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PROPERTY ENTITLEMENTS AND LAND REFORM IN UPLAND  
THAI CATCHMENTS

by

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## **Property entitlements and land reform in upland Thai catchments**

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## **Abstract**

Issues involved in processes of land reform in degraded upland catchment areas in Thailand include property entitlements over local resource complexes, and the roles of local communities in relation to State agency and commercial stakeholders. An inquiry into collaborative action between stakeholders in an upland Thai catchment has been used as an example of the process of defining property entitlements to the bundles of opportunities for management.

This paper draws upon recent conceptual advances concerning property entitlements, particularly as these relate to common-pool resources, and the complex bundle of opportunities for collective and collaborative management in upland catchments. A processual view of collective and collaborative action is the way in which interests are expressed as claims and ultimately translated into entitlements which specify rights to streams of benefits, and associated duties, in relation to a particular resource complex. Social and bureaucratic institutions will influence the way in which stakeholders can participate and interact in this process.

Soft systems methodology was used as a guide for a process aimed at identifying mutually beneficial improvements in management between village, agency and commercial stakeholders. The collective and collaborative actions which have developed are all cases whereby particular bundles of property entitlements and related duties have been defined through a process of the expression of claims and identification of mutually beneficial arrangements. These have included local collective management of a water supply, partnerships relating to elements of conservation and production within the local agroecosystem, and socially legitimate patronage to support formal protocols of the land reform process.

A process of inquiry which supported the identification of legitimate and mutually beneficial actions has resulted in the definition of bundles of property entitlements which specify benefits and duties by particular stakeholders, with respect to particular resource complexes. This process is discussed in terms of the expression of interests and translation into entitlements through partnerships supported by multiple lines of social and bureaucratic legitimation.

## **Introduction**

Issues involved in processes of land reform in degraded upland catchment areas in Thailand include property entitlements over local resource complexes, and the roles of local communities in relation to State agency and commercial stakeholders. The importance of approaches of co-management supporting processes of local decision-making and institution building has been made by Cousins (1995) for common property institutions in land redistribution programmes in South Africa. This paper develops upon approaches to the complex bundles of collective and collaborative opportunities for management in upland catchments, and a processual view of the way stakeholders' interests are expressed as claims, and translated into property entitlements, and related duties. An application of a soft system of inquiry in an upland catchment area in Thailand is used as an example of how collaborative partnerships between villager, agency and commercial stakeholders define bundles of property entitlements supported by multiple lines of social and bureaucratic legitimation.

## **Catchment complexes and participatory management**

Catchment, or watershed, units are becoming more widely accepted as a unit of focus which allows for the integration of socio-economic and environmental factors, though the approaches used have tended to change from an engineering focus, to a rational comprehensive approach, and more recently to more participatory development. Geographically, catchments, or watersheds, are topographically delineated areas upstream from a stream or river, and are nested in structure. The linkages of land use, soil and water, and the linkages between upland and downstream impacts, is the biophysical basis for a catchment approach, and soil and water conservation practices which improve upland productivity, while also having downstream benefits, are an appropriate technical focus (Brooks *et al* 1992). There have been a number of developing applications of participatory catchment management. Hinchcliffe *et al* 1995, recently described experiences from around the world which involved communities in the analysis of their own soil and water problems, supported by facilitatory and catalytic external support.

The political, social and economic linkages between upland communities, institutional rules, and organisational networks, are fundamental to supporting legitimate action. White (1992) has suggested that catchments should be considered in terms of asymmetrically interdependent sets of vested interests, held by differing actors, and social relations between these, within a physically defined space. The question of management then becomes more a question of social relations, and cooperation between actors. A recent test of voluntary collective action in catchment management in Haiti by White and Runge (1994) found *a priori* hypotheses of rational participation, the importance of secure tenure, incentive of individual gain, and degree of free-riding, not supported by the evidence. The problems of

collective action were proposed to be related to a much more complex bundle of opportunities than just singular private or public good problems. As well as biophysical patterns, catchment areas encompass a range of tenurial and property regimes reflecting a microcosm of the cultural and institutional environment, and its history. Catchments are nested arrangements, so that a study of local processes and interdependencies may be representative of the institutional environment, while contextually specific to local livelihood systems. This conception has much in common with contemporary approaches to rural development which focus on strategic problem solving by social actors, or stakeholders, with differing networks and knowledge systems (eg Scoones and Thompson 1994).

### **Property regimes and catchment complexes**

A key concept is that of property and how this relates to upland catchment resource complexes. Recently, conceptions of property rights have been reconsidered by a range of scholars. A critique of the orthodox conceptions of property by Bromley (1989, 1991), the relationships between the characteristics of the resource system and the property regime (eg. Blomquist and Ostrom 1985, Oakerson 1991), and the social and ecological context (eg. Hanna and Munsasinghe 1995) are examples of the rapidly growing body of new material. Property is a social institution, whereby the rights to a stream of benefits, and related duties, are sanctioned by the broader collective or the State. While property, in terms of rights and duties, may be vested in the State, the individual, or a common group, the case of open-access is that whereby no secure claims or duties are established (Bromley 1989, 1991). Property entitlements define not only the claims to a stream of benefits from certain property, but also the nature of transactions, what is a cost or benefit, and to whom, and the legal ability to shift costs onto sections of society. Therefore, property, as with other social institutions, both depend upon, and reinforce the sociopolitical culture (Bromley 1989). The need to consider the bundles of property entitlements and rules by which the associated rights and duties operate in relation to the social and ecological context is well represented in the extract from Hanna and Munasinghe (1995) in Box 1.

Rather than the broad category of common-property resources, recent conceptual developments recognise the need to differentiate between characteristics of the resource and characteristics of the property regime (eg Blomquist and Ostrom 1985; Ostrom 1992; Oakerson 1992). In cases of common-pool resources there is the need to differentiate between the system which generates the resource, and the flow of usable resource units. The core system generating the resource is jointly used, and consumption is nonexcludable, similar to public goods. The flow of resource units, however, are similar to private goods as they are consumed individually and subtractably (Oakerson 1992). In considering upland catchments, and the nature of common-pool resource complexes, it is not just property in land, nor just the allocation of rights to the flow of water resources which are important, but



property institutions for the management of the bundles of opportunities, streams of benefits, and related duties, for water harvesting in upland catchment agroecosystems.

Box 1. Property rights in a social and ecological context (Hanna and Munusinghe 1995).

*"Property rights regimes, to be effective in modulating the interaction between humans and their environment, must reflect both general principles and specific social and ecological contexts. General principles are the structural and functional attributes of property rights regimes which transcend a particular context. General principles are the necessary conditions of effective property rights regimes because a property rights regime cannot succeed over the long run without them. They include the congruence of ecosystem and governance boundaries; the specification and representation of interests; the matching of governance structure to ecosystem characteristics; the containment of transaction costs; and the establishment of monitoring, enforcement, and adaptation processes at the appropriate scale (Eggertsson 1990; Ostrom 1990; Bromley 1991; Hanna 1992).*

*General principles are necessary, but not sufficient in themselves for effective property rights regimes. In addition to the general principles, specific attributes of social and ecological context must be represented. Social contexts contain all the dimensions of the human relationship to environmental resources, including social arrangements, cultural practices, economic uses, and political constraints. Ecological contexts contain the structure of ecosystems in which the humans live and work, as well as the particular functional properties of those ecosystems. The particular details of the social and ecological context are what give a human-environmental interaction its variety in detail. The match between a property rights regime and the contextual characteristics of the affected humans and ecosystems will determine success or failure in terms of sustainability" (Hanna and Munasinghe 1995).*

With a range of actors, or stakeholders', views of management of these complex bundles of opportunities there is a need to approach multiple claims and potential entitlements in terms of processes which are socially legitimate. Bromley (1989) provides a clear view of the need for a more processual view of the establishment of property entitlements as follows:

*"...the essence of collective action is that individuals will attempt to have their interests translated into claims on some new situation of advantage, and then ultimately transformed into recognised entitlements by the state. It is this process, whereby interests become transformed into entitlements, that*

*is the essence of collective action and institutional change"*  
(Bromley 1989).

The translation of interests into claims, and eventually entitlements, is grounded upon the individual or group of individuals having a 'stake' in the situation. The nested arrangement of stakeholders in issues of natural resource management has been discussed by Grimble *et al* (1995). This brings us to the fundamental question of methodological strategies for approaching these different claims held by these stakeholders. Contemporary approaches to rural development seek to build upon a learning process by reinforcing a sense of ownership of particular problems, and information gathered. Processes which reinforce ownership are those that define property regimes, the duties required and the incentives in terms of claims to streams of benefits. In seeking to facilitate problem ownership by strategic actors, or stakeholders, Scoones and Thompson (1994) and Roling (1994) have suggested that appropriate styles of investigation included post-positivist, soft systems, and action research approaches. Soft systems methodology is posed here as one methodology which can promote the expression of identification of collaborative partnerships which specify roles, duties, and the flow of benefits, ie property entitlements over bundles of management opportunities. In this way stakeholder's interests can be translated into legitimate entitlements through partnerships supported by multiple lines of social and bureaucratic legitimation.

### **Land reform in upland Thai catchments**

The institutional environment for upland catchment management in Thailand is a complex mix of formal bureaucratic arrangements, informal social institutions such as patron-client relationships, and adaptive strategies within household livelihood systems. The contemporary situation in rural Thailand is a result of market forces, mediated and exploited by government policies, which overlie some enduring social institutions such as patron-client relationships. Political motives and the changing balance of power, the expansion of commercial agriculture, and State-led exploitation of forest resources, have resulted in the migration of perhaps a million households into marginal upland areas. In upland catchment situations across Thailand, formal institutional issues include land reform and access to factors of livelihood and production, the protection and rehabilitation of upland catchments, and the appropriation and allocation of water resources.

Land reform is a basic component of the current State strategy for marginal and degraded upland areas of previous logging concessions which are currently within conservation zones. While land reform continues to be promoted in these forest reserves, the appropriate forms of tenure, access to credit, and support for physical and agricultural infrastructure are complex. As well as development, Hirsch (1993) has discussed how the official language surrounding land reform still combines elements of local security.

Both the characteristics of the catchment resource complex, and the institutional environment, will influence the forms organisational platforms and property entitlements which can be applied. These property rules are integral to access to factors of livelihood and production, and include those issues related to land reform, the protection and rehabilitation of upland catchments, and the appropriation and allocation of water resources. The property entitlements and organisational platforms appropriate for upland areas should focus on sustaining local livelihoods as a means to managing and protecting the upland catchments.

### *Patrons and property in Thai political economy*

Patron-client relationships have become one of the major constructs used to conceptualise Thai social structure. Behavioural norms of a patron include benevolence and protection, while those of the client include respect and obedience (Terwiel 1984). Within Thai patron-client relationships, moral obligation in reciprocal behaviour (*bun khun*) is important, as is the importance of maintaining harmony through the avoidance of conflict and face-saving behaviour (*kreng jai*). Centre-periphery relationships and lines of communication, the path of modernisation and political development, social mobility, and interpersonal relationships at all levels of Thai society, are strongly influenced by this social institution (Girling 1981, Feeny 1982, Chamarik 1983, Gohlert 1991).

The existence of patron-client relationships at all levels of Thai social organisation has a major impact on the potential application of western ideals of democratic representation and participation. Critiques and debate as to participatory development have included tensions between State and local powers (Turton 1987, Hirsch 1990), and 'grass-roots' strategies and the 'community culture' approach followed by many Thai NGOs (Rigg 1991, Hewison 1993). Both State and NGO approaches have tended to build upon traditional organisational concepts, such as that of *klum* or group, though defined quite differently depending upon the worldviews underlying these development strategies (Hirsch 1990). The strategy of building upon established institutions and organisations, seeking to build local capacities and self-reliance within the contemporary political economy, has been a common conclusion, particularly in the case of land reform in marginal and degraded uplands (Morse *et al* 1987, CUSRI 1987, Hirsch 1990, Rigg 1991, Hewison 1993).

### Box 2. *Sakdina*, control of manpower and reform in property rights

The traditional *sakdina* system was a hierarchical ranking system which defined the allocation and control of land and manpower resources. Terwiel (1984) noted that the name *sakdina* itself may have meant 'power over rice fields'. This system formed the basis of relationships of property and status until sweeping changes made by King Chulalongkorn at

the end of the 19th century. Control of manpower formed the basis of economic and social power through this traditional form of patron-client relationship (Feeny 1982). Property rights in land began to be established during the mid 19th century when payment of taxes allowed usufruct right to clear, sell or pass on land. In 1867-68 land titling was established with taxation based on area harvested, and later, 1882-3, altered to a tax on the basis of area owned. During 1892, a more comprehensive land classification was established, and in 1901 cadastral surveys and central land record offices were established (Feeny 1982). The hierarchical relationships inherent in the pre-colonial *sakdina* system are a fundamental and enduring social institution in Thai culture. With increasing exposure to external influences, the military and foreign political and economic factors have assumed greater importance. Core behavioural values, though, remain deeply entrenched, and Thai culture remains strongly patrimonial, as reflected in the usefulness of patron-client relationships as a way of conceptualising relationships within the contemporary political economy.

#### *Formal institutions and upland catchment management*

Currently, approximately a dozen government agencies have responsibilities that include upland catchment management to some degree. The current institutional arrangements for policy and management of upland catchment resources include a large number of often competing agencies. There already exist a whole suite of overlapping and competing claims to property in these upland catchments, and there are a number of changes occurring at all levels of government. The major responsibility is vested in the Royal Forestry Department, with delineation of zones and watershed classification by topography (Chunkao, 1985). Regarding policy on soil and water conservation, Onchan (1990) described problems including the poor coordination between agencies and project continuity, and the shortage of practices easily undertaken with minimal investment.

The Agricultural Land Reform Office (ALRO) can establish land reform areas in degraded forest reserve areas given the approval of the Royal Forestry Department and the Minister for Agriculture. Under the control of the Agricultural Land Reform Office, usufruct rights (*SorPorKor 4.01*) are issued, and after a certain period of time land titles can be granted. Land reform under ALRO explicitly includes the development of infrastructure including roads, water resources, public services and marketing. A study of the status of farmers' land ownership under the land reform program in 1987 addressed the legal measures required when areas were degazetted, allowing the establishment of land reform areas (CUSRI 1987). The main conclusions were the need to emphasise the form of ownership rights and size of land holding which could sustain the required productivity. One of the major areas of discussion has been the form of use rights which should be provided, whether usufruct

rights, or full tenure. Usufruct rights have a major drawback in being insufficient as collateral for loans with commercial financial institutions and therefore are a major limitation to access to credit. Loans can be available from the Bank of Agricultural Cooperatives (BAAC), though these loans are often limited and short-term. Long-term loans from BAAC were only available within areas supported by World Bank financial development projects (CUSRI 1987). A study undertaken by the World Bank and Kasetsart University (Feder, Onchan and Chalamwong 1988) proposed that full ownership including squatters in reserve forest will improve social welfare, and that usufruct rights will neither provide effective motivation for farm productivity nor reduce forest encroachment.

While tenure is necessary for access to institutional credit, it is not sufficient in providing livelihood. Productivity will depend on both the area of land, and the maintenance of sufficient yield. In upland areas, cash-cropping will firmly lock households into the cash economy, and the need to buy household rice. The maintenance of sufficient household income will require a diversification of sources of income, and practices to maintain soil productivity. Individual tenure, alone, will not be sufficient to motivate the development of collective resources, and may leave householders susceptible to local land grabs. This suggests some value in the explicit incorporation of infrastructure development, including water resources, which is part of the ALRO land reform process.

Currently in Thailand, a number of changes are occurring in the formal institutional arrangements, including the decentralisation of responsibility for local natural resource and environmental management to sub-district Councils, and the potential establishment of basin and sub-basin committees. The formal recognition given to Sub-district (*Tambon*) councils to be responsible for their local natural resources and environment is an important step in the decentralisation of resource management. Pantasen (1994) has discussed a range of conditions necessary for effective local management, including the need to derive mutual economic benefits, and the need for further recognition of rules established by the local community. The establishment of basin and sub-basin committees will have the potential to integrate concerns for the appropriation and allocation of water resources, with the rehabilitation of upland catchments through local management. The future management and protection of upland areas, and related catchment properties, lies in the ability of agency representatives and these upland communities to develop collaborative solutions which promote sustainable livelihoods.

### **Soft systems methodology in an upland Thai catchment**

The following section describes the property arrangements in a particular upland catchment in Thailand, where a process of inquiry based upon soft systems methodology has been undertaken aimed at identifying of mutually beneficial improvements in management between

village, agency and commercial stakeholders. Soft systems methodology is an approach to inquiry which builds upon differing perceptions of problematic aspects, to describe a number of conceptual models of potential management activity. These conceptual models, according to different viewpoints or worldviews, are used to help structure a dialogue aimed at defining desirable changes, suggesting new ideas, and changing perceptions. This 'logic-driven' stream of inquiry occurs within the context of a 'cultural' stream of inquiry, with local social institutions and the political expression of power needing to be accounted for in initiating, and undertaking the inquiry process (Checkland 1981; Checkland and Scholes 1990; Wilson and Morren 1990).

### *The catchment context*

The catchment area of Khlong Nam Thin reflects both the range of use rights found in peripheral upland areas, and dynamic changes in zoning arrangements. Following resource extraction by logging concession, changes in zoning and in agency responsibility are slowly occurring, with subsequent changes to land tenure and rights. Bordering the Phetchabun Ranges, the upland villages in the case study area were only established following the provision of road access for a logging concession in the mid-1960s. Processes of rezoning are slowly occurring to establish a local land reform area in what is currently a degraded forest reserve. During the early 70's villagers from the northeast migrated into the area to plant cash crops of maize, subsequently abandoning most of the upland fields with the depletion of soil nutrients. Approximately half the current households have no form of legal tenure, and access to lowland paddy for growing rice for household consumption is limited. Household livelihood relies upon income from cash crops, cattle and small livestock, heavily supplemented by seasonal or semi-permanent labour in Bangkok.

While the lower region of the study catchment, has been established as freehold, the upper catchment area is still listed as conservation zone. In 1963, the upper catchment area of Khlong Nam Thin came under a logging concession. This concession lasted until 1991, and since then the area has been zoned as a degraded forest area. Currently changes are occurring, with the establishment of a national park in the Phetchabun Mountains just to the east of this catchment area, a conservation zone along the edge of the mountain range, and a land reform area in the lower areas of the degraded forest zone. The land reform zone will be under the responsibility of the Agriculture and Land Reform Office, surrounded by a conservation zone remaining under the responsibility of the Royal Forestry Department. The Royal Forestry Department (RFD) will alter the boundaries of the conservation zone to run along the contour to the east of the Khlong Nam Thin catchment. The generally used rule for authority over upland areas is all land of a slope of 35 degrees or steeper has authority vested in the Royal Forestry Department. The lower land around the upper settlement areas of Khao Kart, and the less steep eastern catchment area will be rezoned by the RFD from a

conservation to an economic forest zone. This economic zone will then be accessible for the establishment of a land reform zone with responsibility vested in the Agricultural Land Reform Office (ALRO). Each of these zoning arrangements have their own form of land or use rights. The types of zoning, current and potential, and relevant forms of use rights are shown below in Table 1. There are other forms of land titles and formal rights in Thailand, under the authority of a range of agencies, though these described here are those found within the study area.

Table 1 Land use zone and form of land rights

Zone	Land right	Description	Authority
Freehold	<i>NorSor 3</i>	Land title	Dept. Lands
Conservation	<i>SorTorKor 1</i>	Usufruct right	Royal Forestry Dept.
Land reform	<i>SorPorKor 4.01</i>	Usufruct right	Agricultural Land Reform Office

The establishment of a land reform zone will mean that an alternative form of use right will be provided by ALRO (*SorPorKor 4-01*). A potential problem with the establishment of these rights is that other previous forms of usufruct rights, such as the *SorTorKor 1* will become invalid. Villagers who have informally bought land, with either use rights (*SorTorKor 1*) or land tax receipts (*PorBorTor 5*), will be unable to claim any compensation. A question also arises as to the allocation of land reform use rights in relation to established houses and gardens. Freehold land with title (*NorSor 3*) can be legally traded, with the only requirement being that Lands Department procedures be followed. Lowland paddy with title is valued at approximately 20,000 Baht/rai. Upland with title is more highly valued, at approx. 30,000 Baht/rai (Table 2). The higher value placed upon titled upland may be due to its relative scarcity, and the potential for secure tenure for investment in highly profitable tree crops, and perhaps housing.

Table 2 Land values by land type and title

Land type	Title/right/receipt	Market value (Baht*/rai <sup>#</sup> )
Paddy	Land title ( <i>NorSor 3</i> )	20,000
Upland	Land title ( <i>NorSor 3</i> )	30,000
Paddy	Use right ( <i>SorTorKor 1</i> ) / Land tax receipt ( <i>PorBorTor 5</i> )	15,000
Upland	Use right ( <i>SorTorKor 1</i> ) / Land tax receipt ( <i>PorBorTor 5</i> )	2,000

\* Approximately 25 Baht to the US\$1.

# The rai is the common unit of area in Thailand, equivalent to 0.16 hectares.

As reflected in a survey of households in the upland housing groups, land types and tenure within the households sampled exhibited an enormous diversity. Households with no form of legal tenure made up 48% of households sampled, with another 7% unsure of the form of tenure. These included 22% with house only, and 19% who had rent receipts for upland areas only. Overall, 34% of households had a mix of land tenure for both paddy and upland, with 15 % having no formal tenure for paddy with either rent receipts or nothing for upland areas, and 12 % with use rights for paddy and a range of upland forms.

### **Stakeholders and a soft system of inquiry**

Key stakeholders were identified through discussions with village leaders and local government officials. The village leaders are important stakeholder representatives, being locals who rely upon local agricultural activities for their livelihood. Their position is one of a link between villagers' livelihoods and the formal administrative arrangements. Agency stakeholders' perceptions tend to reflect the institutional environment within which villagers' livelihood strategies occur. Agency stakeholders included in this study reflect the institutions of: public administration (District Government); education (local school teachers); land use zoning (Royal Forestry Department and Agricultural Land Reform Office); soil and water conservation and agricultural development (Department of Land Development, Royal Irrigation Department, Department of Agricultural Extension); State led community development (Department of Community Development); and State initiated commercial resource exploitation (Thai Plywood Company).

Developing upon the cycles of discussions with village leaders of local organisation and activities, I documented village leaders' perceptions of problems and opportunities in relation to local livelihood, agriculture, water resources, and the environment. With agency and commercial stakeholders, questions were framed in terms of problems and opportunities for achieving their responsibilities, with particular reference to the case study catchment. Village leaders' problems included sources of income and consumptive needs for livelihood, the low and variable returns from rainfed upland cropping, and the lack of local economic alternatives. Water resources limited local productivity, and the impact of upland degradation on local water resources was described. Household level discussions highlighted the financial hardships of local villagers, and the lack of land tenure and local infrastructure. The opportunities described by village leaders included local management of funds, and cooperatives, small-scale water resources, and diverse and integrated systems of agricultural enterprises with more emphasis on tree crops and livestock groups. Government and commercial stakeholders saw opportunities in land reform, and organisational support for access to resources and alternative enterprises.



Summary statements of the opportunities described were then used to build conceptual models of potential management with a village council, a combined council and public meeting, and a subset of agency officials: the local head schoolteacher, officers of the Department of Land Development, and the manager of the Thai Plywood Company. Questions used to facilitate discussion aimed at the development of these models included:

1. What management is needed, and who would be responsible ?
2. What inputs, such as labour, information, funds are needed, and from whom ?
3. What outputs would these systems generate, and for whom ?

The models developed with villagers highlighted local management of revolving funds, and development of small-scale water resources, to promote a diverse range of agricultural enterprises. The villagers wanted to be responsible for planning and undertaking local developments, while drawing upon the expertise of government agencies (Figure 2). The school teachers' model highlighted the importance of the management of information and local organisation such as water users groups to develop local livelihood (Figure 3). The officers of the Department of Land Development's model revolved around soil and water conservation projects which the villagers could participate in. The manager of the Thai Plywood Company described a model based around village tree planting, with financial benefits to both the villagers and the company. The necessity for local organisation to integrate village, agency and commercial activity was a fundamental aspect of the manager's conceptual model.

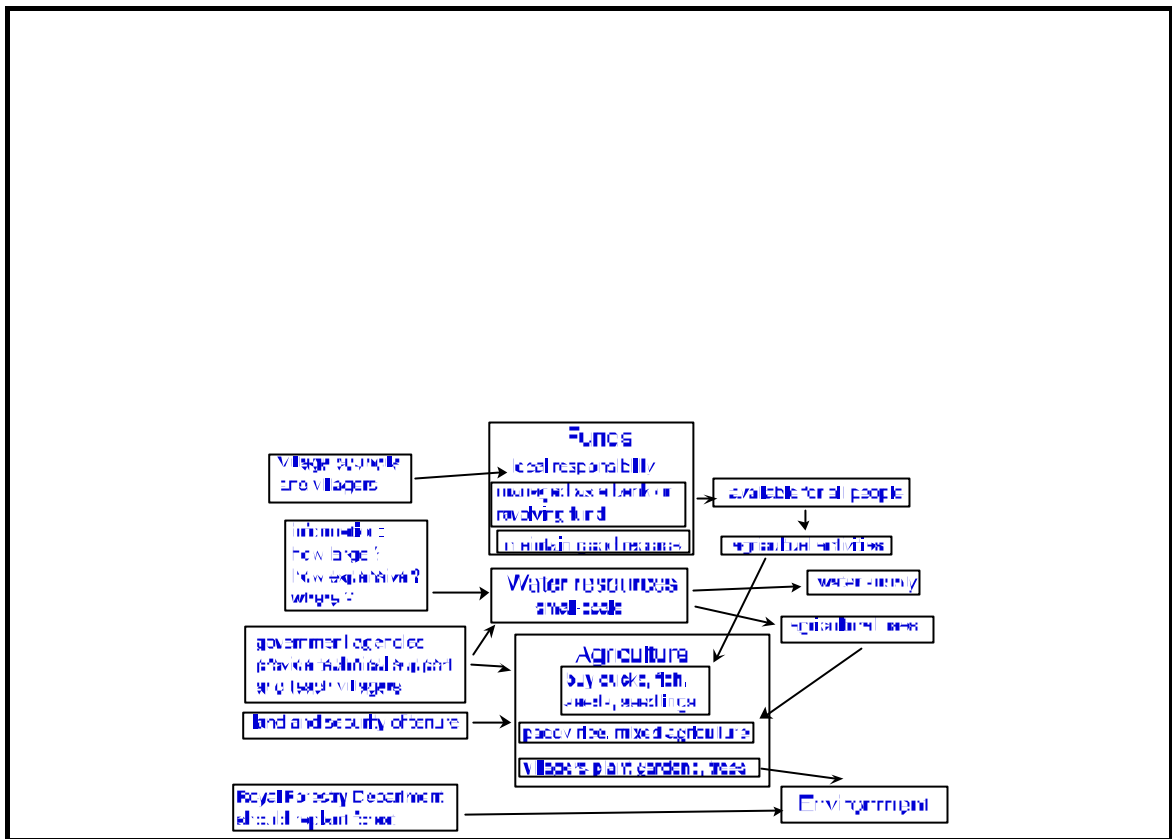


Figure 2. Public meeting's model: subsystems, inputs and outputs

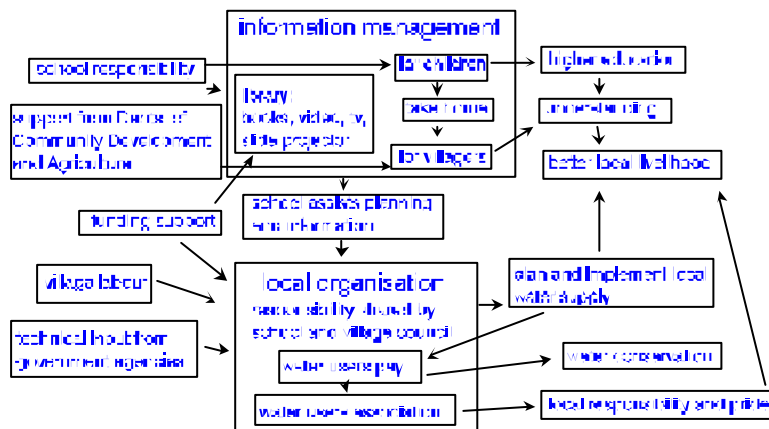


Figure 3. School teacher's model: subsystems, inputs and outputs

After discussions with village leaders, it was decided that an appropriate way to proceed was to convene a 'catchment forum' at the village leader's compound in the most upland village. The information collected from village leaders, household survey, agency and commercial representatives, and the conceptual models developed, were then distributed to all interviewees as a background document for the catchment forum. The forum was organised by the village leader, with formal requests to the agency and commercial representatives to attend. Prior to the forum, agency staff from the Departments of Land Development and Irrigation who had not previously visited these villages were invited to visit the villages, look around the area, and talk with local villagers. The catchment forum was the first meeting of its type to be held in local upland villages. The normal protocol was for village leaders to attend meetings with particular agency staff at district venues on the bitumen roads in lowland villages. It was run in accordance with protocols of local public administration, chaired by the district deputy, with speeches by agency representatives. A key figure who attended was the Provincial officer in charge of agricultural land reform. The local village leaders and school teachers took the roles of providing questions from the floor, with villagers attending listening to the discussions. This forum was held at the end of a year's fieldwork in June 1994.

In late 1995, the local school teachers sent me further information as to ongoing planning and collaborative actions which had been implemented. Village level implementation of collaborative activities has proceeded with all three of the agency and commercial stakeholders for whom models of human activity systems were developed. Demonstration contour planting of vetiver grass for soil and water conservation have been implemented in collaboration with the Department of Land Development, as well as demonstrations of composting. A programme of planting short-term coppice rotations of eucalypts, with a assured price and without the necessity of land title, has been established with the Thai Plywood Company. The school teachers have been involved in the establishment of a small integrated water supply scheme, with financial support from the Australian Embassy's Small Activities Scheme. This water supply is supported organisationally by a local village water users' association and village management committee. The management committee, which developed naturally from the village council and school teachers, has established its own rules and responsibilities for monitoring water use by members, a simple user-pays system, and local financial management of a revolving fund. This group has the potential to expand its activities based upon established institutional arrangements.

In late 1996, I returned to these villages and visited the officers of the Department of Land Development, and the manager of the Thai Plywood Company. The water supply scheme is operating well, and villagers expressed a great deal of pride in it. The Department of Land

Development is funding a new project focusing on these villages developing soil conservation techniques. A recent development was the village leader who had convened the catchment forum had been elected as sub-district leader. Sub-district leaders are elected by local village leaders and are commonly leaders from wealthier lowland villages. This places him in a potential role as a key figure in lobbying and expanding development activities in the local uplands. My recent discussions have focused on the potential integration of forage legumes in villagers' livestock management, the Department of Land Development's soil conservation activities, and the Thai Plywood Companies support for village planting of short-term coppice rotations of eucalypts. Discussions with provincial school authorities also has the potential to build upon the local school teachers' activities, promoting the scaling up of a focus on small upland catchments throughout the Province.

### **Collaborative action and property entitlements**

The process of inquiry described above sought to build upon locally legitimate protocols for interaction, between both myself, villagers and other stakeholders. The search was for management activities which supported villagers' interests and agency stakeholders. In the different types of collaborative relationships which have developed, there are differing bundles of property relationships, relating streams of benefits and duties in relation to particular resource complexes and stakeholders.

The local water supply and water users' association was planned locally, with external seed funds used for establishment. The management committee, comprising villagers and local school teachers, can call upon the technical input of officers from the Royal Irrigation Department when they wish. This represents an example of a common property regime of a common-pool resource, with management and maintenance of the core system for waterharvesting, and allocating resource units on a user-pays basis. This organisation now has the potential to expand its role as a locus of collective decision-making for local common property of a growing bundle of opportunities.

The second type of relationship is that between the village councils and the Department of Land Development for soil and water conservation measures. The department had seedlings and technical support which they could provide, but required a formal submission from the village leader through local government protocols. Once this was established, collaborative action could proceed. This is similar to the formal agreement which needed to be established with the Thai Plywood Company. These collaborative arrangements focus on the bundle of opportunities of local agroecosystems. Rules specifying streams of benefits and related duties are specified for collaborative activity between villagers, the Department of Land Development, and the Thai Plywood Company.

The third type of relationship is that between the provincial land reform official and village leaders. Land reform will involve top down directives, through the protocols of public administration. Having had the opportunity to have the officer visit the village, however, a new patronage relationship has been established. It will take a number of years for initial usufruct rights in land to be established in this new land reform zone and good lines of communication between the agency and local villagers will hopefully support a transition whereby the formal entitlements to land resources are in accordance with the patterns of settlement and livelihood.

### **Conclusions**

Catchment units are one way of considering the biophysical interdependencies of land and water use and the patterns of property regimes, which reflect a microcosm of the institutional environment, while being contextually specific to local livelihoods. Catchment management is a question of social relations between stakeholders as to the bundle of individual, collective and collaborative opportunities for management.

An inquiry into collaborative action between stakeholders in an upland Thai catchment has been used as an example of the process of defining property entitlements to the bundles of opportunities for management.

Conceptions of property depend upon the sociocultural context and the characteristics of the resource system. In upland catchments, the common-pool nature of water harvesting and related agroecosystem functions mean that collective and collaborative forms of property arrangements are necessary. A processual view of collective and collaborative action is the way in which interests are expressed as claims and ultimately translated into entitlements which specify rights to streams of benefits, and associated duties, in relation to a particular resource complex. Social and bureaucratic institutions will influence the way in which stakeholders can participate and interact in this process.

An example of an upland catchment in Thailand has been described which is currently undergoing a process of land reform. Upland management in Thailand is a complex mix of formal bureaucratic arrangements, informal social institutions such as patron-client relationships, and adaptive strategies of household livelihood. Land reform processes can support the development of local agricultural and financial infrastructure, and there are currently formal moves to decentralise resource management. While land tenure would improve access to credit, this could also lead to land grabs by local elite. The ability of upland communities to develop collective and collaborative activities with a range of agency and commercial interests is necessary.

An inquiry based upon soft systems methodology was used to identify mutually beneficial improvements in management between village, agency and commercial stakeholders in a particular upland catchment situation in Thailand. The collaborative actions which have developed include demonstrations of contour planting and composting, a programme of planting short-term coppice rotations of eucalypts with an assured market, and the establishment of a local water supply and associated water users association who manage a user-pays system. Recent discussions have focused on the incorporation of forage legumes within the current activities of village, agency and commercial stakeholders, and the scaling up within the Province using the organisational platform of schools throughout the upland areas.

The collective and collaborative actions which have developed are all cases whereby particular bundles of property entitlements and related duties have been defined through a process of the expression of claims and identification of mutually beneficial arrangements. These have included local collective management of a water supply, partnerships relating to elements of conservation and production within the local agroecosystem, and socially legitimate patronage to support formal protocols of the land reform process.

A fundamental view of property which has been used here is a recognition of collective action as a process whereby interests are translated into legitimate claims and entitlements. This conception can be expanded into collaborative partnerships between village, agency and commercial interests. A process of inquiry which supported the identification of legitimate and mutually beneficial actions has resulted in the definition of bundles of property entitlements which specify benefits and duties by particular stakeholders, with respect to particular resource complexes. These property entitlements have the potential to be robust as they are supported by multiple relationships of social and bureaucratic legitimation.

## **References**

Blomquist, W. and Ostrom, E., 1985. Institutional capacity and the resolution of a commons dilemma, *Policy Studies Review* 5(2): 383-393.

Bromley, D.W., 1989. *Economic interests and institutions: the conceptual foundations of public policy*, New York and Oxford: Basil Blackwell.

Bromley, D.W. 1991. *Environment and economy: property rights and public policy*, Basil Blackwell, Oxford.

Brooks, K., Gregerson, H., Ffolliott, P., Tejwani, K.G., 1992. Watershed management: a key to sustainability, in: Sharma, N.P. (ed.) *Managing the world's forests: looking for balance between conservation and development*, Kendall/Hunt, Iowa.

Chamarik, S., 1983. *Problems of development in the Thai political setting*, Thai Khadi, Bangkok.

Checkland, P., 1981. *Systems thinking, systems practice*, John Wiley, Chichester.

Checkland, P., Scholes, J., 1990. *Soft systems methodology in action*, John Wiley & Sons, Chichester.

Chunkao, K., 1985. Watershed management in Thailand: principles and problems, in: Santisuk, T., Samitanan, T., Brockelman, W.Y. (eds.) *Nature conservation in Thailand in relation to social and economic development*, The Siam Society, Bangkok.

Cousins, B., 1995. A role for common property institutions in land redistribution programmes in South Africa, *Gatekeeper Series* no. 53, International Institute for Environment and Development, London.

CUSRI (Chulalongkorn University Social Research Institute), 1987. *Land ownership status of farmers under the land reform program*, Land Reform Areas Project report submitted to Agricultural Land Reform Office, Chulalongkorn University Social Research Institute, Bangkok.

Feder, G, Tongroj Onchan, Yongyuth Chalamwong, 1988. Land policies and farm performance in Thailand's forest reserve areas, *Economic Development and Cultural Change* 36: 483-502.

Feeny, D., 1982: *The political economy of productivity: Thai agricultural development 1880-1975*, University of British Columbia Press.

Girling, J.L.S., 1981. *Thailand: society and politics*, Cornell University Press, Ithaca.

Gohlert, E.W., 1991. *Power and culture: the struggle against poverty in Thailand*, White Lotus, Bangkok.

Grimble, R., Man-Kwun Chan, Aglionby, J., Quan, J. 1995. Trees and trade-offs: a stakeholder approach to natural resources management, *Gatekeeper Series* no. 52, International Institute for Environment and Development, London.

Hanna, S., Munasinghe, M. 1995. An introduction to property rights in a social and ecological context, in: Hanna, S., Munasinghe, M. (eds.) *Property rights in a social and ecological context: case studies and design applications*, Beijer International Institute of Ecological Economics and the World Bank, Washington D.C.

Hewison, K., 1993. Nongovernmental organisations and the cultural development perspective in Thailand: a comment on Rigg (1991), *World Development* 21(10): 1699-1708.

Hinchcliffe, F., Guijt, I., Pretty, J.N., Shah, P., 1995. New horizons: the economic, social and environmental impacts of participatory watershed development, *Gatekeeper series* no. 50, International Institute for Environment and Development, London.

Hirsch, P., 1990. *Development dilemmas in rural Thailand*, Oxford University Press, Singapore.

Hirsch, P. 1993. The state in the village: the case of Ban Mai, *The Ecologist* 23(6): ??

Morse, R. Tingsabadh, C., Vergaro, N., Vidyarthi, V., et. al., 1987. *Peoples' institutions for forest and fuelwood development: a report on participatory fuelwood evaluations in India and Thailand*, East-West Center, and Appropriate Technology Development Association, Hawaii and Chulalongkorn University Social Research Institute, Bangkok.

Oakerson, R.J., 1992. Analysing the commons: a framework, in: Bromley, D.W. (ed.) *Making the commons work: theory, practice and policy*, International Center for Self-Governance Press, San Francisco.

Onchan, T., 1990. *A land policy study*, Thailand Development Research Institute, Bangkok.

Ostrom, E., 1992 The rudiments of a theory of the origins, survival, and performance of common-property institutions, in: Bromley, D.W. (ed.) *Making the commons work: theory, practice and policy*, San Francisco: International Center for Self-Governance Press.

Pantasen, A., 1994. Decentralisation, the tambon council and community forest management, *TEI Quarterly Environment Journal* 2(2): 38-50.

Rigg, J., 1991. Grass-roots development in rural Thailand: a lost cause ?, *World Development* 19(2/3):199-211.

Roling, N., 1994. Facilitating sustainable agriculture: turning policy models upside down, in: Scoones, I., Thompson, J. (eds.) *Beyond farmer first: rural people's knowledge, agricultural research and extension practice*, Intermediate Technology Publications, London.

Scoones, I., Thomson, J., 1994. Knowledge, power and agriculture - towards a theoretical understanding, in: Scoones, I., Thompson, J. (eds.) *Beyond farmer first: rural people's knowledge, agricultural research and extension practice*, Intermediate Technology Publications, London.

Terwiel, B.J. 1984. Formal structures and informal rules: a historical perspective on hierarchy, bondage and the patron-client relationship, in: Brummelhuis, H.T., Kemp, J.H. (eds.) *Strategies and structures in Thai society*, Anthropological-Sociological Centre, University of Amsterdam.

Turton, A., 1987. *Production, power and participation in rural Thailand: experiences of poor farmers' groups*, United Nations Research Institute for Social Development, Geneva.



White, T.A., 1992. Landholder cooperation for sustainable upland watershed management: a theoretical review of the problems and prospects, *Environmental and Natural Resources Policy and Training Project (EPAT), Working Paper no. 1*, Midwest Universities Consortium for International Activities Inc. (MUCIA).

White, T.A., Runge, C.F., 1994. Common property and collective action: lessons from cooperative watershed management in Haiti, *Economic Development and Cultural Change* 43(1): 1-42.

Wilson, K., and Morren, G.E.B., 1990. *Systems approaches for improvement in agriculture and resource management*, Macmillan.