Institutional Dynamics and Interplay: Critical Processes for Forest Governance and Sustainability in the Mountain Regions of Northern Thailand

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1. Introduction

The main argument of this paper is that changes in the formal and informal institutions that govern natural resources in mountain regions of northern Thailand have been critical for environmental changes, livelihoods and sustainability. Over the past decade, there have been new insights from interdisciplinary research on how societies interact with environmental changes in mountain regions. These have underlined the importance of institutions as both causes and responses to environmental change, and how institutions themselves arise from the way environmental and sustainability problems are constructed. In this chapter, these more general findings will be illustrated primarily through examples from recent and ongoing research in the mountain region of Northern Thailand. Taken together, these various studies challenge long-held beliefs about what constitutes problems in environmental change and sustainability, underline the need for a better understanding of cross-scale interactions, and point the way towards a more open and accountable science in support of sustainability.

2. Institutional causes of and responses to environmental change

The policy of successive (Siam) Thai governments since around 1900 has been to assume greater control over decision-making and management of forestlands, and to find ways to limit access to land, timber, and other forest products (Table 1, Pragtong and Thomas 1990). The limited capacity and resources of the bureaucracy, however, have allowed many peripheral areas to develop relatively undisturbed until well into the second half of the past century. The nationalization of forest resources (Vandergeest 1996) has been accompanied by a shift towards the use of western scientific systems of knowledge about how to log teak forests, establish pine plantations, and more recently, conserve wildlife and habitat in protected areas. As a result, traditional ecological knowledge and property rights systems have been re-bundled or dismissed as irrelevant in the state's drive towards modernization. Formal property rights for land and timber have over the last century been transformed several times by the state as a result of changing policies towards national security, logging, narcotics control, macro-economic and rural development policies, and conservation (Ganjanapan 2000; Contreras 2003). Most of these changes in laws and regulations were applied to the whole nation by the central bureaucracy, despite very different forest conditions in different regions.

Table 1: Summary of some of the major historical institutional changes directly related to forest management in Thailand.

Year	Institutional Changes
1896	Establishment of the Royal Forest Department
1900-1910	Several regulations regarding management of teak concessions, for example, minimum girths, cutting cycles and block sizes
1913	Forest Conservation Law – first state attempts to control non-teak forest products
1938	Protection and Reservation Forests Act – started process of mapping out different forest uses – implementation initially very slow.
1941	Forest Act – replaces Forest Conservation Law of 1913. Further revisions in 1948 and 1951.
1947	Establishment of Forest Industry Organization, a state logging enterprise
1960-61	Wildlife Conservation and Protection Act and National Park Act – began process of demarcation of protected areas.
1964	National Forest Reserves Act – facilitated commercial exploitation by reducing need for local community consultation with decision-making left largely with Royal Forest Department.
1985	National Forest Policy – adopted FAO goals of 40% forest cover for nation in both conservation and production forests.
1989	Logging ban and revoking of timber concessions
1997	New Thai Constitution and 8th National Economic and Social Development Plan – promoted idea of decentralization.
2003	Community Forestry Bill – that would allow use and management decisions to be made by community rather than state organizations: multiple versions debated for over a decade – highly restricted version may come into force.

The north has maintained relatively more areas of forest than other regions of Thailand, in part, as a result of its complex topography. As elsewhere in Thailand, virtually all lowland plains and larger inter-montane valleys have been cleared of native vegetation for agriculture, plantations, and urban development. Some of the irrigation systems for rice around Chiang Mai town, for example, are centuries old. Forest cover persists in smaller upland catchment areas, often as part of traditional fallow-based land-use systems, and in more remote and steep terrain, much of it now inside the boundaries of national parks. Access to forestland is an important part of the traditional livelihoods of the numerous ethnic groups, which are numerically dominant in the upland areas, both as part of their fallow-based rotational systems, as well as for timber and non-timber forest products. The mountainous landscape of northern Thailand is, therefore, important both for conservation of biodiversity and the livelihoods of farmers (Rerkasem et al. 2002; Santasombat 2003).

Over the past 30 years, wars in neighbouring countries have had a major impact on immigration into the highland areas, increasing pressure on land and water resources, as well as reinforcing negative attitudes of the Thai state towards the uplands (Forsyth 1999; Vandergeest 2003). Public debate over the magnitude and consequences of forest loss in northern Thailand has been intense, in part because of perceived threats to the economically and symbolically (*rice bowl* of Thailand) important irrigated agriculture in the lowlands around Chiang Mai, and further downstream, the central plains around Bangkok (Laungaramsri 2002). The result has been battles and political gridlocks over legally recognizing rights to citizenship, community forests, agricultural land and villages in upland watersheds, many of which are now within the boundaries of national parks. Negotiating resolutions in these conflicts has been made more complex by differences in language, culture and land management systems among the ethnic minorities and Thai as well as significant in-migration in some border areas arising from armed conflicts and poor economic conditions in neighbouring countries.

3. Rules on paper, rules in use

Institutions are "systems of rules, decision-making procedures, and programs that give rise to social practices, assign roles to the participants in these practices, and guide interactions among the occupants of the relevant roles" (Young et al. 1999); they include both rules on paper and rules in use. Formal institutions, such as government laws and regulations that are enforced by police, soldiers or inspectors, are the most obvious type of institution. However, appearances can be deceptive. In Thailand, many of the laws concerning forest protection have proven impossible to implement or easy to circumvent with the right connections. The logging ban has not applied, for example, to some senior forestry or military officials, resulting in periodic scandals in the press. Likewise, villagers in remote areas have often been able to make compromises and deals with local government officials over clearing land for agriculture and forest access, where state laws would make such activity illegal. Flexibility in local institutional arrangements has both positive and negative implications for social justice and sustainability.

Moreover, in most mountain areas there were probably earlier institutions, both

formal and informal, governing access and use of forest and forest-derived lands (Tan-kim-yong 1997; Poulsen et al. 2001). Thus, apart from formal rules, there is a whole range of informal institutions that are critical for understanding the causes of, as well as vulnerabilities to, environmental changes. The capacity for local institutions to adapt to new technologies, larger and more mobile populations, as well as direct threats to human security, appears to vary greatly from place-to-place, with examples of both success and failure to manage local resources sustainably under more traditional and modern contexts.

4. Institutional interplay

The system of forest governance in Northern Thailand has changed substantially in the past hundred years. New institutions have been introduced at local, state and international levels, while many local institutions have been abolished or significantly transformed. As the number and complexity of overlapping institutions that deal with different aspects of forest governance increases, the success or effectiveness of a particular institution increasingly depends not only on its own characteristics but also on how it interacts with other institutions, or the institutional interplay (Young 2002). Interactions can be characterized as vertical (across levels of governance) or horizontal (on the same level of governmental organization).

Over the past century, different branches of the Thai government developed their own policies in the key area of land tenure and settlement. This resulted in strong horizontal interplay between different systems of rules and the implementing organizations (Lebel, in preparation a). Among the many bureaucratic players the Royal Forest Department, the Department of Land Development and the Ministry of Interior have been key. The history of conflicts over rights to land for settlement and agriculture, to timber and non-timber products, and to water and watershed services has been intertwined.

Vertical interplay is also a relatively modern phenomenon, at least for the inhabitants of the more mountainous region. Mountain people were, at least partly and probably intentionally, insulated from the civilization building projects of various competing kingdoms in the lowlands (Scott 1998). Interplay of state and local institutions, has been a major process influencing the management of forestlands, as noted before, primarily through the submission and replacement of local institutions. Interplay has been highly asymmetric starting from centralized state decisions, operational guidelines and goals.

Several new institutions at the international level have emerged over the past two decades. The "International Forest Regime", however, remains fragmented and largely ineffective. The 1992 Earth Summit produced two soft law instruments, "Agenda 21", chapter 11 of which focuses on deforestation, and the non-legally binding "Forest Principles" statement. It also resulted in two conventions, the "Convention on Biological Diversity" and the "Framework Convention on Climate Change" that refer to forests. A decade of intergovernmental dialogues since then, however, has been unable to establish clear rules or standards, as well as coordination mechanisms between institutions, or to provide a regular forum for dialogue or conflict

resolution where issues of forest management have been concerned. As elsewhere in Asia, domestic factors, especially corporate interests in timber harvesting and then plantations, have been a crucial factor in the state responses to the "International Forest Regime" (England 1996; Dauvergne 2001).

5. Sustainable livelihoods

Ethnic minority communities in the uplands of northern Thailand include many of the poorest in the nation but, overall, economic and health indicators suggest wellbeing is improving. The consequences of institutional and environmental changes for livelihoods are not easy to summarize as they are confounded by the many other social and economic changes affecting the uplands. The enforcement of restrictions on access and use of forestland and products, as well as tenure insecurity, have undoubtedly been an important challenge to livelihoods. On the other hand, improvements in road and communication infrastructure have made access to commodity, labour, and credit markets much easier.

A key livelihood strategy has been the diversification of income sources, which in turn can both remove or increase dependencies on forest ecosystem goods and services (Lebel et al., in preparation b). In some locations, there is a strong competitive advantage for earning income from tourism, for instance, through providing elephant rides and bamboo-rafting experiences. Here, there can be strong incentives for maintaining a forest-like setting. Other places, because of their proximity to good water sources, roads and market channels, may expand and intensify the cultivation of higher value temperate crops (e.g. cut-flowers, lychees, and stone-fruit), which grow better in the cooler upland climate.

The manipulation of watershed functions is a deliberate traditional practice, for example, through choice of areas for clearing and forest preservation in Karen villages (Tan-Kim-Yong 1997). Whether the customary institutions that govern these practices will persist, or be replaced by new ones over the layout of sprinkler irrigation systems and the diversion of upstream water, remains to be seen. What is clear from research is that upland farmers often show a remarkable capacity to adapt their land-use systems, natural resource institutions and culture to a wide variety of challenges and opportunities (Rerkasem and Rerkasem 1995; Thong-Ngam et al. 1995; Battersbury and Forsyth 1999).

To what extent these capacities will be effective in reducing vulnerability to particular aspects of future global environmental changes in the mountain regions of northern Thailand has been little studied. We note, with concern, that total consumption of water for agriculture, forestry, human settlements and industry has grown rapidly, and in many places, now often approaches the total potential supply with current technologies. Changes in rainfall patterns under climate change could greatly exacerbate these problems creating intense competition and conflict over water resources. The point remains that the detailed structure of water- and land-rights, and the process by which they were arrived at, will probably continue to have important consequences for the vulnerability of different places, sectors and people to environmental changes arising and driven by processes at various scales.

6. Governance and knowledge

The consequences of the current trends in livelihood activities for forest ecosystem goods and services are uncertain. Changes in forest conditions are caused not only by a variety of actors but also by interactions between institutions that change incentives for these actors at multiple scales. The way a number of nascent political and agricultural market institutions unfold will matter greatly.

For instance, in the more mountainous districts of Chiang Mai province, the larger ethnic minorities with citizenship rights are now taking their places in local government (Tambon Administrative Councils). Although these government bodies do not yet have jurisdiction over critical forestlands in their area (which remains with the Royal Forest Department), increasing political power could change some of these arrangements at least locally. While issues of ethnic identity (cf. Vandergeest 2003) may grow less important with economic and cultural exchange, the tension between upland and lowland water, land and forest user groups will probably intensify.

Future governance systems should aim to retain a certain amount of the flexibility that is inherent where state capacity to implement is weak. Institutional arrangements need to be able to respond to improving as well as deteriorating forest conditions. They also need to be sensitive to the wider social, economic and political contexts of transformation (Fig. 1). The key policy issue is therefore how to foster resource management institutions that promote resilience of both the ecological and social systems to a suite of stresses, challenges and potential surprises, including but not restricted to those from global environmental change. The way water- and land-rights are constructed and are allowed to evolve is critical to whether capacities to cope and adapt will be fostered or suppressed in the groups most at risk. Multi-stakeholder processes appear crucial.

In Thailand, governance is no longer seen as the sole responsibility of the state. Local communities have contributed to forest governance in the past and should continue to do so in the future. The poor record of the Thai state in managing forest resources strongly argues for a high level of local participation in decision-making, monitoring and the formulation of rules. An open public policy process that contains mechanisms to achieve objectives at different scales is still lacking. For these reasons, one of the most important areas of future research will be on institutional interplay and the potential for new and rebuilt cross-scale institutions. An effective governance system should be sensitive to the need and plight of the most vulnerable parts of the population, often found among those with the least capacity to influence the political process.

At the same time, high quality research on the impacts of land-use and climate change on the goods and services obtained from mountain landscapes is also needed to help clarify polarized debates. State agencies and non-governmental organizations in Thailand have commonly justified their watershed management and land tenure policies based on extrapolations of scientific findings from small-scale and single land-use studies to the complex landscapes of northern Thailand, the entire Chao Phraya basin and even the greater Mekong basin region. Current research on landscape hydrology, erosion and temporal and spatial rainfall variability suggests

that such extrapolations across scales are misleading (Forsyth 1996; Schmidt-Vogt 1998; Thomas et al. 2003).

Throughout the region there is a need to better harness research-based knowledge in support of transitions to sustainability. This is not just an issue of appropriate technology choice and refinement, but also one of coming up with institutional arrangements that encourage sustainable practices and social equality.
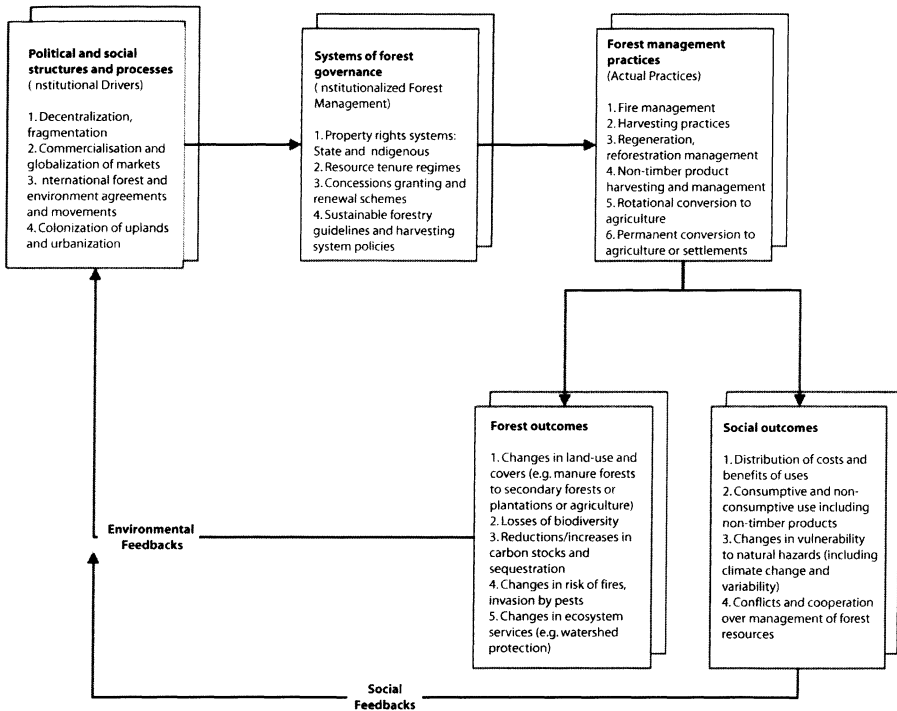

Figure 1: Systems of forest governance and actual practices modify the influences of the political and social structures and processes, which ultimately drive changes in forest land-use and conditions. Changes in forest conditions and the social outcomes of forest management and land-uses influence the institutional drivers of future change in a system that feeds back on itself (adapted from Contreras et al. 2001).

7. Cross-scale sustainability puzzles

The consideration of place and scale is central to the analysis of most sustainability issues. Both ecological and social processes vary with scale, and cross-scale interactions, such as institutional interplay, are among the main sources of complexity. Scale, however, is not politically neutral. The selection of scale may intentionally or unintentionally privilege certain actors or groups. The adoption of a particular scale in science, institution building, or in a policy, limits the types of problems that can be addressed, the modes of explanations that are allowed, and which generalizations are likely to be used in analysis.

Appeals to scale can be an argument that empowers state institutions. Most states view indigenous knowledge and institutions as local in scope, relevance and power, whereas the rules and knowledge of the state are seen as bigger in scale and hence more important. On the other hand, the source of many problems associated with the management of ecosystem services may result exactly from the centralization and uniformity in bureaucratic operations that hinder local participation, adaptation and learning. Ecosystem services are strongly dependent on scale. For example, forests provide carbon storage and biodiversity (as public goods) and timber for a house (as an individual or shared private good). For some cultures, they may also provide a wide diversity of foods and subsistence-use products, whereas other cultures may not even be aware of most of these products or their uses. Scale is thus a critical issue for governance of resources, and especially so in mountain regions where upland-lowland linkages involve different users, interests and histories of institutional development. A multi-scale perspective will often be needed in studies of environmental change in mountain regions.

Comparative, historical and experimental research is needed in the upland areas of Asia on how interactions between institutions and ecological changes play out at various scales. New research should add a cross-scale perspective to the already substantial body of knowledge about local institutions. This will greatly help communities and governments to better understand and react to the consequences of globalization through measures such as market integration, sharing and dissemination of knowledge, new technologies, and institutional innovations. A bottom-up as well as a top-down approach is needed because it is far from clear that design principles, derived from the analysis of an institution's performance at one scale, are transferable to other scales (cf. Berkes 2002; Young 2002). Furthermore, the theoretical aspects of these two growing areas of research need to be integrated better. This could be achieved with models that consider how different sets of rules interact and how actors at various scales either develop trust and cooperation or dissolve into factions and become engaged in conflicts that end in stalemate. Focused research on successful, as well as failed, institutional interventions is required, and these interventions need to be assessed against a comprehensive set of scale-sensitive indicators of sustainability. Some key questions to be addressed are:

1. Under what conditions and for what types of institutions does cross-scale interaction, or institutional interplay, result in better use of knowledge in sustainable management practices and just forms of governance?

2. What are the prospects of re-designing or establishing new institutions or cross-boundary organizations to help bridge gaps across scales? What form should these take?

3. What are the consequences of initial scale choices in problem definition for institutional design and performance?

4. How can institutional interplay and other forms of cross-scale interactions in socioeconomic systems empower the poor and (politically) marginalized?

Finally, a new focus is needed on building institutions that can learn. If sustainability in the uplands is considered as a strategy for maintaining adaptive

capacity and sources of innovation, rather than developing the perfect crop or forest management system, then learning must be a large part of institutional designs. The fit between institutions and their ecosystems will never be perfect, but the possibility of co-evolution through education and adaptation should at least be attempted. This focus intersects closely with issues of scale and current patterns of governance. We need larger-scale frameworks and programmes that enable, rather than hinder, local adaptation. A key question is:

5. What types of organizations and institutions, and what forms of interplay among them, enhance the likelihood that environmental changes can be detected or foreseen, and then foster appropriate investments in adaptive reactions?

Many of the most pressing and challenging sustainability puzzles arise from interactions across scales of social and ecological organization. Empirical and integrative research on natural resource management in mountain regions could make an important contribution to the wider theories and models about sustainability and cross-scale interactions.

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