

WATERSHED GOVERNANCE: LIVELIHOODS AND RESOURCE COMPETITION IN THE MOUNTAINS OF MAINLAND SOUTHEAST ASIA

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INTRODUCTION

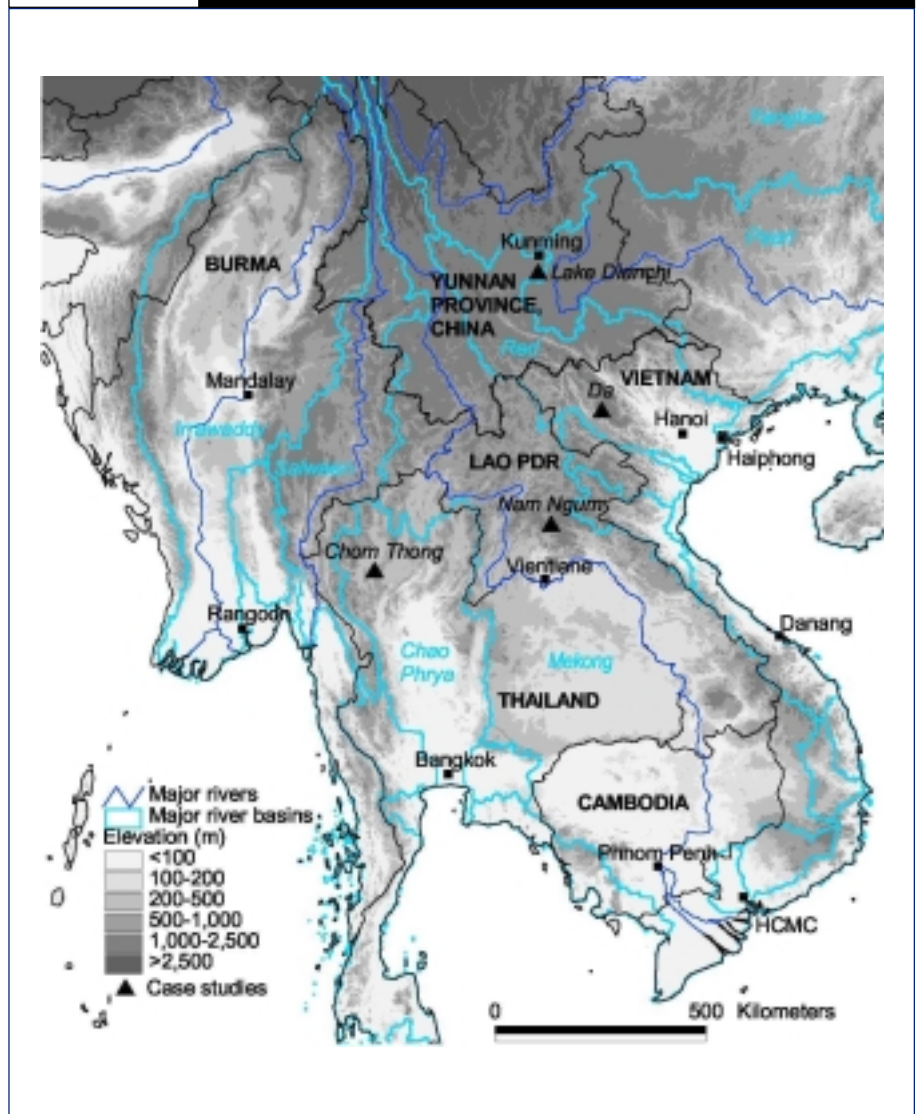
Recent years have brought new evidence of a burgeoning water crisis in mainland Southeast Asia.¹ Cycles of flash floods and droughts emerged as the most serious threat to Vietnam's growing agricultural economy. The reservoirs feeding Thailand's irrigated rice basin, the Chao Phraya, dropped to record lows and instigated unprecedented cuts in water supply to Bangkok. In China, the historic 1998 flooding of the Yangtze River served as a potent reminder of the huge costs of inadequate watershed management.

Many areas of the region also face a crisis in the welfare of upland communities. They are not only left behind in national development, but are also losing access to local resources. The result for these people, such as the residents of Vietnam's densely populated northern mountains or those displaced by logging companies in remote forests of Cambodia or dam construction in Laos, is growing poverty and bleak future prospects.

Crises in water supply and local welfare are symptoms of an underlying trend—increased competition over the natural resources essential to the livelihoods of upland and lowland residents alike. If a village is isolated from outside claims on

Figure 1

Mainland Southeast Asia: Major Watersheds



the natural resources on which it depends and if it is self-sufficient, then questions of how to meet the needs of the residents, how to manage the resources, and how to plan for the future can all be dealt with locally. But today such isolation is rare. The emerging reality in the uplands is one of interdependence and growing competition among *users* of forest, land, and water resources and also among alternative *uses* of the watershed system. Those poised to lose most in this competition are the households and communities whose livelihoods depend directly on the resources. Since most of the major river basins in the region cross international boundaries (see *Figure 1*), the competition is expressed at an international level as well. Changing human needs and demands for the resource base are spurring on this competition, necessitating parallel changes in governance to more equitably allocate the benefits of scarce watershed resources and achieve more sustainable resource use.

Economic Transition and Expanding Markets

Liberalization of economic policies in the region is transforming who has access to upland resources and the ways those resources are used. In Thailand, market forces have helped determine land use in the uplands over the past several decades. In Vietnam, Laos, Cambodia, and China, the government's move toward competitive markets is more recent, causing changes in regulations covering private firms, state enterprises, trade, land tenure, and foreign investment.

Although the transition from centralized control of the economy and state production to market-led development is far

from complete, the effects on the ground are already extensive. This is most apparent in new private sector roles for resource extraction, such as logging and mining, and in such industries as coffee, rubber, paper, and silk production that rely on extensive tree plantations. In Cambodia and Laos, the logging that accelerated deforestation over recent years would not have been possible had the government not opened the sector to foreign firms. This helps explain why between 1990 and 1995, mainland Southeast Asia experienced the world's highest annual rate of deforestation (1.6 percent), according to the United Nations Food and Agriculture Organization (FAO).²

Improvements in transport infrastructure, particularly road networks, have also aided the expansion of domestic and international markets.³ Moreover, road development has led to spontaneous migration, unplanned or illegal logging of newly accessible forests, and unplanned land clearing for agriculture, often in fragile environments.⁴

Furthermore, as the benefits of economic growth translate into higher incomes in the region, consumer demand increases the incentive to harvest upland resources. Harvesting of forest plant and wildlife products in the mountains of Laos and Vietnam has reportedly surged since the opportunities for cross-border trade with China expanded several years ago.⁵ Rising consumer demand in China and a scarcity of nontimber forest products highly valued for traditional medicine and other purposes ensure a high price, while upland residents in Laos and Vietnam find it increasingly necessary to

secure income to participate in the cash economy. Rising incomes not only put new pressure on upland forest resources directly but also increase demand for water for agricultural production, hydroelectric power generation, and urban and industrial uses.

Poverty, Population, and Resource Use

Many upland residents in the region are benefiting from the new economic opportunities created by expanding markets and infrastructure. Increased farmer incomes in northern Thailand have been attributed to tenure security, good market access, government or private agro-industry assistance in establishing profitable crops, as well as off-farm employment opportunities in lowland industry.⁶

In large areas of Vietnam's northern highlands, by contrast, prospects are extremely bleak, with rapid population growth, in-migration, and a resource base that is already severely depleted.⁷ With per capita income (in terms of relative purchasing power) less than one sixth that of Thailand,⁸ there are fewer opportunities for upland residents to find employment elsewhere in the economy and greater reliance directly on upland forests and agriculture for subsistence production.

Those countries with rapid population growth are also the poorest in the region, augmenting the challenge of upland development. The populations of Cambodia, Vietnam, and Burma are growing at more than twice the rate of either Thailand or China, while Laos is increasing three times as fast. By 2025, Vietnam is expected to add 32 million people to its

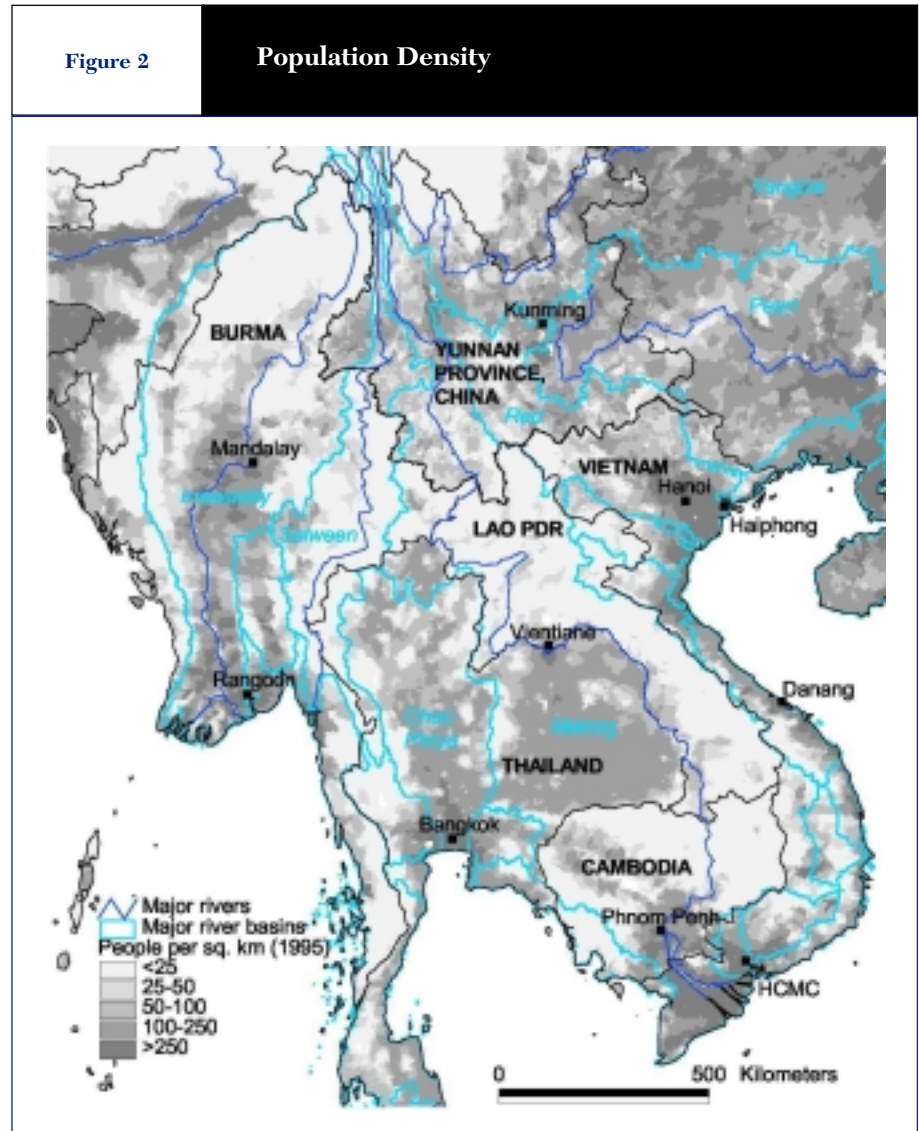


1998 population, an increase of more than 40 percent, equivalent to about twice the current population of Laos and Cambodia combined. In the same period, Cambodia's population is expected to mark an increase of 58 percent, and Laos an increase of 88 percent.⁹

Yet, population trends are only one factor in explaining the character of poverty and resource use in the uplands. Population density in much of Yunnan is high in relation to mountainous areas in other countries of the region. (See Figure 2.) In some remote areas of the province, residents have low cash income but still reasonable standards of health, nutrition, and education; their livelihoods remain intact. Upland residents elsewhere have higher incomes derived from unsustainable resource extraction, temporary labor, or farming on lands where they may be threatened with eviction. More important than net income is security of livelihoods, and for most upland residents this depends on security in accessing and using local natural resources. Economic growth does not automatically translate into better welfare for upland residents. The pattern of growth and the implications this has for resource use are key.

An Ecosystems View

Much of the attention policy officials give to upland land use stems from concerns over its assumed contribution to water shortages, flooding, and downstream siltation.¹⁰ Logging in upper watersheds, forest conversion to agro-industrial plantations, and upland farming systems have all been blamed for these downstream impacts. Research indicates a general trend of cultivated land expanding into



fragile and steep-sloping areas,¹¹ but the effects of this trend are more complex than commonly assumed. The mosaic of agricultural, forest, and other land uses across the landscape has cumulative effects on watershed functions that are not apparent at the plot level.¹²

The high profile of watershed protection efforts in the region reflects a partial shift of government policies for the uplands—from an emphasis on the value of individual resources to the value of

the services these resources provide in a broader ecosystem. In addition to regulation of water flows and water quality for human use, important ecosystem services associated with upper watershed landscapes include maintenance of the health of downstream fisheries and wetland ecosystems, and the contribution of biodiversity to agricultural productivity and local livelihoods.

Better understanding of the real impacts of alternative forms of upland resource



management on ecosystem services is needed to identify policies that provide the broadest social benefit and reduce conflict among groups who depend on those services.¹³ Yet, improving the knowledge base on these biophysical relationships and identifying improved land-use options are only parts of the puzzle. The most technically appealing options will not make it beyond the trial plot or the land-use-planning map if the underlying social and economic trends that motivate current resource use are not addressed.

WHY WATERSHED GOVERNANCE MATTERS

Addressing the underlying causes of resource competition requires changing the fundamental ground rules that define *who* is involved in making resource management decisions, what *powers* these different actors exercise, and how they are held *accountable* for their decisions. Such innovations in governance are important largely because they are systemic, altering the underlying systems and relationships in which resource management decisions are made. When successful, they create opportunities for cooperation that can span the divisions among government agencies and mediate the competing goals of different resource users. They do not erase competition, but they improve the chances that it can be managed equitably.

By contrast, conventional policy responses to a changing upland landscape frequently fail to address the social and institutional dimensions of resource use and sometimes aggravate conflict. Government efforts to control flooding and

improve water supply have suffered from an overly technical emphasis on engineering solutions: dams, flood control structures, and irrigation schemes that consistently perform below expectations. Reforestation campaigns have relied too heavily on government agencies, and in the generally marginal areas where they have involved local communities, they have been done more through exhortation than incentive. Governments have often seen forest communities as sources of problems in resource management rather than partners in finding solutions, sometimes denying them access to key resources or even resettling them.

Throughout much of mainland Southeast Asia, policies in such sectors as forestry, water resources, agriculture, transportation, and industry send conflicting messages to resource users, while agencies work at cross-purposes. These difficulties are not exclusive to any political system; over the past three decades, Thailand under a market economy, and China and Vietnam in socialist systems have faced many similar obstacles in their efforts to harness upland resources for national economic development.

Pursuing sustainable upland development and watershed management requires balancing the diverse interests of national society: rural and urban, upland and lowland, minority and majority. In some cases win-win solutions are possible, such as improved land-use management systems that increase local welfare and restore watershed functions. But trade-offs are frequently necessary in the short term. As the result of a lowland bias in government decisionmaking, upland residents are too often expected to forego

local resource exploitation so that downstream residents or more powerful state and private enterprises may reap the benefits. This power imbalance leads to a fundamental inequity in the flow of resources between the uplands and lowlands. Inequity in access to resources and the distribution of benefits derived from them, in turn, contributes to unsustainable use.

These inequities are difficult to reverse for many reasons. Upland communities, and especially ethnic minorities, are frequently marginalized from government planning and national policy decisions. They are physically remote from decisionmaking centers and face linguistic and cultural barriers to participation. Mechanisms for upland minorities to hold government agencies, businesses, and private landholders accountable for their actions are often weak or absent. Finally, the domain of administrative bodies is usually not aligned with the geography of conflict, frustrating efforts to implement a basinwide approach either within countries or—in the case of transboundary basins—among countries.

The next three sections examine responses to these obstacles in comparative perspective, organized along the nested categories of local, national, and regional challenges of watershed governance. This analysis is informed by case studies of watersheds in the region that exemplify the challenges at these scales as well as the variety of government and civil society responses.¹⁴ (See Boxes 1-5.)



LOCAL LEVEL CHALLENGES

Making Government Agencies More Accountable to the Interests of Upland Minorities

The norm in policymaking is to plan *for* upland minorities rather than *with* them. The difference is significant, because upland communities voice values and priorities distinct from those of government planners. The Chom Thong case signals the problem of lowland bias in policy formulation, as well as institutional and cultural obstacles to the equitable representation of ethnic minorities in resource management planning. (See Box 1.) The result of such biases is that ethnic minorities commonly have little influence over government decisions that directly affect them.¹⁵

The basic problem is that most government agencies working in the region's uplands are principally accountable *upward* to provincial or national authorities rather than *downward* to local communities. Throughout mainland Southeast Asia, efforts to stabilize shifting cultivation have historically been motivated at least in part by an interest in establishing government authority and control over remote populations. In Vietnam, the government has widely used resettlement programs as a means both to relieve population pressure and promote national integration. Governments often promote lowland-based business interests to the detriment of ethnic minorities in the uplands. Strengthening the accountability of government agencies to upland minorities is important on equity grounds, as well as to improve the chances that ecosystem-based management strategies can be designed appropriately and implemented successfully.

How can upland minorities' roles in local planning be legitimized and the channels improved to communicate their interests?

Research institutes—both within and outside government—can play an important bridging role by documenting and reinforcing the legitimacy of indigenous knowledge in technical and institutional aspects of upland resource management. Identifying the links between traditional knowledge and environmental sustainability can also help counter prejudices that prevent many government agencies from working effectively in the uplands.¹⁶

Other priorities for research and experimentation concern how governments can remove the legal and institutional barriers that exclude ethnic minorities from participating in local planning. In Thailand, citizenship for minority residents is a complex issue, because many have arrived in recent years either seeking economic opportunities or as refugees from fighting. Several hundred thousand minority people in the uplands have been registered as Thai citizens, while others have been denied citizenship for years. Key questions include: To what extent do individual rights of political participation for legal residents bolster their legitimacy in dealings with government? Does official recognition of traditional ethnic associations or networks of upland villages, which often link groups dispersed over large geographic areas, improve the representation of ethnic minorities in development planning?

How can capacity be built in government agencies and community institutions to work better together?

For most government agencies operating in the region's uplands, facilitating locally driven development planning is a radical change in roles. A senior Ministry of Agriculture official in Laos has stated that the overriding obstacle to instituting community forestry is not designing appropriate legislation or strategy, but building the necessary capacity in local-level agencies.¹⁷ A variety of programs in the region are pursuing this goal by implementing community-based management while building the required capacity for needs assessment and training into domestic institutions. The Nam Ngum case highlights the need—and the progress made—in improving government's understanding of and responsiveness toward local institutions as part of the land allocation exercise. (See Box 2.)

Many of the most promising examples of government collaboration with local upland communities have involved NGOs as supporters or intermediaries. In Thailand, university researchers have also collaborated effectively with government agencies to introduce participatory land-use planning methodologies.¹⁸ This approach provides a way for officials to understand and be more accountable to upland residents in their own terms, while also building upland residents' awareness of how their actions affect downstream communities. Such a reorientation in personal relations often proves an important addition to whatever formal mechanism is employed to organize discussions and analyze alternatives.



Lying about 80 kilometers from Chiang Mai city in northern Thailand, Chom Thong District is a microcosm of highland-lowland competition for water resources. The conflict, though involving a small number of villages, has captured the nation's attention; the national press has dubbed the Chom Thong conflict the "water wars."¹

Starting in the mid 1980s, lowland farmers protesting water shortages and pollution petitioned to have highland villagers removed from the upper watershed forest areas in the Mae Soi and Mae Tia catchments in Chom Thong District. In November 1989, the cabinet agreed to relocate highland Hmong to lower areas to prevent deforestation and water pollution, but the resolution was later suspended.² In April 1998, lowland villagers set up a road block on a route to Doi Inthanon Park, angered by government agencies' lack of response to their demands.³

"No one should live and farm in the upper watershed forests," says M.R. Smansnid Svasti, vice president of the Dhammanaat Foundation for Conservation and Rural Development. "Any disturbance of those forests, where the rivers begin, will inevitably damage their functioning," she says.⁴

Much of the debate around the Chom Thong conflict, however, has not focussed on the specific dynamics of land use and its relation to water flows, but on more fundamental questions of rights and identity that divide lowland and highland groups.

"The issue has become whether the tribal people have roots in Thailand," says Kingkorn Narintarakul Na Ayutthaya of the Northern Development Foundation. Her group works with the Northern Farmers Network, a coalition of local watershed networks, NGOs, and academics that promotes water-

shed conservation sensitive to highland people's uses of watersheds and forests and the need for cooperation among groups within the whole watershed.⁵

The Chom Thong experience signals both the importance and the complexity of establishing appropriate regulations governing rights to occupancy and use of protected forests. A draft community forest bill—the result of a decade of intense debate among community groups, highland development and conservation NGOs, the Royal Forest Department, and academics—is based on the premise that communities should be allowed to live in the forest as long as they can prove themselves capable of conserving it. The draft bill, approved by the Cabinet in 1996 but not yet established in law, emphasizes the need to develop mechanisms for monitoring the performance of communities, and specifies that use rights can be revoked if they do not comply.

New roles and capacities are needed that position local administrations to bridge the interests of highland villagers and lowlanders, rather than aggravate the conflict. In Chom Thong and elsewhere, historic biases against the highland ethnic groups have become institutionalized in local administration. Yet, in other watersheds of northern Thailand, such as the Sam Mun catchment in Mae Taeng, the government has supported networks of highland and lowland groups to cooperate for improvements in conservation and local welfare.⁶

The Chom Thong case also demonstrates how a dispute supposedly about watershed resources can link to broader conflicts of social values and national politics. These aspects of the conflict will never be resolved in Chom Thong alone, and it may

be that the national level debate is a necessary precondition to identifying socially acceptable policy changes. This underscores the importance of such groups as the Northern Farmers Network that assist highland residents and ethnic minorities to make community interests known.

1. Sanitsuda Ekachai. "Finding Solutions to War is Not Easy," *Bangkok Post*, April 30, 1998.
2. Tanet Charoenmuang. "The Governance of Water Allocation Problems in Thailand: Four Case Studies from the Upper Northern Region," in *Water Conflicts* (Bangkok: Thailand Development Research Institute, 1994).
3. Subin Kuenkaew and Onnucha Hutasingh. "Villagers Block Road to Force Out Hilltribes," *Bangkok Post*, April 28, 1998.
4. M.R. Smansnid Svasti. 1998. Interview in Forum on "Conflict or Resolution? People and Forests in Northern Thailand," *Watershed* 4(1): 10-13.
5. Kingkorn Narintarakul Na Ayutthaya. 1998. Interview in Forum on "Conflict or Resolution? People and Forests in Northern Thailand," *Watershed* 4(1): 17-18.
6. Mingsarn Kaosa-ard. "Ecosystem Management in Northern Thailand," Center for Sustainable Development Studies, Faculty of Economics, Chiang Mai University, December 1999. Forthcoming REPSI working paper, World Resources Institute.



As the site of the country's first major hydroelectric power facility, the Nam Ngum watershed is important to government officials as a source of foreign exchange earnings and as a model for watershed management and future dam development policies.¹

The watershed spans an area of 8,460 square kilometers over two provinces in Laos (Vientiane and Xieng Khouang) and one special administration zone (Xaisomboun), draining into the Mekong River. Livelihoods in the Xieng Khouang plateau, one of three "rice bowls" for Laos, are centered around wet rice cultivation, while shifting cultivation is the main activity of most other communities in the watershed. The lower Nam Ngum watershed has absorbed a large number of war-time domestic refugees, which has bred conflict over access to land and forest resources.²

Although outsiders often perceive ethnic differences as driving the conflict, local people tend to describe scarcity and degradation of land resources as the primary concerns.³ Lowland farmers in the vicinity of the Nam Ngum Dam had to relocate as the reservoir filled. These farmers have often needed to rely on upland fields to make up for lost flat land, diminishing forest areas they had traditionally depended on to supplement food and fuel. Despite government efforts to eliminate shifting cultivation,³ the area of forest land affected by shifting cultivation in the Nam Ngum watershed increased from 850 square kilometers in 1985 to 1,500 square kilometers in 1995.⁴

Along with the policy to recognize customary use, the government assigns district officials the authority for land allocation as part of a broader effort to devolve resource management decisions. There remains a gap of intermediate regulation that translates broad policy prescriptions into formulas that work in the field. The challenge stems from the complexity and variety of traditional resource management systems already in place and the added demands when new arrivals come into direct competition with the original residents for cultivation rights and access to dwindling forest land. But more importantly, capacities of local agencies need strengthening so that they can be effective intermediaries, adapting to local conditions while also providing feedback to policymakers who are devising general policies based on experiences in such watersheds as the Nam Ngum.

A pilot project of the Center for Protected Areas and Watershed Management has yielded important lessons on the kinds of capacities required to make district authorities effective intermediaries under the decentralization policy. Two of the pilot villages in Long San District were Namon Village, a community that resettled to the reservoir's edge after its original village was inundated, and neighboring Houai Nhang, a Hmong village established in the 1980s. These villages could not agree on a dividing boundary and resisted the official demarcation. The solution they reached instead was to share forest, land, and water resources, effectively integrating the newer arrivals in a common property arrangement. This unanticipated re-

sult was made possible because the project trained village leaders and involved them in data collection, workshops, and study tours to other areas. By carefully assessing existing resource use patterns and supporting local dispute resolution mechanisms, district officials served as effective facilitators of the process.

1. Center for Protected Areas and Watershed Management and Asian Development Bank (CPAWM/ADB). *Nam Ngum Watershed Management Project Inception Report* (Vientiane, Lao PDR: 1998).
2. Kaneungnit Tubtim, Khamla Phanvilay and P. Hirsch. "Decentralisation, Watersheds and Ethnicity in Laos" in *Resources, Nations and Indigenous Peoples: Case Studies from Australasia, Melanesia and Southeast Asia*. R. Howitt, ed. (Melbourne, Australia: Oxford University Press, 1996).
3. Government of Lao PDR. *Socio-economic Development and Investment Requirements 1997-2000* (Vientiane, 1997).
4. Center for Protected Areas and Watershed Management and Asian Development Bank (CPAWM/ADB). *Nam Ngum Watershed Management Fund for Sustainable Economic Growth and Environmental Management*. Unpublished presentation (Vientiane, Lao PDR: Nam Ngum Watershed Management Project Lao-ADB, undated).



How can decentralization of resource management authority be made effective?

Representative local government, where it exists or can be created, may provide an appropriate alternative to reliance on either traditional local institutions or centrally administered government agencies to set priorities for services. Whether authority is vested in local government, quasi-governmental committees, traditional village associations, farmer organizations, or other groups, the essential factor is that those exercising this authority be accountable to villagers, including the very poor, women, and all ethnic groups, in as equitable a manner as possible.

Because power disparities and social divisions at the community level can be intense, approaches are needed to ensure that the local elite do not simply direct government services to their own needs and capture the benefits—an outcome potentially worse than when priorities are set at a higher level in government. Although it is too soon to draw general conclusions on Thailand's experiment to devolve significant authority for local planning and revenue management to subdistrict (*tambon*) administrative organizations, anecdotal evidence suggests that some village leaders or influential business owners have taken advantage of the situation to increase their own water access to the detriment of poorer villagers.¹⁹

The principle of subsidiarity—locating management authority at the lowest appropriate level—is widely recognized as a condition for implementing the ecosystems management approach effectively.²⁰ The difficulty is determining

what is the “appropriate” level for locating various powers, including which should remain centralized, and what sorts of responsibilities and accountabilities should be contingent on them. Because decentralization of resource management authority does not guarantee improvements in equity or sustainable management, research on alternative decentralization models and experiences is a high priority.

Establishing and Protecting Equitable Resource Rights for Local People

A related set of local-level governance challenges focuses on rights and responsibilities over resource use. The Da River watershed case highlights the importance of questioning common assumptions about the prevalence and characteristics of traditional management systems. (See Box 3.) In the Nam Ngum watershed, traditional systems exist, but they have been strained in recent decades and need to be adapted to handle increased competition. The ambiguity of upland resource tenure noted in the Chom Thong case creates a situation in which power is contested and flows in favor of those best positioned to take advantage of the ambiguity. It also highlights a long-standing national dialogue concerning what is the correct balance of rights relating to forest lands, what obligations or responsibilities should be attendant on these, and who should allocate them. No specific tenure arrangements can be legislated that will prove appropriate in all locales, but there are parallels in the questions which need to be addressed.

How can traditional tenure rights be re-enforced where appropriate and linked

to clear responsibilities for resource protection?

Where traditional tenure and land-management systems of upland minorities have shown to be equitable, legal recognition is important to foster land stewardship and protect livelihoods. This requires government officials at policy bureaus and implementing agencies to distinguish where community-based tenure and resource management institutions are functioning well and to avoid disrupting them. In other areas, such institutions may be absent or ineffective because of population movements, disruption by war, intense resource competition, or other factors that erode capacities for collective action. Or they may be strong, but sufficiently inequitable in their distribution of rights and benefits within the community that they should not be granted legal support. An obstacle is that researchers and officials lack systematic practical means for assessing local institutions and capacities.²¹ Developing such assessment methodologies is, therefore, a research priority.

Whether community or household-based, traditional or new, effective tenure arrangements tie *rights* for resource access and exploitation to *responsibilities* for resource protection. Such provisions are necessary to prevent situations like those in Lake Dianchi, where upland communities may pay careful attention to harboring the environmental services on which they directly depend, such as soil fertility for agricultural production, but disregard those impacts that do not affect them directly, such as downstream pollution. Thailand's draft community forest bill is remarkable in this regard; it



The Da River watershed is a case of special urgency in Vietnam's dilemma of upland development, forest management, and watershed protection. Mountain communities and the lowland population far downstream have competing priorities for use of the watershed, which spans Son La and Lai Chau provinces, two of the poorest in Vietnam. Although 86 percent of the watershed is legally classified as forest land, only 10 percent is under good forest cover. In the next twenty years, population density in the watershed is expected to reach 75 people per square kilometer, six times the density in 1945.¹ The population trend is already increasing pressure on poorly productive and erosion-prone marginal lands.

Downstream, the Da River, which originates in China's Yunnan Province, contributes some 40 percent of flow to the Red River. The Red River Delta is home to over 17 million people, making it one of the most densely populated rural areas in the world. Massive flooding in 1971 left tens of thousands of people dead, and less severe flooding regularly inflicts major losses on rice production. Saline intrusion also threatens groundwater supplies as far inland as Hanoi.² Sedimentation from the Da River watershed is a major threat to the Hoa Binh Dam, currently the largest dam in Southeast Asia and source of more than a third of Vietnam's electricity.

The government's experience with the Hoa Binh Dam shows how easy it is to underestimate the extent of social dislocation large-scale interventions cause and to overestimate the capacity of government agencies to deliver promised remediation. Most of the 58,000 people displaced by the dam's reservoir were forced to resettle in higher elevations where they depend on scarce forest resources and marginal lands and have not received electricity, let alone adequate compensation. The legal frame-

work and institutions for resolving land disputes were inadequate, and many of the funds provided for infrastructure, irrigation, and other projects to assist resettled families yielded little benefit because of poor consultation.³

In 1998, the government announced plans to move forward with construction of a hydroelectric power facility twice the size of the Hoa Binh Dam, upstream on the Da River in Son La Province. The official estimate was that 103,000 people would have to be resettled.⁴ Institutional mechanisms are needed to better balance local and national interests in decisions on major infrastructure projects, to incorporate local voices, and to design remediation measures when these projects do go forward.

Local conflict among Da River watershed residents centers on access to and use of forest lands. Current government policy encourages commercialization of land use by allocating forest lands to households. According to research in some ethnic Thai communities in the watershed, the household allocation policy is actually eroding traditional resource management systems for assigning and protecting forest land, mobilizing community labor and resources, and mediating conflict over forest use.⁵ This suggests that official land allocation and dispute resolution mechanisms that reinforce the authority of traditional systems may be appropriate in some places.

Other research in Black Thai villages has shown that government policy to decollectivize agricultural production actually had little effect on village land tenure, as the shift to household production predated the policy reforms. A distinct ethnic identity shared by villagers and local officials, and the strength of village norms have muted the influence of state policy. Likewise, recent efforts at land allocation,

land-use planning, and forest protection in these villages have had little influence.⁶

By contrast, the same research found that farmers' responses to changes in technology and market opportunities have been rapid, inducing agricultural intensification, large-scale terracing, and a shift from swidden to wet-rice cultivation. Such influence of market forces on land-use practices in the watershed suggests that efforts to change incentives through market-based policy instruments may complement or ultimately be even more effective than direct approaches to reorganize production through land allocation.

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2. World Bank, ADB, FAO, UNDP, NGO Water Resources Group in Cooperation with the Institute of Water Resources Planning. *Vietnam Water Resources Sector Review* (Washington, DC: World Bank, May 1996).
3. G. Houghton. 1996. "Vietnam's Hoa Binh Dam: Counting the Costs." *Watershed* 2(1): 26-37.
4. Reuters news report. 1998. "Vietnam to relocate 103,000 for huge dam project." September 21.
5. Vo Tri Chung, et al. "Community Case Studies from Upland Vietnam," in *Stewards of Vietnam's Upland Forests*. M. Poffenberger, ed. (Berkeley, California: Asia Forestry Network, January 1998).
6. Thomas Sikor, private communication, January 2000.



stipulates that forest land rights depend on specific protection criteria that require regular monitoring. Community forestry is most often implemented today in marginal and degraded areas.²² It will only become common practice in priority watersheds and higher-value forests if responsibilities for protection are clear and publicly acceptable.

How can governments make partnerships with local communities to help strengthen forest law enforcement?

Security of land and forest tenure is ultimately a question of protecting users from competing claims on the same resource. Although legal recognition of tenure rights is necessary, it is not sufficient. Protection depends practically on how rights are enforced, whether through formal administrative structures, traditional institutions, or both. Many upland communities in the region face serious threats to their livelihoods as the result of large-scale forest mismanagement beyond their control. The military and logging companies who take control of the forest often disregard traditional access rights of ethnic minority communities, a particular problem in Cambodia and Burma.²³

If the laws governing forest rights are essentially unjust, or if there is collusion by the government in illegal logging, then there is no sense in promoting community roles in forest law enforcement. But *if* an equitable tenure system is in place that gives local communities sufficient benefits and a high stake in good forest management, and *if* those exercising the state's coercive power (such as the military or the forest department) are held accountable for their actions, then com-

munities can be effectively engaged as partners in forest law enforcement. In particular, they can play a role in preventing and detecting forest crimes, while responsibility for suppression is better handled by the state. Expanding the scope of groups involved in forest law enforcement can multiply the capacity brought to the task as well as improve the fairness with which the law is applied—particularly against large-scale forest crimes.²⁴

How can local capacities and legal frameworks be strengthened to manage intercommunity resource disputes?

In some areas, traditional systems for allocating resource access and managing conflicts among villages function effectively without outside support. But increased resource competition means that even where the law recognizes traditional tenure regimes, these must be complemented by mechanisms for mediation at a wider scale. The Nam Ngum case study shows that officially recognizing customary rights does not necessarily remove competition for land among local residents, particularly in areas of high migration. In other cases, local communities face much more powerful actors, as in the Da watershed, where communities conflict with state forest enterprises over forest access.

Because it is neither feasible nor appropriate to address all such disputes through formal legal channels, there is a need for alternatives that are culturally acceptable and equitable. Skilled mediators are required in communities, government, and nongovernmental organizations (NGOs). Improved information on local resource conflicts and

monitoring is also essential to hold actors fairly accountable for their resource use decisions.²⁵

Comparative research in the region has also shown the need for a legal framework that protects parties who commit to a dispute resolution process outside of the court system. These protective measures include the rights to fair access to information, fair treatment under the procedures of the dispute resolution process, and systems for procedural oversight and appeals. For disputes involving multiple stakeholders, additional support may be required to allow all to participate on a reasonably equal footing, including providing funds for transportation, assistance in assessment of the dispute, and information dissemination.²⁶

NATIONAL LEVEL CHALLENGES

Balancing Authority and Strengthening Incentives at the Riverbasin Scale

Mediating the interests of actors in subnational watersheds and riverbasins holds another set of governance challenges. The Dianchi Lake case (*see Box 4*) exemplifies an area where changing institutional incentives have promoted rapid commercial growth, but where the resource conservation incentives are weak by comparison. Part of the dilemma concerns horizontal accountability—finding ways to assure that those bearing the costs of pollution and sedimentation have recourse across administrative boundaries. The Dianchi Lake case raises other issues as well: how to achieve coordination at the watershed scale, the types of powers appropriate to bodies



Dianchi Lake is one of two main sources of water for the city of Kunming, the capital of China's Yunnan province. Because the needs of the Kunming municipal area are the main force driving policymaking, concern for both the quality and quantity of available water top the list of priorities in the Dianchi catchment, an area of 2,920 square kilometers. City officials are hard pressed to provide adequate infrastructure and services for the growing population of 1.8 million registered residents and additional unofficial migrants.¹ Water demand in the catchment is expected to reach 1,000 million cubic meters per year by 2020; current supply varies from 242-900 million cubic meters per year.¹ The gap must be met by either significantly augmenting supply or improving efficiency in water use and allocation if Kunming is to keep up with its growth trajectory.

Nevertheless, intensifying agricultural production and rural industry continue to stake their claims on water resources upstream from Kunming. Agriculture is the largest water user in the catchment, accounting for 60 percent of overall demand; runoff from agricultural pesticides and fertilizers also contributes substantially to poor water quality in Dianchi Lake.¹ In recent years, township and village enterprises (TVEs) have introduced a new phase of rural industrialization in Yunnan that is far outpacing economic performance of the larger and less flexible state enterprises. In general, Yunnan's estimated 850,000 TVEs remain outside of the larger planning processes, are poorly regulated, and contribute heavily to land degradation and pollution.

One of the government's challenges is to adapt monitoring and enforcement mechanisms to the dynamic TVEs, so that small enterprises can be made accountable for their environmental impacts. Under the current system, a provincial-level environmental planning office is accountable to the

provincial government, and only indirectly to the national environmental protection agency, curtailing its independent authority. Townships, moreover, are responsible for generating their own operating funds rather than relying on budget allocations from above. These factors have encouraged entrepreneurialism among township officials, with the TVEs effectively under their management. The governing climate that has made the TVEs so successful in economic terms also makes them difficult to regulate.² Separating government's role in regulating, supervising, and coordinating the economy from its responsibility for the direct management of enterprises is a major feature of the administrative reform program announced by Premier Zhu Rongji in March 1998.³

Managing the watershed as an integrated system also requires cooperation across territorial boundaries; however, the incentives to counties and townships reward local economic growth and provide few channels for downstream territorial units to negotiate pollution controls with their neighbors. There are, nevertheless, promising examples emerging in Yunnan of towns that have reached agreements with surrounding villages to compensate for land-use and forest-management measures that protect water flows in small catchments.⁴ Such local innovations merit closer study to determine what conditions make agreement possible, how they are functioning, and whether similar arrangements would be viable at larger scales.

A related need is improved mechanisms for water allocation within the lake catchment. Even if the authorities take the huge step of making a proposed interbasin water transfer to meet the city's needs, this is not replicable as a general model for dealing with water scarcity. The crucial test is whether agriculture and industry can find ways to increase water use efficiency without sacrificing production.

In adopting the 1998 Water Law, China elaborated a comprehensive policy framework that distinguishes regulatory and allocative functions of the state from use rights and payment and maintenance responsibilities of the users. The government has begun issuing water drawing permits, but still lacks the institutional mechanisms to fully administer the system. When it happens, China will be the first country in the region to implement a fully legalized system of water allocation.⁵ The effort deserves close attention to determine how it will affect overall efficiency as well as equity among water users.

1. Montgomery Watson, in association with GHK International, Hunting Technical Services, Severn Trent Water International and EFTEC, *Yunnan Environmental Project Summary Report*. 1998.
2. K. Lieberthal. "China's Governing System and its Impact on Environmental Policy Implementation," in *China Environment Series* (Washington, DC: Woodrow Wilson Center), undated.
3. Changhua Wu, private communication, January 1999.
4. James Harkness, private communication, March 1998.
5. R.M. Saleth and A. Dinar. "Water Challenge and Institutional Response: A Cross-Country Perspective" (Washington, DC: World Bank, Rural Development Department, unpublished draft report, April 1998).



charged with this task, and the challenge of building incentive mechanisms to control water allocation and water quality. In Chom Thong District, the legal framework to manage water allocation is less developed but the conflict relating highland communities to water users downstream is pronounced and raises the prospect of similar conflicts at broader scales.

What array of powers and capacities are appropriate for riverbasin bodies to mediate among competing stakeholder claims and coordinate sectoral agencies?

Motivated largely by the need to manage better against floods, drought, and competition among water use sectors, China and Vietnam have recently introduced new water laws that call for watershed management bodies to coordinate across existing administrative units. If they are to be effective, riverbasin bodies should have the explicit mandate to pursue equity in meeting the interests of upstream residents and downstream water users, and the authority to induce a shift in the flow of benefits. A coherent basinwide approach would link efforts to manage water demand downstream with investments in soil and water conservation and local livelihoods upstream. Doing so requires that riverbasin bodies coordinate not only the technical agencies with such responsibilities as water supply and forest management, but also those with oversight for industry and social services.

Establishing a watershed body does not ensure coordination of relevant actors, as the Dianchi Lake case demonstrates. Existing sectoral agencies and local governments are typically protective of their

powers. This implies a need for strong support from central government to establish the authority of watershed bodies. However, riverbasin bodies often consolidate power and become bureaucratic and unresponsive to local stakeholders.²⁷ Therefore, these bodies must also have adequate capacities for intersectoral planning—commonly lacking at subnational levels—and should be prepared to mediate among competing stakeholders and involve nongovernmental actors in decisionmaking. Without these ingredients, they risk becoming irrelevant to the most important decisions that affect watershed resources.

How can economic instruments boost the incentive to local governments and enterprises for basinwide ecosystem management?

By employing economic policy instruments, including subsidies, taxes, and public investment to promote economic management goals, governments can wield a more systemic influence than is possible through policing resource use alone. Modifying the rules by which local governments obtain and allocate revenue exemplifies this approach. Fiscal measures have so far proven effective in spurring local economic growth and rural industrialization, but are not well tested in encouraging environmental protection in the region. (See Box 4. *Dianchi Lake case*.) One possibility for bolstering the stewardship incentive is to introduce standards for environmental performance by local governments, with good performers receiving rewards of additional revenue, or reductions in required transfers to central government. Particularly if neighboring jurisdictions have a

role in monitoring performance, such an approach could strengthen horizontal accountability.

Accountability is most easily established when those providing the services of resource protection are in direct contact with those receiving the benefits and paying the subsidy. This appears to be the case with lowland-to-upland subsidies that local authorities in small catchments of Yunnan devised and implemented on an experimental basis.²⁸ For large scales areas where such accountability mechanisms are absent, adaptive research and extension combined with credit and marketing opportunities may be more direct mechanisms to influence farmer behavior. Therefore, a priority item for research is to assess where economic policy instruments can be usefully applied and the conditions for their effectiveness.

How can institutions for allocating and enforcing water rights be developed that provide equitable access and link downstream demand management to investment in upstream protection?

Governments in the region—especially Thailand, China, and Vietnam—have invested heavily in water supply and irrigation infrastructure with undeniable benefits to the welfare and productivity of farmers who receive this service. But the public subsidies for water supply also create huge inefficiencies in its use. When competing with large-scale agriculture, urban, and industrial users for scarce water supplies, small farmers often lose out.²⁹

Many resource economists advocate full-cost water pricing as a market-based so-



lution. The goal is to incorporate the full costs of delivering water as well as the costs of protecting upstream supply into the prices paid by users. In addition to encouraging water conservation within agriculture, industry, and domestic systems, water pricing can produce a reallocation among these alternative uses. However, such a market-based reallocation would not necessarily reflect national poverty reduction or food security objectives.

First, an essential precondition for implementing market mechanisms for water allocation is a legal and regulatory framework for assigning and enforcing water rights. Nowhere in the region is such a system in place, although the Chinese government has demonstrated the strongest commitment and made the most progress in creating the necessary institutions. (See Box 4. *Dianchi Lake case*.) In the absence of these institutions, the early introduction of market mechanisms for water allocation may have negative results.²⁹

Second, allocation systems must ensure that basic human needs for safe domestic water and irrigation for food production are met so that the poorest users are not denied water because they cannot pay for it. Addressing the equity aspect is ultimately necessary to ensure the political feasibility of instituting or increasing water charges. This may require continuing to subsidize some portion of supply or introducing a price structure that requires larger production units (in agriculture as well as industry), and wealthier households to shoulder the main burden.

Third, revenue from water distribution should be used as a mechanism to redi-

rect benefits to the uplands and, as appropriate, compensate upland residents for resource conservation and foregone uses of water. Linking upland interests in long-term use of forest resources with lowland interests in conserving water flows is, therefore, an important means to generate the necessary support.³⁰ Experimentation is required to identify which mechanisms are effective in achieving this link.

Broadening Stakeholder Representation in Policy Reform

A related set of governance challenges at the national level concerns the process of policy formulation. The Da River watershed case highlights the need to include public deliberation when considering major infrastructure investments, which are effectively national policy decisions even if their direct effects are localized. Involving key stakeholders in assessing the desirability and feasibility of alternative approaches increases the chance that policies will be politically feasible to implement, achieve the desired goals, and avert future social conflict.

How can information on upland resources and ecosystem services of watersheds, including competing uses and the potential impacts of planned developments, be improved and made more accessible?

Information alone does not produce better decisions, but lack of information often aggravates conflicts or perpetuates erroneous assumptions in policy. Some of the most important gaps in information relate to the links between land use and watershed hydrology, as well as the values that watershed ecosystem services

provide to different stakeholders and the types of developments that are likely to make a difference. Were this information available and shared among the parties in competition, for example in the watershed of Lake Dianchi, they would be able to more accurately identify their interests and actions that might relieve the situation at lower cost.

Far too often, government agencies are in the business of monopolizing information rather than making it accessible. Not only is the public denied access, but other agencies are left to barter for and buy the data they need or duplicate efforts. In Vietnam, although there are numerous agencies that acquire and analyze satellite imagery of land cover, no common standards exist to make their information compatible. In general, central governments need to develop standards for data collection and analysis, consolidate and strengthen efforts at monitoring, and commit to regular reporting of environmental change.³¹ They also need to provide the public with full information on planned developments—by government as well as private investors—so that stakeholders have a chance to participate in their review before plans go into effect. And they need to make sure the information is in a form that non-specialists can understand.³²

How can independent analysis of domestic policy alternatives be strengthened?

In determining general policy directions, the ruling parties in China, Laos, and Vietnam maintain closed deliberations. Increasingly, each of these governments is turning to outside technical assistance in the design of specific measures and



implementing regulations. China and Vietnam each have well established technical and research institutes either within or associated with various agencies, which provide information used in policy design. But channels for domestic input of a more independent nature in these three countries are still limited and usually informal.

Independent analysis of policy alternatives can come from many sources. In Thailand, several influential independent institutes with this focus are now well established. University researchers have also been important critics and advocates of policy reform.

An independent analysis does not exclude government participation, but it should be undertaken freely and without preconceived conclusions. Fostering such analysis depends in part on efforts to strengthen research institutions' capacity. It also depends on the openness of government policy agencies to make use of such analysis from multiple sources. Particularly promising is a collaborative research approach, in which independent researchers and interested government officials work together to bring policy-relevant information and analysis to bear on government decisionmaking.

How can legal rights for domestic nongovernmental actors and channels for their participation in policy reform be ensured?

By constraining the range of voices that can legitimately contribute to policy reform debates, governments narrow their options or select policies that cannot be implemented because the interests of

important stakeholders have been disregarded. Involving nongovernmental or civil society organizations in the policy reform process has multiple benefits. These organizations can communicate the findings of independent analyses to stakeholder groups and make sure their interests are represented in decisionmaking. Organizations that work at the grassroots can help link marginalized communities and policy officials. They can also provide essential support for implementing policies and institutional reforms.³³

As the Chom Thong case demonstrates, popular mobilization by groups such as the Northern Farmers Network by no means assures that all groups will be represented equally. But in the absence of NGO mobilization, politically marginalized upland minorities would have considerably less influence. In Thailand and Cambodia, domestic NGOs have independent status. A new law in Vietnam has recognized nongovernmental entities ("foundations") for the first time.³⁴ Vietnam and China each have a growing number of quasi-NGOs, often associated with universities, government research institutes, or professional associations, and the trend is toward gradually relaxing restrictions on their operations. In Laos, the prospects for a domestic NGO sector have dimmed with the recently reported government suppression of groups critical of its policy.³⁵

REGIONAL LEVEL CHALLENGES

At the regional level, a parallel set of issues are important. Who is represented in decisionmaking over the management

and use of transboundary rivers? How does this correlate with who is likely to be affected by large-scale investments on the horizon? Do regional institutions have adequate accountability downward to the primary stakeholders? Do national governments represent them adequately? Do major investment decisions (such as dams, water diversions, and industrial developments) require review by downstream parties? Are the decisionmaking processes equitable? Such questions are highlighted in the Mekong River Basin case (see Box 5), but are equally relevant to other major international rivers, such as the Salween, Red, and Irrawaddy.

How can intergovernmental cooperation in the management of major transboundary river basins be improved?

The most obvious need is for strong regional institutions to create legally enforceable international agreements and provide mechanisms for dispute resolution. The Mekong River Commission has this mandate, but so far lacks the capacity to fulfill it. (See Box 5.) Because China, the upstream and most powerful nation, is not a formal member, the Commission's representation is incomplete and its authority curtailed—shortcomings common to many international riverbasin accords around the world.³⁶

To create international bodies with adequate authority and full representation of countries sharing the basin, governments must be convinced of the likelihood for mutual gain. Experience in other regions has shown that the possibility of mutual gain need not stem directly from the terms of an agreement.



Spanning six countries and home to some 65 million people, the Mekong River Basin harbors water resources vital to the welfare and development prospects of mainland Southeast Asia. Although the river is relatively undeveloped for its size, current and proposed projects to harness its flow are a source of dispute and a challenge to international cooperation in the region.

Located at the top of the river system, China is building a cascade of hydroelectric power dams on the upper Mekong (Lancang River) in Yunnan Province. Laos has several new dams proposed on tributaries to the Mekong. Such projects require that water be impounded and released steadily, yet downstream ecosystems depend on the seasonal floods that maintain agriculture and fisheries. Cambodian officials are very concerned at how changes in peak flow could threaten aquatic biodiversity in the Tonle Sap (Great Lake), a remarkably productive fishery central to the country's food security.¹

A proposed diversion of water from the Mekong mainstream to Thailand's Chao Phraya River system is especially contentious from Vietnam's perspective. Protecting the Mekong Delta from dry season water shortages and sea water intrusion has national importance, because the delta accounts for almost half of Vietnam's rice and fish production and a significant portion of its foreign exchange earnings.² The Chao Phraya is the main source of water for Thailand's urban, industrial, and agricultural heartland, an area that also suffers regular dry season water shortages.

Because the Chao Phraya Basin has less than one fifth the water availability per person of the Mekong Basin,³ calls for an interbasin diversion are likely to recur.

The Mekong River Commission (MRC) is the one regional institution with an explicit mandate to reach agreement and mediate disputes over international allocation of the river's water. But it is handicapped by incomplete representation, since neither China nor Burma are members. It has also suffered from an insular bureaucracy, vulnerability to political interference by member governments, a bias toward large-scale engineering schemes, and weak environmental assessment,⁴ all of which make it difficult for the MRC to build credibility as an effective mediator and provider of independent analysis of development alternatives.

Other regional institutions that could conceivably be used as fora to handle transboundary water allocation and basinwide cooperation have also prioritized economic development over environmental sustainability. The Greater Mekong Subregion program is unique because all six countries of the Mekong, including China, are members. But the program's focus on regionwide transportation infrastructure schemes reflects the historic bias toward economic growth of its coordinator, the Asian Development Bank. The Association of Southeast Asian Nations (ASEAN), which counts Vietnam, Laos, Burma, and Cambodia among its newest members, puts macroeconomic policy and political stability at the top of its agenda, although it has also convened regional

working groups on such issues as watershed management.

Whatever institutional forum they select, the countries of the Mekong need to find ways to better account for the interests of those whose livelihoods depend on the watershed resources. The benefits of major infrastructure development in the basin—which generally accrue to national urban centers—must be weighed against the potential negative impacts on the farmers and fishermen who make up the majority of the basin population.

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3. C. Revenga, J. Brunner, N. Henninger, K. Kassem, and R. Payne. *Pilot Analysis of Global Ecosystems: Freshwater Systems* (Washington, DC: World Resources Institute, 2000).
4. Stockholm Environment Institute (SEI). *Support to the Mekong River Commission: Background Report*, prepared for UNDP in association with International Environmental Management Co. Ltd. (Stockholm: 1997).



Instead, it must be considered in the broader context of international relationships, including the political and economic benefits that improved cooperation can generate.³⁷ China has a significant stake in regional economic cooperation through improving rail and road transportation links to ports in Vietnam, Burma, and Thailand that would provide an outlet for goods produced in China's southwest. Tying such economic interests to riverbasin cooperation may be the most effective lever of influence for downstream governments. Third party mediation and access to funding also increase the incentives for cooperation—an area where multilateral institutions have proven especially suited to contribute.³⁷

Networks of citizen groups and NGOs from inside and outside the region can build pressure for agreement and help ensure compliance through independent monitoring. Given the slow pace of progress in the past and the reluctance of governments in the region to raise these issues, there is no reason to assume that agreement will be reached before international tensions rise or before the costs to local livelihoods become dramatic. Ensuring representation of local stakeholders in transboundary resource management decisions is important enough that it should not be left to official diplomacy by national governments alone.

Finally, localized transboundary management efforts in small watersheds or parallel protected areas may provide examples of cooperation and build confidence in tackling more contentious issues. For example, provincial governments in Vietnam, Laos, and Cambodia

are undertaking complementary efforts at improving park management in border areas, with support from the World Wide Fund for Nature.³⁸ Similar protected area management efforts involve cooperation between local officials along the Chinese border with Vietnam and Laos.³⁹ Such experiments need to be supported and used to draw lessons on how to make the case for cooperation and how to build the necessary institutional relationships.

How can permanent channels for direct engagement by subnational stakeholders in regional basin development be created?

What mechanisms can sustain civil society roles in promoting dialogue and cooperation as complements to official multilateral and bilateral channels? First, regional institutions should make commitments to full transparency in their own decisionmaking and to publicly disseminating information on planned developments and their potential impacts.

In addition to information access, it is necessary to build channels so that subnational stakeholders—including lower levels of government, local populations of resource users, and specific interest groups—can meaningfully influence basin development planning. NGOs and civic groups can organize and advocate to make their interests known, particularly to represent the interests of poor communities and forest residents, farmers and fishing folk who might otherwise be ignored. But regional riverbasin bodies should also be *required* to ensure representation of competing interests in establishing general plans, reviewing specific projects, and negotiating agreements.

What mechanisms can help hold governments, corporations, and finance agencies accountable for crossborder impacts?

Many threats to environmental security in the region stem from weak accountability for resource exploitation or development impacts across national borders. National borders create special opportunities for abuse of power and resource mismanagement. In the forestry sector, lack of effective cross-border coordination and monitoring has provided opportunities for private business, the military, and local governments to skirt national logging regulations. Hardwood lawn furniture manufactured in Vietnam is marketed in Europe as “eco-friendly,” even though it relies on logs illegally cut and transported from Cambodian forests, according to Global Witness, a London-based monitoring group.⁴⁰

Actions that might be prevented if they occurred under one nation's jurisdiction go unchecked when those affected and those responsible are in different countries. If it were clear that business, governments, and financing agencies would be held accountable to affected groups across national borders, then their decisionmaking would change markedly. Even in the absence of proof that a given plan would harm local livelihoods, these powerful actors would exercise much greater precaution.

Short of binding legal agreements, what approaches have worked to strengthen the accountability of governments, finance agencies, and corporations for cross-border impacts of upland resource use? How can these be expanded in the region?



The Aarhus Convention, recently signed by many countries of Europe and the former Soviet Union, breaks new ground in international policy by establishing just such a mechanism for cross-border accountability. In addition to requirements for making information publicly available and allowing public participation in environmental decisionmaking, it gives affected groups the right to access justice even if the development activities are taking place in another country and even if the responsible parties are from a third country.⁴¹

Even in the absence of official agreement, citizen groups could develop consensus around principles similar to those in the Aarhus Convention and promote them as a non-binding code of conduct. This would provide a standard to which governments, corporations, and finance agencies could be held publicly accountable—if not through law, then by the power of public attention, advocacy, and the international media.

CONCLUSION

The pressures leading to resource competition in the uplands of mainland Southeast Asia and the actions needed to better manage this competition include local, national, and regional domains. The three levels are presented in this review side by side to emphasize the complementarity of efforts to improve governance at each level and the need to consider all three.

Progress in responding to these challenges depends on the willingness of governments to experiment with institutional innovations and their capacity to evaluate these experiments. It depends

on the ability of upland communities, NGOs, and other civil society actors to defend local livelihoods while considering the needs of communities throughout the watershed. And it depends on the efforts of research institutions to improve the underlying information that informs policy decisions, compare experience across the region, assess alternative policy options, and address obstacles to implementation. The search for ways to meet the challenges of watershed governance should be a learning process that involves each of these groups as both advocates and analysts of change.

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NOTES

1. Mainland Southeast Asia is defined as the region that spans Burma to Vietnam, including Thailand, Cambodia, Laos, and the neighboring Yunnan Province of China. The same regional grouping is referred to by the Asian Development Bank as the Greater Mekong Subregion (GMS).
2. FAO. 1999. *State of the World's Forests*. Online at: <http://www.fao.org/waicent/faoinfo/forestry/publclst.htm>
3. Road networks in Thailand and Yunnan are in the best condition and are the most extensive in the region. In Laos and Vietnam, road transport is improving gradually and is a priority for overseas development assistance, as it had been in Cambodia before the recent pullback of international aid. Yet the most significant improvements in regional road links, which are a centerpiece of the Asian Development Bank's Greater Mekong Subregion program, have yet to be realized.
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14. An expanded version of this paper, including additional discussion of governance challenges and more detailed case studies, is available online at: <http://www.wri.org/repsi/rpswps.html>
15. See for example, Anan Ganjanapan. "The Politics of Environment in Northern Thailand: Ethnicity and Highland Development Programs," in *Seeing Forests for Trees: Environment and Development in Thailand*. P. Hirsch, ed. (Chiang Mai, Thailand: Silkworm Books, 1997). East West Center and Center for Natural Resources and Environmental Studies. *Development Trends in Vietnam's Northern Mountain Region* (Hanoi: National Political Publishing House, 1997).
16. Hoang Xuan Ty. *Indigenous Knowledge and Mountain Rural Development in Vietnam*. Paper presented at Development Trends in Vietnam's Northern Uplands Seminar, Washington, DC, March 26-29, 1998. The Research Center for Forest Ecology and Environment (RCFEE), The Center for Natural Resources and Environmental Studies (CRES), of the Vietnam National University, both based in Hanoi, and the Center for Biodiversity and Indigenous Knowledge (CBIK) in Kunming are prominent examples of local research institutes active in promoting understanding of indigenous resource management systems.
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