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**Community Forest Management in Thailand: Current Situation and
Dynamics in the Context of Sustainable Development**

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Abstract

Community forest management (CFM) has received increasing worldwide attention from governments, researchers and educational institutions over the past two decades. Many governments, especially in developing countries, have prioritized CFM over traditional forest management systems. In Thailand, CFM is not recognized by the legal system; however, there are *de facto* CFM practices under common property resource regimes. CFM has in essence been practiced here for hundreds of years by local people, and represents an important aspect of Thai culture. This study aims at evaluating CFM in Thailand in the context of sustainable development. To meet the objective, the study gathered information through focus group discussions with various stakeholders: academics, Forest Department staff, and members of the *Chang Tok Tay* community forests. From the study, it emerged that forest resources are critical for the livelihoods and survival of rural people, and so they have protected forests to ensure sustainable livelihoods. This study identified that prospects for sustainable CFM in Thailand are bright because: (i) community members are highly motivated and are sufficiently interested to protect trees because they are well aware that their livelihoods are under threat from depleting forests, (ii) tradition and culture of rural people support their relation with nature, (iii) non-timber forest products play a crucial role in local livelihoods for subsistence and necessitate protection of the forest watershed, which is vital to support their occupations, (iv) spiritual rituals such as those where Buddhist monks bind yellow cloth on trees play a vital role in protecting trees, something rare in other countries. The study further identified various hindrances to achieving sustainable CFM: (i) legal support for CFM is absent, (ii) the Royal Forest Department (RFD) cannot transfer appropriate technology to community people due to lack of legal support, (iii) scope for developing effective strategies for sustainable CFM by combining traditional knowledge with existing scientific knowledge is limited, (iv) a formal institutional arrangement for CFM does not exist, and (v) community members' access to the hard technology of CFM is limited. Therefore, in addition to legalizing CFM, a

formal institutional framework for elaboration, implementation and control of CFM is essential to achieve sustainable CFM in Thailand.

Key words: Community forest management, sustainable development, community forestry bill, hard and soft technology, institutional framework.

1. Introduction

Two main forest conservation approaches can be identified; the protection approach that regulates and minimizes forest use in order to keep the forest intact and free from human impact, and the community forest management (CFM) approach that takes into account the local peoples' dependence on forest resources, the sheer impossibility of keeping them away from forests, and so "intimately involves" (FAO 1978) them in forestry activities. CFM involves the active protection of a forest area and the regulation of its use by an associated community. This approach of forest management has received increasing attention from governments, researchers and educational institutions worldwide over the past two decades (e.g., Arnold 1998; Clugston and Rogers 1995; Dei 1992; Douglass 1992; Fellizar 1994; Ghai 1993; Robinson 1995; Perry and Dixon 1986). Recently, the rights of local inhabitants of protected areas have begun to receive greater attention in international discussions (Agrawal and Gibson 1999; Johnson and Forsyth 2002). Governments of many countries have prioritized CFM as a tool for forest protection in the face of rapidly decreasing forest resources because they have found that they are unable to protect forests without the assistance of local people (Malla 1997; Conroy et al. 2002; Sekher 2001). CFM has resulted in the emergence of collaborative forest management processes such as joint forest management (JFM) in India (Kant and Nautiyal 1994; Poffenberger 1996; Conroy et al. 2002), community-based forest management (CBFM) in Nepal (Kellert et al. 2000), China (Zhang 2001), the Philippines and Thailand (Arnold 1998 pp. 24-34) and Vietnam (Poffenberger 1998) and co-management in Canada (Beckley 1998).

CFM in Thailand is said to come from two main roots. First, Thailand has ethnically diverse cultures and people from different cultures have practiced indigenous forest management for generations without any formal written rules or regulations, unnoticed and unrecognized by the state and the Thai general public until a decade ago. Second, in

1984 the United Nations Food and Agriculture Organization (FAO) introduced another root to CFM to Kasetsart University in the form of a social forestry curriculum, which in 1985 found state promotion in the Thailand National Forestry Policy. Under this policy, the Government plans to restore forest cover from the present level of less than 20% of the Kingdom's area to 40%, with 25% earmarked as conservation forest and 15% as production forest (Hardwick et al. 2004).

Major changes in Thai forest policy started with a logging ban in 1989. There was general agreement that logging had made the greatest contribution to the severe nationwide deforestation. Involved people and environmental groups emphasized that the main objectives of the logging ban should be to protect and conserve the remaining natural forests, to facilitate participation by the local community in forest management, and to conserve forests by a form of multi-partite resource management. Thus, following the logging ban, the Project for Ecological Recovery (PER 1992) prepared a policy paper entitled "Ten Measures to Save the Forests" emphasizing the recognition of the rights of local people to own and manage their ecosystems as community forests; this paper was submitted to the government with support from 21 NGOs.

The new constitution enacted in 1997 stipulates the need for the participation of communities and local organizations in natural resource management as well as the right of indigenous people in management of natural resources (item 46). In July 2000, parliament passed the first reading of the draft CFM bill, and the process of deliberating different approaches of resource management continued. For some time the CFM debate has been complicated by the preparation of a number of alternative drafts of proposed community forest legislation, with clear differences between the draft prepared by the Royal Forest Department (RFD) and that prepared by an alliance of academics and NGOs (commonly referred to as the "people's version"). In early 2002, the House of Representatives passed a version of the bill that recognizes the legal status of communities living in and around Thailand's National Forest Reserves, and proposes the establishment of community forests by rural communities to manage forest areas in cooperation with the RFD. However, the Senate rejected key provisions and proposed amendments that would prevent local people having greater role in Thailand's forests

(see also Johnson and Forsyth 2002). At present, the bill appears to be in legislative limbo (Roonwong and Onprom 2000).

Sustainable forest management is based on methods that jeopardize neither future harvests of forest products nor future benefits of environmental services. Worldwide, viewpoints on the functions of forests for societies have changed and been broadened dramatically from the relatively narrow view of forests as primarily a source of wood, to the present view that reflects a wider range of present and future needs of various users (Westoby 1987; Griffin 1990). Experience shows that sustainable forest management programs need to be carried out in ways that reflect local, regional, and national priorities (Putz 1994). Local communities rely on forests as a major source of food, fuel, fodder, and construction materials; and in some instances, the forest is the basis of their tradition and culture. This multiplicity of objectives for resource use is leading to a shift in the focus of forest management from the traditional sustained yield of a few specific products, to one of sustainable management for a continuous flow of multiple benefits that contribute directly to the wellbeing of people. Although CFM on national forest lands is not legally supported by the Thai Forestry Act, more than 8,000 “community forests” all over Thailand are being used, protected and managed by local communities, some over periods of several generations (Daniel 2002). Sustainable development of CFM is essential for the sustainable livelihoods of local communities. Thus, to understand the importance of legal support for community forests in Thailand, it is necessary to understand the present condition and prospects of sustainable development for community forests. This study therefore aims to evaluate the current situation of community forests in Thailand, and to identify the dynamic of these forests towards sustainable development.

2. Methods and Materials

2.1 Study site

A case study was conducted in *Chang Tok Tay* community forest located in the Wang Yay Thong sub-district of the Thapararak district in Nakhon Ratchasima Province, the North Eastern part of Thailand. It is an upland area and population density is low. The

Chang Tok Tay community forest is managed by 70 households from 10 villages surrounding the forest. Approximately 4,000 people (in about 1,200 households) live in these villages (Table 1). The majority of these households are of indigenous Thai people who retain their traditional livelihoods, which depend on agriculture supplemented by a wide range of non-timber forest products. Most of the households are small farmers possessing 15-20 rai (6.25 rai = 1 ha) of land and the rest are landless. Traditional kinship, leadership, and spiritual practices remain strong amongst the community. Sustainable livelihoods of the people are highly dependent on the existence of forests without the risk of deforestation.

The *Chang Tok Tay* community forest covers 1075 rai (172 ha) of land within the national reserved forests. It is a *Dipterocarpus* forest dominated by *Shorea obtusa*, *Shorea siamensis* and *Bamboo* species. The distance of the community forest is about 40 km from the nearest significant forest in the area. The present condition of the forest is still poor because the forest was severely deforested before the logging ban introduced in 1989.

2.2 Data Collection

The information for this study came from field and literature surveys. A field survey was conducted during the first week of March 2004. Information was collected by a series of focus-group discussions with key informants on CFM in Thailand: academics of the Regional Community Forestry Training Center (RECOFTC) and the Department of Forest Management, Kasetsart University, Bangkok, the Director of CFM and other officers from his office, RFD, Bangkok, and some other local RFD staff. In total, CFM eleven experts were interviewed: three from the RECOFTC, three from the Department of Forest Management, Kasetsart University, three from the RFD and two from local RFD staff. The topics of discussion were; the legal status of CFM, the present condition of CFM, the necessity for adopting CFM in Thailand, constraints towards adopting CFM, a strategy need for sustainable development of CFM, etc. At the field level, focus group discussion was conducted with thirteen CFM members, mainly executive committee members of the *Chang Tok Tay* community forest. The discussion was

administered focusing on the following topics: population size of the community, number of members of CFM team, economic composition of the community members, scarcity of wood products, present condition of the community forest, legal status of the community forest, institutional structure, management systems, problems in managing the forests, cooperation from the RFD, existing constraints on making CFM sustainable, opinions for making CFM sustainable, etc. We also physically visited *Chang Tok Tay* community forests to better understand the present conditions and management strategies in that forest.

2.3 Analysis

Over the past decade, sustainable development has become an increasingly important category of international development policy. Faulkner and Albertson (1986) prepared a sustainable development cycle for a participatory process. Figure 1 represents the sustainable development cycle for CFM adapted from the Faulkner-Anderson model. It is clear from the model that villagers are the cornerstone of the CFM process, and are responsible for most of the basic ideas and initiatives for starting CFM. However, their initiatives and efforts need to be energized and geared up through the active support of activating agents, especially the Government Forest Department, which should provide relevant advice and guidance in respect to technical and legal matters. If these two basic components are realized in a sound manner, the other requirements for sustainable CFM development would be met by passing through some intermediate components, a process that will motivate and change the behaviors of community members. It will also speed up the process and ultimately derive values, opportunities and outcomes from the community forests. With an innovative exercise underway, CFM activators will then be in a better position to repeat the cycle of a development process to ensure sustainable production and consumption of community forest goods and services. During the past decade, sustainable production and consumption has become an increasingly important category of international development policy, referred to by governments and other policymaking bodies as ‘a key strategic approach to achieving sustainable development’ (UNCSD 1997). To understand the dynamic of CFM in Thailand for sustainable development, information gathered for this study was analyzed on the basis of the different components of the development cycle set out in Fig. 1.

3. Results and Discussion

3.1 Transfer of Strategies

It is clear from figure 1 that the transfer of effective CFM strategies to CFM members is central to the achievement of sustainable CFM. Effective and responsive land use planning and policy is highly influential in the successful resolution of CFM challenges. This type of planning and policy provides a forum for an active and broad-based participation by those interested in CFM. The role of activating agents' in this regard includes developing and transferring plans and policies relating to the technical and socioeconomic aspects of sustainable forest management to community members. The resulting challenge for sustainable CFM is to link broad national and international initiatives and policies with community based efforts, and to put them into practice at the local level (Sarin 1993; Wolf-Keddie 1994; Treseder and Krogman 1999).

The National Forest Act needs to support CFM, especially when it is practiced on national forest land. Without adequate legal support, the RFD or other activating agents cannot act effectively in formulating plan and policy for CFM. As noted earlier, CFM in Thailand is not recognized by the Thai legal system although there are *de facto* practices under a common property resource regime. Since Thai forests are owned by the state, the framework of forest management and conservation has been organized by the RFD and thus, it must hold full responsibility over the administration and management of forest resources and related forestry issues. Lack of legal support for CFM prevents the RFD formulating appropriate plans and policies, and in transferring technical support and strategies to CFM members. In the case of the *Chang Tok Tay* community forest, the RFD allowed community members to protect forest and a local RFD staff has been assigned to monitor CFM activities. But the RFD cannot come forward formally to initiate, institutionalize and transfer appropriate strategies to the CFM members, which is the main hindrance to sustainable CFM.

In developing countries, much ecological knowledge is held by local people, and has not yet been adequately integrated with formal scientific knowledge (Sinclair and Walker 1999; Campbell and Vainio-Mattila 2003). It is, therefore, likely that local

knowledge could substantially improve forest conservation methods. Therefore, combining local knowledge with existing scientific knowledge should be priority. Moreover, a common framework for information sharing is necessary to overcome trust, ideological, cultural, and communication barriers, which sometimes prevent building constructive resource management relationships between scientific and indigenous groups (Pålsson 1998; Sherry 2002). Successfully overcoming these barriers to cooperation is essential to implement CFM strategies aimed at sustainable management (Ganjanapan 1996). Unfortunately, the scope for combining indigenous knowledge with scientific knowledge of CFM in Thailand is limited. Thus, to achieve sustainable CFM, an initiative is needed to achieve a planning process and tools that:

- i. formally and effectively involve local people in CFM;
- ii. record indigenous knowledge, test it and combine it with existing scientific knowledge of CFM; and
- iii. identify effective strategies for CFM, and to transfer these strategies to CFM members.

3.2 Communes with Suppressed and Expressed Needs

In developing economies, forest resources are critical for livelihoods and survival of rural people. Rural people find food in the same place that they live, and that place is the forest (Pennapa 2002). Without forests, rural people's livelihoods are effectively destroyed and they are forced to migrate to urban areas, leading to family and community disintegration (Wasi 1997). Thus, it is assumed that people depending on forest resources must have a vital interest in protecting these resources; therefore, these people are more than anyone else predestined to participate in forest protection. First generation CFM projects that started in the mid seventies showed that this assumption was by no means wrong. Resource managers worldwide are finding that conservation and management of forest resources are more effective when they include the needs of local people (Borrini-Feyerabend 1996; Warren 1998; Karjala et al. 2004). Incentive, in turn, stems from the fact that individuals who engage in resource-intensive industries depend on these resources for their survival, and therefore have a interest in their well-being (Ostrom 1990). It is frequently suggested that local participation happens if responsible agents employ a genuine participatory approach incorporating local needs.

In Thailand, approximately 500,000 families reside in about 5,000 community forests (Maneekul et al. 2002; Bangkok Post 2002), and are heavily dependent upon a variety of forest products and services for their subsistence and livelihoods (Traynor et al. 2002; Maneekul et al. 2002; Sato 1997). The success of a community forest alliance in collecting 52,698 signatures of Thai citizens (Roonwong and Onprom 2000) in favor of a people's version of the Community Forest Bill clearly signifies community people's interests to and dependency on forest resources. It represents, to some extent, the movement towards the recognition of citizenship rights and basic human rights for livelihood sustainability. However, state policy in Thailand has long denied the legitimate presence of farmers in upland forestry areas. RFD does not allow recognition of community forests in protected areas, which effectively rules out most potential community forests in Thailand. Thailand's Upper House of Parliament blocked the passage of the draft Community Forest Bill, and proposed amendments that would prevent local people having a greater role in managing Thailand's forest and ultimately lead to the eviction of thousands of forest-dwelling communities (Daniel 2002). For all these effected people, the underlying issue regarding most community forests lies in the debate about whether forest dwellers will be forcibly removed from these areas. Livelihood insecurity is compounded by persistent state plans, and so threats to sustainable CFM have widened.

It was revealed from the field observations that the *Chang Tok Tay* community forest is well protected against fire and illegal logging by a group of 70 highly motivated Forest Protectors from the 10 villages surrounding the forest (Table 1); these are people who share a strong stake in sustainable production. It emerged from a focus group discussion that people neighboring the *Chang Tok Tay* community forest have traditionally relied on forest resources for subsistence and livelihood. Non-timber forest products (NTFPs) such as mushrooms, medicinal herbs, roots, flowers, leaves, bark, bamboo shoots and small animals have played a crucial role in local subsistence economies for villagers' livelihoods. Various factors including (a) the presence of strong traditional community institution; (b) the lack of viable alternatives or substitutes for some forest products; and (c) support from local FD staff, have facilitated forest protection by communities. The

process of severe degradation in forests surrounding the village prompted development of this community forest (Table 2). Village leaders realized the danger from deforestation. Apart from ecological concerns, they also realized that soon there would be no forest left to meet the villagers' own needs for livelihoods. For the last 30 years, village heads have tried to motivate villagers to protect forests near where they live. Five years before the survey, community members spontaneously responded to their calls (Table 2).

It was also revealed from focus group discussion that local people's primary motivation for protecting forests was to generate products for subsistence use, but in some cases income generation was the main objective. While the poorer households tended to attach importance to food and to income from collection and sale of NTFPs, the better off households highlight subsistence wood products. In general, the 'less-well-to-do' within the villages benefits most from CFM, both in terms of secure livelihoods and poverty alleviation. However, under the present state of CFM, poor community members cannot extract enough NTFPs from the forests, and thus they have to go outside to sell their labor to meet the deficit in their needs; in this way they are unable to perform all their CFM activities, especially regular patrol duties. Thus, an incentives approach should be advocated to create linkages between conservation and the economic interests of local people. The logic behind this approach is that the generation of income from local forests can provide a positive incentive for sustainable use, and can thus contribute to its conservation. Such an approach is being applied and supported in various ways in developing countries. For instance, the Joint Forest Management program in India has placed considerable attention on income generation through NTFP production to encourage rural people to participate in government forest conservation activities. IUCN, the World Conservation Union, has NTFP projects in the Lao PDR and Vietnam, which specifically aim to promote NTFP production and marketing as an incentive to forest conservation.

Forests play a key role in ensuring water supply for agricultural irrigation. For instance, watershed forest protection by northern Thai irrigation groups is said to be one of the key antecedents of the modern CFM movement and is widely reported to be a key

component of contemporary CFM activities (Anan 1999; Apinyaa 2001; NDF 2000; RFD 1998; Johnson and Forsyth 2002). Focus group discussion revealed that farmers surrounding the *Chang Tok Tay* community forests are heavily depend on the forest watershed to support their agriculture. Wet rice is grown in fields surrounding the forest area, and is heavily dependent on irrigation from the forest watersheds, which thus require protection and proper management. Community members protect and manage forest watersheds within the CFM area as a part of CFM. They have experienced the effects of deforestation in terms of decreasing agricultural production, water resources or the change of the local climate that led to growing awareness of the ecological functions of forests. However, growing ecological awareness is not necessarily leading to ecological sound action, but most probably will improve the chances of sustainable CFM. Forests are also an important grazing resource for the local people.

3.3 Soft Technology

Utilization of soft technology is essential for achieving sustainable CFM. Appropriate soft technology includes skills, knowledge and procedures for making, using and undertaking useful CFM with the various optimums determined on a community specific basis by local people. It encompasses social structures, human interactive processes, and motivational techniques. In today's world of rapidly expanding technical information in all fields of knowledge, the following principles are useful guides for sustainable development:

- (i) The technology must meet the needs/problems identified by the concerned community.
- (ii) Introduction of hard technology must be preceded by the use of soft technology processes to mobilize, motivate and organize community awareness (Faulkner and Albertson 1986).
- (iii) In introducing technical innovations, local knowledge and concerns must be considered and incorporated into their design and use (Freeman and Lowdermilk 1991).

CFM concepts and approaches include a wide range of activities that build upon a combination of existing indigenous knowledge of community members with scientific

knowledge to improve forest management practices. Pilcher (2002) argues for combining science and traditional practices in community-based conservation. About one-quarter of Thailand's farmers live on land classified as forested (Hirsch 1990; PER 1991). People settled in many forest reserves, national parks and wildlife sanctuaries well before the gazetting of such areas by the RFD (Hirsch 1997). Their traditions and culture support their relationship with nature and the campaign for community forest reform asserts that "customary practice rooted in local culture" (Hirsch 1997 p.15) can provide a basis for sustainable livelihood in forested areas. Because of their long and close relationship with forests, community members should have sufficient traditional knowledge, information and incentive to manage and conserve the resources on which they and their families depend (Agrawal and Gibson 1999, p.633; Baland and Platteau 1996 chapter 10). Knowledge and information arise from an extended and intimate relationship between members of the community and the local environment (Baland and Platteau 1996; Ostrom 1990). It is, therefore, likely that, local knowledge can substantially improve forest conservation methods. Therefore, recording local knowledge, testing and combining it with existing scientific knowledge of CFM should be a priority. Ultimately, all relevant information should be collected to develop a method of CFM appropriate for the particular CFM members, and this information should be transferred to the members. In this respect, legal support, or rather the lack of it, for CFM is again a barrier for RFD staff. It was revealed from focus group discussions that in order to exchange knowledge the *Chang Tok Tay* CFM executive committee, from their own initiative, arranged training programs mainly for school students to motivate and build the capacity of young generation to protect the forests.

CFM in Thailand represents an important aspect of Thai culture. Buddhism is the national religion and about 95% of the people are Buddhists. In this respect, CFM has great creative potentials as it is instilled with spiritual rejuvenation because it integrates three main Buddhist concepts: respect for all living things, interactive learning through action, and self-sufficiency. Thus, Buddhist monks play a vital role in protecting trees. Monks are very much respected in Thai society. Rituals such as binding robes of yellow cloth on trees are used to enhance the spirituality of forest protection. If monks bind a yellow robe on any tree people are usually afraid to cut that tree. This innovative

spiritual practice has also been used to protect trees in the CFM. It was observed at the time of a field visit that monks bound yellow cloth on many trees (see photo 1). Local people protect these trees, scolding anybody who cuts the monks' trees. Thus, coordination and communication between the activities of Buddhist monks, community people and RFD staff can increase the prospects for sustainable CFM development.

3.4 Institutional Arrangements for Community Forestry

It is recognized that formal institutional arrangements have the ability to propose forest management activities to communes in response to community input, and are invaluable in facilitating meaningful involvement and participation. This makes the material more meaningful to the community, and gives them some confidence that their input and perspectives are being substantively recognized. For this reason, new institutional economists incorporate institutional arrangement as an explanatory variable in studying the problem of sustainable development (Rangachari and Mukherji 2000). To achieve sustainable CFM, a variety of institutional arrangements involving community, local authority and state levels are necessary. State level institutions are important for providing advice and guidance with regard to technical and legal matters.

The discussions and interviews with the CFM experts revealed that CFM in Thailand has been more of a peoples' movement than a government program. It has arisen as the result of spontaneous initiatives of local communities to protect and manage their surrounding forests. Because of the absence of state initiatives, forest dependent communities in many areas have initiated forest protection on their own. At the beginning, CFM included only indigenous forest management by different ethnic groups, but recently community forests have developed as a response to changing ecological and socioeconomic conditions, and emphasize access to and control over forest resources. Surveys of community forests in various regions indicate an increasing trend for CFM. For example, Shalardchai et al. (1993) compiled data on 153 communal forests found in Upper Northern Thailand, while more recently Somsak and Permasak (2000) reported 733 communal forests in that area. According to a national inventory conducted by the RFD, more than 12,000 rural community groups have been protecting forest patches ranging in size from 1 to 4,000 ha for religious, ecological and economic

purposes (Poffenberger and McGean 1993). However, while sections of RFD are concerned with supporting such community activities, and while individual officers have been very active, most of these community forests are informal, some under pilot programs and others through local agreements between Tambon (sub-district) Councils and the RFD. Wherever possible, existing traditional local institutions are used in planning, organization, implementation and protection of forests at the community level. In most cases, community management committees have been formed. However, NGOs cannot be involved in performing work for institution building and strengthening because of legal constraints.

From focus group discussions it evolved that the *Chang Tok Tay* CFM is also a self-initiated community forest (Table 2). A village executive committee manages forests and develops rules and regulations for membership, access, penalties, patrol, etc. The executive committee consists of 17 members representing all classes of people including the village head, the school teacher, the village doctor, local forest department staff, and representatives of different ethnic classes. It was observed that the success or failure of an organized CFM depends to a large extent on the entities that oversee it and are vested with the prerogatives of rule formulation and enforcement. This has reference to the executive membership or the leadership structure of the organization, and reflects its representativeness. In this respect, the *Chang Tok Tay* CFM executive committee was widely representative, and thus a positive point for sustainable CFM. The executive committee members work under seven sections: administrative, protection of forests, fund raising, nursery, improvement of the environment, public relations, and protection of medicinal plants. The protection system comprises rotational patrolling in combination with general vigilance. The users have special rights and responsibilities; and typically, the communities also exert *defacto* control over access and use of forests. All 72 community members protect trees by forming 2-member Forest Protector Groups. The committee assigns one group every day on a rotating basis. Members are recognized based on their contribution to protection, which is in labor (mainly patrolling).

Depending on their local socioeconomic situation and traditions, communities have

developed different arrangements for enforcing protection and for using the benefits. In respect to the material goods and outcomes of forests, collection of NTFPs remains open to all. In the case of forest products, benefit-sharing mechanisms are 'need-based' ones in which different community members are allowed to cut different quantities of wood for subsistence purposes. A common example is where timber is required by one or more community members for house repair, the executive committee decides how great the need is and how much of the product they should be allowed to remove; all authorized felling of trees is closely supervised. At the time of making a decision, at least three executive committee members should be convinced that the need of the applicant is acute. If the product is very scarce, it may only allow part of the total need to be met from the protected patch.

Local leaders have a strong influence on village politics and have strongly supported the idea of CFM. Exemplary leadership and coordination from the *Tambon Council*, combined with cooperation among the regional RFD field staff, academics and village elders have coalesced to inspire a voluntary spirit of communal concern and initiative among villagers. Further, local FD staff have been informally involved in supporting the initiative; this has taken various forms, including: (a) informal recognition of the right and authority of the protection community vis-à-vis others; (b) motivating community people to take up protection of the forest; (c) facilitating demarcation of forest area; (d) taking or supporting penal action against offenders in cases brought to them by villagers; (e) permitting (overlooking) the selective felling of trees; and (f) facilitating the formation of an executive committee. The lack of formalized institutional support for the RFD involvement is a potent hindrance of sustainable CFM development. Thus, a formal institutional arrangement is essential to achieve really sustainable CFM.

3.5 Hard Technology

Appropriate hard technology is found in the scientific techniques, physical structures and tools that enable the needs of CFM requirements to be met, and to utilize the materials at hand or those readily and inexpensively available. Soft technology basically enables people to take advantage of and expand on hard technology to produce goods and services for the increased satisfaction of their needs. The focus group discussions

revealed that access and utilization of hard technology is limited in the *Chang Tok Tay* community forests. Local institutions are seriously lacking in the basic human capacities and skills needed to develop and put in place the appropriate tools, methods and approaches for the development of CFM. No state level or NGO specialists or professionals well versed and operational in the area of CFM work for the development of scientific techniques for CFM were available because of the lack of legal support. Thus, transformation of scientific techniques for CFM is a totally absent factor. The *Chang Tok Tay* community forest is managed mainly on the basis of traditional local knowledge and tools. Thus, access to scientific techniques will be essential to achieve sustainable CFM. Community members can protect forests from illegal logging more efficiently if they can carry a gun at the time of patrolling and fire extinguishing equipment for protecting forests from fire. Thus, the lack of access to hard technology is a major hindrance for sustainable CFM in Thailand.

Conclusions

The approach to CFM in Thailand is different from that of CFM in other countries, where it has evolved as government development programs with the usual top-down approach. However, CFM in Thailand is not a government initiative, rather it is accepted by the RFD in a retrospective fashion under local pressure; thus presenting a bottom-up approach. The RFD, under present form of the country's legislation, is not an institution suitable for properly monitoring and developing CFM. Although the institutional arrangements for CFM are still un-official due to the lack of a formal national policy recognizing community rights, the socio-ecological system is relatively stabilized. The ongoing process of spontaneous community participation, solidarity, and empowerment in a partnership for management of national forests indicates the wide ranging potential for sustainable development of CFM in Thailand. Secure settlement and user rights, as well as legal rights in community forests will most probably strengthen villagers' identification with and responsibility for their forests. Strong, accepted village institutions are needed to establish an effective realization of a community forest. Local institutions defending the common against private interests will be capable of protecting natural resources; but only if they are strengthened by legal support from the state. The working relationship among the RFD (at national, regional,

and local levels), academics and community members is mainly coordinated by local *Tambon* Councils, which serve as the key mechanism for communication and consensus among village groups. The institutional structure developed for collaborative management heavily depends upon the successful role played by the *Tambon* Council as the liaison between the regional forestry office and the local village groups. Thus, *Tambon* councils should work more actively to enhance CFM in Thailand.

At present, CFM in Thailand is “an issue of contested resource tenure between local people and the state” (Hirsch 1997: 16). The movement for CFM in Thailand is a challenge for community members to show that the coexistence of people and forest is possible due to the intimate relationship between rural livelihoods and forest ecosystems. It can be asserted that the local management of resources is the key to ensuring livelihood security and resource sustainability. The evidence revealed in this study indicates that instead of economic interests of forest exploitation, villagers have economic interests that favor forest protection, an essential element of sustainable forest development. The chances that villagers under favorable conditions can develop effective local institutions and capacities to protect and manage their forests seem quite promising. Thus, to realize the sustainable development of CFM in Thailand all involved agents of forest management, including the RFD, other environmental concerned agencies, academics, and local communities need to alter their understanding of natural resource management and conservation from a centralized to a decentralized process, to embrace more participatory approaches, and to facilitate a more community-based responsibility toward forests.

All evidence points to the fact that sustainability of CFM depends on the will of the government and the RFD, and accordingly they should incorporate the following:

- (i) Legal support for CFM is the first priority for achieving sustainable CFM.
- (ii) Policies and regulations that give communities the possibility of assuming a greater role in decisions on forest management.
- (iii) The RFD role and professional attitudes need to undergo substantial change. The RFD should change its policies and structures to become an institution supporting CFM members with advice, service, infrastructure, and even

capita.

- (iv) Formal authority must be approved. Local people's rights to use and managing their community forests should be facilitated.
- (v) Local institutional capacity should be strengthened, and involved agencies should implement effective policies for forms of institutions and partnerships, as well as practice multi-party involvement.
- (vi) Security of land tenure and accesses to resources should be established.
- (vii) A socially acceptable method should be developed so that RFD can work in cooperation with local people.
- (viii) Economic incentives have to be perceived by communities if their long-term commitment is to be secured. Every effort should be made to ensure a positive impact on the livelihoods of community members.

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Table 1: Profile of study site

Characteristics	Condition
<i>1. Demographic features</i>	
a. Population size of the community	About 4,000 people (1200 households)
b. Number villages	10
c. Size of user group	Small (70 households)
d. Population composition	Mainly local Thai
e. Population density	Low
d. Economic composition	Mostly small farmers (possessed 15-20 rai of lands/HH) and landless households
<i>2. Community forestry attributes</i>	
a. Type	National reserved forests (secondary forests). <i>Dipterocarpus</i> forest with tree species mainly <i>Shorea obtusa</i> , <i>Shorea siamensis</i> and <i>Bamboo</i>
b. Scarcity of wood products	Low
c. Distance of study site from significant forest	About 40 km (National park)
d. Condition of community forest	Poor

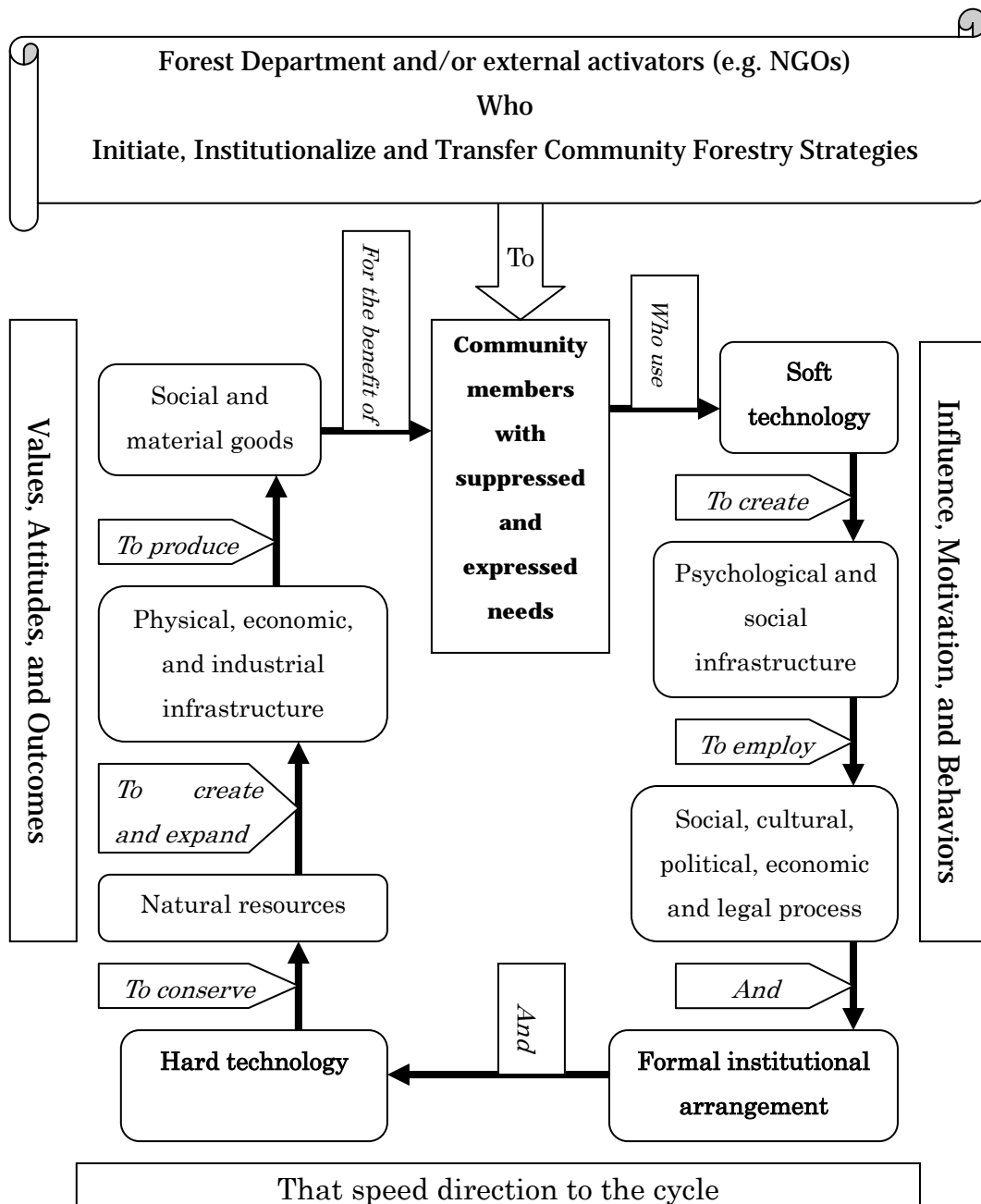


Figure 1: Community forestry development cycle adopted from Faulkner and Albertson (1986).



Photo 1: Trees are bonded by yellow cloths by Buddhists Monks marking that these are Monks trees.

Table 2: Management status in the *Cahng Tok Tay* Community Forest

Management component	Status
1. Community organized from when	From the mid of 1970s tried to organize themselves but organized management really began from 1998-99.
2. Initiative for CF management	A village leader took initiative to organize the local people for forest protection in the locality
3. Reasons for management	Rapid deforestation; increasing soil erosion; decline in soil fertility; NFTP scarcity; protect forest ecology
4. Legal status	No legal rights but the RFD informally allowed the community to protect forests.
5. Type of community organization	Traditional management regimes; informal village community
6. Legal status of the organization	Informal
7. Institutional structure	A 17 member executive committee with group representatives as members
8. Protection system	Voluntary protection by 2-member rotation groups
9. Perceived benefits	Little direct benefits (due to restrictive access rules because of reserved forests and also imposed by the executive committee); mainly NFTP; mostly indirect benefits
10. Interests of villagers for community forests	High