COMMUNITY MANAGEMENT AND UTILIZATION OF FOREST RESOURCES:

THE CASE OF DONG YAI THAILAND

Prepared by

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RECOFTC

Based on


This case Study has emerged as a cooperative effort between the Regional Community Forestry Training Center (RECOFTC) and the Asia Forest network.

RECOFTC's main purpose is to organize and provide training in community forestry in the Asia Pacific region. In support of this mandate, RECOFTC undertakes and facilitates relevant research, technical assistance, exchange of information, workshop, and linkages with appropriate institutions and individuals.

The Asia Forest Network supports the role of communities in protection and sustainable use of the region's natural forests. The emphasis of the network's research includes the ecology of natural regeneration, the economics of non-timber forest product systems, conflict resolution, and the community organizations and institutional arrangement that support participatory management. The lessons stemming from this research are used to informed field implementation procedures, reorient training, and guide policy reform.

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BACKGROUND

The forest management situation in Dong Yai is unique in certain aspects and representative in others. Thirty years ago, regional market prices and specific agroclimatic factors led Dong Yai farmers to abandon their kenaf (Hibicus cannabinus) field. The field fallow and forest regeneration process which followed was facilitated by other specific factors: the reserve forest designation of Dong Yai; an agency logging ban in the area; a united and supportive Village Council which inspired organized cooperation by Dong Yai community groups; an open minded approach and concerted effort on the part of the local Royal Forest Department (RFD) staff to share unofficially responsibilities and benefits with the communities; the involvement of committed university researchers in helping to understand better the socio-ecological context and needs of Dong Yai villagers; and the joint effort by RFD and the university professionals to provide technical training, management assistance, and moral support to the communities. One of the most important lessons of Dong Yai is the proven capacity of villagers to organize, cooperate among themselves in protection, and collaborate with the RFD to devise a sound forest management system which can sustainably ensure benefits of environmental products and services to the local population.

While case-specific details will be presented here, much of the learning from Dong Yai's success is being confirmed as similar patterns emerge throughout South and Southeast Asia. Given a supportive climate and flexible operational approaches to forest communities as equal, joint management partners-including the assurance of authority in decision making and rights to forest benefits-many rural communities can effectively protect and manage forest resources. In particular, communities with historically strong economic and cultural ecology and biodiversity. Their high forest dependency provides a strong motivation to reverse forest degradation, enhance biomass productivity, and ensure sustainable benefits by means of controls on access and harvesting practices.

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<th>Case Study Question</th>
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<td>1. What are the external constraints, such as policy, on utilization of the forest by the communities?</td>
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<td>2. Is there competition for forest resources</td>
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<td>o Between the communities and outsiders? If so, Who?</td>
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<td>o Within the community?</td>
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<td>3. What forest products are currently utilized by the community? How are the products utilized (domestic consumption, income, etc.).</td>
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<td>4. Is the current forest use pattern different from the patterns of the past? If so, How</td>
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<td>5. How important are the products currently collected to the households in the community? E.g., If access to the forest was denied, how would the households be effected?</td>
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THE SITE

In the northeastern region of Thailand, bounded by the borders of Laos and Cambodia, lies the province of Ubon Ratchathani. Historically isolated from the kingdom's capital of Bangkok, the Northeast is the country's largest, poorest, and most populous region. With one-third of Thailand's entire population, the Northeast has experienced annual population growth rates far exceeding the national average of 2.6%, as well as significant interprovincial and interregional migration flows since the middle of the century. The per capita income in this region is only 40% of the national average, while agricultural productivity remains low and vulnerable due to
poor soils and inadequate rainfall.

Community-led forest protection, management, and benefit sharing by 12 villages surrounding a large 3,800-ha tract has created and conserved a dry dipterocarp, evergreen, and bamboo riverine forest named Dong Yai (Big Forest in Thai).

FOREST HISTORY

Dong Yai is characterized by three distinct natural forest types: the dominant dry dipterocarp, the dry evergreen forest, and a small area of riverine bamboo forest. Recent research in the dry dipterocarp forest identified an average of 61 different tree species on a 1.7-ha plot. Coppicing species in this forest type comprise a significant 72% of the total (44 of the 61 species in the plot) and indicate a high potential for natural regeneration if given adequate initial protection from disturbances such as fire. The dry evergreen forest is a transitional zone of higher rainfall and slightly lower elevation than the dry dipterocarp. Some 25% of the species of the dry dipterocarp overlap with the less species-diverse but denser dry evergreen forest.

Since the late 1950s, widespread conversion of upland forestlands to rainfed cash crops such as kenaf (Hibiscus cannabinus), cassava, rice, and maize has contributed to the sequential process of deforestation, soil erosion, desiccation and floods, and declines in crop yields. Forest degradation in the region peaked in the 1970s when the average annual deforestation rates in the Northeast watersheds exceeded 10%; by 1991 a mere 13% forest cover remained in the entire Northeast.

The decline in forest resources resulted in shortages of wood and non-timber forest products in the region. Because communities in the Northeast historically have strong socioeconomic dependencies on a broad range of forest products, including edible and medicinal plants, their socioeconomic situation worsened. Within this context, the villagers of Dong Yai are focusing their energies on sustaining their most valued resource, the surrounding regenerating forests.

THE COMMUNITIES

The 12 communities of Dong Yai are each composed of 100-120 households. The major local occupation is lowland paddy farming, supplemented with vegetable cultivation and livestock rearing. Due to unfavorable agroclimatic factors, including low and unpredictable rainfall, poor, sandy loam soils, and high erosion rates (in part due to deforestation over the past two decades), the Dong Yai area, like the Northeast region as a whole, has suffered from droughts and relatively low crop productivity. Whereas 96% of the farmers in Dong Yai are landowners with holdings of an average 3 ha, rainfed paddy yields are low, producing only one-third to one-half of the national average.

More than 150 years ago, the area's original settlers migrated from Muang Samsip District, 20 km southeast of Dong Yai. The forest has been cleared periodically by villagers for agriculture during the past 100 years and used as an open access resource with few controls or regulations. In the 1960s and 1970s, the Royal Forest Department (RFD) began logging Dong Yai on a 30-year rotation. During this period, 50% of Dong Yai's upland forest was cleared for kenaf cultivation. Each family cleared communally designated plots of less than 1 ha.

FOREST REGENERATION

Today, these former kenaf fields are forest, protected and managed by Dong Yai's families. After almost 30 years of regeneration, most of the former kenaf fields are covered with 30 - 45-foot-tall biologically diverse dipterocarp forest. The combination of several factors provided a favorable opportunity for the natural regeneration of Dong Yai's dry dipterocarp forest. In the 1960s, when farmers cleared the forest for kenaf cultivation, they often left stumps and large "mother" trees standing in the fields. When the regional price of kenaf plummeted, households made the decision to abandon their kenaf upland fields. The kenaf fields were left fallow, and despite occasional outbreaks of fire, some of the stumps that had remained intact in the fields began coppicing and producing vigorous shoots.

In 1989, a national logging ban was imposed. The RFD decided to maintain Dong Yai as reserve forest.
Legally, reserve forests fall under the tenurial and management jurisdiction of the RFD. The designation curtails villagers’ rights to certain benefits or authority to make decisions regarding forest use. However, in this case, the RFD regional officers encouraged the villagers to cooperate with the protection objectives of the reserve forest. With the support of the village council, the general village committees informally requested each village family to assume responsibility for forest protection of small patches.

As the protected land began to regenerate, wood and non-timber forest products flourished. The Dong Yai villagers grew aware of the increasing value of their forest resource. They also came to understand the periodic threats from forest fires. Frequently, villagers from neighboring districts that lacked forests would travel to Dong Yai and set fires in order to collect more easily burned fallen wood and graze their cattle on newly germinated grasses. During the rainy season, villagers from afar would travel up to 60 km to collect the many varieties of mushrooms in the Dong Yai forest. Over time, outside threats of fires and excessive exploitation mounted. In badly degraded areas adjacent to Dong Yai, scarcities of water, timber, fuelwood, and non-timber forest products grew starkly evident to Dong Yai residents while placing an even greater pressure on the Dong Yai forest.

PROACTIVE COMMUNITY FORESTRY

Ultimately, the threats of uncontrolled access, as well as the opportunity to change the situation, motivated the Dong Yai communities to adopt a more organized, proactive role in forest protection and management. In 1989, realizing the potential of the community as an ally, a sympathetic regional forest officer together with several forestry professors began working with the community and offered a training course in forest protection and management to Dong Yai’s leaders. The technical course covered fire prevention and control, silvicultural practices, and boundary demarcation—the result of which informally designated Dong Yai the "Conservation Forest for the Community of Village Srang To Noi." This cooperative intervention by the RFD proved strategic, laying the foundation for improved relations between the communities and the RFD, as well as between the RFD and university faculty.

In 1992, each of the 12 villages formed a Forest Protector Group. Each village elected 10 representatives to meet twice monthly and assume the primary role of forest protection and management. Initiating an informal system of watching, each village was responsible for protection of the geographical area that had originally been its households’ kenaf fields. As the Forest Protector Group became recognized by the RFD and acknowledged with rights and responsibilities, a protection and usufruct agreement between parties was signed. Although not legally sanctioned, this agreement instilled greater confidence and gave legitimacy to the community. While the institutional arrangements in Dong Yai remain unofficial due to the lack of a formal national policy which recognizes community forest rights, the management system is relatively stable. The ongoing process of community participation and empowerment in the management partnership of Dong Yai's forest underscores the significance of "unwritten policy" when translated to practical action.

RIGHTS TO THE FOREST AND FOREST PRODUCTS

Collection of non-timber forest products remains open to all, including outsiders who still travel long distances to collect dried wood and seasonal mushrooms. As the number of collectors continues to increase and mushroom supplies diminish to unsustainable levels of production, some Dong Yai residents express skepticism about the open access policy afforded to outside "free-riders." Nonetheless, while the declining supply of mushrooms is cited as the most frequent major complaint by Dong Yai residents, open access to collection of non-timber forest products is permitted and conflicts seldom occur.

In contrast to the uncontrolled collection of non-timber forest products, and as a response to the growing pressures of timber extraction for house construction, the communities’ regulations for tree cutting are more stringent. Certain species are prohibited from all cutting, including the highly valued yang (Dipterocarpus status) and teak (Tectona grandis). Harvesting of other tree species by villagers is allowed, but only for domestic purposes, and a fee must be paid. A permit for the desired tree must first be approved by the "owner" or steward of the kenaf field in which the tree stands and subsequently by the village council. Each tree is priced by the council based on quality and size. The fee is then contributed to either the "owner" or (if located on community land) to the general village development fund. On average, a village in Dong Yai limits the annual harvest to 100 or fewer trees, with a general maximum limit of two large trees per family. The village council maintains a record of all transactions. To help prevent timber violations by speculators, a rule has been issued which allows the sale of only one new house per family every 25 years.
Although the community system of organized tree harvesting is officially illegal in reserve forest areas, in Dong Yai the regional RFD recognizes the village council and villagers as key allies in co-management. Hence, RFD supports the villages' rules of resource use and conservation. Much of the forestland in the vicinity has been registered by farmers under a land reform program, which can theoretically allow conversion to private ownership. It is doubtful, however, that private entitlements will be granted to these farmers due to the land's legal status and current value as regenerating reserve forest.

The most persistent threat to the forest continues to be fires, many of which are induced by collectors. There is rapid improvement in useful forest products and tree height and girth when the forest is protected from fire. During the peak of the dry season in March and April, small fires may break out several times every day. The community employs multiple control techniques: cutting weeds for fire breaks, raking away leaf litter, announcing out-breaks over the village loudspeaker, spraying with water extinguishers and sand, and beating fires out with sticks and palm fronds. In most cases, while the fire destroys understory layers and inhibits coppice regeneration, it often stimulates mushroom growth and does not damage the larger forest trees.

FOREST UTILIZATION

The villagers of Dong Yai share a perspective which values the forest ecosystem far beyond its standing stock of trees. The villagers' top management priority at this point is to enhance the forest's productivity by enrichment underplanting with the popular sweet bamboo (*Dendrocalamus asper*). This shade-tolerant bamboo species is especially favored in the region for eating as well as for construction purposes. The domestic and foreign markets for both products are expanding. Unfortunately, without the legal backing of a supportive policy on community forest rights and usufruct tenure, enrichment planting in the reserve forest of Dong Yai remains an insecure venture. To date, this may be the major reason why experimentation by the community with valued understory and associated species has not yet been initiated.

Food

Recent research is exposing the high degrees of dependency of Dong Yai communities upon edible non-timber forest products.

Supplemented by rice and crops from small, individual homegardens, which typically produce 15-20 fruits and a similar variety of vegetables, the forest serves as a primary supermarket to the majority of resident families. Excluding rice, about 80% of the average Dong Yai household diet is derived from the forest. Families purchase very few foodstuffs in the marketplace, particularly during the productive rainy season.

Community interviews and field investigations have so far identified more than 50 edible leafy plants, 30 mushroom species (10 with current commercial value), 8 tuber varieties, 15 fruits, and more than 25 edible fauna (e.g., squirrels, birds, ant eggs, lizards, snakes, fish, turtles, beetles, locusts, and moths). Based on discussions with community informants, a seasonal calendar and transect of products by ecological niche illustrates the seasonality of the forest production system and its impressive floral and faunal diversity (Figures 1 and 2).

Mushrooms are among the most highly valued and most important foods from Dong Yai. Every household is involved in mushroom collection for subsistence use, and the majority also sell them. Studies of mushroom gathering and marketing indicate that each family can collect an average of 1 kg daily for 15 days each month through the 4 months of abundance during the rainy season. On average, 70% is utilized for domestic consumption, and 30% is sold (Figure 3). Perhaps most important from a nutritional standpoint, the daily diet of the families of Dong Yai benefits for more than one-third of the year from renewable forest food sources which, given their low incomes, they could not purchase.

Gum Collection

When asked what benefits she obtained from the Dong Yai forest, a woman reported three: rainfall, food, and gum. Producer of the most valued of the forest's gums, the *Shorea obtusa* is one of the dominant canopy trees in the dry dipterocarp forest. While a variety of resins and gums can be extracted from a host of other tree species, the villagers prize most highly the Shorea's gum exudate for use in caulking, boats, bamboo basket making, and general repairs. Traditional preparation and application of the gum also depends upon the *Dipterocarpus alatus*, which yields an oil called yang that is mixed with the crushed gum to give pliability. The yang oil is extracted by excision and burning, a process which is frequently harmful to the tree if not performed and monitored with care. As a substitute for yang oil, one 75-year-old informant explained that villagers today
may use more readily available diesel oil, which offers similar quality to yang but costs less.

The gum collection season in Dong Yai begins in November and lasts six months, extending through most of the dry season. The product's seasonality is significant, as steady gum flows during the peak of the dry season (March and April) and, hence, can help compensate communities for the much lower availability of other economic and subsistence non-timber forest products in this period (Figure 1).

In the communities of Dong Yai, the task of gum collection tends to rest with the older people, who are assisted by younger children not attending school. Nearly every family in the village is involved in the activity, about half for domestic consumption and the other half for commercial sale. Numerous gum collection techniques are employed. The simplest involves collecting the fallen hardened resin at the base of the tree. Other methods require incising the upper trunk of Shorea using a bamboo stick with a sharpened tip or enlisting children to climb the trees to collect from natural or man-made wounds.

While the gum collection activity is labor intensive, two factors lower its opportunity costs. First, the work is typically combined with the duty of grazing the household's livestock in the forest. Second, the majority of gum collectors are older, retired men and women who can no longer work in the fields or participate in other off-farm employment. Hence, the activity offers employment to the elder sector of the population, keeping them productively engaged while also generating a small supplement to the household income.

On average, a typical family unit of collectors can gather 2 kg of gum daily. However, during the high season productivity can flourish, and an enthusiastic collector might gather up to 10 kg per day. An agent may visit every other day to purchase the unprocessed gum from the collectors. The gum is sold by the agent to a local retailer.

Value of NTFPs

In terms of comparative value, only a few other non-timber forest products, such as mushrooms, offer a higher local market price per kilogram. However, there are important differences between these two forest products. Mushrooms are generally abundant only during and just after the rainy season, a period when a maximum number of other edible plants and non-timber forest products are also available. Gum, in contrast, can provide modest cash benefits during times of scarcity in the dry season.

Even more significant in Dong Yai's case is the current resource supply and demand situation. Villagers claim that even during the peak rainy season, the availability of forest mushrooms has been declining steadily. Many villagers from far away, sometimes up to 50 km, travel to Dong Yai to collect the valuable mushrooms. On the other hand, the supply of gum does not appear to be suffering from the same pattern of overexploitation and decline, perhaps because of its requisite labor demands. Whether the gap in the supply and demand of mushrooms can be closed over the coming years will depend largely on the community's management response to a growing access control problem. Because the heavy socioeconomic reliance of Dong Yai communities on valuable forest products will clearly persist into the future, a closely managed balance between conservation and extractive activities must be achieved among users.

This case study is based on:


SUGGESTED READING


A. Ganjanapan. Community Forestry in Northern Thailand: Learning from Local Practices. Faculty of Social Sciences, Chiang Mai University, Thailand. n.d.


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