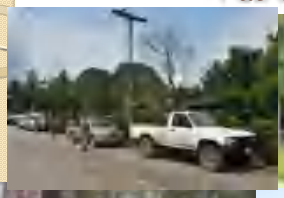
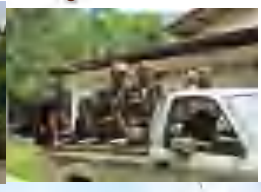
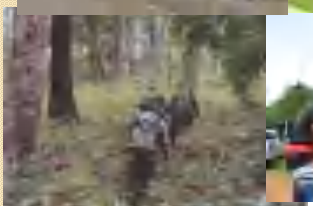
Ban Khao Lak's Activities

1. Watershed conservation activities
   - Tree ordination (conserve the big tree)

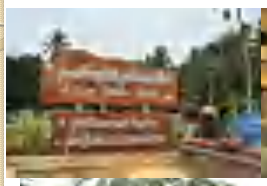
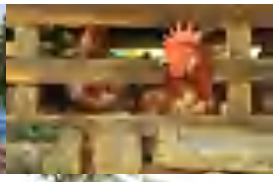
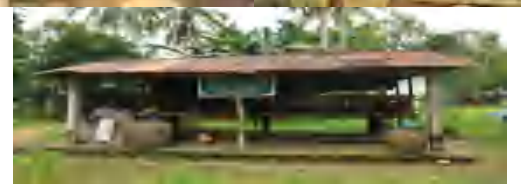
Ban Khao Lak's Activities (continue)

2. Forest fire control activities
   -Forest fire break

Patrolling

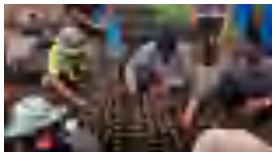





Sufficiency Economy Learning Center

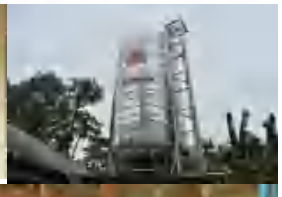
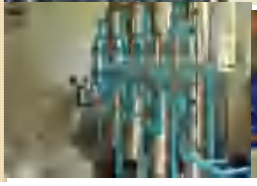




Nursery

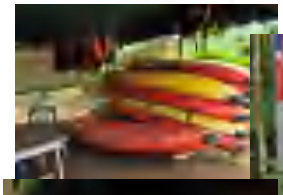




Community drinking water small plant


Rafting activities



Income from forest collection

Scientific name	Income (Bath(Yuan) / year)
Parkia speciosa	536,000 (102,095)
Parkia timoriana	144,550 (27,533)
Archidendron bubalinum	51,480 (9,806)
Bamboo Shoot	70,700 (13,467)
Koompassia malaccensis	425,000 (80,952)
Mushroom	68,400 (13,029)
Diplazium esculentum	15,580 (2,968)
Baccaurea parviflora	14,700 (2,800)
Bouea macrophylla	35,120 (6,690)
Salacca wallichiana	36,610 (6,973)
Bouea oppositifolia	360 (68.57)
Baccaurea motleyana	350 (66.67)
Total	1,398,850 (266,448.24)
Rate 5.25 Bath/Yuan	

When the villagers around the forest are well being, they will help to conserve the forest

Lesson learnt

- 1) The project is an activity that creates cooperation between the government and the community in maintaining forest resources, watershed forest and water stream.
- 2) The community recognizes the importance of forest and helps to maintain the forest that bring water throughout the year.
- 3) Good forest management of the community leads to better income and quality of life.
- 4)The Outstanding Village Award is an award given to outstandingly participating villages that can serve as a model for other villages to conserve forest resources alongside their occupation.

Community action plan in the future, after no subsidy from the project

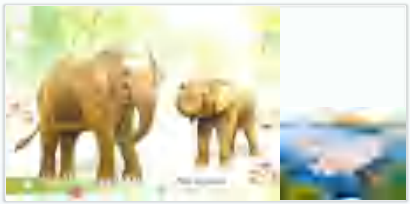
- Offer the project to other government agencies for a budget
- The watershed conservation network to conserve the watershed forest
- Income from ecotourism (rafting) is divided to conserve the natural resources and environment in the community
- Knowledge transfer, conservation and rehabilitation of forest for community members and children in the community
  - Establishment of Youth Forest Protection Training Camp
  - Establish a volunteer team to conserve and maintain the water stream and watershed forest

The way forward

- Community want to use the payment for ecosystem services (PES) and Reducing Emissions from Deforestation and Forest Degradation, and the Role of Conservation, Sustainable Management of Forests and Enhancement of Forest Carbon Stocks in Developing Countries (REDD+) for financial sustainability to maintain sustainable ecosystem services.

Thank you

(12) Thailand: Using Choice Experiments to Estimate Non-Use Values: Case Studies of the Wild Asian Elephant and the Dugong in Thailand



Using Choice Experiments to Estimate Non-Use Values:
Case Studies of the Wild Asian Elephant and the Dugong in Thailand

Areeyapat Petcharat
Royal Forest Department, Thailand

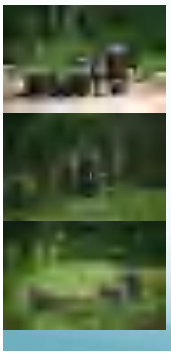
Outlines

- Introduction
- Methods
- Choice Experiment Econometric Models and Estimating
- Results and Discussion
- Conclusion

Introduction

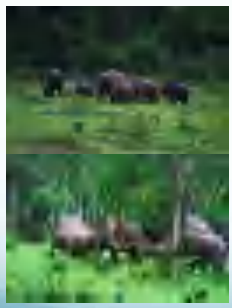
- The Asian elephant and the Dugong populations in Thailand
- Objectives
- Values of environmental goods and natural resources
- Valuation approaches
- Choice experiments

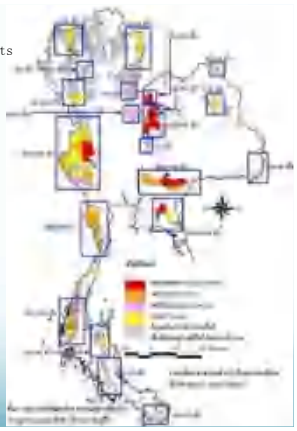
The Wild Asian Elephant (*Elephas maximus*)



- The decline of elephants in Thailand parallels that of its forests, which decreased from 80% to 24% cover between 1930 and 1990.
- The wild elephant population in Thailand is small and fragmented, approximately 3,100 to 3,800 wild elephants estimated to occur in protected areas such as the National Parks and Wildlife Sanctuaries in Thailand, not large enough and are too isolated to allow the elephant population to recover.
- Due to human use of the land surrounding the reserve areas, elephants also tend to forage outside the forests reserve and destroy human crops, creating human-elephant conflict which results in the killing of elephants.
- There have been attempts to find long-term solutions to these problems and provide elephants with their basic requirements as well as improving elephant habitat.

- The distribution of wild elephants in Thailand

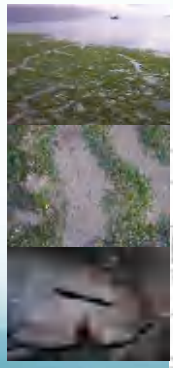




The Dugong (*Dugong dugon*)

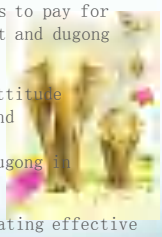
- The dugong is one of the fifteen designated animal species legally protected under the Thai Fisheries Act since 1947 and the Wild Animal Reservation and Protection Act of BE 2535 (1992)
- Dugongs were found along the Gulf of Thailand and the Andaman Sea coast. Today, there are five central populations along the Andaman Sea coast, including Ranong, Phuket, Krabi, Trang, and Satun provinces.
- Threats to dugongs include:
  - Habitat loses resulting from shrimp farms in the Gulf of Thailand
  - Habitat destruction due to fishing practices such as push netting, tin mining in the provinces of Phuket, Phang-Nga and Krabi
  - Sediments from industrial developments, has generated adverse impacts on seagrass communities
  - Increases in tourism activities
- The dugong has a low reproductive rate and the rate of change in population depends on the survival of adult. Reducing the adult mortality rate is one of the critical issues in the conservation of the dugong

- The distribution of dugongs in south Andaman region of Thailand



Objectives

- To elicit the non-user willingness to pay for conserving the wild Asian elephant and dugong populations in Thailand
- To assess the general public's attitude toward the state of environment and wildlife species in particular, the wild Asian elephant and the dugong in Thailand
- To assist policy makers in formulating effective conservation measures for the wild elephant and dugong in Thailand

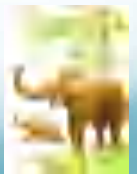


Values of environmental goods and natural resources

- Use value
  - Direct use value
  - Indirect use value
  - Option value
- Non-use value
  - Existence value
  - Altruistic value
  - Bequest value

Valuation Approaches

- The Revealed Preference Methods
  - The Hedonic Price Method
  - Travel Cost Method (TCM)
- The Stated Preference Methods
  - Contingent Valuation (CV)
  - Choice Modelling (CM)
    - Choice experiments (CE)
    - Contingent ranking
    - Contingent rating
    - Paired comparisons



Methods

- A choice experiment (CE) survey was used to elicit the non-users' willingness to pay (WTP) for the hypothetical wild elephant conservation and dugong conservation in Thailand.
- 300 face-to-face interviews were conducted in five districts of Bangkok, Thailand.
- Attitudinal questions
- The choice experiment

Choice experiment survey

- Identify attributes and levels of each attributes
- Combine the levels of the attributes into different scenarios
- Pilot test of the survey instrument to generate the final version of the survey (45 pilot interviews)

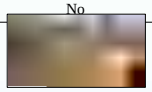
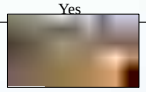
• Attributes and levels used in the choice experiments for wild elephant conservation

Attribute	Level Description	
1. Elephant Population 	Continued Decline	No action (continued decline in the wild elephant population)
	Slow down the Decline	Slow down or halt the rate of the decline in the wild elephant population (may still become locally and nationally extinct)
	Recovery	Stop decline and ensure recovery of the elephant population (local extinction would be removed)
2. Elephant Habitat	Degradation	Elephant habitats will continue to be degraded and lost
	Restoration	Habitat restoration (better management of existing habitats)
	Re-creation	Habitat re-creation (creating new habitat areas)
3. Wildlife Corridor	No Wildlife Corridor	Wildlife corridor is not implemented.
	Properly implemented Wildlife Corridor	Wildlife corridors are properly implemented and allow elephant the ability to migrate between core areas of biological significance increase gene flow and reduce rate of inbreeding, thereby improving species fitness and survival.
4. Human-Elephant Conflict Resolution	Simple Measures	Traditional methods (e.g. simple fences, noise, fire, crop guarding)
	Advanced Measures	Elephant translocation, compensation schemes
5. Yearly Payment (Baht)	0, 100, 200, 500, 1,000	Added to each individual for obtaining an effective programme for 10 years

• Attributes and levels used in the choice experiments for dugong conservation

Attribute	Level description	
1. Dugong Population 	Continued Decline	No action (continued decline in the dugong population)
	Slow down the Decline	Slow down or halt the decline in the dugong population (may still become locally and nationally extinct)
	Recovery	Stop decline and ensure recovery of the dugong population (local extinction would be removed)
2. Dugong Habitat (Seagrass Beds)	Degradation	No action (dugong habitats will continue to be degraded and lost)
	Restoration	Habitat restoration (better management of existing habitats)
	Re-creation	Habitat re-creation (creating new habitat areas)
3. Education about Dugong (the number of local fishers who are educated and informed about dugong conservation)	Some Fishers	Some of the local fishers are educated and informed about dugong conservation
	A Lot of Fishers	A lot of the local fishers are educated and informed about dugong conservation
4. Buoy System	No	Buoys are not provided
	Yes	Buoys are provided in seagrass areas, dugong habitats so that fisher know the area where harmful fishing gears and high speed boats are prohibited
5. Yearly Payment (Baht)	0, 100, 200, 500, 1000	Added to each household for using an effective programme for 10 years

• Example of a choice set for wild elephant conservation

	Option A	Option B
Elephant Population 	Slow down the Decline	Continued Decline
Elephant Habitat	Restoration	Restoration
Wildlife Corridor	No	Yes
Human-Elephant Conflict Resolution  	Simple measures	Simple measures
Yearly Payment (Added cost to your household each year for 10 years)	500 Baht/year	100 Baht/year
Which of the two options do you prefer?	[ ]	[ ]

• Example of a choice set for dugong conservation

	Option A	Option B
Dugong Population	Continued decline	Recovery
Dugong Habitat	 Re-creation	 Degradation
Education about Dugong (the number of local fishers educated about dugong conservation)	A Lot of Fishers	A Lot of Fishers
Buoy system (buoys are provided to present dugong habitat where harmful fishing gears and high speed boat are prohibited)	 Yes	 Yes
Yearly Payment (Added cost to your house hold each year for 10 years)	200 Baht/year	100 Baht/year
Which of the two options do you prefer?	[ ]	[ ]

Results

- The majority of respondents were female, between the ages of 25-34, single, held bachelor degrees, were employed, and had four to six members within their household. The average individual income and household income of the respondents were approximately 147,300 and 241,000 Thai Baht per year respectively

Rank 	Perceived threats to wild elephants	Number respondents			Weight (Points)	Importance (%)
		1st most important	2nd most important	3rd most important		
1	Habitat loss and degradation	145	42	47	566	62.9
2	Illegal poaching for elephant tusks	91	91	61	516	57.3
3	Habitat fragmentation due to road construction	34	82	34	300	33.3
4	Human and elephant conflicts as a result of crop-raiding	20	44	68	216	24.0
5	Illegal poaching for elephant calves used in tourism	6	32	36	118	13.1
6	Pressure from tourism activities	4	9	48	78	8.7

- Perception of required methods to improve wild elephant population

Rank	Perceived measures	Number respondents			Weight (Points)	Importance (%)
		1st most important	2nd most important	3rd most important		
1	Increase penalties for violators of existing laws	87	87	43	478	53.1
2	Expand protected areas to protect wild elephant habitats	104	49	20	430	47.8
3	Create wildlife corridors	52	58	45	317	35.2
4	Reduce human-elephant conflicts by implementing crop-protection measures	21	38	55	194	21.6
5	Strengthen rangers with authority to investigate conservation related causes and suppress crimes involving forest resources	16	39	28	154	17.1
6	Educate people about wild elephant conservation, the problems involved and the related laws	16	15	43	121	13.4
7	Enhance local communities, national, regional and international cooperation efforts	4	9	48	78	8.7
8	Improve our understanding of elephant behaviour and distributions through research and monitoring	0	5	15	25	2.8

Rank	Perceived threats to dugongs	Number respondents			Weight (Points)	Importance (%)
		1st most important	2nd most important	3rd most important		
1	Inshore fishing pressure (e.g. trawling)	84	94	46	486	54.0
2	Accidental caught	77	45	52	373	41.4
3	Habitat loss and degradation as a result of water pollution	55	66	54	351	39.0
4	Vessel strikes	33	45	31	220	24.4
5	Hunting and use	46	19	15	191	21.2
6	Natural predators or diseases	2	18	59	101	11.2
7	Coastal	3	13	32	67	7.4

- Perception of required management to improve dugong population

Rank	Perceived measures	Number respondents			Weight (Points)	Importance (%)
		1st most important	2nd most important	3rd most important		
1	Prohibit trawling in areas where it can damage dugongs and seagrasses	95	46	32	409	45.4
2	Increase penalties for violators of existing laws	47	78	33	330	36.7
3	Implement buoy systems for presenting dugong habitats where the use of harmful fishing gears is prohibited and boating speed is limited	37	68	50	297	33.0
4	Expand marine protected areas to protect dugong habitats	67	29	35	294	32.7
5	Educate and create awareness among local fisher and general public about dugong conservation	39	48	63	276	30.7
6	Enhance local, national, regional and international cooperation efforts	8	23	58	128	14.2
7	Improve our understanding of dugong behaviour and distributions through					

Results (2)

- This study could not estimate a MWTP of the respondents for the conservation of wild elephants in Thailand, as the coefficient of the price is positive which was not valid for the standard assumption of economic theory.

Variable	Coefficient	Standard Error	b/St.Er.	P[|Z|>z]
POP_SLOW	1.24299	.09247	13.442	.0000
POP_REV	-.55624	.11827	-4.703	.0000
HAB_REST	.80850	.06715	12.040	.0000
HAB_RECR	.45392	.10074	4.506	.0000
COR	1.04831	.08986	11.666	.0000
RES	.04527	.06524	.694	.4878
PRICE	.00086	.77853	11.100	.0000
Log-likelihood	-1999.315			
No. Observations	2400			

- The Discrete Choice and Multinomial Logit Model of wild elephant conservation resulting from the analysis of LIMDEP software

Results (3)

Variable	Coefficient	Standard Error	b/St.Er.	P[|Z|>z]
POP_SLOW	1.47362	.12697	11.606	.0000
POP_REV	.97018	.16859	5.755	.0000
HAB_REST	2.26549	.15395	14.716	.0000
HAB_RECR	2.49445	.13012	19.197	.0000
EDU	-3.16431	.14653	-21.595	.0000
BUOY	4.66342	.22317	20.896	.0000
PRICE	-0.00196	.00019	-10.346	.0000
Log-likelihood	-1449.661			
No. Observations	2400			

- The Discrete Choice and Multinomial Logit Model of dugong conservation resulting from the analysis of LIMPEP

- Average WTP for dugong population improvement in Thailand per person per year

Improvement	WTP	Standard Error	b/St.Er.	P[|Z|>z]
Dugong Population: Slowdown the Decline	748.19	78.20135	9.567	.0000
Dugong Population: Recovery	492.58	78.50481	6.274	.0000
Dugong Habitats: Restoration	1150.24	91.47554	12.537	.0000
Dugong Habitats: Re-creation	1266.48	90.80566	13.947	.0000
Education: Lots of educated Fishers	-1606.59	109.86242	-14.624	.0000
Buoys: Exist	2367.71	140.66155	16.833	.0000

- The overall average WTP for the most preferable choice of the dugong conservation scheme would be to slow down the dugong population decline. The required habitats would need to be re-created, and buoy systems provided; the cost of this would require almost 4,390 THB annually per person. The dugong improvement most valued by the general public related to the implementation of a buoy system. The WTP for implementing buoys was almost 2,370 THB per person per year. The following were the dugong habitats attribute at the level of *Habitat Re-creation* (1,270 THB), and the dugong population attribute at the level of *Slow down the Decline* (about 750 THB). However, the respondents were not willing to pay for increasing local fishers' knowledge on dugong conservation.

Discussion

- The key policy implications of the choice experiment findings are that the public is willing to pay a sum of money for dugong protection policies. Thus, we are able to make clear recommendations with regard to which types of dugong conservation should be made a priority. It is concluded that the respondent's most preferred choice within the scheme was to provide buoy systems for highlighting dugong habitats so that inappropriate fishing activities and high-speed boating are prohibited, re-creating habitats and the mitigation of the dugong population decline. Moreover, the attitudinal question with regard to the perceived threats to dugongs and their management indicated that inshore fishing, accidental capture, as well as the loss and degradation of dugong habitat were serious concerns. Thus, the prohibition of trawling in near-shore areas and increasing penalties for violators of the related laws should take priority.
- Although the willingness to pay for conserving wild elephants could not be elicited from this study, the threats to wild elephants and conservation measures perceived by the respondents can provide useful information for policy makers.
- Even though the representative inhabitants of Bangkok were not likely to pay attention to wildlife research and monitoring, policy makers however should take the research and monitoring process into account. It should be noted that these recommendations were concluded from the Bangkok residents' point of view. Therefore, future work need to be done with other groups of people, especially with stakeholders in rural areas. Moreover, it is important to note that this choice experiment study only provided non-use values, which are only one part of the total economic value. In a cost-benefit analysis for environmental resources it is important to elicit the other types of the values such as the use and option values. Thus, further studies using other appropriate valuation techniques as mentioned in Chapter 2 are needed. Furthermore,

Conclusion

- People's attitudes toward the state of the nation's environment and wildlife, especially the wild elephant and the dugong, were obtained during the experimental survey. Most of the respondents considered that the quality of the environment in Thailand had become worse. The loss and destruction of habitats, illegal poaching for tusks, and habitat fragmentation as a result of road construction were found to be serious threats to wild elephants. Therefore, increasing penalties for violations of existing laws and expanding protected areas of elephant habitats should take priority. The perceived threats to dugongs, especially inshore fishing, accidental capture, as well as the loss and degradation of dugong habitat, were shown to be serious concerns. The prohibition of trawling in near-shore areas and increasing penalties for violators of the related laws were regarded as the main priorities.
- Although this study could not estimate the 'non-users' willingness to pay for the conservation of wild elephants in Thailand, the willingness to pay for conserving dugongs was elicited. The overall average willingness to pay for the most preferred choice of dugong conservation scheme (slow down the dugong population decline; re-create required habitats; and provide buoy systems) was almost 4,390 THB annually per person. The dugong improvement most valued by the general public related to the implementation of a buoy system. The respondents were not willing to pay for increasing local fishers' knowledge of dugong conservation.

Implications

- The key implications for dugong conservation policies in Thailand were to provide illuminated buoy systems for indicating dugong habitats so that inappropriate fishing activities and high-speed boating are prohibited, to re-creating habitats and to mitigating the dugong population decline. Increasing penalties for elephant poaching and expanding protected areas of elephant habitats were also recommended.

Thank you

(13) Viet Nam: Management of watershed protection forest based on the Muong ethnic minority communities, Vietnam

Management of watershed protection forest based on the Muong ethnic minority communities, Vietnam

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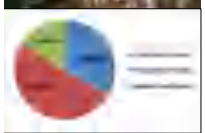
Kunming City, China, 2017.

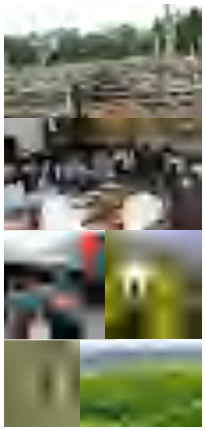
Outline of Presentation

1. • Vietnam's Forests
2. • Analysis Framework
3. • Research Results
5. •Policy recommendations & Key learning

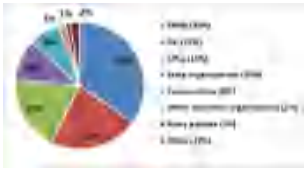


Vietnam's forestry

- ❖ Dynamic change of forest area, reduced (14.3 – 9.2 Mha, 43 – 90) & increasing up to 16.2 Mha in 2020, accordingly with forest cover.
- ❖ Large area of production forests (50%).
- ❖ Exporting value increasing, from 1.9 $B (2006) to 7.2 $B (2016).
- ❖ **FPES has great contribution to Forest protection and development (5,226 M.VND, 5,3 Mha & 0.5M HH participated in 5yrs)**
- ❖ **The structure of these forests will be changed ASAP to reduce protection forests and increase production forests.**

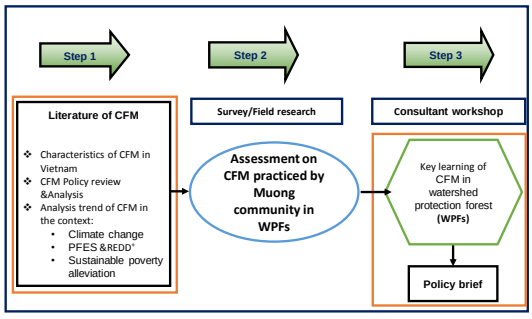


Forest Land Allocations



- Households, private & community allocated 4.5 Mha (34%): **Natural Forest = 1.5 Mha and plantations = 3 Mha.**
- Average forest area per household is **2ha** plantation and **1 ha** Natural forest, for about 1.5 MHH.
- Currently, forestry regulations require HH and community to participate in protecting and developing forest which belongs FMBs. >>> **Scaling up forest areas with HH& community's participation, about 10 Mha.**
- **Household and community's participation is fundamental in FPES policy.**

Analysis Framework



Research Results

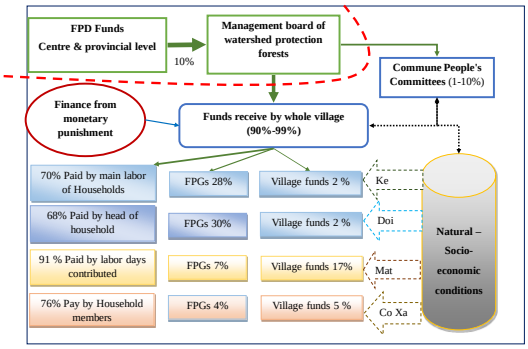
1. Literature review of CFM development process in Vietnam

- *Before 1992*: • Community Forestry is informal way as customary practices, which are practiced by local communities to manage forest in remove area. It was not legitimated by legal regulations.
- *1993-2005*: • Community forestry/Social Forestry is quickly scaling up • There were many pilot CF projects to recognize roles of local community. • Customary practices legitimated by legal regulations (**e.g. LPDF – 2004**)
- *2006-2009*: • Implementation o f legal regulation at commune/village/hamlet and household level • Forest land allocation to local communities; Establishing village regulation to manage forest and 40 communes has pilot of community forestry project.
- *2010-Upto now*: • Strengthening regulatory framework to enhance roles of community forestry in responding climate change, poverty alleviation and benefit sharing of PFES.

2. Assessment on CFM practice

- WPFs of Hoa Binh hydroelectricity
- Research sites are 4 villages of 2 communes in WPFs
- Conditions of 4 villages:
  - ✓ 95% of population are MUONG.
  - ✓ Large protection forests, including natural and plantation forests (1,735 ha/234 HH = 1055 HH members).
  - ✓ Forest utilized by customary practices.
  - ✓ Natural forest not yet allocated to community.
  - ✓ PFES, 3% of HH income (**54.1 M.Vnd**) and 13% of income per capital (**12.8 M.Vnd**).

3. Benefit-sharing mechanism for financial support from PFES



4. Better forest management

Impact:

Illegal logging activities and forest encroachment have been well managed and significantly reduced (12 -15)

Reasons:

1. Well, patrolling of forest protection;
2. Enhancing effectiveness of internal village regulation on forest management;
3. All village association working together to protect forest;
4. Activate all supports of PFM board and CPC;
5. Improving livelihood opportunities from agricultural crops and off-farm activities;

Policy recommendations

- Strong policies and regulations are key factors to ensure: roles of community forestry in responding climate change, poverty alleviation and equal benefit sharing of PFES; and social inclusiveness, as well.
- LFPD (2004) should be amended to ensure community rights, not only rights to protect forest, but also rights to use and own added value of natural forest.
- It is recommended that the new benefit sharing policy need to be made in the context of climate change and REDD+ initiatives.
- The PFES policy needs to be improved to establish a better mechanism on payments for forest ecosystem services.

Key learning

1. Strong customary rules and principles of forest management are well maintained and implemented by CF
2. Lack of opportunity to improve livelihood, because natural forest protection allocated in watershed area is often impoverished and degraded. Thus, community forestry needs to have more financial supports and strong policies and regulations to do forest protection and rehabilitation, **FIRSTLY**.
3. The new finance source from PFES provides a significant monetary incentive to protect and develop forest in responding climate change, poverty alleviation and equal benefit sharing of PFES; and social inclusiveness, as well;