

Watershed Management and Upland Development in Lao PDR: a Synthesis of Policy Issues

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1. Introduction

The government of Lao PDR has recently promulgated a series of laws and policies governing the allocation and use of natural resources (*see Box*). These reforms have positive long-term implications for rural development and environmental protection. They also mark a clear break with a highly centralized and top-down tradition of government decision-making.

But the country faces formidable challenges when it comes to policy implementation. Lao PDR, one of the world's poorest countries, has a very weak human resource base. It is ranked 136 out of 174 countries by the UNDP's Human Development Index (14 places behind Vietnam and 77 behind Thailand), which combines income, life expectancy, and quality of education. Many parts of the country suffer chronic food insecurity because of the lack of flat, arable land, which covers only 5 percent of the country (*see Map*).

This paper assesses watershed management and upland development policy in Lao PDR in relation to government objectives and implementation capacity. It is based on a reading of official government documents and unofficial literature, and a series of not-for-attribution interviews with government staff during a 2-month visit to Lao PDR in the summer of 1998. The purpose of the paper is to shed light on implementation problems facing these policies, and to propose ways to increase the effectiveness of foreign assistance.

2. Policy and Institutional Framework

Natural Resources Management: Multiple Objectives

While living standards of the urban, lowland minority have undoubtedly improved since the economic liberalization policies of the New Economic Mechanism were introduced in 1986, it is unclear to what extent current policies will benefit the rural, upland majority. Yet, the prosperity of the upland population is key to the conservation of the forest and water resources that are fundamental to the country's long-term growth prospects. Over two-thirds of the country's foreign exchange earnings come from timber and hydropower production, and over 90 percent of the population depend directly on the natural resource base for food, fuel, and fiber.

Balancing conservation and economic development in a primarily subsistence economy poses special challenges. In response, the government has attempted to develop policies that stress, simultaneously, local food security, development of a market economy, regional economic integration, biodiversity conservation, and hydropower development. Although laudable, some of these objectives are mutually incompatible and, inevitably, gaps have emerged between policy formulation and implementation. In 1993, for example, 20 National Biodiversity Conservation Areas were established covering almost 13 percent of the country (*see Map*). But the cost of properly managing these areas exceeds the government's combined expenditure on health and education. Moreover, many of these areas may be flooded by proposed hydropower projects.

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1.1 Policy Directions: What's New and What's Not

The debate over natural resource management policy in Lao PDR is rooted in a number of beliefs. These reflect newly acquired knowledge from field projects, as well as long-held cultural attitudes and values. Key assumptions that have underpinned policy formulation are:

- that shifting cultivation poses a serious threat to the health of Lao PDR's forests and the welfare of rural farmers, and should be replaced with permanent, commercial agriculture,
- that security in land tenure arrangements will provide incentives for good land management; both individuals and communities can be appropriate units for land allocation, and
- that rural development focusing on a set of selected sites will enable precious financial and human resources to be channeled into the most needy and potentially receptive areas.

Recently, however, the realization that communities must be engaged in the on-going management of natural resources and watershed protection has begun to permeate the policy atmosphere. This has led to new attitudes and provided a window for alternative approaches to upland development and conservation issues.

Box 1 : Recent Laws Relevant to Natural Resources Management in Lao PDR

Forestry Law, 1996

The Forestry Law defines "customary use" as the starting point for forest management planning and allocation. Under this law, individuals receive the right to benefit from the sustainable use of forests, but are forbidden to conduct activities that degrade or deplete forest resources. Emphasis on the duties and responsibilities of individuals toward conservation is given as a condition of access and use. Implementation of the law requires progress in the following areas:

- classification and allocation of forest land,
- forest management planning and contract management,
- support for village forestry and customary rights,
- environmental regulations on forest utilization and development,
- biodiversity conservation in National Biodiversity Conservation Areas,
- management of watersheds and protected forests, and promotion of plantation development, and
- clarification of administrative relationships.

Water and Water Resources Law, 1996

According to the Water and Water Resources Law, "water and water resource management will be centrally controlled and management will be divided according to size and water use right..." The government states its support for the development of water resources in the production of electric power wherever conditions are suitable. Under the law, users who contribute to the protection, development, exploitation, and preservation of water resources will be rewarded with special privileges. However, what form these incentives might take is unclear.

Land Law, 1997

The Land Law provides for the allocation of land to individuals, families, and organizations. The land user is guaranteed rights of use, usufruct, transfer and inheritance, but must use the land according to the appropriate land use plans formulated at the various levels of local government. Land use must not result in the degradation of that land.

It was recognized early on in the reform process that the old "rule by decree" approach resulted in policies that were ambiguous and incoherent. This approach has been largely replaced by a set of laws and regulations that imply far-reaching changes in the way natural resources are managed. These laws recognize the need for greater participation in the planning process at all levels, clarify in the roles of the various actors

in the process of decentralization, and establish customary practice as the point of departure for managing forests and water.

Despite these progressive attitudes, the new laws will only be as effective as the political will and human and financial resources that accompany them. For example, references to participation and community involvement are commonplace, but much uncertainty remains as to what the government considers “participatory.” The country has no tradition of participation, which may simply mean the right to be informed about decisions that have already been taken. It is unclear how receptive mainstream policy-making will be to a bottom-up process of consultation and review.

2.3 Administering Watershed Management: Institutional Uncertainty

Given the country’s rugged topography, its dependence on forest and water resources, and the strong links between land use management upstream and water quantity and quality downstream, watershed protection has assumed a key position in the minds of policy-makers. Hydrologically, a watershed integrates all the water that is captured by, and runs off, an entire river basin. Because basin-wide management allows water to be used in ways that optimize its benefits in terms of economic growth, human development, and environmental protection, the watershed is a natural unit of management for water resources. Management strategies vary according to local conditions. Broadly speaking, in the north, where forests are highly degraded, the focus is on eradicating shifting cultivation, whereas in the south, where forests are in much better condition, the focus is on village forestry and biodiversity conservation.

Watersheds do not follow traditional administrative boundaries, and watershed management is not the preserve of a single ministry. The institutional landscape for watershed management is changing accordingly. Responsibility for the technical aspects of watershed management is vested in the Center for Protected Areas and Watershed Management (CPAWM) in the Ministry of Agriculture and Forestry. However, CPAWM’s human resources and authority are not commensurate with its mandate, and, despite significant donor support, it is unlikely that it will be the leader in developing strategies.

The high priority given to hydropower development and forestry brings in other stakeholders. These include the Ministry of Industry and Handicrafts, other departments of the Ministry of Agriculture and Forestry, the State Planning Committee, the Department of Land and Housing Management, Land Remanagement Committees, and the Science, Technology, and Environment Organization (STENO) of the Prime Minister’s Office.

Traditionally a coordinating agency with special responsibility for reviewing environmental impact assessments of hydropower projects, STENO is likely to play a more prominent role in watershed management policy formulation. It is difficult to predict policy orientations, but STENO officials have proposed new approaches to watershed research and management, and more realistic ideas about stabilizing shifting cultivation. STENO is also establishing formal representation in the provinces, which reflects a desire to be more involved in policy implementation. This may prove to be an area of potential friction with other government agencies.

Although the elements of a coherent institutional approach to watershed management are emerging, the current situation is best characterized as one of flux, in which competing interests provide a divergence of viewpoints and voices about watershed management strategies. Personalities also continue to play an important role in shaping institutional mandates and resources: a ministry’s impact on central planners is highly dependent on the initiative and contacts of the minister.

3. Government Policy Objectives

The government of Lao PDR has three basic policy objectives that affect the way natural resources are allocated and managed: market integration, land allocation, and stabilizing shifting cultivation. These are discussed below.

3.1 Rural Economic Development: Integrating Upland Farmers

Current policy seeks to restructure the rural economy by developing and extending markets. A critical constraint on market access is the limited extent and poor condition of the road network. The government's report to the 1996 FAO World Food Summit stated that only 4 percent of villages are within 1 km of a permanent market, and more than 50 percent are over 10 km from a permanent market. The government's response has been to foster a closer relationship between farmers and markets through a program of integrated rural development.

There are two approaches to market integration: bring the markets to the people (i.e., investing in road upgrades and related infrastructure), or bring the people to the markets (i.e., resettlement). This latter approach is embodied in the Focal Sites program, which concentrates infrastructure and social service investment in a small number of areas. The program goals are:

- to improve agricultural techniques to ensure rice security,
- to provide extension services,
- to encourage cash crop production to enable villagers to purchase rice to make up for shortages,
- to clear land for paddy production, and
- to improve irrigation, fishing, and watershed management.

Eighty-two focal sites existed in 1998, covering 1,026 villages and 320,000 people, and the number should reach 87 in 1999. These sites are intended to serve as magnets drawing in poor rural farmers practicing "unsuitable" farming practices. The Focal Sites program represents a major effort to achieve a more equitable distribution of the benefits of economic growth. It remains to be seen, however, whether investing in a large number of scattered points will have any effect on natural resources management. Moreover, despite official concern about upland development, there is little direct targeting of remote watersheds.

3.2 Land Allocation: Laying the Foundation for Local Participation

Land use planning and allocation are the cutting-edge of natural resource policy implementation in Lao PDR. The government considers the formalization of land tenure to be a precondition for rural development, and

Box 2 : Lao Farmers

Ethnic groups in Lao PDR are classified according to the altitudes they have traditionally inhabited, and are generally associated with certain systems of agricultural production. The *Lao Lum*, or Lowland Lao, occupy the river valleys and cultivate paddy rice. The *Lao Theung* are the Upland Lao, and practice a wide range rotational shifting cultivation systems. At the highest altitudes are the *Lao Sung*, the Highland Lao, who have traditionally practiced varying forms of pioneer shifting cultivation. In reality, resource management practices have evolved in ways that challenge the conventional generalizations, as many groups have responded to resource competition with adaptations and innovations that fall outside of these classifications. Nevertheless, the categories also correspond roughly to ethno-linguistic groupings, signifying distinct social structures, land use traditions and languages. The Lao government promotes the integration of all ethnic groups within the Lao political, economic and social community.

the land use planning process to be an effective way to mobilize local participation. 8,000 villages, out of a total of 20,000, have participated in land allocation, and the number is expected to reach 12,000 in 1999. Savannakhet province is leading the way in land allocation activities through its involvement with the Forest Management and Conservation Project (FOMACOP) and the Lao-Swedish Forestry Program (LSFP). Experience in Savannakhet shows that land allocation is very time-consuming. The process comprises several steps. The first step is an agreement between the villagers and the government formally delineating the village lands. Three categories of land exist: farming land, degraded land, and forest cover. Degraded land is destined for rehabilitation through plantations and tree crops. Forest is allocated based on the need to protect water resources and provide for non-timber forest products and other traditional uses. Villagers are required to set aside 5-10 percent of their land to accommodate future population growth. The second step is a forest inventory carried out jointly by the district officials and villagers. Farmers are then issued probationary 3-year certificates that are confirmed if the land is managed in accordance with the prescribed land use plans. In theory, allocated land can be used as collateral, but it is unclear if the probationary certificates will suffice to obtain loans from the Agriculture Promotion Bank.

A major concern about the land allocation process is the extent to which the restrictions on land use imposed by the government unnecessarily infringe customary practices. According to one observer, “the control of individual and communal resources is being wrested away from upland and highland families” (Chamberlain et al, 1995). Clearly, a balance has to be struck between the rights and responsibilities of rural communities.

3.3 Stabilizing the Uplands: Beyond “Stop Shifting Cultivation”

The need to eradicate swidden practices has long been taken for granted by senior government officials. The National Socio-Economic Development Plan identifies the stabilization of shifting cultivators as one of eight national development priorities, and aims to provide sedentary livelihoods for up to 100,000 families by the year 2000 by securing land tenure, supporting land use planning, providing extension services, and developing alternative income sources.

Most officials believe that shifting cultivation is the leading cause of forest loss in Lao PDR. However, a report by the Department of Forestry concedes that logging and encroachment by lowland farmers may cause more damage to forest cover than upland shifting cultivation (GOL, 1998). The report shows that between 1982 and 1992, the area under shifting cultivation increased by 5 percent, while the area under permanent cultivation grew by almost 20 percent. The results suggest that the relative contribution of shifting cultivation to deforestation has been exaggerated, a conclusion that is consistent with similar studies in Vietnam (Rambo et al, 1998).

In its 1995 report, the Office of Shifting Cultivation concluded that the diversity of shifting cultivation systems should be studied more closely because the degree of sustainability shows high variability according to a range of socioeconomic and ecological factors (Souvanthong, 1995). A senior official from the Ministry of Agriculture and Forestry has stated the need for a change in the way policy-makers view shifting cultivation, arguing that it should be dealt with in terms of farming systems that incorporate shifting cultivation as just one component of a more diverse system.

Shifting cultivation contributes significantly to food security in the uplands, and it is not surprising to find a high incidence of “settled” farmers returning totally or partially to shifting cultivation to compensate for shortcomings in government-sponsored sedentarization projects. In fact, a growing body of research suggests that customary mechanisms of regulation contribute to the sustainability of shifting cultivation (Pravongviengkham, 1998; Souvanthong, 1995; Hansen et al, 1995). These systems appear to be evolving toward a more organized rotational system of managed fallow. This is consistent with research carried out in Vietnam on the Tai composite system, which shows that shifting cultivation is a component of a complex and

sustainable system of permanent cultivation, forest harvesting, and managed fallow (Rambo et al, 1998). Despite the empirical evidence, there is a reluctance to recognize the diverse and evolving nature of shifting cultivation, which has contributed to the narrow “eradication” approach that dominates official thinking.

4. Challenges and Opportunities

The policy directions described above raise the issue of how the benefits of natural resource extraction are to be shared. Unresolved questions remain regarding the use of hydropower revenue to pay for biodiversity conservation, the roles and responsibilities of villages and the government in forest management, and the extent to which decentralization can promote locally-appropriate natural resources management strategies. These are discussed below.

4.1 Hydropower Development: Watershed Management Models

Most government officials consider hydropower to be the best way to lift the country out of poverty. The completion of all projects for which memoranda of understanding have been signed would bring Lao PDR’s hydropower output to 6,200 MW (Christ, 1998), and it is estimated that the total hydropower potential is 17,000 MW. But few of these sites are economically viable. Moreover, hydropower development depends on continued rapid economic growth in the country’s power-hungry neighbors: Thailand and Vietnam. The risk of depending exclusively on hydropower as the basis of economic development has been highlighted by the recent financial crisis, and Thailand’s delay in signing a power purchase agreement with the private sector consortium building the Nam Theun 2 dam.

Two watersheds are the focus of national and international attention as potential models for watershed management. The Nam Ngum watershed is the home of the Nam Ngum dam, which was commissioned in 1971. The dam supplies most of the country’s electricity and is a major source of foreign exchange. This watershed is of special interest as a stock of baseline data covering hydrology, sedimentation, electricity output, reservoir levels, and land use change have been collected over the past 20 years. As some of the classical assumptions of watershed management come under closer scrutiny, time-series data will be useful in identifying the real effects of land use change on hydrological functions.

For example, the assumption that more trees leads to increased water availability has shown to be false: in many watersheds, reforestation has been associated with less, not more, runoff (e.g., Chomitz and Kumari, 1998; Calder, 1998). However, the key constraint on agricultural production in Lao PDR is not the total annual runoff, but the availability of water during the dry season, and there is evidence outside the region that protecting high elevation forest maintains dry season runoff. This hypothesis could be tested using data from the Nam Ngum watershed.

The Nam Theun watershed is the location of one existing dam, at least five proposed dams, and some of Lao PDR’s most important protected areas. The Nam Theun 2 project is important because it has initiated a debate over the feasibility of harnessing hydropower revenues to support conservation in remote upland areas. While this approach would provide a source of much-needed finance, it is not clear whether it should be adopted as a matter of policy or negotiated on a case by case basis. Nor is it clear what sort of watershed authorities would be required to manage revenue for conservation purposes.

4.2 Village Forestry: an Emerging Community Management System

The Forest Law reaffirms the long-term goal of returning Lao PDR to 70 percent forest cover, of which 9.5 million hectares will be protection forest, 3.5 million hectares will be conservation forest, and 4 million hectares will be production forest. This goal is to be achieved by a large-scale expansion of community-based forest management.

The law recognizes customary use as the basis of community-based forest management. According to the law, “customary use” is determined according to established village practices. But the long history of migration complicates this process. Many villages were established relatively recently, or consist of several villages or ethnic groups who were internal refugees during the war or recently relocated. There is thus considerable potential for conflict in determining whose customary rights take priority. CPAWM has stated that, in practice, the rights of the longest resident group are recognized. But this argument may not always be just. For example, as the Nam Ngum reservoir was filled, Lao Lum farmers were pushed up the hills, bringing them into conflict with Lao Theung and Lao Sung villagers. In fact, many of the Lao Sung villages had recently arrived in the area (Hirsch and Masixonxay, 1997). Similarly, the commercialization of crop production in the Luang Prabang area has led to tensions between lowland Lao farmers and Hmong villagers, both of whom want access to flat land.

The law recognizes the legitimacy of community-based forest management, or village forestry. There are two kinds of village forestry projects: those that focus on the management of natural forests, such as the LSFP and FOMACOP, and those that focus on the rehabilitation and management of degraded watersheds, such as the Nam Ngum Watershed Conservation Project (NAWACOP).

Despite support for village forestry, the law reserves a role for government in forest management. Two types of joint management exist: government partnerships with large-scale forestry enterprises, and, increasingly, government partnerships with village organizations. This is consistent with the desire to shift from large-scale state production forestry to a smaller-scale, locally-managed production. In addition, two approaches to management and benefit sharing are being tested. In the first, villagers follow a management plan formulated at the provincial level, but handle royalties and taxes themselves. In the second, villagers follow the same management plan, but harvesting is organized by provincial officials who pay villagers to protect the forest with the fees being channeled into a village development fund.

In theory, the lessons learned from these experiments will feed into a National Village Forestry Strategy, which is due to come into operation in the year 2000. The government aims to instill an entrepreneurial spirit in villages participating in these projects in the hope that these operations will be run like small businesses (Xaisida, 1998). Joint management arrangements may indeed help bridge the gap between state priorities and local needs. Some early successes have been reported, but their replicability has yet to be demonstrated. Forestry officials have also expressed concern about their inability to share and take advantage of the rich body of experience from these projects.

4.3 Decentralization: Opportunities for Innovation

Because of limited funding and logistical difficulties, provincial and district governments play a growing role in policy formulation and implementation. While the provinces are responsible for interpreting central government policies, most of what happens at the village-level is guided and approved by the district authorities. Under the new arrangements for local responsibility, each village has a designated forester in charge of monitoring and managing shifting cultivation, community forests, and plantations. The forester reports directly to the district authorities, and is thus the first step in a bottom-up flow of information.

These arrangements create space for ad hoc policy innovation and experimentation. Indeed, the lack of specification about how these new laws should be implemented makes this inevitable. This trial-and-error approach gives the opportunity for local communities to reinterpret government policies in ways that suit them best. For example, researchers have documented cases in northern Lao PDR where the lack of central government control has led to the de facto institutionalization of customary community-based forest management. This evolved from a cooperation between the village authorities and village elders, with no input from district or provincial authorities (Pravongviengkham, 1998). Similarly, interest in expanding the area under irrigation has led to the revitalization of indigenous water management groups, which deteriorated during the war years (Evans, 1995).

5. Implications for External Support

Natural resources management policy implementation in Lao PDR faces significant challenges. But new attitudes are undeniably opening the door to greater policy flexibility and mid-course correction based on observed results. To maintain this momentum, foreign assistance should build the capacity of Lao institutions, because successful environmental management ultimately depends on the strength of the implementing organizations. With this goal in mind, it is recommended that foreign assistance incorporate the following principles:

Channel resources to the provinces

As management responsibility is decentralized, there is a need to support administrative capacity at the provincial, district, and village levels. Central government has received extensive foreign assistance, but relatively little has been directed at sub-national levels. Shifting resources out of Vientiane would also reduce the demands on central government departments, some of whom are stretched beyond their absorptive capacity.

Strengthen information flows

The full benefit of the various experiments underway will only materialize if government departments can share results from the field. While this need is recognized, communications mechanisms, particularly between the provinces, are weak to non-existent. External support should foster formal and informal ways that promote networking and information sharing beyond the life of project.

Focus on applied policy research

Research can make an important contribution to the formulation and implementation of natural resources management policy. However, much research that has been carried out to date has been very technical. Research should be less academic, more problem-oriented, and explicit about what works and what doesn't. Shifting cultivation and customary land use practices have been identified as priority areas that would benefit from a frank assessment of the strengths and weaknesses of current government policies.

Focus on the uplands

More flexible policy statements coming from the central government do not mean that the uplands receive the attention they deserve given their fundamental role in terms of the country's prospects for equitable and environmentally sustainable development. Most government investment is, typically, channeled into a few lowland areas (Chamberlain et al, 1995). There is need to balance the investment in the lowlands with the needs of poorer, more marginal upland communities.

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