Land Use History in Montane Mainland Southeast Asia

Highlights and Outcomes of a Mobile Workshop
held 15-27 January 2005, in China, Laos, and Thailand

ICIMOD Partnership Platforms 2/05

About the Organisations

ICIMOD

The **International Centre for Integrated Mountain Development** (ICIMOD) is an independent 'Mountain Learning and Knowledge Centre' serving the eight countries of the Hindu Kush-Himalayas – Afghanistan, Bangladesh, Bhutan, China, India, Myanmar, Nepal and Pakistan – and the global mountain community. Founded in 1983, ICIMOD is based in Kathmandu, Nepal, and brings together a partnership of regional member countries, partner institutions, and donors with a commitment for development action to secure the future of the Hindu Kush-Himalayan region. The primary objective of the Centre is to promote the development of economically and environmentally sound mountain ecosystems and to improve the living standards of mountain populations.

CBIK

The **Centre for Biodiversity and Indigenous Knowledge** (CBIK) was established in Kunming, People's Republic of China, in 1995 as a non-profit organisation dedicated to supporting the indigenous knowledge of ethnic minorities and to enhancing biodiversity conservation in the mountain regions of Southwest China. CBIK is a participatory learning organisation and knowledge centre, which aims to explore alternative development approaches to working directly with indigenous people and communities to enhance their livelihoods and maintain cultural and biological diversity. CBIK does this through application of indigenous knowledge practices and innovations in an environment of rapid change and uncertainty in southwest China.

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Preface

The region known as 'Montane Mainland Southeast Asia' (MMSEA) includes the upland areas of Yunnan in southwest China, Myanmar, Thailand, Laos, Vietnam, and part of Cambodia, all of which share many common cultural and biophysical features. The common characteristics include history, settlement patterns, land use, biodiversity and ecological landscapes, economy, livelihood activities, and associated ideological and cosmological elements. Crossing the MMSEA landscape and reading its features, we often find that the land-use practices are a product of a long history of creative adaptation to local environments and ecological conditions such as climate, terrain, soil, water, air, plants, and animals. These adaptive practices have given rise to the knowledge that enables these people to live well and with confidence in the diverse and sometimes harsh environments, as well as to develop livelihoods based on fishing, hunting, gathering, grazing, and shifting cultivation and terraced agriculture, and to trade through social networks in natural and cultural products. Historically, caravans have served as market structures and created a sociocultural network among mountain and lowland communities. Today, the caravan trade has been replaced by modern transportation systems, such as the proposed Kunming-Bangkok highway, and economic corridors have evolved into transnational highways, riverways and railway links, which have become major drivers of land use and land cover change in the region.

Human modification of land cover has been a major driving force in earth system changes over the past centuries, and currently this change is being accelerated as a result of rapid economic development and the impacts of globalisation. Land use policy is at the centre of some of the most complicated problems faced by policy makers around the world today. Over the past decades, land use and land cover change (LUCC) science has attempted to bridge the scale and epistemological gaps for land use decision-making through interdisciplinary study, participatory research and development, and science-policy interaction. LUCC science not only facilitates knowledge exchange among stakeholders and addresses the scientific questions linking humans and ecosystems, it also serves as a tool for public action and decision-making.

The International Centre for Integrated Mountain Development (ICIMOD) has worked together with partners on issues related to land use and land cover change in mountain regions for some two decades. Our premier concern is the effects of land use and land cover change on environmental goods and services for both upland and lowland people.

In January 2005, an interdisciplinary team facilitated by ICIMOD joined with partners to participate in a unique learning process to gather, experience, and exchange information about land use and land cover in Montane Mainland Southeast Asia. This 'mobile workshop' on land use history traversed through the heart of the MMSEA eco-cultural region, stopping at three venues in three different countries: China, Laos, and Thailand. The innovative approach included case studies in each area, thematic working groups, community assessments, and policy dialogue for sharing knowledge

and ideas about epistemology. The understanding of participants moved from simplicity to greater realism and complexity. Major questions arose as to whether land use and land cover change can be 'governed' through policy interventions. In negotiating trade-offs between various stakeholders and land use options, the real-world interests of multiple key actors at various scales need to be balanced, and innovative institutions and technologies need to be focused at 'hot spots' of change rather than spread homogenously.

This publication summarises the outcomes of the mobile workshop and provides insight into land use dynamics in the Greater Mekong sub-region. Equally important, it outlines the mobile workshop approach, which proved to be highly successful for interactive learning and sharing knowledge on complex mountain issues, in this case those related to land use and land cover change. We are proud that ICIMOD could be a part of this learning process, and owe particular thanks to the Rockefeller Foundation for generous financial support for this workshop. This publication will be of benefit to all those interested in innovative approaches to learning and information exchange on complex regional issues, especially those related to mountains and land use and land cover, as well as to planners and policy makers coping with LUCC issues, and those interested in the MMSEA region itself. We are very glad to be able to further disseminate information about these methods and issues through the medium of this publication.

Xu Jianchu, Ph.D.
Programme Manager WHEM
ICIMOD

executive summary

In January 2005, some 60 participants from eight countries took part in a unique mobile workshop on land use history that transected the Montane Mainland Southeast Asia (MMSEA) eco-cultural region from China to Laos, finishing in Thailand.

The participants started at the Xishuangbanna Tropical Botanical Garden (XTBG) in the Yunnan Province of China, travelled overland to Luang Prabang in northern Laos, and then flew to Chang Mai in Thailand. En route, participants learnt about large-scale and household-managed rubber plantations in Mengla, Yunnan; farming systems, livelihoods, and emerging market opportunities in the upland communities of Oudomxay and Luang Prabang; and about the more permanent, intensive market-based land use systems found in Chiang Mai.

During preliminary sessions in Xishuangbanna, participants were given an overview and profile of the region and introduced to spatial, thematic, and transboundary dimensions, as well as community-based perspectives and issues in MMSEA.

A mini-workshop was held in Luang Prabang to explore the science-policy interface, particularly the policy framework and field realities of shifting cultivation in northern Laos.

Three working groups were formed to explore, discuss, analyse, and synthesise field work and learning on the interlinked themes of land use change; local livelihoods, markets, and trade; and resource governance.

Participants contributed a number of interesting case studies spanning the spectrum of the workshop themes, providing key insights into local as well as transboundary dynamics in MMSEA. Participants also shared their work and findings in an interactive way through three information markets that featured relevant work in China, Laos, and Thailand.

The group synthesis work revealed a wide range of learning and findings with respect to:

- ongoing land use trends such as the sedentarisation of shifting cultivation, commercialisation of cash crops, and conversion to urban and non-agricultural uses;
- emerging livelihood and market opportunities, both local and trans-border, linked to the development of economic corridors and trade liberalisation; and
- evolving resource governance arrangements driven by decentralisation, democratisation, and growing opportunities for civil society involvement.

The participants identified a series of key researchable questions for future consideration and a core group was identified to plan future activities in MMSEA.

In addition to this workshop report, other expected outputs include a CD-ROM containing the workshop documents, and possibly a special journal issue based on selected papers, case studies, and workshop outcomes.

The success of the mobile workshop was the result of excellent cooperation among partner organisations such as the Kunming Institute of Botany (KIB), Centre for Biodiversity and Indigenous Knowledge (CBIK), National University of Laos (NUoL), National Agricultural and Forestry Research Institute (NAFRI), Chiang Mai University (CMU), World Agroforestry Centre (ICRAF), International Centre for Integrated Mountain Development (ICIMOD), and East-West Center (EWC). The workshop was made possible by the generous sponsorship of the Rockefeller Foundation to whom all the participants are grateful.

acronyms and abbreviations

ADB	Asian Development Bank
APEC	Asia-Pacific Economic Cooperation
ASEAN	Association of Southeast Asian Nations
CAS	Chinese Academy of Sciences
CBIK	Centre for Biodiversity and Indigenous Knowledge
CDRI	Cambodia Development Resource Institute
CIFOR	Centre for International Forestry Research
CMU	Chiang Mai University
CP	Coop Promotion
CPI	Committee for Planning and Investment
DAFO	District Agriculture and Forestry Office
DAN	Divers Alert Network
ELSE	Ecosystem Landscape Scenario Explorer
ERI	Environment Research Institute
EWC	East-West Centre
FTP	file transfer protocol
GIS	geographic information system
GMS	Greater Mekong Sub-region
GO	government organisation
HRS	Household Responsibility System
ICIMOD	International Centre for Integrated Mountain Development
ICRAF	World Agroforestry Centre
IFAD	International Fund for Agricultural Development
IUARP	Integrated Upland Agricultural Research Project
IUCN	The World Conservation Union
KIB	Kunming Institute of Botany
LAFC	Luang Prabang Agriculture and Forestry College
LUCC	land use and land cover change
MA	Millennium Assessment
MCTPC	Ministry of Communications, Transport, Post and Construction
MIT	Massachusetts Institute of Technology
MMSEA	Montane Mainland Southeast Asia

MoU	memorandum of understanding
MRC	Mekong River Commission
NAFRI	National Agricultural and Forestry Research Institute
NGO	non-government organisation
NRM	natural resource management
NTFP	non-timber forest product
NUoL	National University of Laos
NUR	Northern Upland Region
OTOP	One Tambon One Product
PAFES	Luang Prabang Provincial Agriculture and Forestry Extension Service
PAFO	Luang Prabang Provincial Agriculture and Forestry Office
RECOFTC	Regional Community Forestry Training Center for Asia and the Pacific
RS	remote sensing
SC	shifting cultivation
SOE	state-owned enterprise
SUAN	Southeast Asia Universities Agroecosystem Network
TVE	township-village enterprise
USAID	United States Agency for International Development
WHEM	Water, Hazards and Environmental Management
WRI	World Resources Institute
WTO	World Trade Organization
XTBG	Xishuangbanna Tropical Botanical Garden

contents

introduction: preparing for the road ahead

Montane Mainland Southeast Asia

Montane Mainland Southeast Asia – MMSEA – is defined as including all areas that lie between 0.3 and 3 km above sea level and are located within a river basin that overlaps with at least one nation state of mainland Southeast Asia. Thus MMSEA refers to both nation states and river basins. The 'Big 3' river basins of mainland Southeast Asia – the Salween, Mekong and Yangtze – all flow through this region. MMSEA spreads across six countries; it includes the uplands of Yunnan of Southwest China, Myanmar, Thailand, Laos, Vietnam, and Cambodia (Figure 1). Notwithstanding the political boundaries, the MMSEA areas share many characteristics, cultural approaches, challenges, and opportunities, and the people of the region can profit greatly from shared learning. The common characteristics include history, settlement patterns, land use, biodiversity and ecological landscapes, economy, livelihood activities, and associated ideological and cosmological elements. MMSEA also manifests a pattern of geographical correlation between cultural diversity and mega-biodiversity.

The MMSEA Mobile Workshop

In Southwest China, mainland Southeast Asia, and South Asia, caravans have served as market structures and created a socio-cultural network linking mountain and lowland communities for more than a millennium. Today, traditional economic corridors such as caravan routes have been replaced by modern transportation systems – transnational highways, riverways, and railway links – such as the proposed Kunming-Bangkok highway (see Figure 2).

The idea for a mobile workshop focusing on key elements of land use history within Montane Mountain Southeast Asia (MMSEA) emerged from the MMSEA Symposium III held in Lijiang, China in 2002. Symposium participants from Laos, Thailand, and China suggested organising a workshop that would travel across all three countries, much as earlier caravans did, to facilitate a better understanding of MMSEA regional land use dynamics and transboundary issues.

Emerging issues of common concern were identified as:

- the rapid pace of economic development
- cross-border trade and regionalisation

Figure 1: Map of Montane Mainland Southeast Asia (MMSEA, area highlighted in green)
(Source: ICRAF-Chiang Mai)

- maintenance of cultural and biological diversity
- poverty alleviation and alternative livelihoods for upland communities

A group of partner organisations decided to work together to organise this mobile workshop including: Kunming Institute of Botany (KIB), Center for Biodiversity and Indigenous Knowledge (CBIK), National University of Laos (NUoL), National Agricultural and Forestry Research Institute (NAFRI), Chiang Mai University (CMU), World Agroforestry Centre (ICRAF), International Centre for Integrated Mountain Development (ICIMOD), and East-West Center (EWC).

On behalf of the partner organisations, CBIK developed and submitted a proposal to the Rockefeller Foundation who kindly agreed to sponsor the workshop.

Workshop participants and programme

The mobile workshop was held from 15 to 27 January 2005. It transected three regions: Xishuangbanna in the southern Yunnan Province of China; Oudomxay and Luang Prabang Provinces in northern Laos; and Chiang Mai Province in northern

Figure 2: The proposed Kunming-Bangkok R3 highway: an economic corridor linking China, Laos, and Thailand
(source: workshop paper presented by Vongphosy and Rattana)

Thailand. Sixty participants from China, Cambodia, Laos, Nepal, the Philippines, Thailand, the United States, and Vietnam took part in the workshop (see Annex 1 for a list of participants). Participants travelled overland from Xishuangbanna to Luang Prabang, then flew to Chiang Mai for the final leg of the workshop (see Annex 2 for details).

Start the engine: opening the mobile workshop

The mobile workshop was opened on 16 January 2004, at the Xishuangbanna Tropical Botanical Garden (XTBG), Yunnan Province. Professor Xu Jianchu, Water, Hazards and Environmental Management Programme Manager, ICIMOD, welcomed the participants and gave a brief introduction and background to the workshop. He described the workshop as a regional forum for the exchange of information and experiences on land use history and dynamics.

The workshop was designed to be informal and interactive to enable active participation and learning by those involved. The mobility of the workshop was an added advantage as it:

- facilitated participatory learning among actors from different countries and disciplines
- enabled field-based assessments across multiple countries and scales
- bridged different knowledge systems
- accommodated and appreciated a wide range of diverse perspectives

Professor Xu Jianchu introduced Professor Chen Jin, Deputy Director of XTBG, who participated in some of the sessions held at XTBG and shared his valuable perspectives and experiences on transboundary exchanges between Yunnan Province and Laos.

Workshop process, objectives and themes

Mr Chun Lai facilitated the workshop. He introduced the participants and gave an overview of the programme and process. He stressed that the mobile workshop was an informal, interactive, and unique learning opportunity to explore key ideas within the MMSEA region.

From the perspective of the workshop organisers, the main objectives of the workshop were to

- better understand the land use dynamics and drivers of change within MMSEA;
- assess the impacts of development, particularly road infrastructure, as well as linkages between transportation corridors, marketing networks, and trade policies;
- build the capacity of younger researchers to conduct interdisciplinary research related to land use in MMSEA; and
- provide a forum to facilitate policy dialogue and produce recommendations in relation to land use.

Contributions from the participants included draft case studies and abstracts, as well as information market displays. Selected case studies were presented by participants in Chiang Mai. During the course of the mobile workshop there were three information markets allowing direct interaction between participants and featuring

relevant work in China (on 17 January in Xishuangbanna), Laos (on 21 January in Luang Prabang), and Thailand (on 25 January in Chiang Mai).

The workshop focused on three major, interlinked working themes:

1. Land use change
2. Local livelihoods, markets and trade
3. Resource governance

The participants made the following comments on the themes.

- The three themes should be interlinked because the idea is to capture crosscutting issues. For example, during the field visits in Xishuangbanna, rubber-based systems will be studied to probe the history of land use changes as well as the present expansion of rubber production into northern Laos.
- Participants noted that resource governance was linked to land use changes in China. In particular, government policy changes and instability have led to deforestation. Participants identified a need for a broad and stable land use policy to encourage sustainable land use. It was suggested that the interactions and policy recommendations from this workshop could help identify and address some pertinent issues.

Expected outcomes

The mobile workshop brought together many participants from various countries, working in various fields. As a result of their interactions and diverse contributions the following outcomes were expected:

- a snapshot of current eco-regional and country perspectives on land use history and dynamics within MMSEA
- enhanced capacity and cross-learning among participants, especially younger colleagues who are contributing to research and leadership within the region
- a list of research questions and development of a future agenda for land use and sustainable development in MMSEA
- development of a set of uniformed policy recommendations for the region and for each country on specific issues
- concrete ideas for follow-up actions, collaborative work and networking
- a workshop report
- a journal issue or other publication based on selected workshop case studies, papers and outputs

Overarching framework

The workshop adopted the overarching framework of conditions-drivers-responses in relation to land use dynamics in MMSEA, as used in the Millennium Assessment (MA) (see Figure 3). Accordingly, the mobile workshop was divided into three major segments.

Conditions: Thematic working groups and field visits in Xishuangbanna probed the current land use conditions in various MMSEA countries.
Drivers: A science-policy interface workshop and field visits in Luang Prabang examined the drivers of change, such as land use policies.

Responses: Field visits and synthesis work in Chiang Mai highlighted some of the responses of communities and local actors, for example, with regard to livelihood and cross-border trade.

In order to keep the big picture in mind, one of the participants suggested that the following *overarching question* be retained, referred to, and refined during the course of the workshop.

What have been, are, or will be the impacts of road building and trade liberalisation on land use, livelihoods, and governance in MMSEA?

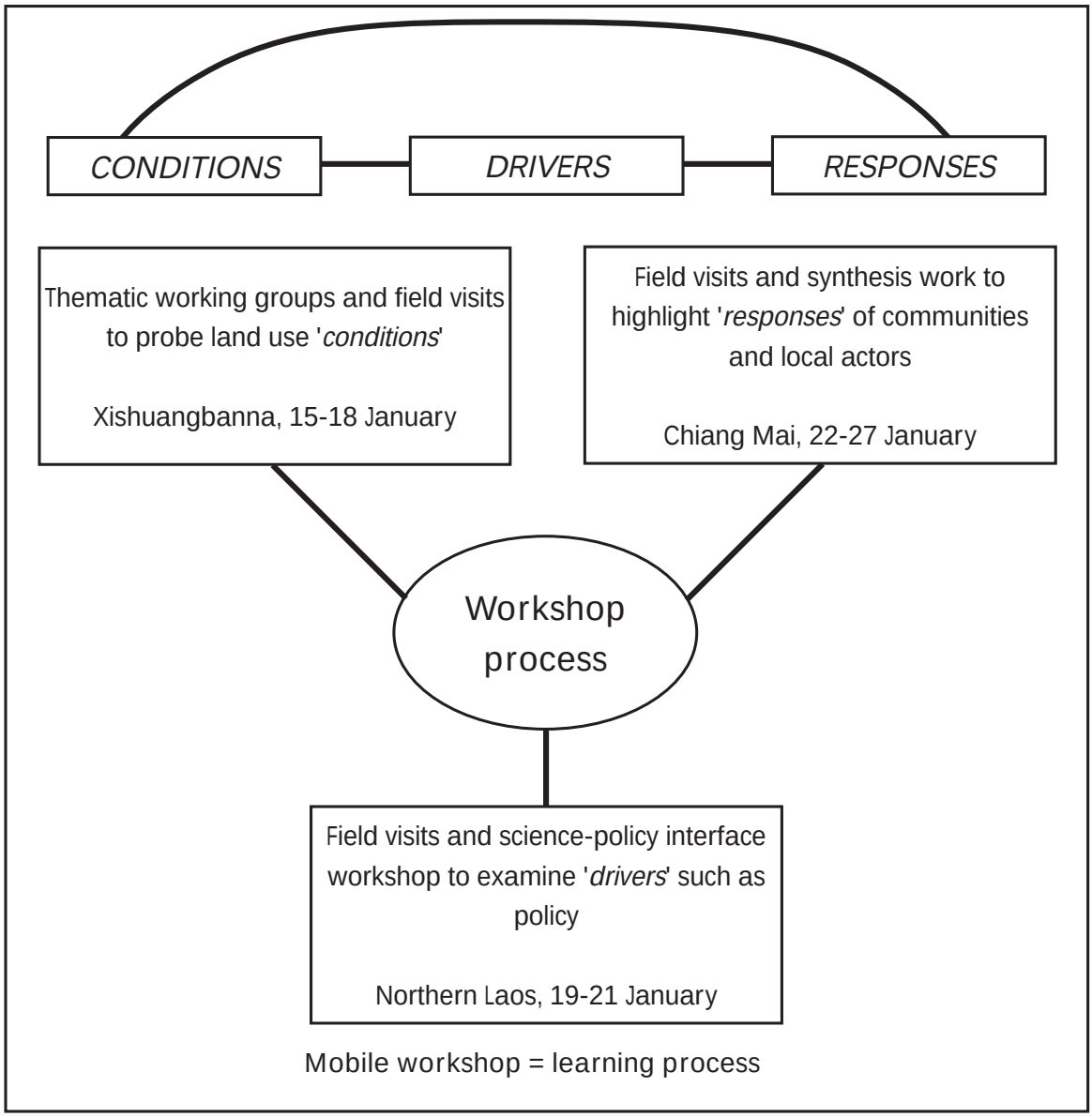

Figure 3: Overarching framework and workshop process

Capacity building focus

A strong underlying focus of the workshop was to build the capacity of the younger researchers and policy makers by bringing them together with more senior colleagues. It is hoped that this capacity building will continue through collaborative work, networking, and mentoring. Contributions made by some of the younger participants, such as case studies and other materials, were scaled up into policy dialogue and recommendations. Conceptually, this is depicted in Figure 4.

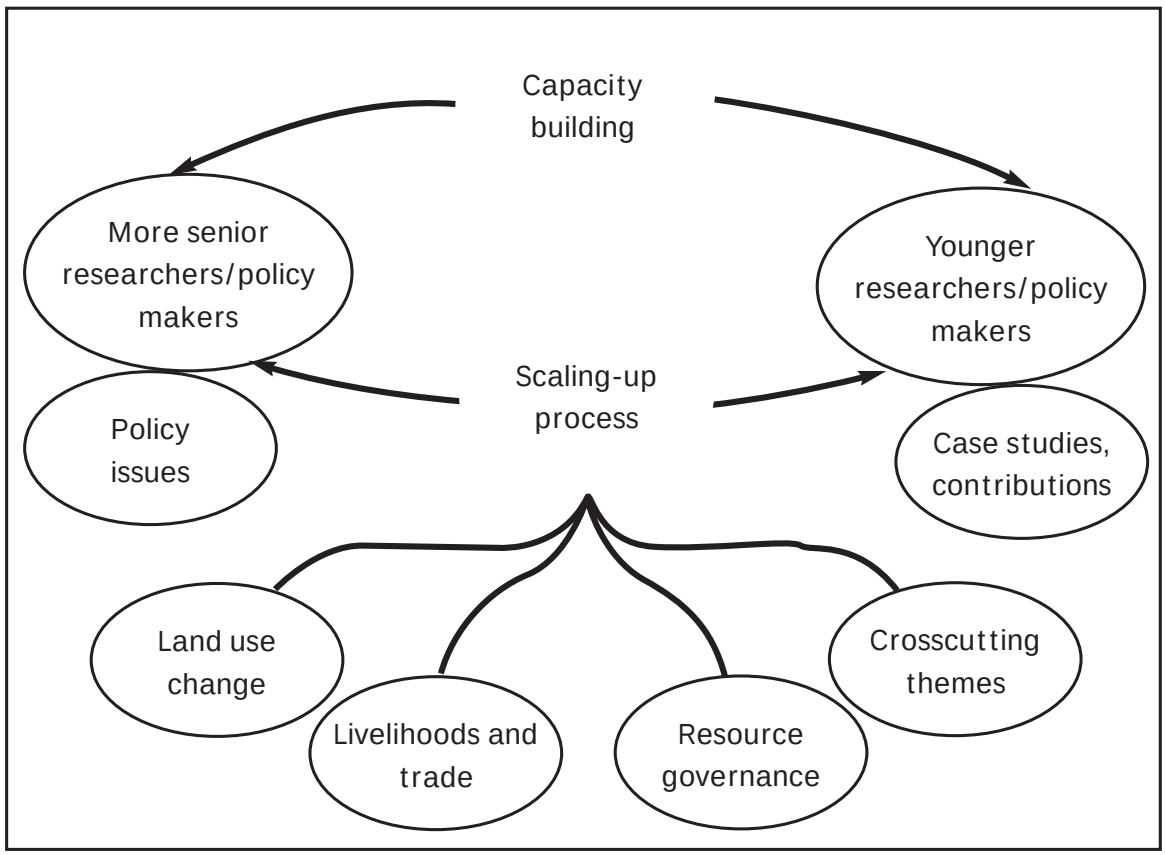

Figure 4: Capacity building and scaling-up processes

MMSEA overview and profile

At the beginning of the workshop, a set of overview presentations and area profiles helped to set the stage by highlighting critical dimensions and perspectives within MMSEA.

Spatial Overview and Macro-Micro Linkages

Dr David Thomas, of ICRAF-Chiang Mai, presented a spatial overview including characteristics of the MMSEA domain, and introduced the relevance of and linkages between the three workshop themes of land use change; local livelihoods, markets, and trade; and resource governance.

As mentioned above, the MMSEA domain is defined as areas that are between 0.3 to 3 km above sea level and located within a river basin that overlaps with at least one nation state of mainland Southeast Asia. These areas have distinct characteristics that differentiate them from the lowland areas, which contain the majority of the region's population, both urban and rural.

The major characteristics of the MMSEA region include decreasing forest cover, increasing population, high incidence of poverty, and in some areas, shifting cultivation. Government policies, population growth, opium crop substitution, and economic development are the main drivers of land use change within MMSEA.

In most of northern Thailand, shifting cultivation has been transformed into permanent agricultural fields. The agro-biodiversity of MMSEA's mosaic landscapes often includes forest and 'forest-like' niches developed and managed by local farmers and communities. Roads are seen as providing new market opportunities. There is a growing consensus across MMSEA that local institutions are best placed to manage resources to meet local needs and build on local knowledge.

Stakeholders, from local to downstream to global levels, also want assurance that their needs will be met. The challenge is how to promote localised management of natural resources in the major basins and nations of MMSEA. In doing so, the following questions need to be addressed:

- What natural resource management decisions are most appropriate at each level?
- Which stakeholders play a role at each level?
- How can each level be more effective and equitable?

Interview with shifting cultivators in the upland watersheds of Chiang Mai

Community-based Perspectives and Issues in MMSEA

In his presentation, Professor Xu focused on community-based perspectives and issues, and highlighted cultural perceptions of landscapes, land use practices, natural resource management, and local institutional arrangements in MMSEA.

Within communities there is much variation in local knowledge, interests, livelihood strategies, demographics, networks with which they interact, and the nature of their interaction with ecosystems. The political approaches used to interpret, identify, and define 'community', land use, and cultural identity also determine the relationships between people and nature. For example, in many countries large sections of the population are not recognised legally as citizens; similarly areas that have been used for agriculture for generations, but in the form of shifting cultivation, are defined as protected 'forestland'.

Peripheral people and communities are connected and linked to political centres and to market places in various ways – both visible and invisible. In the past, caravans served extensively as market structures and formed a socio-cultural network among mountain, lowland, and even urban communities. Factors related to economic development such as road construction, market development and related policies are the major drivers of land use change and changes in interactions within ecosystems and socio-cultural networks.

The great challenges brought forth by climate change and economic globalisation call for new institutional arrangements to ensure more equitable power relationships and partnerships between local communities, state and non-state actors (particularly the private sector), as well as non-government organisations (NGOs).

One key to ensuring community participation is to develop community-based science. This requires the participation of research professionals, development practitioners, and local NGOs in supporting local communities to develop their local knowledge, practices and innovations to adopt and adapt to global influences in order to improve their own livelihoods. However, local people must base such development on their own culture and identity. This process includes appreciating local knowledge; strengthening common property rights and collective actions; rewarding communities; negotiating new power relationships between the community and other (state and non-state) institutions; and representation of the community in decision-making.

Area Profiles: Yunnan, Northern Laos and Northern Thailand

Brief profiles were presented on Yunnan (by Ms Su Yufang), northern Laos (by Mr Houmchitsavath Sodarak), and northern Thailand (by Ms Pornwilai Saipothong) to introduce the participants to the areas through which the mobile workshop would traverse.

Yunnan

Yunnan is the 'roof' of MMSEA, and has a very diverse geography and landscape along with different ethnic groups and resource users. It is rich in water resources, ethnic and cultural diversity. Most of the land use types in Yunnan are forest categories, and there are many government policies and programmes in place. Local livelihood activities include intensive agriculture, cash crop plantation, upland farming (e.g., shifting cultivation), terraced paddy farming, rangeland and grazing, as well as tourism, which is very important for the provincial economy. There is a lot of ongoing trade with neighbouring countries.

The following points were clarified during the discussions:

- 74% of the forest land is collectively owned and 26% is state-owned
- local communities contribute to biodiversity protection at the village level
- commodities such as NTFPs are traded between Laos and Yunnan

Northern Laos

The northern portion of Laos is characterised by mountainous terrain, difficult road access, low population density, high-ethnic diversity, and swidden-based production systems. Most of the land is covered by forests, which are largely secondary vegetation.

Major development strategies adopted for this area are

- transformation from 'land-locked' to 'land-linked';
- transformation from subsistence-based natural economy to commercial production/market economy; and
- development of physical infrastructure such as economic corridors and institutional foundations such as laws on trade and commerce.

The Lao team worked hard to collect land use data for the workshop. There were queries on the general understanding of the Lao policy regarding shifting cultivation. It was understood that the policy is intended to eventually stop shifting cultivation and replace it with more ecologically and economically sustainable alternatives.

Northern Thailand

Many minority groups exist in northern Thailand, mainly as a result of migration from neighbouring countries. Two major changes are visible in cultivation practices; firstly, opium cultivation has been largely replaced by other forms of cultivation; and secondly, there is a transition happening from shifting cultivation to permanent agriculture.

Conflicts between upland and lowland communities have become a hot issue in this area. Logging is effectively banned in Thailand. This ban together with watershed conservation, were imposed by the government. The major problem faced by communities is water use for agriculture, especially in the dry season.

Participants were briefed about the field visits in northern Thailand to the highland zone of the Mae Chaem watershed and sites in the lowland area in Chiang Mai valley.

Transboundary Perspectives and Issues in MMSEA

Based on his own experiences working in Yunnan and northern Laos, Professor Chen Jin of XBTG presented some pertinent transboundary perspectives and issues.

The China-Laos-Vietnam transboundary area has eight national protected areas, which in total cover more than one million hectares. There are many problems associated with biodiversity conservation in the border areas. These include market-oriented deforestation, wildlife trade, conflict between conservation and development, and different policy frameworks in bordering countries.

Despite these problems great opportunities also exist as a result of the similar political systems, improved accessibility, similarities in natural and cultural environments, increasing environmental concern, and resource complementarity.

Checkpoint at the border between Laos and China

Participatory mapping by Laotian farmers

Cross-border visits between farmers, technicians and local officials in Laos and China have proved to be the most effective approach for capacity building in conservation and development. The Great Green Triangle Plan (including Xishuangbanna, northern Laos and northwest Vietnam) has been developed to integrate conservation with development, as well as to emphasise the participation of the people.

Professor Chen Jin concluded by mentioning the following points:

- working together we can make a difference
- when conservation brings direct benefits, then local people will be motivated to conserve
- transboundary farmer-to-farmer training is promising, and practical co-management of protected areas is not just a strategy, but a basic philosophy

dissecting the workshop themes

The mobile workshop focused on three major themes which built on earlier MMSEA symposia outcomes and took into account participants' needs and interests.

1. Land use change
2. Local livelihoods, markets and trade
3. Resource governance

Based on their particular interests as well as other considerations, the participants were divided into three thematic working groups; each group was guided by two thematic coordinators (see Annex 3).

During the field visits, participants also worked in groups, with each field group having a mixed membership from among the three thematic groups for greater cross-fertilisation of ideas and experiences.

The workshop process and programme (see Annex 2) was designed to provide significant time for thematic working group interactions, reflections, synthesis, sharing and feedback, as follows.

17 January, Xishuangbanna
The three thematic working groups met during the morning to review participants' contributions for the workshop, to share experiences and expectations, and to identify key issues/questions to probe during the workshop. In the afternoon, there was a presentation of group outcomes for feedback and discussion.

21 January, Luang Prabang
During the afternoon of the mini-workshop, each thematic group formulated and presented a preliminary synthesis of findings and outcomes, to stimulate further discussion, feedback, and enrichment.

25 January, Chiang Mai
Thematic groups completed the final synthesis of workshop outcomes and learning in the morning, then presented for feedback in afternoon.

The following matrix was suggested as a tool to analyse and synthesise the major conditions, drivers, and responses under each of the three major themes, as well as

any cross-cutting themes such as indigenous knowledge within a regional or country context.

	Land use	Local livelihoods /markets and trade	Resource governance
Xishuangbanna			
Northern Laos			
Northern Thailand			
MMSEA			

In addition, the participants were asked to consider the following list of questions during the course of the workshop.

How are these three themes interlinked?
Are there any important cross-cutting themes (e.g., indigenous knowledge)?
What are the major regional/transboundary issues?
Can we come up with a better framework?

On 17 January, a two-step process was followed to initiate exploration of the three workshop themes. First, the thematic coordinators introduced the themes, situating them within the MMSEA context, and stimulating discussion and feedback. Second, the thematic working groups met separately to discuss their themes, relate them to their own experiences, and identify issues and for further inquiry. Report-backs enabled further discussion and refinement.

Land Use Change

In introducing this theme, the coordinators, Dr. Jeff Fox and Dr. Horst Weyerhaeuser, pointed out that to analyse land use changes within MMSEA it is important to examine the following:

- land use history
- status quo
- change
- drivers
- markets
- future prospects
- roads
- population growth/decline
- linkages among land use, livelihoods and governance

They also suggested that certain questions be considered.

What is the future scenario for land use and land use change in MMSEA?
What are the drivers? What and who can change land use?
Who lives in those areas?
How do the three themes link together?

In the ensuing discussion, participants provided useful feedback as summarised below.

- Specific guidelines should be provided to limit the scope of enquiry
- A comparison of the land use policies in different countries would illustrate the impact of policy in terms of

Group work on land use change

How do scientists impact policy?
How does policy impact land use cover?
How does land use study contribute to policy?

- While it was agreed that it is advisable to use standard terminology for land use study, in practice this is difficult. One method of validating results and ensuring that people are actually referring to the same thing is to cross-checking their different stories.

Through deliberations and discussions, the land use change group came up with the following key issues and questions to guide the group's work in the field.

- There is a need to identify the differences in rubber management systems between state rubber farm and household rubber farms. How is information/technology being transferred between state and local farmers. What changes have taken place between the 1950s and the 1970s and the 1990s and beyond?
- What is the relationship between changes in production from subsistence crops to rubber and changes in migration/population?
- It is necessary know if there have been changes over time in markets due to location, prices, infrastructure, and processing of products. What are the possible sources of information regarding such changes (market, government)? Villagers' perceptions of the term 'markets' also needs to be understood.
- It is important to be aware of peoples' perception of the future in terms of rubber and its market prospects, markets, population, land use, technology, conservation/environment, and sustainability.

- It is important to find out if village land use changes over time (maps can be used to plot such changes). What are the key drivers of household land use patterns: tenure, government policy, geography, markets, customs/culture?
- Likewise, how are the land use decisions of the state rubber farm affected by policy, markets, and geography?

Local Livelihoods, Markets and Trade

The coordinators of this group, Dr Yayoi Fujita and Ms Su Yufang, introduced the livelihoods, markets and trade theme by highlighting the key issues that the group should examine:

- tourism and other related activities
- off-farm production activities
- processing/value-adding
- international/regional trade agreements
- land use and livelihood systems
- drivers of livelihood changes
- social equity

Two main points emerged from the discussion. Firstly, off-farm activities should also receive attention, together with livelihood systems and land use change. The drivers of change need to be clearly understood. Secondly, it is important to look at how households are making land and resource use decisions. For example, how do local farmers make decisions with regard to changes in markets?

During working group discussions, the thematic group noted some key points and outlined certain expectations.

Cross-border trade in non-timber forest products between China and Laos

What changes in livelihoods, markets and trade have taken place and how?
What are the linkages between livelihoods and markets?
What is the impact of local cultures?
How does the expected impact of market integration on local livelihoods compare to the actual impact?

The group hoped to

- reach a consensus on priorities;
- generate new ideas on how to respond to changes in livelihoods, markets and trade;
- identify key successful interventions by governments, private sector, and NGOs to improve local livelihoods; and
- agree on a shared list of priorities for future action; and
- identify key issues for improving livelihoods against the background of land use change and market influences

The following were identified as the main questions to be answered.

What is the impact of markets on commodity production systems and labour?
What types of changes in livelihoods, markets and trade are happening?
Who is buying? What? Where? How is the commodity market changing?
What is the level of peoples' knowledge about the market chain?
Do people have access to market information?
What are the main reasons for livelihood changes? What are the actual changes in livelihoods?
If livelihood, market, or trade problems are encountered, then

Working group discussions

– What kind of intervention is necessary?
– Are people becoming more vulnerable or more successful? Why?
– What are the appropriate roles of researchers?
– How can researchers help understand and mitigate negative impacts?

The key areas that the livelihoods group decided to focus on during the workshop were:

- rubber systems
- NTFPs
- agro-industry
- migration
- timber
- water use

The group also formulated the following questions to be considered during the field visits to the three sites in Mengla, Xishuangbanna.

Mengxing State Rubber Farm

What is the major livelihood portfolio of families in the state farm?
How have livelihood portfolios changed? Why?
What is the interaction among local farmers?
What is the rubber market chain?
Are there any problems or conflict?

Nan Yang Village (lowland Dai)

What are the income sources?
What kind of products do you sell in the market? Where? Who buys?
Was there any change in livelihood activities during the last 10 years? If yes, what caused the change?
Identify service providers; can you access extension services? Credit? Markets? Inputs?
What are the problems in terms of livelihoods? What are the government coping strategies to deal with those problems?

Paozhuqing Village (upland Yao)

What are the income sources?
Who do what kinds of livelihood activities? Where? When?
How have land use decisions been taken? and why?
What are the livelihood issues in upland shifting cultivation communities?

Resource Governance

Professor Walt Coward and Professor Xu Jianchu coordinated the resource governance group. They introduced the theme by defining resource governance as the rules that affect people and their decision-making. They pointed out that governments sometimes make resource governance rules that are invisible to both insiders and outsiders. These rules reflect the worldviews of those who make them and an analysis of resource governance needs to understand the rationale underlying the governance rules. They further pointed out that it is important to consider governance from a market-driven point of view.

Accordingly, they identified the following questions as essential for understanding resource governance.

What are the rules?
Who makes the rules?
What worldview/rationale lies behind the rules?
Who or what authority makes the rules?
What is the governance-marketing interface?

This introduction sparked considerable discussion and participants contributed additional questions for further inquiry.

Who interprets the rules?
Who implements the rules?
Who monitors these rules?
How do rules change with land use changes?
How do rules affect cultural identity?
How do local people respond to these rules?
How does government restructuring (e.g., decentralisation) affect governance?

In their group discussion, the first task given to the thematic group was to better understand the meaning of governance. To obtain country-specific perceptions, participants from different countries were asked to define governance in their own languages and words and then summarise the meaning in English. Their responses are listed below.

- **Thai participants:** Governance is the setting of rules. It means working together with agreed principles, which are accessible, in setting rules.
- **Chinese participants:** The meaning of governance is to deliver policy, as well as management.

Field interview in Yao village, Xishuangbanna

Field visit in Laos

- **Lao participants:** Governance is the involvement of different organisations in the development and management of policies.

It was agreed that 'good governance' should have a scientific and development perspective, include social security, adapt to change, and bridge scales at different levels. Governance should be people-centred and sustainable. It is also important to note that governance and government are not the same.

The group also identified a list of questions to guide their field work in Mengla.

In the state rubber farm, who makes the rules?

In the Dai village, what is considered common property? What rules are present, and how are changes made?

In the Yao village, who decided to plant rubber on sloping upland areas? What are the government rules for leasing land? How do farmers decide to lease land and what are the specific tenure arrangements?

How do the Yao communicate via social networks?

Are there conflicts in resources management? If so, how can these problems be solved?

What are the local concepts of conservation?

What is the local/outside interpretation of resource policies (by age, gender, and other types of social group such as water management group or women's group)?

field learning: on the road through MMSEA

Transecting Xishuangbanna, Luang Prabang, and Chiang Mai provided the mobile workshop participants with a representative cross-section of the MMSEA region, which is home to a wide range of ethnically diverse people. Common characteristics of the region include the region's history, settlement patterns, biodiversity and ecological landscapes, political economy, and livelihood systems. The distinctive regional identity also includes transboundary indigenous peoples with common problems, challenges, and opportunities. This cross-section of the middle mountains embraces a continuum from remote villages with a traditional subsistence economy to areas substantially influenced and transformed by the rapidly growing market economy.

The workshop participants travelled overland from the Xishuangbanna Tropical Botanical Garden in Yunnan Province to Luang Prabang, a World Heritage Town, in

Field visit in Thailand

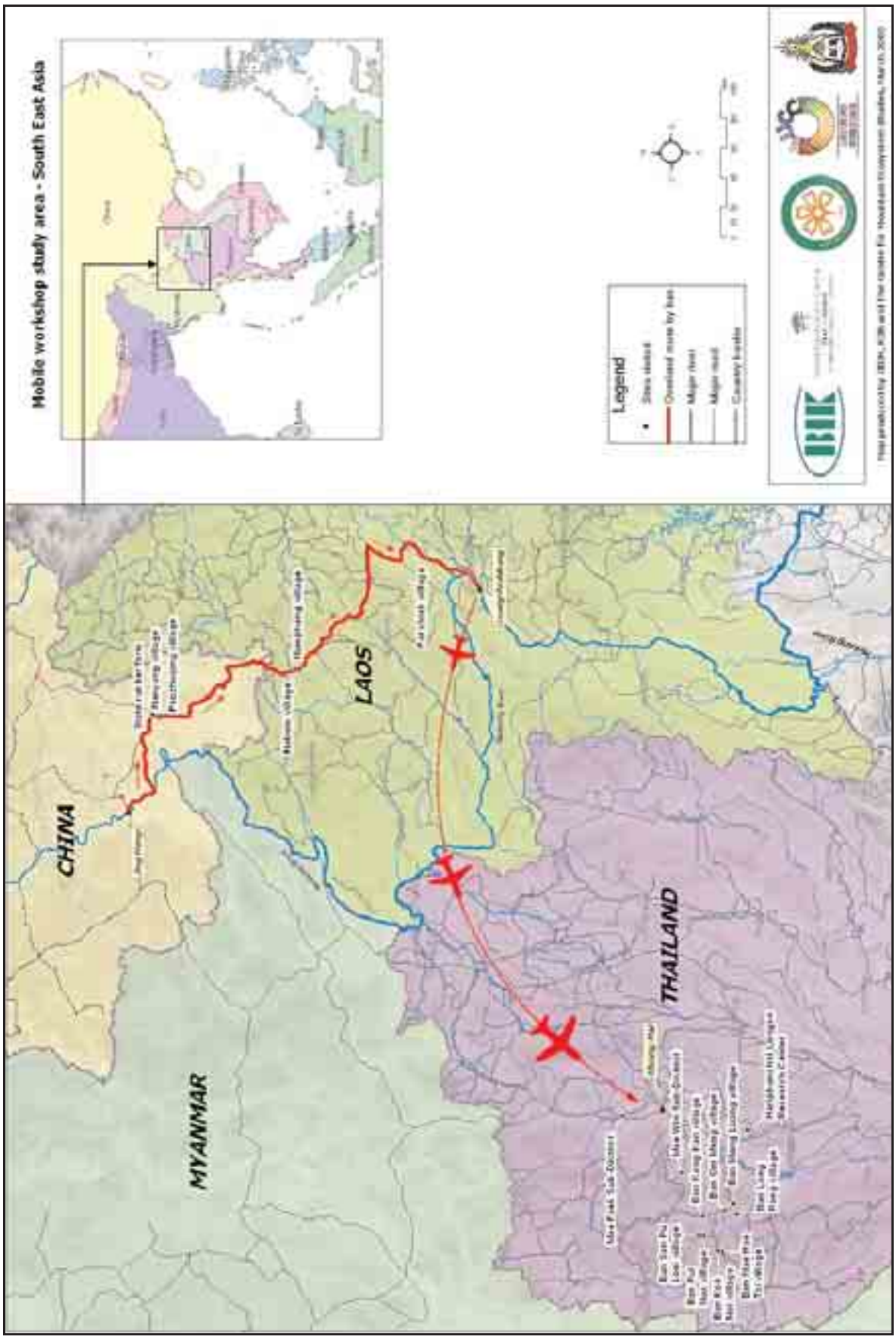

Figure 5: Mobile workshop itinerary

northern Laos. The group traversed through vast expanses of rubber plantations in Mengla, Yunnan, crossed the Lao border at Boten, and visited field sites in Oudomxay and Luang Prabang Provinces. From Luang Prabang, the participants flew to Chiang Mai for the final leg of field visits and group synthesis work (see Figure 5).

This travel through MMSEA enabled the participants to examine firsthand the range of land use conditions, drivers, and responses in the areas visited. Starting from the intensive rubber-based systems in southern Yunnan, the group proceeded to the extensive subsistence-based upland farming systems in northern Laos, and finally to the intensive, market-based systems in the Chiang Mai area.

Land Use Transformation in Xishuangbanna

In Xishuangbanna, land use has largely been driven by the economic and ideological policies of the Chinese government. Since the early 1950s, large rubber plantations have been established and managed on state farms, initially by an influx of workers from central provinces. In the 1970s and 1980s, small-scale rubber plantations were established on upland swidden fallow fields by shifting cultivator households. In the late 1990s, the expansion of rubber production went transboundary, into Myanmar and Laos.

On 18 January workshop participants broke into three field groups – each with members from all three thematic working groups – to visit a state rubber farm, a lowland Dai village and an upland Yao village, all in Mengla. Synopses of the three sites visited are provided below. For more detailed notes and observations, particularly on resource governance, see Annex 4.

The Mengxing State Rubber Farm

During the early 1950s, the Chinese government began to establish large-scale rubber plantations in Xishuangbanna by resettling Han Chinese from central China to this area. In 1959, the Mengxing State Rubber Farm was established on a total land area of almost 6,700 ha. Approximately 5,800 ha of rubber have been planted, of which more than 3,300 ha are tapped for latex, at present producing some 5,600t of dry rubber annually.

The farm has a population of approximately 7,000 people, including 2,800 contracted staff and 1,500 retired staff. It is adjacent to the Jinghong-Mengla road leading to the Lao border. Mengxing is one of 18 rubber plantation bases for the Yunnan Natural Rubber Company (formally called Yunnan Land Reclamation Bureau). It has also been actively involved in investment in a hydro-electric plant (capacity 4,700 kW) and cement factory (producing 80,000t/year).

Dai village of Nan Yang

The hamlet of Nan Yang is a small Dai settlement adjacent to the Jinghong-Mengla road leading to the Lao border. It is a typical lowland village whose landscape has two major features: an irrigated lowland area used for wet-rice cultivation and other crops; and a surrounding upland space of sloping and forested lands, used for cultivation as well as various natural forest products.

Administratively, Nan Yang is part of a larger six-hamlet administrative village, which includes two upland Han settlements. The village comprises 69 families with a total

Village meeting in Laos

population of 323 members. The rubber plantation in the Dai village was initiated in the 1970s and at present rubber is the main source of income for the villagers. On average, each household owns 2.6 ha of rubber plantation and annual income from rubber is between US$181.50 and US$217.91 per household.

Yao village of Paozhuqing

Today, the Yao village of Paozhuqing has better access to roads, markets, and most government services. Since 1995, Yao households have gradually adopted new technologies for farming rubber, while continuing to cultivate their swidden rice, corn, and beans. The area planted with rubber is 66.66 ha, one-third of which is tapped. In this upland village, water and wet-rice areas are obviously limited. Only some families own paddy fields. The major sources of income for the 36 households residing in the village are bamboo shoots, rubber, livestock, and maize.

Upland Development in Laos

During the 1960s and 1970s, war in Laos caused a significant movement of upland ethnic people, and particularly Hmong people. Highland development schemes were promoted in Laos through land allocation and the promotion of permanent land use instead of shifting cultivation. Voluntary resettlement from upland to lowland areas, with nearby roads and government promises of social services such as schools and clinics, has also been encouraged.

In northern Laos, workshop participants again broke into field groups to visit Nahom and Nampheng villages in Oudomxay Province and Pakchiek village in Luang Prabang Province. Some salient information about these villages is given below. Annex 5 provides more details about these villages and their respective resource governance arrangements.

Nahom and Nampheng villages

The villages of Nahom and Nampheng are located about 2.5 km north of the Namo district centre in Oudomxay Province. The villages are located at the provincial border between Luang Namtha and Oudomxay. Nampheng village was established around 1975. Nahom village was established in 1991 by people who moved from Nampheng and Phoutong villages in Namo district.

The ethnic composition of Nampheng village is predominantly Khmu, which is more commonly known as highland Lao or Lao Theung. The Nahom village consists of both Khmu and Hmong (the Hmong-Mien ethno-linguistic group is more commonly known as upland Lao or Lao Soung). Their main sources of household production and cash income are derived from the collection of non-timber forest products. Forest and land areas were classified by the state in both Nahom and Nampheng villages in 2000.

Large areas in these two villages are covered by protection forests. The main development problems expressed by the villagers are insufficiency of rice and lack of water supply. In Nampheng village, they also mentioned the difficulty in accessing public services and information.

Pakchiek Village

Pakchiek village is located in Pak Ou district, Luang Prabang Province. The village was established in 1921, when Lue people migrated from Boum Gneum Leue village in Xishuangbanna.
Prior to their settlements in Pakchiek village, villagers had moved and settled in different locations. In 1953, villagers sought refuge in forest areas but returned to their village the following year. In 1962, once again, villagers sought refuge in the forest due to the civil war. After the civil war, in 1968, the villagers moved to Luang Prabang district. In 1974, the people returned once again to Pakchiek village.

The village consists of 122 households with a total population of 618 people. The villagers belong to the Lue ethnic group (a subgroup of Lao Loum or lowland Lao) and are Buddhists. The existing problems in the village are decreased rice yields, increased imperata grass infestations, short fallow periods, and livestock disease.

Market-Economy Transition in Northern Thailand

In northern Thailand, an opium eradication campaign was promoted through a development strategy of crop replacement. A wide range of cash crops (both annuals and perennials) were introduced together with infrastructure and road development. Traditional shifting cultivation has declined due to opium substitution in the past and watershed protection at present.

The field visits in northern Thailand were carried out over two days in two areas. On 23 January, the participants were exposed to the land use mosaic in the highland zone of the Mae Chaem watershed in Chiang Mai Province, with field groups going to

- Mae Kongkha sub-watershed, where shifting cultivation and forest fallow systems have been transformed to permanent fields;
- Mae Suk sub-watershed, where there are impacts and issues associated with the substitution of opium by intensive crops like vegetable and tropical fruit; and

- Mae Tum sub-watershed, where there is active shifting cultivation by Karen and Lua people.

On 24 January, field groups travelled to lowland areas in Chiang Mai valley to see

- the Longan Grower's Association, Lumphun Province;
- high-tech intensive agricultural production in San Sai district, Chiang Mai Province; and
- eco-tourism in Mae Wang district, Chiang Mai Province.

The following sections briefly describe the land use dynamics in the sub-watersheds and sites visited. Additional details about Mae Kongkha, Mae Suk and Mae Tum – including the governance history, arrangements, and strengths and limitations – are provided in Annex 6.

Mae Khongkha sub-watershed

The Mae Khongkha sub-watershed is located in the lower area of the Mae Chaem watershed, approximately 12 km from the district town. The upper area of the sub-watershed is located on the same ridge as Doi Inthanon, the highest mountain in Thailand, and oriented towards the west. The total area of the sub-watershed is 100 sq. km. There are six administrative villages with some 2,500 residents in the sub-watershed.

The sub-watershed is inhabited by two ethnic groups: Karen and Northern Thai. In the past, opium poppy was cultivated in the upper areas of the sub-watershed. Locals were encouraged to stop opium cultivation by the forestry officials, the Mae Chaem Watershed Development Project and the local police. At the time the villagers practiced only shifting cultivation. Approximately 20 years ago, with the decrease in opium cultivation, areas under shifting cultivation changed into permanent fields.

The communities of the Mae Kongkha sub-watershed have diverse land use practices, which are a product of the livelihood strategies, cultural beliefs, and local needs of each cultural group. Land use categories include grassland, birth spirit forest, community rehabilitation forest, and utilitarian forest. The main commercial crops in this area are feed maize, seed maize, soybeans, and cabbage. Currently, maize is the most broadly planted crop and the area under seed maize is growing.

Mae Suk sub-watershed

The Mae Suk sub-watershed comprises six administrative villages with a total population of about 3,000 people. Until the 1980s, the upper Mae Suk sub-watershed was an area of opium cultivation. Forest fallow shifting cultivation persists with 5 to 9 year cycles. Opium was grown primarily by the Hmong, with similar scale cultivation by Karen and Northern Thai. The government then identified the upper area of the sub-watershed as a priority area for development, and encouraged the adoption of cash crops such as coffee and kidney beans. These crops did not catch on, but the effort did bring a shift in the awareness of new market opportunities for cash crops. The completion of an all-weather road and the establishment of a large market in Mae Chaem stimulated a rapid and broad based shift in agriculture. Cabbage was planted, followed by carrots, potatoes, and shallots as crops of choice. The transition was driven by the Hmong, and new agricultural technology continues to spread from Hmong to the Karen. This upland economy is characterised by

multiple layers of integration. There is tension over water and land between neighbouring villages, and more broadly within the sub-watershed between upstream and downstream communities.

Mae Tum sub-watershed

The Mae Tum sub-watershed is a tributary catchment of the Mae Chaem watershed. It has 10 administrative villages and 3,600 people. It is located approximately 20 km from Mae Chaem district, with a total area of 148 sq.km.

Most agricultural lands are on steep slopes, and most villagers practice rotational shifting cultivation. There are also permanent fields in some areas under constant cultivation throughout the year. The main crop in most areas is upland rice, with some intercropping. Agricultural production is primarily for subsistence, rather than for commercial purposes, although recently a shift has begun towards market-oriented production. Farmers have introduced crops such as shallots, maize, cabbage, and lettuce.

Currently, there is still considerable pressure on communities to establish permanent fields. This is largely due to the establishment of Mae Tho National Park which includes some areas of Mae Tum sub-watershed. The result is a reduction of land under rotational shifting cultivation and an increase in cropping on permanent fields.

Lao Yao Sub-district, Ban Hong District, Lamphun Province

The sub-district of Tam Bon Lao Yao, Ban Hong district, Lamphun, is located on the banks of the Lee River, 7 km north of Ban Hong. Ban Hong is the site of a 1,400-year-old community dating back to the Hariphunchal Kingdom. It is located 40 km north of Lamphun and 26 km south of Chiang Mai. There are 11 villages in Tam Bon Lao Yao with a total population of more than 11,300. The Thai Yai people form the largest ethnic group in the area.

The main source of income is agricultural produce, with the main crops being rice, shallots, garlic, and longan. Longan orchard cultivation is the main occupation; Lamphun is the most famous longan-growing area in Thailand; about 40% of Thai longans are grown here. Longans are regarded as the most economically important fruit in Thailand; some 100,000 metric tons of fresh longan are exported annually – worth US$400 million per year.

Mae Win Sub-district, Mae Wang District, Chiang Mai

The Mae Win sub-district covers approximately 480 sq.km and is located 52 km to the south of Chiang Mai. There are 19 villages including 11 Karen villages, 3 Hmong villages and 5 local Thai villages, with a total population of approximately 12,700. There are three ethnic groups in the area: local Thai, Karen, and Hmong. The local Thai live mainly in the lowland areas, while the Karen and the Hmong live in the higher mountain areas. Commercial agriculture is onion, maize, soybeans, and longan, grown for sale in local and regional markets.

Mae Faek Sub-district, San Sai District, Chiang Mai Province

The sub-district of Mae Faek is located on some 90 sq.km of lowland along the Ping river in the San Sai district of Chiang Mai. Mae Faek is approximately 15 km north of Chiang Mai city centre. There are 12 villages of local Thai people with a population of nearly 10,000. The main source of income is agriculture. The main crops grown are

maize, potato, rice, tobacco, and longan orchards. Women's groups in this village have begun to increase their income by making and selling herb products such as lemongrass juice and corn milk.

After completing the field visits in Chiang Mai, the workshop facilitator stressed that any learning process requires reflection as well as action. He requested the three thematic groups to discuss and synthesise their key findings and field learning from the three countries visited. He also suggested to the groups that they compare and analyse the important dimensions of their themes across the sites visited, as well as draw out overall perspectives related to the key questions and issues for each theme. The key field findings for each thematic group are summarised in the following.

Land Use Change Group – Key Findings

Southern Yunnan

The cultivation pattern in southern Yunnan has witnessed a major change. In most cases, farmers have replaced shifting cultivation, largely with rubber plantations and sometimes with timber. This transformation from other crops to rubber plantations is expected to grow in the future. While government policies and market conditions are primarily responsible for the change, technological innovation for producing cold tolerant rubber has also contributed to some extent. Because markets are so dynamically driven by demand, they are different from place to place. It can be said fairly that open markets influence decisions such as pricing and migration of labour. Migration of labour is high and there is fear that continuing out-migration could lead to severe labour shortages. However, not all markets are open markets. Markets such as the one in Mengxing State Farm are somewhat immune markets, which act as buffers to cushion producers from any major price shocks.

Northern Laos

Laos is increasing its forest cover. It was earlier dominated by swidden crops and to some extent opium. Land allocation policy is the governing factor driving this change, although education and technological developments have also contributed. NGOs and GOs are operating actively to build awareness and capacity among the upland communities. Rubber plantations are seen as a viable income-generating activity for the near future, and rubber plantations are expected to increase because rubber commands better prices and the demand from China is high and growing. In general, markets are liberal, with the state and the communities taking leads for marketing different products.

Northern Thailand

Thailand has seen diverse changes in its land use, depending on the location of settlements. Overall there is a general movement towards replacing shifting cultivation with other forms of permanent agriculture. Again, depending on the location, some regions have moved away from agriculture. Government policy against shifting cultivation has led the movement toward sedentary forms of agriculture. Market dynamics are the most influential factor driving land use change. For example, lifestyle change and population increase in the more urban areas has resulted in some communities abandoning agriculture altogether, while the growth of tourism in other areas has encouraged fruit cultivation. Similarly, the increasing prices of typical crops have also influenced cultivation practices. Markets too have changed in the process. In and near urban areas less and less cultivation is taking place, and

farmers' access to markets has disintegrated. Private companies and central cooperatives have taken over from farmers' cooperatives in other areas. Such market-driven conditions, combined with changes in lifestyle and education, are expected to govern and bring about similar developments in the near future.

Synthesis

Land use change is inevitable, and all three countries under consideration have had major changes in the recent past. More often than not, government policies have dictated the pattern of change in land use. The interests of the state can force desired changes. Therefore it is important to utilise research findings to guide policy interventions. The other major driver of land use change is the market factor. Demand-driven markets determine the products and prices in different places and strongly influence land use changes.

Livelihoods, Markets and Trade Group – Key Findings

Southern Yunnan

Rubber plantations and paddy cultivation form the main source of livelihood in Xishuangbanna. Other livelihood activities include land renting, off-farm employment, and income from conservation programmes.

The market system is typically individual based – in other words, there is no integration. Markets are fairly competitive and there are opportunities to exploit markets from neighbouring countries. Market conditions determine different scales for different commodities with support services from the private sector. These markets are generally unregulated markets.

Rubber plantation in Xishuangbanna

China has relatively more experience in rubber plantations than Laos and Thailand. More and more rubber is being planted each year. Significant improvements in the standard of living and access to basic infrastructure, such as roads and electricity, have made it possible to achieve better access to markets, information, and labour. As a result, markets are gradually changing from the traditional centrally-planned economies to market-based ones. Strong policies are ensuring that natural resources are conserved.

Northern Laos

Traditional subsistence activities such as swidden production and natural resource utilisation are still practiced in northern Laos. While policy interventions have influenced an increase in the production of cash crops as opposed to shifting cultivation and opium production, the lack of adequate market support systems has led to an increased dependence on natural resources.

Unlike China's individual-based market system, there is an integrated market development for commercialising agricultural products such as rubber and maize, as well as natural resources such as bamboo shoots, cardamom, and other NTFPs. These community-based market information systems lead to new market opportunities.

Northern Thailand

The northern part of Thailand is diverse in terms of livelihood practices and markets. Depending upon the location of settlements, various combinations of livelihood options are available. The more prominent ones are shifting cultivation, cash-crop cultivation, livestock, small-scale industries and tourism, as earlier noted by the land use group.

Basically, all livelihood activities are market-driven, and a great deal of adaptability can be seen. Labour has great mobility and upland-lowland labour exchange is common. Improved road networks have resulted in the strengthening of markets. Market conditions have determined and brought up agro-based industries, which add value to farmers' production. Tourism is considered as an important economic activity, one that has great potential for generating more local livelihoods and income.

Synthesis

Livelihood practices are basically driven by market demands. People are easily influenced to replace traditional cultivation with modern cultivation and with crops that command better prices in the market. Private and state support systems emerge as a result of changes in livelihood. Such change has also led to a great mobility in labour. Policy intervention should be seen as a controlling agent for prevention of over-use or misuse of natural resources and to prevent their depletion. Access to better infrastructure normally results in the expansion of markets and marketing opportunities.

Resource Governance Group – Key Findings

Southern Yunnan

Resource governance in China has a long history of political struggle and shifting power between the state and local communities, and between the political centre and the periphery. Three main phases can be distinguished: the period preceding the

1949 Revolution; the era of 'collectivisation' extending from 1950 to 1978; and the post-1978 period of economic reform and decentralisation.

Before 1949, the Dai ethnic minority played a long and important role in organising social institutions to govern natural resources – both in the uplands and in the lowland valley – in Xishuangbanna. The state greatly influenced land use through resettlement for rubber plantation and central planning for food production during the collective period. The market economy became an important factor in household decision-making and community resource management after the 'household responsibility system' was instituted. In 1998, an important change was implemented – the local election of administrative village and hamlet leaders. In 1992, decentralisation even took place in the state rubber farm through structural reform.

The allocation of farmland to households and forestland to communities – together with the increasing decentralisation of government functions to the local village committee – created new opportunities for local actors to shape and control external land-use pressures from either the state or the market.

Northern Laos

Local autonomy and customary institutions played important roles in resource governance for centuries in northern Laos. In the past, there was little involvement of the state in land-use arrangements. Customary governance institutions were weakened during the war period in the 1960s and early 1970s. However, with the establishment of the Lao PDR in 1975, the state has become increasingly involved in village land-use arrangements as part of its policy to encourage the discontinuation of shifting cultivation, eliminate the growing of opium, and mobilise resettlement from upland to lowland.

The present resource governance arrangements in the uplands of northern Laos are an amalgamation of old and new governance institutions. The traditional user groups, such as those for water management, still functioned until relatively recently. Villages now have an elected headman and deputy who are charged with assisting the district administration in conducting a variety of activities. Recently, land allocation (or land titling) and land-use planning were conducted by the district agriculture office in collaboration with village leaders, with the aim to fix shifting cultivation. With improving access to roads and other infrastructure, farmers are in a position to make land use changes in response to market opportunities – if they can obtain access to needed capital and technology.

Northern Thailand

Due to in-migration as well as the diversity and complexity of hill tribes in northern Thailand, local people have exercised more autonomy than in China and Laos. Since the 1960s, the state has paid more attention to highland people, and promoted an integration policy to address citizenship and upland development through the substitution of opium cultivation. Between 1985 and 1995, the government classified critical watersheds and created national parks.

Although highland people have better access to market and other infrastructure, most farmers – particularly those located in conservation areas – have not yet received official land titles. Co-existing customary institutions, religious leaders, and elected state and local governing bodies are a common phenomenon in northern Thailand,

contributing to a diversity of institutional arrangements in response to the growing market economy.

Synthesis

Resource governance in MMSEA is characterised by the decentralisation of the state decision-making process, a growing democratic process, and adaptive customary institutions at the village level. However, this decentralisation has so far failed to give local communities adequate control over their resources. There is increased public exclusion through the establishment of conservation areas for the protection of biodiversity and watersheds, as well as the privatisation of public resources such as forests and land to individuals, corporations, and companies.

This exclusion is also reflected in the double standards that require complex management plans from local communities, while allowing large-scale commercial interests to enter and use resources with little planning and even less monitoring. On the other hand, both local government and people have been able to demonstrate their capacity and ability to take initiative in resource management, as well as benefit from local upland resources in response to the market economy and cross-border trade liberalisation.

The mobile workshop participants in Laos

science-policy dynamics in Lao PDR

As part of the mobile workshop, a mini-workshop was held on 21 January in Luang Prabang to examine the science-policy interface within the Lao context, and to enable the workshop participants to compare these dimensions with the situation in China and Thailand.

Mr Houmchitsavath Sodarak gave a brief introduction on the objectives and process of the mini-workshop. The mini-workshop was presided over by Professor Dr Sayamang Vongsak, Vice President, National University of Laos (NUoL), who provided the welcome and opening remarks.

Four presentations were made by Lao colleagues on the following topics.

- Agriculture and development in Luang Prabang Province
- Northern Lao development strategy
- Land use in northern Laos
- Sustainable livelihoods in Laos

This was followed by an open discussion session, in which some other Lao colleagues joined the presenters to address questions and comments from the participants.

Agriculture and Development in Luang Prabang

Mr Somphong Pradichit, Director General of the Provincial Agriculture and Forestry Office, gave a comprehensive overview of agriculture and development in Luang Prabang.

Luang Prabang Province, located in the heart of northern Laos, is mainly populated by shifting cultivators. There are three main types of rice cultivation practices in the province (with area cultivated in 2004):

- wet-season rice cropping (11,398 ha)
- dry-season rice cropping (2,240 ha)
- slash-and-burn (shifting) cultivation (23,600 ha)

In 2004, the total rice production in Luang Prabang Province was 91 tons, but the aggregate need for the province was 140 tons.

Since 1990, more land has been brought under cultivation. At the same time; the government has been successful in discouraging and bringing a significant decrease in the shifting cultivation area. Overall, the total production of rice has decreased during this period. Logging of natural forests has been replaced by teak logging and other cash-crop cultivation.

Northern Lao Development Strategy

Dr Leeber Leebouapao, Deputy Director of the National Economic Research Institute, made a presentation on the development strategy for northern Laos, the economy of which relies on agriculture. The national development goals in Laos are to reduce poverty, eradicate opium production, and stop slash-and-burn cultivation. The government's industrialisation strategy has several priorities such as electricity, agriculture and forestry, tourism, mining and construction material industry.

He opined that a separate northern region development strategy is necessary because of the unique features of the area such as high poverty incidence; low level of economic development compared to other regions of the country; the need to realise the national development goals in the north; the need to utilise limited resources efficiently; and a desire to integrate the northern region with the regional and global economies. He also mentioned that the Asian Development Bank (ADB) has been supporting the development and implementation of the northern region strategy since 2002.

Major constraints to development in northern Laos include insufficient infrastructure facilities; insufficient investment capital; and high poverty incidence. However, the north has much potential and opportunities, especially in terms of its linkages with four neighbouring countries, which opens up market-based livelihoods related to natural resources and tourism.

Kunming-Bangkok highway under construction in Xishuangbanna: cutting through a rubber plantation and a nature reserve

The R3 Kunming-Bangkok highway, expected to be completed by 2006 within the ASEAN framework, will facilitate regional transport, markets, and trade, including niche markets for soybean, maize, sesame, Job's tears, and other products.

One point raised in the discussion was related to the regional cooperation between Laos and China to study, develop, and improve the tourism network. A China-Lao memorandum of understanding (MoU) was recently signed in Luang Prabang to promote cooperation in tourism, mining, agriculture, forestry, and small industry development.

Land Use Change in Northern Laos

Dr Sithong Thongmanivong of NUoL provided an overview of land use change in northern Laos, focusing on the general policy development background, land use and forest cover change, and agricultural production analysis.

He also reviewed the change in policy since the 1980s regarding socioeconomic development and resource management. According to available statistics for the 1993-2000 period, there was a dramatic decrease in the total shifting cultivation area within Laos. Due to land allocation, which provided secure tenure to villagers, forest cover also increased during this period. However, land allocation has also led to increased forest fragmentation with a higher number of forest 'patches'.

There has been a steady increase in cultivated land, rice and cash-crop production, as well as the reliance of households on cash crops and NTFPs for income generation.

Once it is open, the R3 transboundary highway will impact on land use in northern Laos, potentially leading to an increase in cash crops such as maize, sugar cane, and rubber, as well as more extraction of NTFPs like bitter bamboo and cardamom.

At the national level, geographic information system (GIS) data has been compiled by the Lao government and supplemented by data collected from provincial agricultural and forestry offices.

Sustainable Livelihoods in Laos

An overview of upland livelihoods in northern Laos was presented by Mr Linkham Douangsavanh of the National Agriculture and Forestry Research Institute (NAFRI). He also referred to a case study conducted in the north by the NAFRI socioeconomic group. As a mostly subsistence-based agricultural economy, Lao policy interventions have understandably focused on farming systems and how to increase agricultural productivity, especially in the northern region.

Population growth, land scarcity, forest degradation, and the government's land allocation programme are undermining formerly sustainable agricultural systems, particularly systems of shifting cultivation in the highlands. 'Economies of scope' based on traditional, diverse agro-ecosystems, incorporating a range of village-based non-agricultural activities (like weaving) and the collection of NTFPs, are being replaced by 'pluriactive' households where diversity is achieved beyond farming, through embracing various modern non-farm activities.

The Lao PDR government's policy is to eliminate shifting cultivation using 'slash-and-burn' methods, and to replace it with more ecologically stable systems based on sustainable land use at the village and household level*. Based on the case study and diagnostic research, the household livelihood system was found to have four priority basic needs: food, cash, savings, and animal feed. Household strategies for food security are to grow rice, to get money to buy rice, and to substitute other staple foods for rice. He directed one key conclusion to donor and policy makers: that interrelated problems of food security require integrated solutions.

There was a query from the group as to whether the income from NTFPs is higher than that derived from rice, and this was confirmed. It was mentioned during the discussion that NAFRI is trying to improve the lives of Lao people in a sustainable way. It was also reported that some villages want to be classified as 'poor' in the hope of qualifying for assistance.

Panel and Open Forum Discussion

Following the four presentations summarised above, a panel comprising the presenters and other PAFO colleagues fielded questions and comments from the participants. This open forum was moderated by Mr Houmchitsavath Sodarak.

Some of the key questions and responses are given below.

How much support can the Lao government provide to farmers for alternatives to shifting cultivation?

The alternatives to shifting cultivation in China and Laos are quite similar. The only problem is that Laos doesn't have a large enough budget to provide expensive irrigation schemes in upland areas. However there are several measures which can help stabilise shifting cultivation in Laos, including

- making shifting cultivators aware of the adverse impact of their practices through education;
- introducing technologies like agroforestry, animal husbandry and integrated cropping;
- organising cross visits for shifting cultivators to other provinces to see the positive results from the eradication of shifting cultivation;
- allocating land for shifting cultivators and introducing cash crops;
- encouraging investment from companies to increase farmers' opportunities to earn income from cash crops;
- promoting the development of handicrafts and tourism for income generation; and
- encouraging farmers in land use planning and helping them to use the land effectively to increase productivity for their own benefit and to generate income.

* Editor's note: More recently, researchers and development workers have started to revise the commonly held beliefs about shifting cultivation and have started to recognise its strengths as a sustainable mountain-appropriate agricultural system that conserves biodiversity, protects soils, and minimises farmers' risks – as long as sufficient area is allocated to maintain the forest fallow period in its full form, and rotation cycles are not shortened (see the Shillong Declaration and upcoming ICIMOD publications on shifting cultivation). Shifting cultivation is a way of life that has existed for centuries and provides farmers with a social safety net. This changing appreciation may affect these government policies in the long-term, as already indicated in the example of Mae Thum in northern Thailand (p. 48) where discussions revolve around paying farmers to maintain the system.

Eliminating shifting cultivation and investing in irrigation is one of the important goals of the Lao government. However, this is not easy to achieve. In some provinces, shifting cultivation is not possible to stop as farmers rely on it for their survival. Currently, the Lao government allocates more than 40% of the agricultural budget for irrigation programmes. Often it is necessary to resettle upland people in the lowlands where irrigation is more readily available.

Have there been any plans for, or feasibility studies conducted on, the establishment of rubber plantations in Laos? Are farmers likely to benefit from such programmes?

A socioeconomic study has been conducted on the establishment of rubber plantations in Laos. The report is available at NAFRI. Some Chinese companies have shown interest in investing in rubber production in northern Laos.

In general, rubber cultivation is booming in Laos and Thailand. In Luang Prabang, a few companies have already made explorations into rubber cultivation. Consultation with other provinces is needed. Lao farmers can learn from the experiences of the Chinese farmers.

Villagers are highly dependent on NTFPs and there is a need to increase the awareness among villagers of cash crops. There is also a need to increase forest cover by planting more trees and to consider the provisions of the Kyoto Protocol. Land use planning should be linked to community-based planning.

There has been a significant reduction in shifting cultivation, but not in poverty reduction. Is it possible to reduce both at the same time?

The first priority of the Lao national policy is poverty alleviation. There is a need for researchers, working together with extension agencies, to find appropriate sustainable technologies.

Shifting cultivation is one of the factors leading to poverty. Implementation of the national policy together with investment programmes by donors will eventually help to reduce poverty. In addition, the introduction of alternatives to shifting cultivation such as livestock rearing and poultry production would also help increase the livelihoods of farmers.

The following trends regarding tourism in Siem Riep, Cambodia were shared, and the question was raised as to whether these trends were also prevalent in Laos?

In Cambodia:

- Members of the urban elite have been acquiring land in rural areas while farmers are going to the city for work, which means that there is an exodus of rural labour to urban areas
- Some rural households are abandoning farming to seek wage labour in town
- There is no equitable distribution of benefits, e.g., some hotels in Cambodia are buying rice and vegetables directly from Thailand and Laos depriving local villagers from any benefits from tourism

It was suggested that the concerned authorities have to support rural people to start, and benefit from, ecotourism in their villages.

What are the negative aspects learned by the Lao Government from China? Do Chinese investors bring negative impacts to the Lao culture and, if yes, what would be the costs incurred?

There have been some negative impacts of Chinese investment in the past. For example, Chinese investors persuaded Lao farmers in Phongxaly to plant sugar cane but didn't purchase the cane.

There is a need for greater transparency in relation to Chinese investors interested in establishing rubber plantations in northern Laos.

Mr Houmchitsavath Sodarak wrapped-up the open forum by reiterating the key issues and questions that need to be addressed in the Lao context.

- How to stop shifting cultivation?
- How to develop and support an appropriate policy for upland development?
- How should policy intervene?
- How to achieve environmental protection and sustainable development in rural areas?

Livelihood group working together in Laos

case studies from participants

A total of 13 case studies were contributed by the workshop participants; the abstracts are presented in Annex 7. During the Chiang Mai portion of the workshop, seven participants were provided with the opportunity to present their case studies and benefit from the constructive criticism, questions, and comments of the other participants. The presentations were as follows.

Brett Ballard	–	Small-scale irrigation in upland communities in the Lao PDR: A research framework concerning the governance of property relationships in transitional areas of upland Southeast Asia
Liu Wenjun	–	The land use/land cover change and its social-economic implications: A case study in Menglun Township, Xishuangbanna, Southwest China
Fredrich Kahrl	–	Trade along the China-Vietnam border: Under the veil of opportunities and threats
Yuki Miyake	–	Loss of access and reclamation of land rights: A case study of Landless Farmers' Social Movement in Northern Thailand
Chen Huafang and Laura Ediger	–	Ecological and economic impacts of land use change in Baoshan, Yunnan, China
Erik Nielsen	–	Beyond borders: Emerging forms of transnational advocacy for improved transboundary environmental governance in the Greater Mekong Sub-Region

Case Studies within the Context of the Mobile Workshop

Dr David Melick, from the Kunming Institute of Botany, is assisting in editing the selected case studies for inclusion in a future publication. He provided the following commentary in an attempt to situate the case studies contributed by participants within the overall context of the mobile workshop.

"The mobile workshop covered a lot of territory, both literally and figuratively. Participants travelled over hundreds of windy kilometres across three countries in MMSEA. Along the way, participants encountered a diversity of ethnic communities, government regulations, land uses, and environments ranging from the tropical forests in Xishuangbanna to the dry deciduous dipterocarp forests in Chiang Mai.

This region has a long history of human habitation, associated agricultural practices, and use of forest resources. Communities in this region are being exposed to increasingly rapid change. This change is exemplified by the Road 3 road corridor project (Kunming-Bangkok highway) designed to link the markets of China and Thailand, while also increasing access to remote regions and markets in Laos. The road is symbolic of the increased access, competition, and infrastructure that this mountainous and, until now, relatively remote part of Asia is experiencing. The R3 highway may exert great influence on some communities – perhaps bringing new markets, improved service facilities, and opportunities. Conversely, it may also create new unwanted competition, and dilute ethnic traditions and social identities. In still other cases, it is possible that the new road will just run on by – the latest landscape change in what has been an era of great flux and uncertainty for many people in this region.

Similar to the issues and territory covered by the workshop, the case studies represent divergent specialties and interests. Fredrich Kahrl and Erik Nielsen explore policy and transboundary issues from an international perspective. Kahrl examines transborder trade by identifying markets in Southeast Asia and looking at how such markets apply regional socioeconomic pressures. Meanwhile, Nielsen examines a wide range of environmental and socioeconomic problems associated with trans-border development and watershed management in the Mekong Basin. He discusses the importance of civil society in drawing attention to local concerns and helping to resolve problems that would otherwise be at the mercy of entrenched national interests. His paper also highlights the fact that while our workshop has followed the R3 highway corridor, rivers are also natural transboundary conduits.

He Jun examines the dramatic changes in recent years at the national level, as China undergoes the transformation to a market economy, an issue which seems to dominate current thinking in the region.

The market forces and policy directions outlined in the case studies act as drivers of land use change. Brett Ballard documents these changes in his review of recent agricultural changes in upland Laos, while Li Zhinan examines the decline of shifting agriculture and loss of agrobiodiversity in Xishuangbanna. These sorts of changes are often revealed by spatial analyses. An example of this is Chen Huafang and Laura Ediger's study, which shows that government reforestation policies have reduced agricultural land in the Montane western regions of Yunnan, necessitating changes in the livelihood choices of local communities.

Changes in northern Laos were highlighted by Sithong Thongmanivong and Yayoi Fujita. They suggested that recent government efforts to reduce or eradicate shifting agriculture have led to a significant decrease in swidden fields with a concomitant increase in forest cover, although forest patches seem to have become smaller and more fragmented. The effect of government policy in Xishuangbanna was also obvious to all workshop participants, where the rapid expansion of rubber cultivation has occurred at the expense of forest and agricultural lands. This is discussed in Liu Wenjun's study, which clearly shows that accessibly has an enormous influence on local land use change and development. This in turn has a significant impact on the local socioeconomic situation.

Andrew Willson's study suggests that, contrary to desired policy outcomes, deforestation and increased livestock grazing may be the net result of recent policy

changes in northern Yunnan. His case study also highlights the limitations of using broad-scale mapping to interpret the ecological status of vegetative categories, a status that often has profound effects on the land use options available to local communities.

All of the spatial studies above refer to changes on the ground. Changes in the local livelihoods in poor rural communities in Laos are investigated by Bounthong Bouahom, Linkham Douangsavanh and Jonathan Rigg (joint paper). Their study documents large changes at the household level, with shifts in community and family dynamics driven by economics, changing agricultural practices, and the pursuit of outside wage labour opportunities.

At the root of the changes outlined by these case studies is the issue of uncertain land security and obscure tenures. These were common problems faced by many communities in the region. Land security is at the core of the farmer movement investigated by Yuki Miyake, in which vulnerable lowland farmers in Thailand were granted land ownership, but still lost their land. This highlights the fact that land ownership can introduce new issues in communities where capitalism and free markets are relatively new. Market pressures and dilution of customary institutions can result in the loss of land and livelihood security in rural communities – the exact opposite of what the government intended.

Thus we have a diversity of case studies that cover a wide range of issues and scales, but all linked to issues examined during the mobile workshop. Broad-scale policy may seem inspired at the level of government, but the effects on the ground may be unforeseen and even contradictory.

The role of science must also be critically analysed. For example, the increase in the use of remote sensing and photo-interpretive mapping is a valuable tool, but data from such methods are ultimately only indicators of change and must be validated at the village or even household level. To a rural community, the notion of remote sensing may seem aptly named, particularly when the interpretation of results may have a profound impact on people's lifestyles.

What was particularly interesting about the mobile workshop was that it brought together people from various countries and disciplines to look at the same sites from different thematic perspectives. It is how changes affect communities on the ground that cuts across the various disciplines and workshop themes. This was demonstrated to us time and time again as we visited communities and started to gain a better understanding of the needs of the people and the drivers of local land use change.

From a local perspective, agricultural practices, resource use, and access are all directed towards livelihood security and increasing prosperity. Changes in land use result when communities balance the local environment, security of land use, relevant policy and, increasingly, market forces. This was found to be true whether talking to farmers in Laos, who despite seeming to know very little about rubber, are prepared to plant it to service what they perceive to be a booming Chinese market, or to communities in Thailand who have replaced their crops with grass to feed elephants to support a developing tourism market.

It seems significant that despite varying histories of government control, ideology and policy enforcement, we observed that customary resource governance and spiritualism has persisted in many areas. In many cases, this is being revived as governments acknowledge that effective land use management is often determined and implemented by local communities.

So we can come full circle with the case studies. The most overarching policy views examined in the papers by Kahrl and Nielsen boil down to actions that affect livelihoods at the smallest level. Kahrl advocates a shift in the focus of development agencies and players from the problems of supply to those of demand. He sees marketing and private sector pressures rather than production as the challenge facing many communities. Nielsen also concludes by identifying the need to improve governance by focusing policy change and formation on smaller social institutions that reflect local livelihood and environmental concerns."

information markets

Information markets were another interactive mechanism used to encourage mobile workshop participants to learn from each other. Participants who wished to take advantage of this opportunity to share their work were given the space and materials to display their posters, photos, maps, papers, CDs, and other information products. During the information market sessions all participants were divided into small groups to interact directly with the market 'vendors'.

Three information markets were set up during the course of the workshop to feature:

- work by participants in China (held on 17 January in Xishuangbanna, coordinated by Qian Jie),
- work by participants in Lao (held on 21 January in Luang Prabang, coordinated by Bandith Ramagkoun), and

Information market

- future land use scenarios work in Thailand (25 January in Chiang Mai, coordinated by Pornwilai Saipothong).

The information market 'vendors' and topics were as follow.

Xishuangbanna

Andrew Willson	Forest conservation and land use changes in farmlands of NW Yunnan, China: The challenges of measuring forest quality by remote sensing
Zhang Peifang	Rubber classification in Xishuangbanna (2002-2004)
He Jun	Watershed governance in the Mekong River Basin
Li Zhinan	Sustainable agriculture for livelihood development in uplands of Yunnan

Luang Prabang

Sithong Thongmanivong and Yayoi Fujita	Land use change in northern Laos
Kongkeo Duangdara	Livelihoods in northern Laos
Singkham Bounloutay	Markets and trade in Lao PDR
Phaknakhone Rattana	Road 3 economic corridor: Kunming-Bangkok highway
Thavone Vongphosy	Natural resources management in Lao PDR
Somphanh Sakaphet	Lao-Swedish Upland Agriculture and Forestry Research Program
Vilapong Kanyasone	Integrated Upland Agriculture Research Project

Chiang Mai

Darika Huaisai	Multi-scale scenarios for exploring future land use in the Greater Mekong region

Information market in Luang Prabang

thematic synthesis and future research questions

The morning of 25 January in Chiang Mai was devoted to a final session on the three thematic working groups. The groups met separately to synthesise their key observations, perspectives and learning, as well as articulate priority research questions for the future. This was followed by group report-backs and discussion.

The two main aims of the final session of the thematic working groups were

- to bring closure to the thematic working group discussions focusing on comparative analysis across sites in Xishuangbanna, northern Laos and northern Thailand, and
- to frame researchable questions based on priority needs and gaps in knowledge across all themes.

Wrap up workshop in Chiang Mai

Table 1: Major factors relating to land use dynamics observed in the six sites visited in northern Thailand

	Mae Khongkha	Mae Suk	Mae Tum	Lamphun	Mae Wang	San Sai
Change	• from shifting cultivation (SC) to permanent agriculture	• from SC/opium production to permanent agriculture • from open access to defined protected areas	• shorter fallow periods	• from paddy and degraded forest to longan orchards	• from SC to fruit trees and forests	• from agriculture to non-agriculture activities • from staple crops to high-value crops
Drivers	• contract farming, private companies (market integration) • government policy against SC	• government policy • road access • markets • water use issues	• population increase • culture/lifestyle	• markets (price)	• tourism promotion	• market • information • lifestyle
Markets	• from farmer cooperative to private company • shift away from contract farming	• crop choice driven by market price • integrated directly with market	• not integrated with markets (subsistence)	• from farmers cooperative to central cooperative	• linked to guesthouses, tourism market and industry	• individual access • local, regional, and international markets
Future	• small expansion (due to land tenure issues) • possible disintegration of permanent agricultural production system	• out-migration (due to land decreasing, outside opportunities) • remittances • issues with yield • higher education • cultural change (in food, clothing, etc.)	• national park? • depends on the government	• shift towards dry products and diversified processing • market uncertainties due to government interference • improved transport of fresh products • possibility of new markets in China	• change in lifestyle • protection of the forest resources • local self-sufficiency	• sale of agricultural land for - consolidation - conversion to housing & commercial enterprises
R3 Road	• potential for self-marketing			• new markets (international)		

Summary aspects of field learning by the thematic groups appear earlier in this report (see Section 4: "Field Learning: On the Road through MMSEA").

Land Use Change – Group Synthesis

Through the mobile workshop interactions, the land use change group witnessed three major trends of change in the areas traversed.

Sedentarisation – from shifting cultivation to more permanent forms of land use (e.g., rubber plantations)

Commercialisation – from staple subsistence food crops to high-value cash crops

Urbanisation – from agricultural land use to non agricultural uses (e.g., urban, peri-urban)

The drivers of these changes were found to be predominately: government policy, markets, NGO and GO project interventions, technology, lifestyle and culture, roads

The group also analysed the six sites visited in the Chiang Mai area in terms of land use change, drivers, markets, the future, and the R3 highway that is under construction (see Table 1).

Local Livelihoods, Markets and Trade – Group Synthesis

The local livelihoods, markets and trade group synthesised their collective learning by comparing the livelihood activities, market issues and key changes in the three areas studied during the mobile workshop (see Table 2).

This group also made a comparative synthesis of land allocation policy, market economy, economic development and village institutions in the three areas (see Table 3).

Resource Governance – Group Synthesis

In terms of general issues, the key learning of the resource governance group focused on:

- shifting cultivation,
- economic development zones,
- institutional infrastructure (e.g., rural finance/credit access),
- 'negotiating' within informal/formal political frameworks, and
- government monitoring and feedback mechanism for improving governance.

The group also had an opportunity to reflect on the specific governance issues that emerged from the workshop from the viewpoint of the Chinese, Lao and Thai participants. These key focused issues, as well as other learning points, are summarised in Table 4.

Based on their field observations and learning, the resource governance group also provided an excellent synthesis of the governance history, current governance arrangements, and strengths and limitations of current governance in the areas visited (see Annex 4 on field visits in southern Yunnan, Annex 5 on field visits in northern Laos, and Annex 6 on field visits in northern Thailand).

Table 2: Comparative analysis of livelihoods, markets and changes in southern Yunnan, northern Laos and northern Thailand

Southern Yunnan, China Xishuangbanna	Northern Laos Oudomxay & Luang Prabang	Northern Thailand Chiang Mai and Lamphun
Livelihood Activities		
1) Rubber plantations — small and large scale 2) Paddy rice cultivation 3) Upland agricultural practice (e.g., rice, maize) 4) NTFPs for subsistence 5) Off-farm employment 6) Income from upland conservation programme 7) Land renting	1) Traditional subsistence livelihoods: swidden (shifting cultivation) and use of natural resources, production of marketable surplus such as swidden rice and livestock 2) Crop substitution (opium) and shifting cultivation stabilisation (swidden rice) towards cash crop production 3) Weak support systems and entrepreneurial approach leading to higher dependence on natural resource use (e.g., NTFPs)	1) Combination of livelihood activities differs depending on the location of the settlement (e.g., shifting cultivation, cash crops, fruit-trees, NTFPs, livestock, cottage industry, and small-scale enterprise) 2) More livelihood and market options for households and communities
Market Issues		
1) Individual-based market system 2) Price fluctuation of rubber products (e.g., increase market integration) 3) Potential competition with neighbouring countries for market opportunities 4) Scale of market for different commodities 5) Increased support services provided by private sector 6) Contract farming (e.g., rubber) 7) Unregulated market for NTFPs	1) Market integration towards commercialisation of agricultural products (e.g., rubber, maize) and natural resources (e.g., bitter bamboo shoots, cardamom) 2) Emerging potential for eco-tourism (e.g., Luang Prabang) 3) Community-based approach to marketing 4) Asymmetrical market information leading to market opportunities	1) Upland and lowland labour exchange 2) Agro-industries (e.g., CP Company) 3) Road network and access to transport 4) Tourism 5) Role of private companies 6) Role of agricultural cooperatives
Key changes		
1) Improved standard of living: income, access to public services, etc. 2) Improved basic infrastructure (e.g., roads, electricity, etc.) 3) Expansion of rubber plantations 4) More access to market, information and labour 5) Less access to natural resources caused by different policies (e.g., land policies, forest management policies, etc.) 6) Social differentiation and transformation of social structure 7) Transition from a centrally planned economy to a market economy	1) Land and resource use policies (e.g., shifting cultivation stabilisation, opium substitution, land and forest allocation) 2) Emerging regional economy with China and Thailand 3) Regional political stability 4) International projects 5) Infrastructure improvement (e.g., roads, electricity, etc.) 6) Resettlement and relocation 7) Off-farm employment 8) From land-locked to 'land-linked' through economic corridors 9) NTFPs and institutional arrangements	1) Market changes (e.g., price) 2) National policies on forest and resource use (e.g., national park) 3) Population increase 4) Cultural and lifestyle changes 5) Project interventions 6) Economic crisis of the late 1990s

Table 3: Comparison of policy, market, development, and village institution aspects in the three areas studied

	Southern Yunnan	Northern Laos	Northern Thailand
Government policy on land and forest	• major changes occurred during the 1950s, 1980s, and 1990 s • strong focus of government policy on environment and improving land productivity (e.g., forest conservation, flood control, food security, etc.) • natural resource management (NRM) is integral to poverty alleviation goals of the government • relocation poli cy and resettlement in relation to state industrial development policy and control of forest and land • tendency to focus on off -farming livelihood strategies such as improving household cash income through wage labour opportunities • increasing scarcity of na tural resources and problem of confusing management structure	• policies began in the 1990s • classification of forest and land: focus on forest conservation and protection • NRM is integral to poverty alleviation goals of the government • relocation/resettlement to prevent upland communities from conducting shifting cultivation (SC) • relatively recent transition from subsistence to cash economy • relatively abundant forest resources compared to China and Thailand	• 'land titling' began in 1985 • forest and watershed cl assification by the Royal Forest Department • opium substitution and SC control policies changing land use and management practices in the uplands
Market economy	• transition from centrally planned economy to market economy • improved infrastructure developme nt (e.g., transportation) • integration with international market and increasing market opportunities • local administrative support for market driven production • increased contract -farming • more access to capital and production inputs	• limited access to market and market opportunities • support of international organisations • community -based marketing • limited access to capital and production inputs • strong influence of Chinese economy in Oudomxay, while Luang Prabang is more influenced by Thai economy	• households fr om upland and lowland villages are highly integrated into regional/global market and have different market strategies (e.g., combination of activities including cash crop production, cottage industry, wage labour, eco -tourism, etc.) • large volume of agricul tural production is geared towards export (e.g., to China, US A, and Europe) • increased economic and trade linkages with China • relatively greater government support to private industries (e.g., agro -industry) compared to farming households • availability of ca pital resources from domestic economy • farming households in upland/highland/lowland have different capacity to mobilise capital resources

Table 3: Cont....

	Southern Yunnan	Northern Laos	Northern Thailand
Economic development	*Rubber promotion* • more experience • more planting in the lowland • large and small scale plantations • linkage to industrial development • migration of labour • less dependence fo r food production • more access to information • more market choices • loss of natural forest *Market management, government services, and capacity building:* • primary focus on rubber • more services from private companies and government (e.g., tech nical inputs an d knowledge)	*Rubber promotion* • less experience • small and large scale plantations • seen as a potential alternative for SC • less access to information *Market management, government services, and capacity building* • focus on commercialisation of NTFPs • intervention of international projects that support rural development	• opium substitution and SC control policies promoting alternative livelihood options (e.g., cash crop production) • road connection to upland villages • improved basic infrastructure development • market-driven economic development • support of international organisations, NGOs and others (e.g., Royal Projects) for upland agriculture and rural development
Village institutions	• village funds allocated by the local and central government • decentralisat ion of administrative leadership to local communities • decentralisation of natural resource management to local authorities	• village funds largely supported by international projects • creation of users organisation s to market NTFPs • decentralisation of admin istrative responsibilities • deconcentration of resource management responsibilities at the village level	• allocation of village funds from the government (e.g. the 'One Million Baht' project etc.) • farmers/producers organisation to market products

Table 4: Key learning about governance from the Chinese, Lao and Thai perspectives

Chinese participants' key learning about governance	Lao participants' key learning about governance	Thai participants' key learning about governance
Key specific issues • village institutions in Thailand are dynamic actors in local governance • how to bridge scale? state-driven (big) vs. community-driven (small) • lack of civil society in China	*Key specific issues* • big road and small road networks, farmers' road connections • impact of improved road and infrastructure on forest land • more support from state needed for infrastructure • increasing informal cross-border trade	*Key specific issues* • role of state, communities and private sector in resource governance • how state-introduced institutions (e.g., village fund) integrate into local level
Other issues • village niche crops/products in Thailand (OTOP – one tambon, one product) • state dominance in China • watershed concept from Thailand • watershed as a management unit	*Other issues* • marketing link • village fund in Thailand (eg. the "One Million Baht' project) • regional market potential (e.g., in China) • land rights in uplands • local livelihood development in Thailand • voluntary resettlement from upland to lowland/road • negative impact of road and its mitigation	*Other issues* • promoting free trade by government • law enforcement in China/Laos • township/village enterprises in China • big private sector involvement in Thailand

Future Research Questions

Each thematic group also articulated a set of priority research questions, which should be considered in framing the MMSEA agenda for research and action. The questions generated by the thematic groups are as follow.

Land use change priority research questions

1. What is the comparative advantage of rubber/teak cultivation in China vs. Thailand?
   - productivity ('yield per unit of labour per year')
   - natural endowments in terms of status quo and change
   - trajectory of land use change for northern Laos
2. What is the comparative advantage of rubber vs. permanent agriculture in upland environments?
   - economic advantage
   - natural endowments
   - trajectory of land use change for northern Laos
3. What is the effect of external forces such as the following on land use?
   - market prices
   - road building
   - government policy
   - labour costs/options
   - implementation of government policy, effectiveness of institutions
   - climate

4. What are the effects of changes in land use spatial patterns on ecological functions and environmental services with feedback to human behaviour? In particular in relation to the following.
   - biodiversity
   - watershed hydrology
   - migration patterns
   - payment for environmental services (e.g., paying for maintaining shifting cultivation in Mae Tum to protect biodiversity)
   - culture
   - policy

5. Which methods and tools for studying land use change require further development?
   - How to integrate case study understanding with regional patterns of landscapes, economies, development, etc.?
   - matrices
   - remote sensing
   - spatial databases
   - modelling
   - standards and protocols
   - qualitative methods

Local livelihoods, markets and trade priority research questions

1. How are upland livelihoods being influenced by State intervention (e.g., land use policies, markets)?

2. What are the role(s) of roads, markets (trade) and investment on livelihoods?
   - What are the risks and opportunities of market integration?
   - How are local communities and households responding to risks and opportunities?

3. What are impacts of the above on natural resources and implications for sustainable development?

Resource governance priority research questions

1. What conditions enable collective action?
   - How can traditional and new governance mechanisms be combined to manage ecotourism (e.g., Mae Wang)
   - How are the local institutions of governance (e.g., traditional values, customs, and beliefs) impacted by policy/market-driven changes? Are local institutions losing out?

2. What governance mechanisms – community, government, and civil society – can help balance market forces for better livelihood and environmental outcomes?
   - consider multiple levels/scales

3. What forms of civil society organisations are useful in addressing natural resource management issues and when/how can they link with government organisations?

- What is the relevance of 'watershed' as a unit of environmental governance?
- How important is the role of civil society in making the watershed as a unit relevant?

4. How does the initial rationale for intervention in upland agriculture affect the long-term trajectory of land use change?
   - e.g., opium eradication in Thailand; environment conservation/prevention of shifting cultivation in Laos; and commercial crops in China

Workshop opening in Xishuangbanna Tropical Botanical Garden

take-home messages, follow-up actions and feedback

For the final task, Chun Lai divided participants into country groups (and a group for international partners) and asked them to identify the key messages from the workshop process; indicate follow-up actions; and provide feedback and suggestions for future events of a similar nature. This gave 'affinity groups' an opportunity to have discussions in their own language and context and then share their outcomes.

Specifically, the groups were asked to address the following questions:

1. What are the three 'take-home messages' from the workshop that you wish to share with your colleagues/other organisations/policy makers when you return to your country?
2. What next steps, follow-up activities would you propose?
3. As feedback and suggestions for the workshop:
   - What did you learn from/like the most about the workshop?
   - What can be improved for similar workshops in the future?

Workshop Messages and Follow-Up Activities

Each country group gave a brief report-back, the key points of which are summarised here.

Chinese group

Take-home messages

For colleagues

- Many people are doing similar things; there should be more communication and cooperation.
- Research cooperation could be based on regional topics or could provide a comparison across regions.

For organisations

- The mobile workshop approach can be used to enhance research orientation and develop a framework.
- The mobile workshop approach also provides a way of increasing internal capacity through exchange with other countries.

For policy makers

- Farmers need to be presented with more options to motivate them to change land use (rather than using the command/control approach).

- Farmers need more access to information, and participation in decision making/planning processes.
- Community networks can be an effective force for development.
- There is a need for a more regional perspective, with multi-stakeholder functional activities, as China integrates economically with MMSEA.

Next steps/follow-up activities

- Farmer visits
- Incorporation of learning from workshop into existing/future work (policy implications)
- Research cooperation on transboundary issues, particularly involving policymakers

Lao group

Take-home messages

- Participants shared and exchanged lessons learned from neighbouring countries on land use, markets, livelihoods, and governance; and younger researchers gained valuable knowledge and experience from more senior participants.
- The informal MMSEA network supports and stimulates policy advocacy in managing natural resources in a sustainable manner.
- Participants learned about the different constraints and solutions employed in dealing with upland environments in diverse traditions, cultures, and conditions.

Next steps/follow-up activities

- Organise a post-workshop meeting in Laos for participants to present the outcomes of the mobile workshop to relevant senior staff.
- Set-up a network and working group/committee for MMSEA.
- Carry out research to address the research questions/topics identified during the mobile workshop.

Thai group

The Thai group proposed several research initiatives for the future which may involve several country partners as well as international partners. They suggested that transboundary research work be conducted on the theme of: "Policy and market impacts on the sustainability of livelihoods and natural resources in MMSEA". Such research could be undertaken by selected national partners, with support from relevant international groups (e.g., ASEAN, GMS, APEC, WTO, FTA, and ADB). In terms of more specific research involving MMSEA country partners, the group targeted five questions for future inquiry.

1. What are the impacts of change in land use spatial patterns on ecological function and environmental service with feedback to human behaviour?
2. What are the comparative advantages of intensive upland agriculture & plantation?
3. What kinds of civil society organisations are useful in addressing natural resources management issues?
4. What is the relevance of 'watersheds' as a unit of environmental governance?
5. What are the roles and impacts of roads, markets and investment on livelihoods?

For some of the above research, the group felt that relevant international partners would include the East-West Center, ICRAF, and WRI.

A participant presents his group's messages

Vietnamese group

The Vietnamese group summarised their three take-home messages as follows.

- The importance and relevance of the watershed management approach, incorporating participatory technology development, simple technologies, self-help groups, and community/village-based networks
- The potential for appropriate ecotourism development incorporating agriculture, forestry, culture, environmental policy, and market forces
- The need for land use planning based on market demands (long-term opportunities), access to markets, and local needs

The group also identified three research areas for follow-on work in Vietnam.

- The impacts of land use change policy since 1986 in northern Vietnam's mountainous areas in terms of the economic, environmental, and social aspects
- The impacts of cross-border trade with China in terms of the economic and social aspects
- The relationships between land use change, markets, and poverty reduction

Cambodian group

The Cambodian group formulated three take-home messages for their organisation, the Cambodia Development Resource Institute (CDRI).

- The need to develop GIS capacity further, and form an internal network
- The need to focus research attention in upland areas on
  - land use change, livelihoods and governance
  - research on cross-border trade in northeast Cambodia (Rattanakiri)
- The need to further develop institutional linkages in the northeast regarding natural resources and the environment

For follow-up activities, the group would like CDRI to consider using the MMSEA mobile workshop as a model for developing a similar workshop to examine cross-border issues and dynamics with partners from Cambodia and neighbouring countries.

International partners group

The group of participants from international organisations provided some very interesting observations and suggestions.

The group shared these three take home messages from the workshop.

- The 'road' per se does not say very much about the dynamics of land use change. The type of road is important – a network of feeder roads has a different impact from one main highway with few access points. We are in fact talking more broadly about transport and communication corridors.
- What are the future opportunities in the MMSEA border highlands as the 'tropics' move south and the 'temperates' move north? For example, ecotourism and branding with certificate of origin are activities and strategies to take advantage of the region's unique cultural and ecological identity.
- Does scientific information inform policy and decision-making?

By way of suggested actions for the future, the group had these suggestions.

- Build a core group of people committed to continuing mutual learning through a combination of field and seminar-like discussions
- Set a goal to develop methodologies to combine spatial analysis and social sciences/socioeconomic information in ways that will inform learning and decision making in the future
- Find ways to link these processes to existing funded activities such as ICRAF programmes and East-West Center projects

Traditional tea processing in Xishuangbanna

Feedback on the Workshop

The various country groups provided very constructive and useful feedback on the workshop.

On the question of what the participants learned or liked the most about the workshop, the groups expressed a high appreciation for the unique opportunity to traverse the heart of MMSEA, and to learn first hand about the diverse situation of upland communities, the dynamic drivers of their land use and livelihoods, and the evolving governance arrangements. High marks were also given to the frank interactions and open culture of learning among all participants, as well as the excellent programme and logistical support provided by the organising teams in all three countries.

More specific favourable responses included the following:

- learned about the role of rubber production in southern Yunnan and expansion to northern Lao
- gained a better understanding of the interface of state and local governance mechanisms
- gained a better appreciation of transboundary governance issues
- learned from the observation of different farming practices in relation to economic development
- learned to work with different research skills and experience and working cultures

On what could be improved for similar workshops in the future, the participants offered these suggestions:

- procedure and methodologies should be clarified to local organisers/coordinators
- more time is needed for working groups during the workshop
- more time is needed for reflection within and across thematic groups
- time management during the workshop could be improved
- the participation level of workshop participants, as well as from villagers at the sites visited, could be improved
- bring forward some of the case study presentations to an earlier point in the workshop

mobile workshop wrap-up: the road goes on

The mobile workshop concluded with a wrap-up discussion, during which many interesting points and suggestions emerged. Much of the wrap-up discussion and brainstorming centred on one critical question:

Should we sustain this group? And if yes, how and for what?

There was a strong consensus that we should sustain this group as an informal network or 'community of practice' comprising MMSEA researchers, practitioners and policy makers. This would be an important step in further cultivating research-policy linkages.

It was also agreed that experiences and lessons learned from the workshop should be widely shared beyond the participants. The rigorous work conducted by different teams, including the articulation of possible research questions for the future, should be synthesised and used in developing a long-term agenda for collaborative work in MMSEA.

There was a suggestion to develop a 'virtual network' for information and knowledge sharing. For example, an MMSEA website or webpage could be hosted by a partner institution on a rotating basis; it could be linked to the CMU website, or could make use of the FTP facility already established on the CBIK website for the mobile workshop.

A multiple-language website would be more effective to serve as wide an audience as possible. Some participants cautioned against investing too much time and resources on developing a separate MMSEA website, which may not be easily accessible for some groups, such as communities and farmers. One alternative to explore would be to utilise existing web resources such as MekongInfo, a multi-lingual site designed to host web pages of other networks and projects working on natural resources in the Mekong region.

Another useful suggestion was to revisit the SUAN (Southeast Asia Universities Agroecosystem Network) approach employed in the past, in which multi-country teams were formed to work on location-specific issues. This was a very effective model for conducting focused work with transboundary dimensions.

It was noted that the mobile workshop itself is an innovative method for learning, which encompasses a new philosophy of stakeholder learning and participatory learning encompassing cross-country issues. There is a need to further develop, improve and use this learning workshop process in other contexts and for other purposes.

At the field level, a mobile workshop approach could be used to promote learning between Laos and China on rubber production and marketing. This type of cross-border event would not be very expensive, and could involve farmers and community-based groups in peer-to-peer exchange and learning processes.

Because the north-eastern Cambodia/Vietnam/southern Laos upland areas share politically sensitive environmental issues, it was suggested that a small group be formed to start exploring how to develop a research network to address those issues. Perhaps another mobile workshop could be organised in that cross-border region, using this event as a model.

There is also a need to focus on cross-cutting issues like indigenous knowledge, cultural identity, and culture-based development (e.g., ecotourism), which were not dealt with in depth during the mobile workshop.

Another view was that, while sustaining this group is critical, it is also important to link with existing groups working on MMSEA issues, including the group organising the MMSEA IV symposium to be held in Sapa, Vietnam, in May 2005. It was felt that a small group of national colleagues from the mobile workshop should participate in the MMSEA symposium, and form a panel to share the workshop outcomes and learning with the participants in Sapa.

It was pointed out that it is important to carefully evaluate the risks and opportunities of linking with intergovernmental mechanisms, such as ones that favour investment in large plantations.

Emergence of a Core Group to Advance the MMSEA Agenda

Considerable discussion focused on the need to nurture young researchers, to enable them to evolve into future leaders to advance the MMSEA agenda and develop the next generation of MMSEA activities.

It was suggested that volunteers be elicited from MMSEA partner organisations to form a core group that could discuss these ideas further and translate them into action. Those who kindly volunteered were:

Professor Attachai Jintrawet, Chiang Mai University
Dr David Thomas, World Agroforestry Centre (ICRAF), Chiang Mai
Ms Qian Jie, Center for Biodiversity and Indigenous Knowledge, Kunming
Mr Houmchitsavath Sodarak, Northern Agricultural and Forestry Research Center, Luang Prabang
Mr Sithong Thongmanivong, National University of Laos, Vientiane
Mr Jeff Fox, East-West Center, Honolulu
Mr Brett Ballard, Cambodia Development Resource Institute, Phnom Penh

Facilitator's Feedback, Workshop Outputs and Closure

One participant asked the workshop facilitator for his reflections and feedback on the workshop, and Chun Lai kindly provided some observations from the facilitator's point of view.

- First of all, there was excellent team work and organisation to ensure that the group could traverse "as smooth as silk" from China to Laos to Thailand, with field visits and other learning activities along the way. This was quite a complicated process, and the mobile workshop itself was a good example of effective regional cooperation.
- There was not enough reflection time and 'down' time. He agreed with feedback provided by the country groups that more time should be allocated for reflection and group work.
- Although participants came from different cultural and linguistic backgrounds, the group interactions and dynamics were generally very good, with a high level of sustained engagement throughout the workshop.
- There were unequal levels of participation due to language and cultural factors, as well as the tendency for younger participants to defer to more senior ones. However, we should appreciate that different people have different ways of learning. Greater use of country groups for discussion in national languages may help to encourage more and wider participation.
- He concluded by mentioning that the big challenge is indeed how to sustain this type of group which can be viewed as a community of people with common interests or a community of practice that brings together researchers, practitioners, and policy makers. There is an urgent need for leadership development to identify and nurture the next generation of people who can move the MMSEA agenda forward.

Professor Xu Jianchu reminded the participants about the workshop outputs that will be generated and shared, including this workshop report; a CD containing the workshop papers, case studies, presentations, and selected photos; and, eventually, a special journal issue based on selected workshop papers and case studies.

He also reiterated the comments he made during the opening session in Xishuangbanna about the unique nature of this mobile workshop, which facilitated participatory learning among partners from different countries and disciplines, enabled us to conduct field-based assessments across multiple countries and scales, helped to bridge different knowledge systems, and provided a forum for accommodating and appreciating diverse perspectives. He expressed hope that this spirit of learning and collaboration will be actively pursued by the group in the years ahead.

During the closing ceremony, the participants first enjoyed a special humorous photo montage of the workshop highlights, compiled and presented by Professor Attachai. Next, each participant was awarded a workshop certificate acknowledging his/her valuable contribution and participation, along with a group photo and a T-shirt designed to commemorate the workshop.

In closing the mobile workshop, Professor Attachai Jintrawet of Chiang Mai University warmly thanked the organiser teams and all the participants for their warm cooperation and active participation throughout the course of this truly unique learning journey. On behalf of all the participants, he extended heartfelt thanks to the Rockefeller Foundation – via their consultant Dr Apichai Thirathon who joined the final two days of the workshop – for their generous sponsorship and support. Finally, he expressed the sincere hope that our collective journey has not finished here in Chiang Mai, but that our 'road' will continue well into the future in the form of renewed and sustained collaboration among partners in MMSEA.

Field visit in Thailand

annex 1
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annex 2
workshop programme

Xishuangbanna, China – 15 to 18 January			
Date	Time	Activitiy	Responsible persons
15 Jan		Arrival of participants in Jinghong	Qian Jie
16 Jan	08:00	Travel from Jinghong to Xishuangbanna Tropical Botanical Garden (XTBG)	Qian Jie
	11:00	Introductory tour of XTBG & Museum	Chen Jin
	12:00	*Lunch*	
	13:00	Registration	Qian Jie
	14:00	Opening of the mobile workshop	Xu Jianchu
	14:15	Introduction of the workshop format and process	Chun Lai
	14:45	Overview of MMSEA and the workshop themes, Spatial overview and thematic linkages Community-based perspectives and issues	David Thomas Xu
	15.30	*Tea break*	
	16:00	Profile and area perspective for: Yunnan Northern Laos Northern Thailand	 Su Yufang Houmchitsavath Sodarak Pornwilai Saipothong
	17:00	Introduction to thematic working groups on: Land use change Livelihoods/Markets and Trade Resource governance	 Chun
17 Jan	08:30	Perspectives on transboundary issues in MMSEA	Chen Jin
	09:00	Introduction to working group themes, and putting themes into MMSEA context	Theme coordinators
	09:45	Group discussion in 3 WGs: sharing experiences, knowledge; identification of key issues within groups	Theme coordinators and working groups
	12:00	*Lunch*	

Xishuangbanna, China – 15 to 18 January (cont'n....)			
Date	Time	Activitiy	Responsible persons
17 Jan	14:00	Working group report-back and discussion	Working group rapporteurs
	15:30	Briefing on next day's field visit	Xu
	16:00	Information market on work in Yunnan	Qian Jie
18 Jan	08:30	Departure from Xishuangbanna to Mengla Field visits in three groups to: 1) Mengxing State Rubber Farm (Han) 2) Nanyang Village (lowland Dai) 3) Paozhuqing Village (upland Yao)	 Xu & Fritz Kahrl Qian Jie & Su Yufang He Jun & Li Zhinan
Northern Laos – 19 to 21 January			
19 Jan	08:30	Travel overland from Mengla to Lao border; Process visas and cross to Boten (Laos)	Visa: Thoumthone, Houngphet (NUOL) Vehicle: Vilaphong (NAFReC)
	11:30	Travel to Namo district, Oudomxay	Lunch: Namo DAFO
	13:00	Field visits to Namo and Nampheng villages (3 groups per village)	Houmchitsavath Sodarak and Namo DAFO
	16:00	Travel to Oudomxay	Vehicle: Vilaphong Accommodation: Thoumthone
	18:30	*Dinner*	Dinner: Thoumthone, Houngphet
20 Jan	07:30	*Breakfast*	Breakfast: Thoumthone
	08:30	Travel to Pakchiek village, Luang Prabang	Vehicle: Vilaphong
	12:00	*Lunch*	Lunch: Thoumthone
	13:30	Visit IUARP agroforestry activities (6 groups)	Houmchitsavath and Pak Ou DAFO
	16:00	Travel to Luang Prabang town	Vehicle: Vilaphong Accommodation: Vilaphong, Thoumthone
	18:30	*Dinner at Villa Ban Lao*	
21 Jan	07:30	*Breakfast*	
	08:30	Mini-Workshop (at Villa Ban Lao)	
	09:00	Introduction Opening remarks	Houmchitsavath Prof. Dr. Sayamang (Vice President, NUOL)
	09:30	Presentation on agriculture and development in Luang Prabang	Somphong Pradichit (Director, PAFO Luang Prabang)

Northern Laos – 19 to 21 January (cont'n...)			
Date	Time	Activitiy	Responsible persons
21 Jan	10:00	Lao case studies: Northern development strategy Land use in northern Lao Sustainable livelihoods in Laos	 Dr. Leeber Leebouapao Dr. Sithong Thongmanivong Linkham Douangsavanh
	11:00	*Tea/coffee break*	
	11:15	Panel and open forum discussion	Moderator: Houmchitsavath
	12:00	*Lunch*	Lunch: Thoumthone
	13:00	Thematic group discussions: Synthesizing field observations and reflections thus far	Theme coordinators and working groups
	16:00	Information market on relevant work in Laos	Coordinator: Bandith (NAFRI) 1) R3: Phaknakone 2) Trade/markets: Singkham 3) Livelihoods: Kongkeo 4) Resource governance: Thavone 5) IUARP: Vilapong 6) Lao-Swedish project: Somphanh
	19:00	*Bacii and banquet at Villa Ban Lao*	
Chiang Mai, Thailand – 22 to 27 January			
22 Jan	07:00	*Breakfast*	Breakfast: Thoumthone
	08:30	Tour of Luang Prabang (optional) Royal Museum, Vat Xiengthong	Vehicle: Vilaphong, Somphanh
	10:00	Depart to airport for flight to Chiang Mai	Thoumthone, Houngphet, Vilaphong
	13:00	Arrival in Chiang Mai Traveling from Chiang Mai City to Doi Inthanon	ICRAF-Chiang Mai
	18:30	*Dinner at Navasuang Resort*	
	19:30	Overview of land use change in northern Thailand	David T.
23 Jan	08:30	Depart for field visits: Mae Khongkha: sedentarisation of shifting cultivation Mae Suk: opium substitution by highland horticulture Mae Tum: active shifting cultivation Travelling from Doi Inthanon to Chiang Mai City	 David T. Nate Badenoch Pornwilai

Chiang Mai, Thailand – 22 to 27 January (cont'n...)			
Date	Time	Activitiy	Responsible persons
24 Jan	08:30	Depart for field visits: Lamphun: Longan grower's association Mae Wang: eco-tourism San Sai: high-tech, intensive agricultural production	 Pornwilai David T. Attachai Jintrawet
25 Jan	08:30	Discussions within WGs: synthesizing observations and perspectives and formulating research questions	Theme coordinators and working groups
	12:00	Report-back in plenary	Chun
	12:30	*Lunch*	
	13:30	Presentation of 6 case studies by participants	
	15:30	*Coffee break and Thai information market*	Darika Huaisai
	16:00	Guidelines for work in country groups to come up with key messages from workshop, follow-up actions and feedback on workshop process	Chun
26 Jan	09:30	Report-back of country groups	Group presenters
	10:30	Wrap-up discussion	Chun
	11:00	*Coffee break*	
	11:30	Closing ceremony	Workshop organisers
	12:30	*Lunch*	
	14:00	Post-workshop events on: Plan to finalize case studies for publication Documentation for workshop report	David Melick & Xu Chun & Sardu
	18:00	*Farewell dinner*	
27 Jan		Departure of the participants	

annex 3

composition of thematic working groups

Land Use Change	Local Livelihoods/ Markets & Trade	Resource Governance
Jeff Fox & Horst Weyerhaeuser*	Yayoi Fujita & Su Yufang*	Walt Coward & Xu Jianchu*
Zhang Peifang	David Thomas	Houmchitsavath Sodarak
Andrew Willson	Nou Keo Sothea	Thavone Vongphosy
Laura Ediger	Fritz Kahrl	Phaknakone Rattana
Darika Huaisai	Singkham Bounloutay	Erik Neilson
Liu Wenjun	Badith Ramonkhoun	Thongsavanh Boupha
Sithong Thongmanivong	Linkham Duangsavanh	Uraivan Tan Kim Yong
John Vogler	Kongkeo Duangdala	Chirawat Vejpas
Chen Huafang	Li Zhinan	Naruemol Kaewjampa
Pornwilai Saipothong	Vu Thi Hien	He Jun
Do Van Nha	Boonserm Cheva-Isarakul	Brett Ballard
Attachai Jintrawet	Benchaphun Ekasingh**	David Melick
Li Haitao**	Houngpheth Chanthavong**	Nick Menzies**
Sianouvong Savathvong**		Nate Badenoch**
		Somphong Pradichit**
		Sardu Bajracharya
		Yuki Miyake

* Theme coordinators

** Participated in one country only

annex 4

field visits in southern Yunnan

Field Visit 1: Mengxing State Rubber Farm

Mengxing Rubber Farm

General Manager: Mr Zhu Defu
Total land area: 6666.6 ha
Area of rubber planted: 5800 ha
Area of tapped rubber: 3333.3 ha
Rubber production: 5600 t/year
Yield: 26.7 t/ha
Population: 7049
Staff: 2800
Retired staff: 1500
Processing factories: 3
Cement factory: 80,000 t/year
Hydro plant: 4700 kW
Rubber plantation: long cycle, big investment, great risk

Time Line

1959: Founded with 120 workers, jointly with 400 workers from Hunan Liling, large primary forest
1960: April, additional 800 workers from Hunan, planted 6.6 ha with seedlings (without graft)
1960-1962: National famine
1963: Formed 20 production units, planted grafted seedlings
1965: Joined by 200 workers from Puer, planted about 200 ha
1969-1971: 2000 youths sent from Beijing, Shanghai, Qiongqing and Kunming to be rubber farmers
1979: Youths returned to city, substitute workers recruited from Mengla and Mojiang
1983: 'Forest fixing', new state forest opened for rubber plantation, permits now needed
1999-2001: Low price, $726.3 per ton, $847.4 per ton, $968.5per ton

Mengxing Rubber Farm: One rubber plantation, two systems

To ensure the self-sufficiency of rubber, the Chinese government began to establish large-scale rubber plantations in Xishuangbanna in the 1950s through resettled Han Chinese from Central China. The Mengxing Rubber Farm is a state rubber farm established in 1959 with a total land area of 6667 ha.

Of these, 5800 ha are planted with rubber, 3333 ha are tapped rubber with an annual production of 5600 ton of dry rubber at present. The farm has a population of 7049 including 2800 contracted staff and 1500 retired staff. It is adjacent to the Jinghong-Mengla road leading to the Lao border. It is one of 18 rubber plantation bases for the Yunnan Natural Rubber Company (formally called "Yunnan Land Reclamation Bureau").

Governance History

The Mengla County of Xishuangbanna is the traditional home of upland minority people ('hill tribes') including Dai, Hani (Akha), Yao, Yi, and Miao (Hmong). The Dai have played a long and important role in organising social institutions and in governing natural resources both in the uplands and lowland valleys. During Land Reform (1956-1958) all lands were claimed as state property although traditional access was secured. This made establishment of a state rubber farm feasible. Resettled state farmers (mostly Han Chinese) could have any suitable state forestlands for rubber plantation. All state rubber farms were part of the former Land Reclamation Bureau, which was an independent system from the local government of Xishuangbanna.

Current Governance Arrangement

The Mengxing rubber farm conducted structural reforms in 2002. In order to make the rubber industry more competitive, the rubber farm was divided into two parallel systems, i.e., the State Farm (non-productive part) and the Rubber Company (productive part). The Rubber Company engages in rubber production (land, rubber trees, processing facility, and contracted staff). The State Farm runs all social services (hospital, school, transportation, and manages retired workers). The Rubber Company, practices a combination of centralised planning and privatised management. All rations of rubber production are allocated from its Kunming-based headquarter. State rubber trees are contracted to each staff or household under the 'Household Responsibility System (HRS)'. Each worker looks after 3.6ha of rubber (about 960 rubber trees/person), located in 4 plots (tapping and collecting one plot each day with 4 days rotation). Plots are allocated according to distance, varieties, and age of rubber. Salary is paid according to completed quota and profits from selling rubber at market prices.

Before 1983, the State Farm could open any state forestland suitable for rubber plantation (so long as it was less than 800 masl, had a gentle slope, good accessibility, sufficient water, and was a residential site). After forest land allocation (Lin Ye San Ding) in 1983, the State Farm had to get permission from the County Forestry Bureau for any new rubber plantation. Often there was no more suitable land for rubber expansion. After the 'Wasteland Auction' policy was implemented in 1993 in Xishuangbanna, the state rubber farm was able to lease land (often swidden-fallow fields) from local communities either from local collectives or households such as the Dai, Yao and Hani (Akha). A total of 1333 ha have been leased and planted with rubber so far (half leased in 1998 and half in 2002). The leases last for 40-50 years (at $9.07 per ha/year, about $ 363 per ha over 40 years).

The headquarters appoints all high-level leaders at the Mengxing rubber farm. All management targets have to be approved by headquarters. The General Manager has to execute mandates from headquarters with little discretionary power or rights. Despite this, the relationship between the staff and farm, and between the farm and headquarters has not been defined.

Strengths and Limitations

- Livelihoods

Income for rubber farmers depends not only on the yield of rubber (which depends on climate and diseases), but also on the market price for rubber. Both factors are out of their control. After privatising the management of rubber, the livelihood strategy for state rubber farmers included: a) intercropping in young plantations, b) diversification in agriculture, livestock and aquaculture; c) selling rubber seedling; d) seasonal labour for off-farm jobs; and e) shared tapping and leasing land from upland farmers.

- Land use/conservation

Individual rubber farmers have few rights to make their own decisions in relation to land use. Monoculture rubber plantation is the predominant landscape in rubber farms and contributes little to biodiversity or agricultural diversity conservation. Rubber plantation has been reported as having a negative impact on the local climate by reducing foggy days and stream flow, and increasing soil erosion.

- Resource rights

All land, facilities and rubber trees are state property. Staff have a right to manage, but don't have any right to cut, lease or even sell rubber milk to others. Staff are contracted to manage rubber forests according to quotas set by headquarters in Kunming according to how large the area managed is, and how much milk is produced.

- Potential regional impacts

Due to rapid economic growth and increasing demand for rubber in China, 40% of total rubber consumption has to be imported. China has been looking for potential new sites for rubber plantations. Northern Laos is one of the target areas. Negotiations are underway between the two countries for rubber plantations in Northern Laos. China will provide technical support to Lao partners to plant rubber as well as large scale joint ventures possibly equivalent in size to the total area of rubber plantation in Xishuangbanna.

Field Visit 2: The Dai Village of Nan Yang

Field visit 2 was to a Dai village that is part of the Mengxing administrative village. There are 69 households and a total population of 326 people. The area of rubber plantation in the Mengxing administrative village was 1133.3 ha as of 2000, including 151.6 ha in Nan Yang natural village. On the average, each household owns 2.6 ha of rubber plantation.

Rubber planting in this village can be traced back to 1977/78, when villagers were encouraged to plant rubber by the state farm and village leaders. However, rubber cultivation was not viable until 1983 when the household responsibility system was established. Since then the area of rubber plantation has increased dramatically. Farmers have been receiving profits from rubber since 1989. On average, a household makes $726.39 to $847.40 USD from rubber per month. This has improved the lifestyle and livelihood of farmers in the village. Rubber planting and management 'lock' the labour force in the rural area so that few people go out for employment. Rubber is sold on the open market by households who compare prices offered by different private companies, selling at the highest price.

The Government has not encouraged rubber cultivation since 1996 in an attempt to control the structure of local economics. Expansion of rubber plantation has had negative impacts such as a colder climate, drier air, rubber diseases, and soil degradation.

Resource Governance in the Dai Village of Nan Yang

The hamlet of Nan Yang is a small Dai settlement, adjacent to the paved road linking Jinghong with Mengla and the Lao border, located in the Xishuangbanna region of China's Yunnan Province. It is a typical lowland village whose households utilise an irrigated lowland area used for wet-rice cultivation and other crops, and a surrounding upland space of sloping and forested lands for cultivation and natural forest products. Administratively, Nan Yang is part of the larger six-hamlet Mengxing administrative village, which includes two upland Han settlements.

Governance History

Nan Yang, like the other rural hamlets in China, has experienced a number of different rural governance regimes over the past five decades, or more. In the past, the use and management of Nan Yang's natural resources was under collective control with heavy direction from the central government concerning resource use and production decisions designed to meet centrally imposed goals and targets. Over time, state policies were modified to increase the opportunity and responsibility for individual households to make choices concerning the use of their agricultural and related resources by allocating certain lowland and upland plots to specific families. This household responsibility planning and action is being implemented increasingly, in part in response to market demands and price signals. In 1998 an important additional step was taken – the local election of village and hamlet leaders.

Current Governance Arrangements

The use and conservation of Nan Yang's natural resources now takes place in a context in which several actors and institutions interact to mediate and negotiate interests that sometimes align and at others times diverge. Important outside actors and institutions are the State and its various policies and technical agencies, and the market with its various buyers, sellers and investors. At the local level the rules and actions of the locally elected Village Committee along with the choices and activities of the various households are important parts of the governance arrangements.

While all four of these parties (State, market, Village Committee, and households) continue to play a part in the governance of Nan Yang's natural resources the overall trend has been toward decentralisation. Fewer decisions are being made at the central level and more decisions are being made by people and groups close to the natural resources to be used and managed. One Dai woman elected to Nan Yang's Village Committee said, "The election of the Village Committee has made us more autonomous." The allocation of lowland and upland plots to households together with the decentralisation of government functions to village committees creates new opportunities for local actors to shape and control external land use pressures from either the state or the market. A recent example of these state-village interactions is the agreement regarding the land use plan for Nan Yang, and the neighbouring hamlets, that will remain in place for the next 30 years. This land use agreement with the State provides a stable set of resource rules within which both households and the Village Committee can operate – including the ability to enter into agreements with outside investors, if appropriate.

The Strengths and Limits of Current Governance

The current governance setup, with its combination of public and private actors at both the local and regional levels, appears to create conditions in which households can effectively pursue natural resource-base livelihoods. The allocation of resource rights to individual households, as well as the allocation of some common property rights to the village, has been accomplished. There is sufficient predictability in the rules of resource use to allow households and outside investors to make decisions that require long-term commitments, such as the establishment of rubber tree plantations. Likewise, the current resource governance arrangements seem able to support the multi-year perspective needed to achieve conservation of the village's natural resources.

One possible limitation of the current governance arrangements may be the inability to adjust governance rules if necessary. It is not clear what procedures are in place to examine the consequences of these rules or to deal with unexpected problems that may arise in either the socioeconomic or natural-biological realms. The absence of such procedures and mechanisms could prove to be a highly limiting feature of the current resource governance regime.

Field Visit 3: The Yao Village of Paozhuqing

History

Paozhuqing is an upland Yao village neighbouring Dai, Han, and several other ethnic villages, in Xishuangbanna, Yunnan Province, China. Today, the Yao village of Paozhuqing has better access to roads, markets, and most government services than before. Yao clans and families do not live in their forest village in the remote mountains anymore. Their houses and cultivated lands are scattered on mountain slopes along the road to the small towns of Genghung, and Mengla. Although the road was built during the liberation period, more than 50 years ago, the Yao moved to their present village only in 1973. Yao households have gradually adopted new rubber cultivation technology, while continuing to cultivate their swidden rice, corn, and beans. In this upland village, water and wet rice areas are limited. Only some families own paddy fields.

Land use and tenure system arrangements are complex, and reflect the changes in Xishuangbanna and Paozhuqing village during the three major periods of economic and land policy: 1978-1984, 1985-1990, and 1991-2001. During the first period, agricultural and forest land were allocated to collective group of villages and townships (CRS) and to households (HRS). China implemented a major policy, at the national and regional level, in relation to township-village enterprise (TVE) and state-owned enterprise (SOE). The system had a positive effect on Gross National Product before weakening SOE management and markets. During the second period, 1985-1990, the government gave all SOEs the choice either to sell out or go through a management reform. The state-owned rubber plantation in Xishuangbanna opted for management reform. Throughout this, CRS and HRS policies have remained in place with both positive and negative impacts and at the local level. Paozhuqing has had to learn to adapt to a new market and respond to changing economic and natural resource policies. Since 1999, China has implemented a new governance policy, called Environmental Law, in both cities and rural villages. Key questions include: how this governance policy affects Paozhuqing?; who has key roles and decides on the current rules in sharing and using local resources?; and how villagers practice these rules and adjust their land use?

Governance

Throughout the three periods of economic and land use policies, the land use and tenure arrangements of Yao clans and households in Paozhuqing have demonstrated how local and state governance interact and affect their lives and livelihoods. Interviews and observation indicated three paralleled governance systems – state, company, and Yao. All three continue to function to guide the local land use and practices of the Yao.

Scattered paddy fields and areas continue to be recognised as private land belonging to clans and households. There are 8 clans in Paozhuqing: Deng, Li, Pon, Lu, Jian, Wang, Yang, and Zhang. Economically, they are different in their resource access and control. Comparatively, the Deng clan is richest, and owns the largest area of paddy fields. Some clans do not have rice fields at all. The former elected leader was from Den clan. At the present, there is a Yang leader serving his second term.

In the period of the state land allocation scheme, swidden (shifting cultivation) fields were given to individual households. State rules are based on expected production outputs generated by each household. Therefore, the state's general guidelines are to allot land according to the number of workers in the household. If the household does not invest in land, the use right on allocated plots is cancelled. Yao clans and village leaders agreed to modify some allocation rules to follow a traditional land allocation in which all households are allocated an equal size of land. This rule gives equal resource access and decision-making power to each household.

There are clear procedural steps to obtain household rubber plots. It is also interesting to observe that formal leaders, clans, and elders play key roles in deciding how the CRS should be managed and shared to individual households. Three years after allocation, the company and village/CRS both hold 50% of the area under planted rubber. The Yao have already decided to share rubber areas equally between all households who have signed up for the rubber plantation enterprise.

Paozhuqing has integrated their own cultural rules into the land use system. For example, in relation to the division of planted rubber land after three years, the land is divided into 36 plots of equal size (clear demarcation is required). To accommodate differences in land quality (distance, elevation, productivity) the plots are then allocated by lottery. Following the lottery, some exchange (trade, sale) within the village is possible. Leasing to outsiders is also possible (but not sale). The Yao clan role in relation to land use decisions is maintained.

A conservation forest of 20 ha was allocated to Paozhuqing. This forest is strictly protected and neither livelihood for local uses in agriculture nor NTFP collection is allowed. Local practices of a day-to-day nature in relation to the forest are unclear. Our brief visit to the village did not enable the research team to obtain accurate information on local uses and practices in relation to the conservation forest.

Rules on Resource Shortage

Land redistribution is continued among Yao clans and households to enable new couples to start their livelihoods and production. The two clans or households of the couple involved usually make an agreement about the sharing of limited resources, especially land under agricultural production, with the new couple. Recognising that resources are limited according to state forest conservation and the

real situation that karst mountain land (CRS) is unusable for production, the Yao have followed a clear set of rules. The usual practice is that the brides' parents transfer some part of their land to the new couple, if they have enough. Yao clans continue to play a key role in relation to land use governance.

Forest land and agricultural land allocated to households (HRS) have to be transferred back to the CRS to be re-distributed. Some households might want to lease their land to outsiders. There are cases where large tracts of land owned by several households are leased to outside land owners. Those Yao households with access to insufficient labour sell their land or enter into long-term leasing usually for periods of 50 years. Land availability for internal re-distribution among Yao clans is lessening. This means a resource stress and poverty might be the outcome if new land use alternatives do not sufficiently support households. Further, threats are observed to change local governance on internal re-distribution of land.

The shortage of resources is recognised by the Yao. The implications of the lottery and intra-transactions result in the better, more desirable land gravitating towards the well-endowed families/clans (with labour, assets). As time goes on, the village will have less capacity to influence this process. It is interesting to note that Yao clans and leaders have agreed to modify their marriage practices to allow members to marry people from non-Yao groups. During the 1970s, the State promoted rules allowing cross-cultural marriages. However the Yao in Paozhuqing have only started marrying the Han in the last twenty years.

Two interviewed households own and use more than 6.6 ha of rubber plantation and receive subsidies for 3.3 ha of slope land conversion. They have leased land from poor households and households with insufficient labour. This practice hinders equal land distribution among the Yao.

Changes

Both the State and the Yao community have played key roles in deciding local rules and practices in relation to their livelihoods and land use over the past 50 years. The local decision to move their village to be along the road has brought new economic and administrative conditions including closer links to markets, public services, and government guidance. The Yao have reasonably sustained the traditional authority of their clans and elders who work closely with the elected leaders under the state system.

The practice of land use and distribution of the Yao demonstrates how cultural principles continue to affect current land use and tenure practices. The local decision to allow cross-ethnic marriage means that the Yao community in Paozhuqing and four other neighbouring villages have access to a new land/resource strategy to share control of land resources. Redistribution of land has resulted from the new social rules of marriage. However, poor households are being influenced to accept waged labour employment and inter-group marriage across culture and hierarchy.

CRS and HRS have had some positive effects in terms of stimulating the market economy and allowing some villagers to benefit from new opportunities in rubber plantation and waged employment. If rubber technological transfer to local communities and households is successful, rubber prices may increase, generating more income for new plantation owners. In addition, it may lead to more work for daily wage labours in the villages and neighbouring areas. At present, the 'Grains for Green' policy and

slope land conversion does not benefit needy households in Paozhuqing. Strict conservation rules mean that forest biodiversity change has affected the availability of medicinal and herbal plants for households and the collection/use of NTFPs is not allowed in protected areas.

annex 5

field visits in northern Laos

Field Visit 1: Nahom Village

Nahom is a village with a long history. It survived many years of wars until 1974. The road which passes through the village was built in 1968. In 1991, people from 3 other villages in the highlands nearby moved to this village. The total population is 340 people with 100 households. This village is composed of 1909 ha of protection forest, 15 ha of paddy field, 46 ha of fallow land, 10 ha of cropland, and 2 ha of cabbage plantation. The villagers raise some livestock such as pigs, cows, and goats. In recent years, the government has reduced shifting cultivation and increased rubber plantations. Ninety percent of the villagers cultivate rubber and the total area of rubber plantation is 15 ha with an additional 20 ha nearly planted. There are plans to plant a larger area of rubber in the protected forest and on fallow land in the future. Government policy and markets are the major driving forces behind land use/land cover change in this area.

Field Visit 2: Nampheng Village

Nampheng is a Khmu village, which relocated to the roadside in 1983. Since then it has grown from only 17 households to 54 households, with 312 people. Land allocation took place in 1997 and villagers participated in defining the boundary of their village area and assigning land use types to the entire area. Previously, shifting cultivation was practiced in the entire village area, but now it is limited to a small area with three 1-hectare plots for each household to cultivate on a 3-year rotation/fallow system. The shifting cultivation area was selected for this purpose because it lacks high levels of NTFP. Overall, households cultivate approximately 1/3 of the pre-1997 shifting cultivation area. Other land use types include production forest, utilisation forest, regeneration forest, conservation forest, protection forest, and a small area for paddy rice production. Local farmers are interested in converting some of the remaining shifting cultivation area to rubber plantations, but are waiting for government support. Currently, the government has only provided support for certain focal villages with an emphasis on converting areas of opium production to rubber production. Local residents also plan to clear areas of the forest to improve conditions for cardamom production.

The delineation of land use types restricts in-migration as there is little unused shifting cultivation area available for new residents. Population growth is high, with around 5 children per family, and education levels are relatively low. The village is well-organised in relation to the marketing of bitter

bamboo, with a cooperative system that purchases the bamboo from residents and sells it to companies.

History of Village Resource Governance Practices and Resource Use

Nampheng village was established in 1973. The people in Nampheng are Lao Theung from the Khmou Ou, Leua and Rok ethnic groups. They speak Khmou language and are mainly upland shifting cultivators, using the slash and burn method and rotating land use.

The village is organised according to a Village Committee comprising the village chief and his deputy, the chief of security, and representatives from village unions for youth, women, elders, agriculture, forestry, education and health.

Forests in the area of Nampheng were allocated during 1997 and 1998 in collaboration with the District Agriculture and Forestry Office (DAFO) in Namo. The forests were allocated communally to the Village Committee of each village, according to traditional village boundaries and mutually agreed borders. Forestland allocation was an important first step to sustainable harvesting because it gave the Village Committee authority to resolve resource-use conflicts within the village and respond to threats from outside.

There are four types of management systems/categories for allocated forestland:

- Protection Forest: owned by the state, villagers have access to NTFP
- Conservation Forest: owned by the state, villagers have no access
- Utilisation Forest: owned by villages for local use.
- Production Forest: owned by villages for local use.

Current Situation

After the classification of forests, and forestland allocation, the village has relied heavily on bitter bamboo shoots for their livelihood. There is a large area of village forests in Nampheng (covering a total area of 648 ha, equal to 46.5 ha per household in 1998). In term of resource governance, several points need to be highlighted.

Forest land allocation in 1997 gave local communities control over their own resources. Since the allocation and classification process was carried out jointly by DAFO and the Village Committee, local needs and state concerns for multi-purpose forest management were considered. The structure allows for the decentralisation of resource rights so that local rules and regulations in relation to resource access are easy to set up.

Another aspect of decentralisation is political decentralisation which enables the villagers to elect their own village head each 2-4 years. The elected body is empowered to deal with resource disputes (such as boundary conflicts) within the community and defend their collective resource rights from outsiders. Besides zoning the forests, the elected body also regulates the timing of the bitter bamboo shoot harvest to ensure regeneration of new shoots. The main donor in this case is IUCN which plays a crucial role in resource governance. IUCN helped the village to form a marketing group to deal with Chinese traders, increasing the village's bargaining power. The systematic operation of the marketing

group in collaboration with the Village Committee has contributed to the good governance of marketing activities and promotion of fair trade.

The three thematic groups made a field visit to Ban Pakchiek, Pak Ou district in Luang Prabang Province.

Field Visit 3: Ban Pakchiek

History of the Ban Pakchiek, Pak Ou District, Luang Prabang Province

Ban Pakchiek was established in the year 1921 (84 years ago). The Lue people living in the village initially migrated from Boum Gneum Leue village (Sip Song Phan Na or Xishuangbanna in Yunnan Province, China). Prior to their settlement in Ban Pakchiek, villagers had settled in different locations. In 1953, villagers sought refuge in forest areas but returned to their village the following year. In 1962, once again, villagers sought refuge in forest areas due to the civil war. After the civil war, in 1968, villagers moved to Luang Prabang district. In 1974, the people returned to the village where it is currently located.

Today, the village consists of 122 households and 618 persons (281 men and 337 women). The villagers belong to the Lue ethnic group (a subgroup of Lao Loum or lowland Lao). The Lue in Ban Pakchiek are Buddhists.

Current Governance Arrangements

The community's organisation and roles are summarised in the table below.

Organisation	Roles	Elected by	Approved by
Village Head Man	To assist the district officer to implement the district socioeconomic planning.	Villagers	The governor of the province
Deputy Village Head Man	To assist the village headman to implement the village development plan in relation to agriculture, forestry, and education activities.	Villagers	The district governor
Women's Union	To organise and support the women's activities in the village (e.g. weaving group)	Members of the women's union	The head women's union in the district
Youth Organisation	To organise and support the welfare activities in the village.	Members of the youth organisation	The head of the youth organisation in the district
Water User Group	To control and divide the water between the members of the water user group	Villagers	The village headman

Strengths and Limitations

The strengths and limitations in Ban Pakchiek are as follows.

Conditions	Strengths	Limitations
Livelihoods	Living standard is good Commercial crops (corn, beans), fruit trees and intercropping can support households. More agricultural products have access to markets and farmers are getting a good price for products	Limited time Increased need to seek wage labour
Land use conservation	Villagers understand the land use planning process. Villagers receive benefit from land use planning (3 plots of land) and can identify forest types in the village.	Limited suitable land for cultivation Decreased agriculture yield Increased infestation of imperata grass Decline in the fertility of the soil
Resource rights	Villagers use clean water for drinking and household consumption, water for agriculture (2 wood weirs) and fishing in the Ou River. Villagers can use and collect wood and NTFP from the utilisation forest.	Not enough water in the dry season Natural resources are declining

Resource Governance in Ban Pakchiek

Background

Ban Pakchiek, in Pak Ou district of Luang Prabang Province, is a lovely old Tai Lu village that was settled in its present position, along the left bank of Nam Ou, in 1921. The ancestors of these villagers moved to this location from the former Phong district of the current Xishuangbanna region of Yunnan Province. During the war in Lao, the villagers of Ban Pakchiek several times moved away from the area to avoid the fighting. With the completion of the paved road from Boten to Luang Prabang, which passes along the right bank of the Nam Ou, some villagers have moved their homes from the original settlement across the river to be nearer to the road. This move is within the former territory of the village and villagers continue to use land on both sides of the Nam Ou.

Governance History

Until recently, land use in Ban Pakchiek has largely been arranged through customary governance institutions including selected village leaders and a water users group to manage the established community irrigation system. In the past, there was little involvement of the state in land use arrangements. However, with the establishment of Lao PDR in 1975, throughout northern Lao the state has become increasingly involved in village land use arrangements as part of its policy to discourage

shifting cultivation and eliminate the growing of opium. Land use in Pakchiek is now shaped by those rules.

Current Resource Governance Arrangements

The present resource governance arrangements in Pakchiek are an amalgamation of old and new governance institutions. Apparently, the lowland irrigated area is still governed by the traditional water users group. In addition, the village now has its elected headman and deputy who are charged with assisting the district administration in conducting a variety of activities. A major land use governance activity was that conducted by the district agriculture office to survey the lands of the village, and in discussion with the village leaders agree to a land use plan that divides the upland portion of the village into several types of demarcated forests and sets limits to the extent of shifting cultivation that is permitted. Under these rules, each household has been allotted three plots of land to be used as their shifting cultivation plots. All of the villages' shifting cultivation plots are limited to a forest area designated for that purpose. On these upland plots, as well as the lowland rice fields, households are free to use the land as they choose. Given the proximity to the national road, farmers are in a position to make some land use changes in response to market opportunities.

Strengths and Limitations of Current Governance

A strength of the current governance arrangement is that some certainty of land use rights has been established, and there are no rules constraining the ability of households to respond to market opportunities – if they can access capital and technology. Another strength is the continuation of customary rules and institutions for governing the use of the river and its resources, as well as the local irrigation system.

One important concern is whether or not the limited shifting cultivation parameters will prove adequate to support village households in meeting their subsistence needs and realising market opportunities. A flaw in the current governance arrangement is that the village will be unable to negotiate with the state to plan and execute land use adjustments if necessary.

annex 6

field visits in northern Thailand

Field Visit 1: Mae Kongkha

Quote from village leader: "Trees are like men, rivers like women…can't have one without the other."

On 23 January 2005, the land use change group travelled to the Mae Khongkha sub-watershed to visit several villages and view the land use mosaic. A good description of the set of villages is contained in the World Agroforestry Centre, Study Tour Program. The notes from the visit are summarised here.

The primary land use change in the watershed has been the substitution of forest fallow shifting cultivation with fixed agriculture, primarily feed maize and seed maize. At our first stop in Ban Long Pong we viewed year-round agriculture (mainly maize).

We talked with the village leader and a farmer who indicated that the villagers are aware of the new economic corridors being constructed. However, villagers are more focused on the market and prices for their goods, in particular, negotiations between their large cooperative of farmers/stakeholders (approx. 1000 members) and a large Chinese-Thai Coop Promotion (CP) Company. The farmers are highly organised. Local watershed management networks operate at basin and sub-basin level.

Farmer cooperatives allow them to collectively hire farm equipment and equipment to construct their own access roads. The cooperative functions as facilitator for buying in bulk and obtaining credit.

Regarding future land use change, they feel that the area for permanent crops will expand, but only in small increments as the amount of cultivated land is quite fixed. There are no fixed boundaries between farming land and forestry land resulting in continuing tension between farmers and foresters.

Regarding the sustainability of fertiliser inputs, the cooperative is working with the CP Company to use/experiment with more organic biological inputs (chicken manure, etc.).

Population growth is quite low, just above replacement.

Farmers are suspicious of fixed agriculture because they think cyclically in terms of shifting cultivation. Fixed agriculture is not something they would have come up with on their own. In one area near Ban

Pha Phueng, the CP Company has moved on as the farmer coops have gained enough marketing knowledge to begin marketing themselves. The question arises as to whether or not permanent agriculture will continue in the absence of the CP Company? The arrival of the CP Company and permanent agriculture followed by its departure may turn into just another level of shifting cultivation.

There also exists a Hmong marketing network, whereby cabbage and similar crops are brought to a farmer cooperative centre for weighing and sale.

In relation to out migration, some farmers send their children to university or other schools for higher education. Some children return, others don't. Whether or not they return seems to be related to the level of education obtained: the higher the level, the less likely they are to return.

Resource Governance in the Mae Kongkha Sub-watershed

The Mae Kongkha sub-watershed is at the lower end of the larger Mae Chaem watershed, with a boundary adjoining the Doi Inthanon National Park. The majority of the population is Karen, with northern Thai communities living mostly in the flatter downstream areas. Shifting cultivation has been almost entirely replaced by sedentary agriculture. Maize and upland soy beans are the main crops on hillside plots while more intensively cultivated and irrigated cash crops such as shallots, tomatoes, and pumpkins dominate the lower, flatter areas with some paddy rice still grown for household consumption. Key actors in governance include the CP Company, agricultural cooperatives, a number of watershed networks, linking communities in the same sub-watershed, government agencies, and culturally-rooted, village-level customary institutions. These village level institutions appear to be adept at adjusting to changing social and political conditions. Formal representative institutions such as the Tambon assembly appear to be a presence, but have yet to find a role in environmental governance.

Governance History

The history of the northern highlands over the past forty years has had a marked influence on the governance régime in Mae Kongkha. Opium eradication programmes brought highland people directly into the orbit of the central government, as did concerns which peaked at the same time, about border security and possible insurgency. The coercive forces of the government drove land use change during these early stages. The need to offer economic alternatives to opium cultivation meant that force was accompanied by the provision of infrastructure (roads to the villages) and services (education; health programmes; and technical assistance for new crops). Over the past ten years, the private sector, in the form of the CP Company, became a dominant actor in transforming the landscape. The CP Company operated through agricultural co-ops (originally established with government support) which provide agricultural inputs for the company's preferred crop – corn for the production of animal feed. More recently, in the village of Ban Pha Phueng where sedentary agriculture has been practiced longer than in the other villages in the sub-watershed, cropping is more diversified. The CP Company no longer plays the dominant role and farmers now take the initiative in marketing. The CP Company now functions more as a source of credit, not as a supply and marketing entity. Environmental governance has evolved from the direct role of the state, to the dominant role of the corporate private sector, to individual initiative.

Underlying the changing roles of the state, private sector, and individual initiative are local institutions and cultural norms and values, which have played an important role in enabling communities to

maintain environmental sustainability and environmental services such as adequate flows of clean water in streams and rivers. The Karen village of Wat Ban Pha Phueng has acted to 'ordain' trees to protect them, and to extend the area of a 'Birth Forest' (one of several different categories of sacred forest).

Current Governance Arrangements

The state is represented both by specialised government agencies (including forest and agricultural agencies) and in the form of more recently established institutions such as the Local Assembly. The agencies are playing a diminishing role in people's lives, while the local assemblies are relatively recent innovations, which currently have little impact on decisions about land use. The private sector in the form of the CP Company is very significant as a source of inputs and thus as a driver of land use decisions. Where land use has shifted to more intensive cultivation with a wider diversity of cash crops, the private sector continues to play an important role in land use decisions. The CP Company plays a less direct role now as farmers switch to negotiated contracts with a wide range of possible buyers. The CP Company is now used for financial services rather than as the intermediary for buying inputs and selling produce.

Watershed networks were initiated to reduce environmental degradation and have become the main forum for village action to address issues such as water pollution from pesticides and fertilisers, or for the control and monitoring of consumptive uses of the forest such as the cutting of timber. The networks seem to be more functional in some places than in others. Overall, they represent the rising importance of civil society institutions to mediate between the government and the private sector. The networks are now trying to act together to represent their interests more effectively at the regional and national level.

Finally, it is important to note that the changing land uses in this area have all taken place illegally in formal or statutory terms. Virtually all of the land in the Mae Kongkha sub-watershed is in reserved forest land and there are no moves as yet to release the land to allow formal titling and ownership.

Strengths and Limitations of Current Governance

Customary practices and beliefs anchor decision making about the environment within communities. It is not yet clear whether the new watershed networks will be an appropriate mechanism for governance beyond the boundaries of one community.

The chronology of change in this watershed suggests that there will be continued changes in the relative power of government agencies, the private sector, and community based institutions. There is a gap in governance institutions directly representing the interests of watershed communities, which the networks, with no statutory standing, may not be able to fill. It is possible that this gap could be filled by the Tambon assemblies, but they have yet to assert a significant presence in environmental governance.

Field Visit 2: Mae Suk: Opium substitution by highland horticulture

Resource Governance in the Mae Suk Sub-watershed of Mae Chaem District

The Mae Suk sub-watershed is a diverse mosaic of land types including intensely cultivated lowland and upland areas, parts of which are forested, while other parts have rapidly been transformed into

intensive year-round cultivation of various fruits and vegetables. Over a period of several decades, opium production has been replaced and little shifting cultivation remains. This transformation began when the Thai government, with the assistance of international donors, began a rigorous campaign to end opium production in the uplands of the northern region of Thailand. Over time, that goal intertwined with other national goals, including the suppression of dissident activities, and later, the conservation of forests. To achieve these goals significant investments were made in a number of ancillary activities, two of which had important implications for changing upland land use. One was the penetration of upland areas, such as the upper portion of Mae Suk, with a road network and the second was support for research and action to identify and support the production of alternative crops for market in the sloping lands to replace shifting cultivation.

Governance History

During the initial period of the opium substitution programmes, almost all governance rights and responsibilities were in the hands of the central government and its implementing agencies. Police-like actions were undertaken to enforce the ban on opium production and local governance had little role in shaping policies. No doubt traditional leaders (village leaders, clan leaders, religious leaders, irrigation leaders) from the three ethnic groups involved in this transformation (Hmong, Karen and Khon Muang) sought ways to assist their communities to cope with these dramatic changes. Three other important governance changes occurred, especially in the later years of the transformation. Firstly, markets became an increasingly important means of governance. Secondly, the Thai government implemented various decentralisation plans with the result that sub-districts (tambon) and administrative villages gained a lager role in managing local affairs. Thirdly, the NGO sector, which had been expanding rapidly throughout Thailand, also entered Mae Suk and worked with local people to try and create a new watershed governance structure in the form of a local network.

Current Governance Arrangements

The current governance arrangements in Mae Suk are a legacy of the governance history outlined above. Land use decisions are governed, in part, by the framework of the national government in which opium production remains banned and shifting cultivation is discouraged. Likewise, the market rules that govern the economy of Thailand, and the transportation and information infrastructures reaching Mae Suk, allow households to make land use decisions based on price and demand from various buyers. Village and sub-district level governments appear to have little direct role in governing natural resources, though they play an important role in organising various supporting services. Customary governance continues to influence land use decisions. Examples include Hmong clan leaders helping to settle land disputes or agreeing to establish a conservation forest in their village territory, Karen traditional leaders managing collective forest property, and Khon Muang leaders using traditional organisations to mange their irrigation system. In short, current governance in Mae Suk includes external institutions and actors such as the State and the market, and internal institutions such as village governments, producer households, and customary groups and leaders.

Strengths and Limitations of Current Governance

One important strength of the current governance system is its ability to support the vibrant market-based land use system that has been created. Upland areas that previously produced limited subsistence crops or illegal opium now produce a wide range of ever-changing fruits and vegetables. There appear to be few short-term constraints to this pattern.

However, there are incipient problems in the watershed for which additional resource governance is required. Foremost among these is the need for new rules and organisations to manage the limited water resources of the Mae Suk sub-watershed. The lowland-based Khon Muang have long been irrigators and have evolved effective water management. The limited irrigated areas in Karen villages likewise have been effectively managed. The new demand for water comes in the uplands where the Hmong and Karen have introduced sprinkler irrigation. While there is little research data to document the effect of this sprinkler irrigation on the water available to the lowland producers, the latter perceive that they are being shorted and significant tension exists among the various cultivators of Mae Suk. So far, no suitable governance management is in place to deal with this matter.

The current governance structure also is lacking what might be called environmental governance capacity. Environmental problems associated with new cash cropping in the sloping uplands – such as pesticide or fertiliser pollution of surface and ground water resources or the loss of topsoil and resulting sedimentation of lowland irrigation systems – are currently neither monitored nor managed. These capabilities are simply absent from the current governance structure and represent a significant limitation.

Field Visit 3: Mae Tum: Active shifting cultivation

Ban Kok Noi: The Lua shifting cultivators

The Lua are indigenous people living in northern Thailand who have practiced rotational shifting cultivation for centuries. The Ban Kok Noi Lua village has been in its current location for more than 150 years with a total population of 200 people in 45 households. They maintain a 7-year shifting cultivation cycle in comparison to the 9-year cycle in place 8 years ago.

Governance History

The Mae Chaem watershed used to be an opium cultivation area. The Thai Government has declared it a critical watershed as well as a National Park. State policy in past decades has promoted the sedentarisation of land use practices resulting in the reduction of the shifting cultivation cycle and intensification of land use. Although the Lua have been Christian for decades, the worship of natural spirits is commonly practiced for shifting cultivation and natural resource management. They believe each land has its own spirits, which need different sacrifices. Rituals called 'mopi' are held by the spiritual leader. The Lua have maintained good relationships with other tribal groups such as the Karen.

Current Governance Arrangement

Shifting cultivation is still the predominant livelihood activity. Swidden-fallow fields are still common property. The selection of swidden plots is based on the collective decision of the community at the village meeting. Although the spiritual leader has the right to choose a sub-plot, other villagers may have their own traditional boundary within the plot. In the case of failure of crops, villagers can borrow food from a communal 'rice bank' at 10-20% interest. The current village headperson has been elected by the whole community and has nominated two deputy headpersons. The Government pays a limited subsidy to the elected village headperson. In order to devolve power to the local community, a new institution called the 'Tabang' has been introduced as an experiment. Two members have been elected as village representatives to the 'Tabang' for higher level meetings and policy planning.

Strengths and Limitations

- Livelihoods

The Lua practice of shifting cultivation is in transition, from a subsistence to a market economy, and from rotational forest fallow to permanent agriculture. However the intensification of upland areas has been constrained by poor road access and water shortages in the dry season.

- Land use/conservation

The local community perceives conservation as a threat to sustainable land use and livelihoods. Local people say that they will continue to practice shifting cultivation as their culture and livelihood dictates.

- Resource rights

The area has been categorised as a conservation zone and a class A watershed, hence the Lua do not have any land title over the land. Their resource access has been confined.

Field Visit 4: Lamphun: Longan grower's association

Rural Governance and Longan Production in Lamphun Province

Background

Over the past several decades, the Lamphun Province has become the centre of longan (lamyai) production in Thailand. Thousands of hectares of low land, previously used for wet-rice production, as well as some degraded forest lands have been converted to longan orchards. Much of this land conversion occurred during the economic boom in Asia and at a time when longan prices were higher than today. In part, this land conversion was fuelled by the rising price of land throughout the Chiang Mai valley and the investment funds available to the then growing middle class of Thailand.

Governance History

The governance actions supporting the development of longan orchards appear to largely have occurred at the national level. There were few, if any, local rules or regulations that either impeded or propelled this pattern of land conversion. National policies for titling land, which began in the 1980s, created conditions of ownership security that allowed outside investors to purchase land for conversion to the high-value crop of longan. It also encouraged existing owners to make the financial investment in their land. This land conversion process was aided by prior government policies that helped establish producer cooperatives, which supported the provision of needed inputs and services for marketing longan. Recently, with support from the national government, the Chiang Mai University has established the Hariphunchai Longan Research and Development Center in Lamphun Province to deal with technical production matters.

Current Resource Governance Arrangements

Currently, resource governance of longan orchards is almost exclusively in the hands of the individual land owners who make decisions in response to market prices. However, the state has been intervening in the market to set quotas and prices for state-supported longan purchasing with very negative results for many producers and their local cooperatives. Some local producers are trying to reshape these state policies by establishing a province-wide network of longan growers to act as an

advocacy group. Thus, the current arrangements for longan governance are a combination of state level actions and policies, and local level civil society action.

Strengths and Limitations of Current Governance

An important weakness of the current arrangements is that the state actions are not in tune with the conditions and needs of the local growers. It appears that the state's intervention in longan pricing has introduced considerable confusion in the market. The strength of the current governance setup is the existence of producer cooperatives at local and provincial levels. These groups have facilitated the formation of an informal network of growers mobilised to advocate for needed changes in state policies.

annex 7
case study abstracts

Small-Scale Irrigation in Upland Communities in Lao PDR: A Research Framework concerning the Governance of Property Relationships in Transitional Areas of Upland Southeast Asia

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Upland tribal communities in some areas of Laos are under increasing social and ecological pressure to abandon traditional means of shifting cultivation in favour of irrigated wet-rice cultivation. The transition from one mode of cultivation to another, results in changes in the structure and organisation of property relationships within the community that require new rules of communal governance. How new property relations are defined will affect the distribution of productive assets within the community and will have a profound impact on how irrigation systems are managed. This paper reviews the literature concerning the governance of property rights and common pool resources in the context of transitions from extensive to intensive modes of cultivation in upland areas of Lao PDR. The paper outlines a research framework that explores how social norms and patterns of reciprocity, governing traditional property relationships in subsistence farming communities, change when new technologies of agricultural production are introduced. Although specific attention is focused on small-scale irrigation projects in northern Laos, this framework may have relevant research applications for other upland areas in Southeast Asia where people and organisations increasingly compete for control over new productive assets, such as irrigable land.

Building Sustainable Livelihoods in Lao PDR: Untangling Farm from Non-farm, Progress from Distress

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Lao PDR is among the poorest countries in the world. The majority of households continue to rely on farming to meet their needs. The country is also going through an important transition, as the market extends into formerly remote rural areas. Drawing on surveys of nine villages across three sites, the paper elucidates how households are managing the transition from subsistence to market economy.

Agriculturally resilient communities with considerable potential are contrasted with villages where the scope for increases in farm output are sharply constrained. The growing role of non-farm activities is highlighted and a distinction drawn between 'distress' or 'progressive' diversification. The paper argues that diversification is propelled by very different forces and has markedly different implications in livelihood terms. It also suggests that while general statements can be made about livelihood transitions in the country and the production and reproduction of poverty, at a household level it is often not possible to 'read-off' likely livelihood conditions from a mere assessment of resources.

Ecological and Economic Impacts of Land Use Change in Baoshan, Yunnan, China

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Patterns of land use are inextricably linked to the household economies of people who utilise land as a resource. In this paper, we describe the land use change in a small mountainous watershed in western Yunnan from 1989-2001 using a combination of RS, GIS and landscape ecology methods, and link these results with the livelihood changes of local farmers. Farmland has been reduced dramatically in the last 10 years by national-scale afforestation programmes. This has affected not only the ecological landscape but the social and economic landscape, as farmers have adapted their resource allocation strategies in response to the loss of farmland. Landscape fragmentation, as indicated by patch dynamics, has decreased. Small scattered patches of forest and grassland have been consolidated into larger patches as existing areas of farmland are reduced by tree-planting projects. Meanwhile, the amount of time spent in off-farm employment has increased due to reduced agricultural labour requirements. The landscape itself no longer provides sufficient grain or income to meet basic needs, and so forces a shift in labour allocation. This in turn leads to a less intensive use of local agricultural and forest resources. This marks a transition from a land-based to a cash-based economy, which may result in more diversified natural resource management.

Ethno-market, Ethno-marketing and Ethno-marketable NTFP (Non-timber Forest Products): Market Characteristics of Commercial NTFP in South Yunnan after Market Liberalisation

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Since 1978, Chinese market reform has adopted the notion of neo-classical theory to increase market competition and promote free market principals. Simultaneously, reform is attempting to abolish the central planning economy in order develop a 'market economy' as the key mechanism for resource allocation. After more than two decades of this reform, the market activities in rural society, especially the ethnic regions of Yunnan present an interesting and complicated field of research. This study examines the market impact on rural sector and explores farmers' actual marketing practices and their understanding of markets. Based on ethnographical perspectives and research on NTFP (non-timber forest products) in South Yunnan, this paper argues that the current rural economic structures continue to function, with considerable influence from local cultural, historical, and political conditions, in association with emerging global markets or globalisation. These factors coexist to make ethno-

marketing activities possible. In this regard, the strength of local market controls is important for local natural resource management and fair trading.

Trade along the China-Vietnam Border: Under the Veil of Opportunities and Threats

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China's rapidly expanding capacity in agriculture and forest production brings a new urgency to the development challenges facing Vietnam's northern upland region (NUR). China's growing economy and the surge in bilateral trade between China and Vietnam continue to inspire optimism that trade with China will create new markets for smallholder farmers in the NUR, because of their proximity to the Chinese border. However, the majority of Vietnam's limited agri-product exports to China are presently produced in the Red River Delta and regions to its south. Without substantial public and private investment in markets and market support systems in the NUR, regional infrastructure development and trade initiatives will further marginalise the region. Similarly, as China undergoes a nascent 'supermarketisation' process and restructures agriculturally as part of its accession to the World Trade Organization, NUR farmers will find it increasingly difficult to compete vis-à-vis price or quality in third-country, domestic, and local markets. In response to greater commercial exposure to China, rural development paradigms in the NUR, and across Greater Montane Mainland Southeast Asia (MMSEA), must extend beyond current time-delimited, donor-driven approaches and incorporate more invested, self-sustaining institutional forms. Scenarios for one potential form – not-for-profit companies – are briefly explored here.

The Loss of Shifting Cultivation: A Case Study of Land Use Change in Mengsong, a Hani Community in South Yunnan

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Although shifting cultivation in China was not specifically forbidden by government policy, this form of agriculture is declining. In Mengsong, Xishuangbanna, where shifting cultivation has long been a traditional part of the agricultural system of the upland Hani people, the reduction in shifting cultivation was found to be caused by paddy field supplements, mining industry inducement and a government investment programme. All these factors necessitated a choice in local land use; between swidden cultivation and paddy rice fields, between shifting cultivation and mining, and between shifting cultivation and economic cash crops. Whenever the government tried to stop shifting cultivation by changing land tenures on swidden areas, it has always failed due to local actions again such changes. Whether or not, shifting agriculture and agro-biodiversity continue to be lost will be determined by the respective roles the state and the people play during this process of change.

Expansion of Rubber Changes Socioeconomics and Creates Environmental Concerns in Menglun Township, Xishuangbanna, Southwest China

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Significant changes in land use and land cover have occurred in the Menglun Township of Xishuangbanna, Southwest China. This is a place with outstanding ecological value and is representative of the ecological and socioeconomic conditions of the region. An analysis of spatial data showed that since 1980 rubber plantations have expanded greatly, generally at the expense of forest and shifting agriculture. The majority of this rubber expansion was in the lowland areas where temperate conditions and road access enabled the development of the rubber industry. Economically, most villages showed an increase in standard of living and net incomes, most notably in the lowland villages. However, the increasing population and improving living standard of the people will place more pressure on the environment and on limited resources, making the future of these industries unclear. Although the Government considers rubber and other plantations such as tea and sugar to be 'green industries', the loss of agricultural lands, shifting agriculture, and forest, together with a dilution of ethnic cultural traditions, suggests that the potential impacts of these policies should be considered carefully. The results seen here should also be taken into account in relation to other communities such as northern Laos, where the rubber industry is looking to expand greatly in the near future.

Loss of Access and Reclamation of Land Rights: A Case Study of Landless Farmers' Social Movement in Northern Thailand

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Northern Thailand has increasingly promoted the commercialisation and privatisation of communal land over the past few decades, especially through the Land Titling Programmme introduced in 1985. The programme was an attempt to secure the farmers' land tenures and their better chances in a free market economy. Actual results were often quite different, however, and although the changes have increased cash incomes and brought modernisation to some villagers, it also deprived poor villagers access to land and made many of them more vulnerable. Farmers' movements have evolved in the late 1990s as a result, with more than 3,700 landless households in 23 areas of northern Chiang Mai and Lamphun Province occupying land and demanding access rights. This study explores the complex factors leading to this situation, using ethnographic methods and access analysis over a three-month field investigation in Lamphun village in 2002-2003. Research involved in-depth interviews with farmers' group leaders and participants from nine affected villages, interviews of NGO staff, and the consolidation of lessons from the farmers' stories. Several major trends were identified, including, existing unequal power relations among poor farmers, wealthy capitalists, and the local authorities; the lack of information or knowledge of farmers of their rights, especially when selling new titled land; western-oriented concept of exclusive private property rights, replacing a more flexible local land use system, ignoring 'social relations' and causing problems and conflicts; and forcing landless farmers into wage labour, while small-scale farmers are trapped in a vicious cycle of poverty and debt. In response, some villages have decided to maintain reclaimed land as communal, allocating plots to individuals with 'use rights' (but no right to sell), as in the case of the Rai Dong village.However, this

communal system still faces problems, such as preference of some to sell land for quick cash income and single cash crops, or land left idle as farmers pursue wage labour, and limited geographic scope of the system to a few villages. Efforts continue to find a balance between livelihood and land security, with exposure to ever-increasing market pressures.

Beyond Borders: Emerging Forms of Transnational Advocacy for Improved Transboundary Environmental Governance in the Greater Mekong sub-region

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Within the past decade, nations located in the Greater Mekong sub-region (GMS), often collaborating with regional international institutions, have facilitated a range of frameworks and mechanisms that promote regional cooperation. While enhancing economic cooperation and trade liberalisation, these regional initiatives pose serious challenges for inter-state relations and the equitable and sustainable use of transboundary natural resources. Concern is mounting over how China's development patterns are causing environmental harm in downstream GMS countries, potential conflicts surrounding who has 'sovereignty' over shared resources, and transboundary impacts of development projects. Furthermore, economic development in the GMS, primarily determined by the region's governments and multilateral institutions, has not adequately addressed the interests and concerns of civil society, particularly those pertaining to transboundary environmental impacts. Institutions, such as the Asian Development Bank's (ADB) GMS Regional Cooperation Program, the Mekong River Commission (MRC), and the Association of Southeast Asian Nations (ASEAN) have been criticised for lack of community engagement and their promotion of large-scale projects neglecting ecologically sustainable alternative development. It is regional citizens who most suffer from adverse environmental impacts, yet they are not represented in the environmental networks to negotiate regional solutions. Therefore this paper explores emerging alternative mechanisms that can contribute to enhanced environmental governance at the regional level. Specifically this paper examines the role of 'local' civil society and the emergence of transnational civil society advocacy efforts in the region, through the analysis of two cases, to address transboundary environmental impacts posed from China.

Agricultural Competitiveness in Cambodia

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The Rockefeller Foundation has funded a research project on agricultural competitiveness to be conducted by four institutions in Cambodia, Thailand, Vietnam, and Laos, under the overall coordination of the Cambodia Development Resource Institute (CDRI). The first phase of the research was conducted by CDRI from January 2003 to July 2003 to identify the scope and scale of the commodity systems of major non-rice crops in Cambodia. A report on Phase I on 'Production, Marketing and Processing of Cash Crops' was produced and formed part of the Annual *Cambodian Economic Review 2003* published by CDRI in September 2003. Phase I exploratory analysis identified four cash crops (soybean, cassava, cashew, and maize) as being the most important for the country after rice, and thus suitable candidates for further, in-depth investigation in Phase II. In Phase II, CDRI entered into partnerships with Can Tho University in Vietnam, Chulalongkorn University in Thailand, and

the National Economic Research Institute in Laos. The proposed presentation includes a discussion of the main findings from the Phase I research and observations pertaining to upland areas of the MMSEA.

Study on Land Use and Livelihood Transition in Northern Laos

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The landscapes of mountainous northern Laos are undergoing rapid transformation as the region becomes integrated into the regional economies of China and Thailand. Rural livelihoods in the upland areas, based on subsistence agricultural production, are changing as more households are engaged in the market economy. The current study examines changing landscape and livelihoods in northern Laos, through spatial analysis and review of the agricultural sector. In particular, the study reviews land use and forest cover changes between 1993 and 2000, and agricultural production in four northern provinces. The result of the study indicates increased forest cover in the last decade, which signifies decreased expansion of areas under shifting cultivation. Agricultural sector analysis in the four northern provinces indicates the increasing importance of commercial agricultural production over subsistence agricultural production. Policy analysis also indicates the impact of government policy on controlling shifting cultivation practices in the upland areas, and increased government efforts to promote cash crop production in the northern provinces.

Forest Conversion and Land Use Changes in Farmlands of Northwest Yunnan, China: the Challenges of Measuring Forest Quality with Remote Sensing

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Across Southeast Asia the major cause of deforestation is agricultural expansion. However, Yunnan Province typifies the situation in China, where, following a long history of forest utilisation and dramatic rural policy changes, various studies point to a recent increase in forest cover. Such studies are regional and either use coarse resolution satellite imagery as a monitoring tool or rely upon country-provided statistics, which use varying and often changing 'forest' definitions. There is debate about whether there needs to be greater emphasis on forest quality rather than cover. This paper aims to quantify forest cover and land use changes in a Tibetan-dominated rural township located within one of the world's biodiversity 'hotspots' in northwest Yunnan Province, China. Three sequences of classified Landsat satellite imagery dating from 1981 to late 1999 and other digital datasets were used in a hierarchal rules-based classification approach. Six land use/cover classes were classified with acceptable accuracy assessment scores. The results show an aggregate decrease in area under cultivation of 37%, and an average aggregate decline in both fir and pine type forests of 23%, mostly due to an active logging industry. Overall, grassland increased as a response to increasing dependence on livestock by the rural communities, while high elevation rangelands decreased in area. Shrub land increased by over 100% during the study period. Shrub land is a variable category that illustrates the limitations of remote sensing on this scale – it was impossible to discriminate between poorly developed forest regeneration and/or re-planting, secondary succession of abandoned grasslands and a variety of other shrubby community types. This study highlights the limitations of

considering only gross forest cover, and the difficulties of mapping land use in diverse mountainous areas supporting multiple land uses. It is suggested that investigating and attempting to delineate forest structural and floristic variability (in particular historical post-logging regeneration, rangeland conversion and reforestation) will improve image classification and the applicability of land use/cover mapping. Also, it is argued that if regional statistics of forest cover are to be used as a basis to formulate policy, they must first be qualified at smaller spatial scales to ensure greater validity.

Multi-scale Scenarios for Exploring Future Land-use in the Greater Mekong region

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Over the past two years we have been working towards integrating our practical experiences in trying to improve the governance of natural resources in the Mekong region with the theoretical and descriptive research on multi-scale environmental change. Adopting a complex adaptive systems perspective towards human-environment dynamics has led us to question the conventional role attributed to knowledge systems in development, and of technical expertise in particular, in decision-making, management, and policy formulation.

It has also increased our scepticism about the capacity and desirability of 'control' and 'efficiency' as underlying rationales for managing the evolution of landscapes, both rural and urban. Uncertainties and complex relationships between social and ecological changes at multiple-scales typically generate surprises that society is not very good at anticipating. We are developing a framework based around the idea of navigating changes in social-ecological systems that accepts negotiation and contest in political arenas as a key process rather than a hindrance to sustainability. We depart from the more technocratic approaches within this field to include issues of governance and science within the framework rather than existing outside it. Having a realistic and defensible model of governance seems essential to go beyond understanding land-use and cover dynamics to influencing development in fair ways.

Scenario-building exercises could play a role in creating arenas over which stakeholders at different levels can learn about each others interests and aspirations and some of the biophysical and natural resource constraints to development. Nested scenarios are a useful extension of conventional exercises in that they allow the possibility of exploring linkages at multiple scales. Cross-scale issues can be handled through consideration of 'discordant scenarios'.

This paper describes a set of nested scenarios developed for exploring the effects of future changes in land-cover on ecosystem goods and services and livelihoods. The focus of finer-scale analyses is on the mountainous regions within the Greater Mekong region, but recognises that understanding changes here requires the broader context of mainstream development in the capitals and coastal plains of the region.

The approach taken was explicitly multi-scale and combined quantitative and qualitative methods. Qualitative story-lines were developed in parallel with more mechanistic soft-models and sequence pathways using graphical summaries, and a simple landscape simulation model. Soft models help stakeholders and other participants better articulate the underlying assumptions in their own and alternative models of social and environmental change without getting distracted by the misleading

over-quantification. In this sense they stand somewhere between written and verbal stories and systems models. The story-lines of the scenarios helped guide the development of the simulation model and evolved landscape trajectories, which in turn were interpreted within the qualitative context provided by the scenarios.

Two parallel sets of contrasting scenarios were developed at the Northern Thailand and Mekong region scales. The scenarios were constructed to intentionally capture the large uncertainties about how livelihoods and regions could engage with wider markets and social structures. At the Mekong River Basin scale of analysis, these four scenarios are labelled after the kind of market integration that they imply, namely, 'Agro-Globalisation', 'Globalisation', 'Compartmentalisation', and 'Ruralisation'.

A simulation model, the Ecosystem Landscape Scenario Explorer (ELSE), was developed to help explore in a spatially explicit and semi-quantitative way the storylines and texts. The modelling work is still at a relatively early stage of development with most of the emphasis so far on providing a platform for exploring relationships and sensitivities. The model is built around a core set of empirically derived regression equations to which are added rules for altering some of the key map layers. The current version includes the rudiments of a road-extension algorithm. Provisions are made for adding consideration of the dynamics of population distribution, protected area systems, and irrigated areas.

The Editors

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