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Institutional/Legal Classification, MSEC Project Sites in Thailand and Lao PDR

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1. Introduction

The upland regions of Vietnam, Thailand and Laos are characterized by natural resource degradation and poverty. Decentralization trends in the Southeast Asian region take place against this backdrop. The major driving forces for decentralization in the region are:

- Need to improve fiscal discipline
- Donor influence
- Alignment of political and intellectual interests in some countries of the region

Decentralization trends have gathered momentum in mainland Southeast Asia in the wake of the dismantling of the collective ownership in agriculture and household responsibility system. Instead, user rights to agricultural lands were privatized, the contract responsibility system was extended to forest-lands, and households were granted user rights to barren lands through an auction system. However, the major problems emerging from decentralization in the region can be considered as the unclear specification of property rights and improper enforcement leading to tenure insecurity.

In Vietnam, state policy has had a major influence on the evolution of land and water management practices in upland regions. In recent years under the *doi moi* phase, grass-root organizations were given legal standing. However, Integrated Water Resources Management (IWRM) potential remains unexplored. Other problems emerging from decentralization include inadequate attention to equity issues like ensuring access of landless households to water and unregulated groundwater pumping. In Laos on the other hand, there has been a dramatic decrease in forest cover arising from the granting of private property rights. There have also been limited non-farm employment opportunities that make reliance on subsistence forest resources high especially in the face of population growth.

The Laos land-allocation program with Swedish support was initiated in 1996. The program provides for the allocation of temporary user rights to farmers for agricultural and barren hilly lands, reducing poverty and deforestation through the halting of shifting cultivation. This process involves two steps:

- Agreeing on boundaries of forest and agricultural land in a village
- Detailed classification of land-use types and allocation of fields to households through co-management

The big challenge arising from decentralization in Laos remains that of ensuring sustained market access for agricultural and forest products.

In Thailand, the Tambon Administrative Act of 1994 called for the creation of new local government entities at ‘tambon’ or sub-district level. The tambon (the unit of local government at village level) was expected to generate plans and revenues to implement programs, as well as receive budgetary allocations from the centre to cover a broad number of sectors, like education, health and NRM (Natural Resource Management). However, the tambon is not entirely autonomous since the district officer still needs to ratify allocations. Although the role of NGOs has been increasing, NRM issues remain low on the priority list of the TAO (Tambon Administrative Order). Further, the staff capacity is not strong enough to address NRM issues. The challenges for decentralization programs in Thailand include reducing water shortages, reducing water contamination, increasing bio-diversity and reducing soil erosion.

2. The MSEC Project Sites

Management of Soil Erosion Consortium (MSEC) catchments in South and Southeast Asia total 34. MSEC project sites focus on generating technologies that reduce soil erosion, methodologies for assessment and pathways for the institutional scaling-up of adopted IWRM strategies using a watershed approach. MSEC research has drawn on data regarding climate, soils, topography and land use to develop the Predict and Localize Erosion (PLER) model. The PLER model focuses on the identification of "Best Bet" land and water management options. In the ensuing paragraphs we provide an overview of some of the main institutional, legal and organizational issues surrounding land and water management in MSEC watersheds in Thailand and Lao PDR (appendix).

Chao Phraya Watershed (MSEC Thailand)

Most natural forests in Thailand are located in the northern provinces. The confiscation of teak, especially from the Mae Hong Son province bordering Burma remains high. Over the last decade there has been a dramatic increase in the production of paper, newsprint, fire board and plywood. These items have become major export items in recent years and contribute to the share of manufacturing in national GDP. The national population growth rate declined from 2 percent in the early nineties to 0.7 percent in 2001. Levels of primary education in particular are high with no constraints on female participation in the labor force.

In 1982 the Thai government undertook watershed classification which was approved in 1991. Head-water upper catchment areas which were classified as being highly prone to deforestation and soil erosion were under the control of the Royal Forest Department. Ten million people, mostly hill tribes, inhabited upland watershed areas. The 2001 budget for the first time allocated money towards forest management. Prior to this the focus was on forest conservation and forest development (both of which underwent a decline between 1997 and 2001). Similarly there has been a decline in the number of employees of the Forest Department. Tourism revenues continue to increase and so does economic growth in the wake of the economic crisis of 1997. This recovery has primarily been driven by export growth and tourism revenues.

Between 1994 and 1998, a decline in the size of farm holdings and forest area was noted. On the other hand, the land-rented area increased from 12,244 ha to 13,140 ha during the same period. Between 1994 and 1998:

- Farm area under field crops declined
- Area under fruit trees and tree crops increased from 8143 ha to 13,794 ha
- Area under vegetables and flowers increased from 378 ha to 775 ha
- The three major production crops in 1998 were sugarcane (industry), cassava (industry), banana, guava and sugar apple
- The agricultural fallow period has declined

Moreover, infrastructure development in the Phrae province where the MSEC project site is located underwent an improvement as reflected in the increase in the number of telephone exchanges, telephone lines and public/residential telephone lines. Similarly, deposits and loans in banks increased from 1992-2001. The Phrae province ranks last among all provinces in the northern region with regard to its Gross Provincial Product per capita, which is 25,496 Baht.

Upper watersheds in Thailand are characterized by forest-cover, ethnic populations with relatively poor access to markets and services, and agricultural systems that include shifting cultivation.

In recent years government policies have influenced change with regard to:

- Opium substitution
- Settling shifting cultivators
- Providing infrastructure
- Forest protection/management

The MSEC watershed is characterized by a monsoonal climatic condition with the rainy season occurring between June and October. The average slope of the watershed is 38 percent, while the elevation is 400 degrees. The predominant soils in the area include sandstone and clay shale. Furthermore, the soils in this area consist of high erodibility levels. The natural vegetation includes *Dry Dipterocarp* and mixed deciduous forest. There are about 59 species of trees in the watershed with a DBH (Diameter at Breast Height) in the range of 30-320 cms and a crown cover of between 60-80 percent. Sixty percent of the watershed area is under forests while the rest is under agriculture. The illegal logging of timber is high in the watershed area. Thirty-three streams drain the MSEC watershed. Sedimentation and reduction of the life of dams in Thailand and the accumulation of heavy metals in the Mae Thang Reservoir are the main management challenges in the area.

The main source of income in the watershed is the cultivation and sale of upland rice, maize, vegetables and mung beans (during winter). Recently, forest trees such as mango and tamarind were introduced. Rainfed agriculture predominates. Additional household income usually arises from the collection and sale of NTFPs (Non-Timber Forest Products). In 1997, poor road facilities as well as the lack of electricity were persistent problems. Since a number of hill tribes lived in the area, shifting cultivation covered 5 percent of the land use, while 22 percent remained as uncultivated fallow. The major problems encountered in the watershed area were deforestation, flash floods, land slides and water shortage. Three development problems identified by MSEC scientists include:

- Water quality
- Sedimentation of the Mae Thang Reservoir
- Water availability

Most of these changes may be traced to trends in markets for upland crops. Market demand for certain crops has pushed the agricultural frontier to forest areas, created a reduction in the fallow period and soil fertility, caused deforestation and exacerbated soil erosion from steep catchment areas. Field visits to the area highlighted the following points:

1. Almost all households have land to cultivate
2. The government has played a role in the creation of infrastructure for the storage of agricultural crops/ co-operatives
3. There is no levy of an agricultural income tax
4. Dam construction has been a boon causing a rise in agricultural productivity and groundwater recharge
5. Saw mills are an important source of jobs in the Phrae province
6. The area cultivated with soya bean has increased dramatically
7. Private contractors are involved in the soya bean cultivation business

8. Prices of soya bean grown in upland areas during the dry season have fluctuated
9. If a market for soya bean did not exist, people of the area say they would not crop upstream at the expense of forest area
10. The government had given the people land titles in upland areas but now want them back to contain deforestation
11. People have replaced the cultivation of two varieties of paddy during the dry season with the cultivation of soya bean crop because of higher prices for the latter crop
12. Input costs have also increased especially for fertilizers
13. A decline in water quality has been noticed by farmers
14. Routine repairs of the dam are not being carried out by farmer's groups
15. Trends in family and land size:

Parameter	10 years ago	Present
Land size (in ha)	5-10	2-3
Family size (number)	5-10	2-3

16. Land sub-division is taking place. Non-farm jobs are needed. Land and education is given equally to children regardless of gender
17. Groundwater pumping has increased dramatically in the last 15 years in watershed areas
    a. Domestic household use
    b. Electricity driven pumpsets
    c. No change in electricity price
    d. Baht 3000 to purchase pumpset

Mekong Watershed (MSEC Lao PDR)

Laos is slowly emerging from a long period of war and significant pieces of legislation have been passed in the last 10 years, for example, the Forestry Law (1996), Land Law (1997) and Agriculture Law (1998). Meanwhile, greater market integration has resulted in a shortening of the fallow period, which has resulted in:

- Biomass reduction
- Weed infestation
- Increased workload
- Drop in crop yields
- Drop in household incomes
- Soil erosion increase

Slash and burn agriculture is perceived as a problem by the state. But the practice is crucial for upland populations characterized by poor market access for the following reasons:

- Poverty
- Lack of clear specification of property rights
- Compatibility with local culture

The MSEC project was initiated to identify "Best Bet" options for integrated land and water resources management from a watershed perspective. MSEC research reveals that run-off is co-related with orchard land use, slope and rainfall. Significantly, there is no relation between run-off and the land occupied by forests. Annual crops under intensive cultivation produce more soil

loss. Natural grasses reduce run-off and run-off velocity which consequently reduces soil loss. Soil erosion decreases with an increase in slope. Dredging costs arise downstream from upland soil run-off.

Alternatives to slash and burn agriculture in Lao PDR are important for the following reasons:

- Improved fallow involving inter-cropping of 'pigeon pea'
- Contour planting of 'job's tear' with 'pigeon pea'
- No tillage with use of herbicides
- Results in less labor use

Field visits to the MSEC project site in Luang Prabang revealed the following:

1. The allocation of agricultural land is determined by the following criteria: 3 plots maximum per household with the surface area of the plots determined in accordance with household size and number of workers. The remaining land is classified as Protected Forest. A population resettlement program was initiated in three phases: 1975, 1982-1983 and 1996-1997
2. Fifty percent of the population have gone through primary school
3. Land is state property but can be leased out to individuals, groups or private companies
4. The state levies taxes depending on land use every year
5. Upland rice is inter-cropped with:

    - Maize
    - Cucumber
    - Vegetables
    - Root crops
    - Chillies

6. A one to 3 year period is allocated for rice cropping
7. On average labor requirements for upland rice cultivation are high, at 260 days/ha
8. Exchange labor is common mainly for sowing and weeding operations
9. Reduced fallows show increased weed infestation
10. There is a very limited chemical pesticide use
11. Upland rice productivity has dropped due to intensive cropping, leading in some places to rice shortages
12. Nonfarm employment is limited to industries in the Luang Prabang town
13. Livestock production has increased by 20 percent in the last 20 years
14. Three big changes in the watershed during the last 10 years were seen:

    - Electricity
    - Paved highway
    - Private land titles

15. Villagers from outside the watershed area rent land due to population pressure and land sub-division in the region
16. Land is distributed equally among sons and daughters
17. The poor enforcement of property rights due to poor capacity leads to government appointed monitors themselves clearing forests and selling trees

18. Water from the watershed site is used for:

    - Agriculture
    - Fisheries
    - Domestic household needs of washing etc
    - The Luang Prabang town municipality

19. A Thai company is involved in the purchase of ‘Job’s Tears’ in the watershed area. Firewood is now sold due to the emerging market for it
20. In around 1972, Americans built an unpaved road during the Vietnam war. A previous road had been built by the French during the colonial rule
21. No official data on the socio-economic and bio-physical aspects of IWRM exist
22. Under extreme poverty women and children suffer most from malnutrition

Appendix

Classification of Institutional, Legal and Organizational Issues in Thailand and Lao PDR

Thailand MSEC Site

Institutional Issues	Legal Reflection	Organizational Responsibilities
Political Decentralization	• Tambon Act 1994 • People's representation • Formation of local community groups • Budgetary allocation • Does decentralization have legal backing	• Tambon Committees • People's Committees for Natural Resource Management
Transition from Forest Protection to Management	• Budgetary allocation for management shows increasing trend	• Royal Forest Department
Watershed Classification	• Problem of soil erosion in upper watersheds recognized • Customary rights of hill tribes • Forest area decline • Agricultural expansion	• Royal Forest Department
Market Expansion	• Government support for expansion of credit/infrastructure development and market expansion • Shifting cultivation area down due to a history of market expansion • Irrigation and groundwater use expanded • Export-led growth has seen a rise in newsprint and paper production	• Agriculture and Irrigation Departments/Royal Forest Department

Lao PDR MSEC Site

Institutional Issues	Legal Reflection	Organizational Responsibilities
Allocation of Private Land Titles/Demarcation of Public Lands	• Forest Law (1996) • Land Law (1997) • Agriculture Law (1998)	• Ministry of Agriculture and Forestry • Luang Prabang District Agriculture and Forestry Office
Enforcement of Property Rights	• Protected forests • Monitoring capacity of state parastatals • Customary rights of local populations	• Agriculture and Forestry Department
Market Expansion	• Markets for crops expand in wake of Socialist regime • Thai companies involved in procurement of agricultural crops	• Private companies

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