

**Trends in forest ownership, forest resources
tenure and institutional arrangements:
are they contributing to better forest
management and poverty reduction?**

Case study from Thailand

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Introduction

BACKGROUND ON FOREST RESOURCE TENURE IN THAILAND

This case study on trends in forest ownership, forest resources tenure and institutional arrangements in Thailand was undertaken for FAO as a component of a regional study. A major goal of the study is to achieve a better understanding of the roles that forest ownership, tenure and management play in poverty alleviation. The study aims to identify the necessary policy, institutional, operational and resource conditions that contribute to a better understanding and implementation of forest management, which may lead to poverty mitigation. It also examines forest resource tenure arrangements and forest land uses, and how these affect the forestry-related programmes implemented by government agencies and other organizations in Thailand.

Since the Royal Forest Department (RFD) was established in 1896 to carry out forestry tasks under the Royal Thai Government, Thailand has enacted five main policies that are relevant to forestry and forest-related resources: (1) the first Forest Protection Act of 1913, for long-term forest exploitation benefiting the State; (2) the forest protection policy, which was introduced as part of the First National Economic and Social Development Plan (NESDP 1) of 1961 and comprised a few national acts (described in the following section) aimed at achieving 50 percent forest cover; (3) a policy aiming to achieve 40 percent forest cover, which was part of NESDP 3 in the 1970s and altered the original forest protection policy; (4) the first formal National Forest Policy, which was formulated by the National Committee on Forestry in 1983 and aimed at dividing the 40 percent of land under forest into 25 percent under economic or production forest, and 15 percent under conservation forest – these percentages were switched after the logging ban of 1989; and (5) the Forestry Master Plan, which was announced during the Queen's birthday speech on 11 August 2003 and aims to restore degraded forests, encourage the forest industry with various plantation schemes, and support the community forests that local communities have established and are managing, in spite of the long delay in enactment of the Community Forestry Act of 1992.

As Thailand was one of a first countries in the world to launch a total ban on commercial timber production (in 1989), its experience of this ban and other forest management issues should be valuable for other timber producing countries, especially those considering similar bans. This study describes the impacts of the logging ban and related policies in terms of their effects on subsequent forest policies and implementation, and on the forest tenure system in Thailand. It analyses the following issues: formal ownership of forest resources in Thailand's forestry sector; forest resources tenure in relation to land tenure systems in Thailand; changes and trends in forest management and community forestry in Thailand; the specific tenure arrangements that resulted from the changes in forest policies; and options for the way forward.

FORMAL FOREST RESOURCE OWNERSHIP IN THAILAND

Thailand has a total land area of 513 115 km² (about 51 million ha, or 320 million rai), and a population of 61.97 million people, with an annual birth rate of 1.33 percent in 2004 (RFD, 2004). The economy is diverse and comprises agriculture, manufacturing and service industries. The country has been urbanizing rapidly since the 1980s; in 1965, only 13 percent of the population lived in urban areas, compared with 23 percent in 1990, declining to 21 percent in 2000 (World Bank, 2000). Population density was 110 people/km² in 1990, rising to 120.3 people/km² in 2004 (RFD, 1998; 2004). Forest resources, forest land and agricultural land have been interdependent since the start of economic development in the 1960s; the economy is based on agriculture.

Thailand's forest resources: status, ownership and changes

Forest resources in Thailand have officially been owned by the State or the government, through RFD, since 1896. In October 2002, the government began to reform the bureaucracy of the whole country, and responsibility for forest resources was divided between two departments: RFD and a newly established Department of National Parks, Wildlife and Plant Conservation (DNP). RFD

oversees production in the forestry sector, and DNP the protection or conservation of forests. The ownership of forest resources remains under the government through these two departments. The private sector and/or local people cannot own any piece of natural forest; if they want to have their own forests, they have to establish forest plantations, forest farms or agroforests. Community forests, which have been in existence for several years now, have yet to be formalized, particularly regarding rights and responsibilities; this is owing to the long process of enacting laws, which started in 1990 (see section on Community management in the chapter on Changes and trends in forest management). Since the logging ban, a semi-private enterprise agency – the Forest Industry Organization (FIO) – has been the sole logging operator in plantations and the wood industry in Thailand.

Thailand's forest area diminished from 53.33 percent of the total land area in 1961 to 25.13 percent in 1998 (Charupatt, 1998; Lakanavichian, 2001), increasing up to 32.66 percent in 2004 (RFD, 2004). There were several reasons for the reported increase in forest area, which was based on the interpretation of satellite images; a ground survey verification has yet to be carried out. FAO (1999) estimated that only 22.8 percent of the country's total land area was forested in 1995. Annual deforestation rates were in excess of 3 percent for much of the 1961 to 2004 period (FAO 1998), the most rapid deforestation occurring during the mid- to late 1970s and early 1980s. Jantakad and Gilmour (1999) reported an annual deforestation rate of 3.85 percent between 1976 and 1982, which was among the highest in tropical countries. Mangrove forest destruction was also severe, with mangrove forests declining from 312 000 ha in 1979 to 53 000 ha in 1993, and continuing to decrease since then (Jantakad and Gilmour, 1999). FAO (1997) estimated that 329 000 ha of Thailand's forest area was being lost every year, equating to a forest loss of 2.6 percent. Most of the remaining forests have been logged, either legally or illegally, or encroached on for agriculture, while little regeneration has been undertaken. According to recent figures, the total area reforested between 1906 and 2004 lies somewhere between 1 050 753.16 ha (data from the FAO matrix for this regional study) and 1 086 010.6 ha (RFD, 1998; 2004; Green World Foundation, 1999).

TABLE 1
Status and changes in forest cover, 1961 to 2004

Year	Remaining forest (rai)	Remaining forest (%)
1961	171 017 812	53.33
1973	138 578 125	43.21
1975	128 278 755	40.00
1976	124 010 625	38.67
1978	109 515 000	34.15
1982	97 875 000	30.52
1985	94 291 349	29.40
1988	89 877 182	28.03
1989	89 635 625	27.95
1991	85 436 284	26.64
1993	83 470 967	26.03
1995	82 178 161	25.62
1998	81 076 428	25.28
1999	80 610 000	25.13
2000	106 319 000	33.15
2001	100 639 000	31.38
2004	104 744 312 (16 759 090 ha)	32.66

1 rai = 0.16 ha.

The highlighted line (1975) is the target for Thailand's forest cover.

Sources: Charupatt, 1998; Lakanavichian, 2001; RFD, 2004.

FIGURE 1
Forest area in Thailand, 1976 to 2004

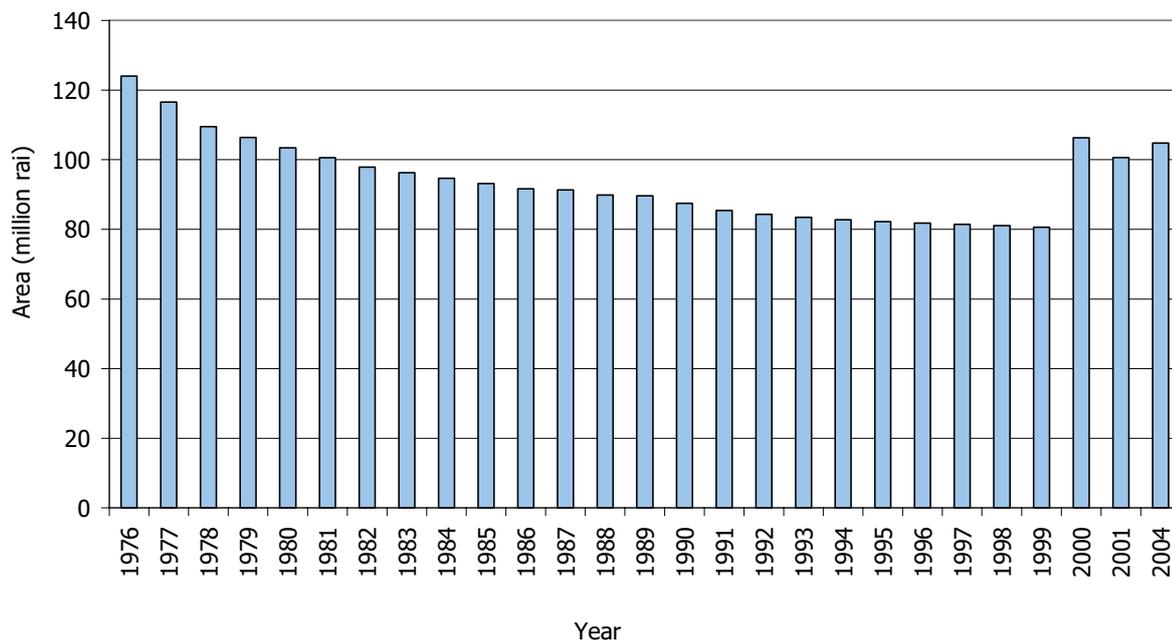


TABLE 2
Forest area by region, 1976, 1989 and 2004

	1976		1989		2004	
	Area (million ha)	% of total	Area (million ha)	% of total	Area (million ha)	% of total
North	10.23	19.94	8.02	15.63	9.21	17.94
Central	3.45	6.72	2.50	4.87	2.95	5.75
Northeast	4.15	8.09	2.36	4.60	2.81	5.48
South	2.01	3.92	1.46	2.85	1.79	3.50
Total	19.84	38.67	14.34	27.95	16.76	32.66

1976 = year of first reliable official data based on aerial photographs.

1989 = initiation of the logging ban.

2004 = latest year for which data are available.

FIGURE 2
Forest area by region, 1976

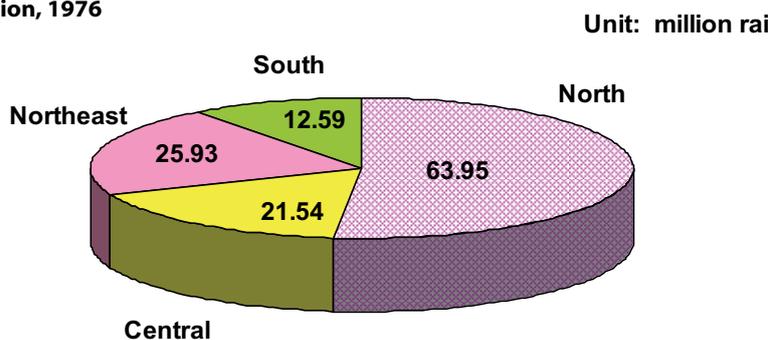


FIGURE 3
Forest area by region, 1989

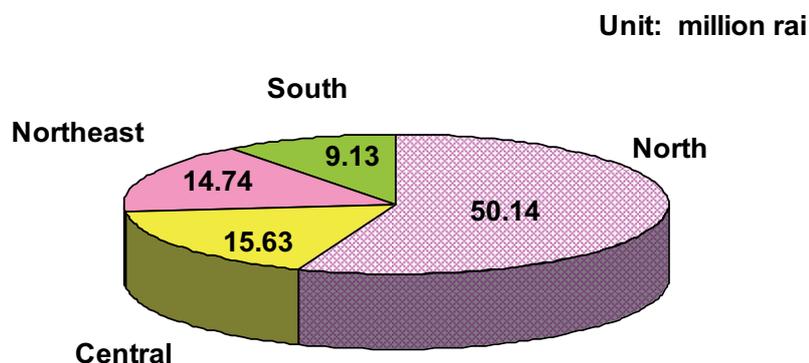
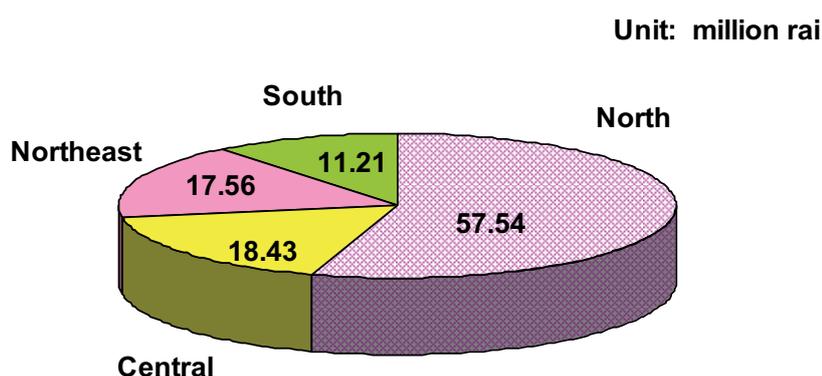


FIGURE 4
Forest area by region, 2004



As a result of various pressures, particularly the calamity caused by devastating floods in the south of the country, the government imposed a total ban on logging in natural forests; no commercial timber production has been permitted since January 1989. Since then, national forest policy has been altered to improve its protective outcomes, including increasing the percentage share of conservation forest (called zone C forest) in total land area from 15 to 25 percent. In 1991, conservation forest's share was gazetted up to 27.5 percent. It should be noted that declared conservation forests might look promising on paper, but the reality is often very different. In addition, areas of conservation forest may be overestimated, owing to overlaps among the DNP units and among different categories of conservation forest.

There are two main types of conservation forest: areas established under laws and cabinet resolutions; and additional conservation areas, where certain types of land use are allowed and there are fewer restrictions. Total demarcated conservation areas, including forests, cover 41.76 million ha, accounting for 81.38 percent of Thailand's total land area; core conservation areas cover 18.72 million ha of this, or 36.48 percent of total area (Table 3).

TABLE 3
Forest conservation and forest reserve areas

Conservation type	Number	Area (million rai)	Area (million ha)
1) Conserved area under laws and cabinet resolutions			
National park	103	33.00	5.28
Wildlife sanctuary	55	22.31	3.57
Forest park	70	0.50	0.08
No-hunting area	56	2.69	0.43
Watershed class 1	25	58.25	9.32
Mangrove conserved forest	-	0.27	0.04
Subtotal		117	18.72
2) Additional conservation areas by other regulations	1 221	143.98	23.04
Total		260.98	41.76

Sources: RFD, 1998; 2004; Green World Foundation, (1999).

Policies and other aspects of the forestry sector

Although the government has been concerned about forest land destruction and degradation for a long time, it has only been able to protect forests minimally through forest acts such as the Forest Protection Act of 1913, the Wildlife Protection and Preservation Act of 1960 (amended in 1992), the National Park Act of 1961, and the National Forest Reserve Act of 1964. Since the logging ban came into effect in January 1989, the Forest Plantation Act was enacted in 1992, while the Community Forest Act, which was first drafted in 1992, is still waiting to be enacted. The logging ban has brought a halt to legal domestic supplies for the wood processing industry, which is now turning to neighbouring countries for its logs and sawwood needs. This has resulted in Thailand being accused of spoiling its neighbours' forests (TFSMP5, 1993). In addition, illegal logging has increased in Thailand, mainly as a result of the high prices obtained for wood and logs (Tantiwitayapitak, 1992).

It is clear that RFD concentrated on conservation after the logging ban of 1989, when partnerships between RFD and log concessionaires were formally ended. Conservation forests have expanded, and now include the 15 percent of total land cover that was supposed to be production and economic forests (called zone E forests). This is because RFD forest plantations are unmanaged and logging is no longer permitted, so zone E forests have informally become zone C forests. Conservation forests originally covered national parks, forest park, wildlife sanctuaries, no-hunting areas and class 1A watersheds; since the logging ban, class 1B watersheds have also been considered conservation forest. Other protected areas that were declared later by the cabinet resolution are mangrove conserved forest and special protected forest. The preservation approach severely restricts the activities of forest-dependent people, particularly the hill tribal people who practise shifting or rotational cultivation in the uplands and highlands.

One of the main responses to deforestation has been the development of large-scale commercial forest plantations by the private sector (TFSMP5, 1993). Forest plantation was incorporated into the economic forest zone (zone E) largely because of government expectations that plantations can mitigate deforestation, uplift the forestry sector economies that have been ailing since the logging ban, and supply wood for domestic consumption. However, deforestation still occurs in natural forests, while reforestation has taken place on public and private land or in degraded forest. RFD issues long-term (e.g., 30 years) leases on degraded forest reserve for conversion to plantations, charging 10 baht (B) per rai (B62.5/ha) annually, but these leases have caused resentment among local villagers, farmers and non-governmental organizations (NGOs), who view commercial forest plantations as taking away local livelihoods (PER, 1992).

According to these farmers and NGOs, the natural forest biodiversity that yielded benefits to local people cannot be replaced by monocultures of fast-growing forest species. NGOs deplore the clearing of understocked forests to make way for monoculture plantations (PER, 1992). Farmers contend that farming can support many more people than commercial reforestation can, and prefer farming to employment in forest plantations. The main issue regarding plantations is the balance between local livelihoods for the poor and commercial plantations' benefits for the rich. In 1992,

commercial reforestation was stopped as a result of intense pressure from local farmers and NGOs (TFSMP5, 1993). This led to the present impasse in reforestation in Thailand, as shown in Table 5 further on in this case study.

Domestic trade of forest products relies on the wood imported by the wood processing industry. Some wood industries have been phased out because they could not import wood, and it seems likely that all wood product industries in Thailand will soon confront importing difficulties as exporting countries, such as Cambodia and Cameroon, start to ban wood exports (TFSMP2, 1993; Global Witness, 1995; Brunner, Boscolo and Karsenty, 2000). Thailand may have to compete with such wood-deficit countries as Japan for imports, international trade in forest products will become more competitive and prices will inevitably become very high. FIO has limited potential to promote the wood industry, despite its nearly ten years experience of logging operations in mature plantations. FIO's production for the wood industry is far smaller than it used to be. One of the main reasons for this might be the suddenness with which the logging ban was imposed; this caught FIO unawares and unprepared because it had been used to operating an intensive wood industry with high profits, based on logging concessions that had seemed endless.

Concerns have been raised regarding the dependency on imports of both wood and non-wood products. Some researchers and stakeholders suggest that serious consideration should be given to the possibility of reforesting part of the deforested area for the production of wood and non-wood products (TFSMP2, 1993). Forest plantation programmes should include local people in their development plans, and should identify appropriate scales, technology and available financing for building up new partnerships with local people. There is no reason for Thailand to import wood in the future, because there is enough land, technology and, perhaps, finance for growing trees (TFSMP2, 1993). The only way of returning FIO to its full operative potential is to revoke the logging ban so that it can resume logging in all plantations, including those of RFD.

Small-scale private plantations have been promoted since 1992, after the period of promoting large-scale plantations, but small-scale tree farms have had only minimal success, even though a number of local farmers have begun to plant species of forest tree. This may largely be the result of a shortage of incentives to counter the medium- to long-term waiting period prior to tree sales. The time it takes for trees to grow discourages villagers from planting them rather than agricultural crops. Plantation harvesting also involves lengthy legal procedures for tree felling and selling, and specific technology for some tree species, e.g., teak and dipterocarp. In addition, the government, through RFD, has not been able to support and strengthen the market system for small farmers in the plantation and wood products business. Most small local farmers therefore prefer agricultural crops to tree crops.

Current policies and legislation regarding development of the wood industry have been slow to reflect Thailand's need to produce its own wood products rather than continuing its high levels of wood imports. The government, through RFD, DNP and other relevant agencies, has encouraged tree growing and minimized wood consumption, but to little effect. Many people recognize that the country cannot rely on wood imports, either legal or illegal, owing to the declining number of wood exporting countries and high prices. Small farmers' cooperation in minimizing the demand for and increasing the supply of wood products is essential. Even more important is an understanding of small farmers' needs, such as materials, technology, extension services and land tenure security.

In conserving natural forest, RFD's forest protection has been intensified and implemented nationwide. Logging and forest commercialization are not allowed in protected natural forest; only forest plantations can be used for logging and wood sales. Thus, the only way to supply wood for the increasing domestic demand is to cooperate with local populations on small-scale plantations. Large-scale plantations by State enterprises or joint venture operations are feasible, but should incorporate the local private sector and local people as much as possible, in order to avoid general criticism and to encourage the acceptance of the large-scale operation.

SCOPE OF THE STUDY AND METHODOLOGY

This study encompasses primary quantitative data on forest ownership collected by RFD and the author, and secondary data on forest resources, forest ownership, the forest tenure system, and the landownership and tenure system in Thailand. It analyses both qualitative and quantitative forest tenure data from village case studies and other stakeholders in RFD, DNP and other related fields.

The methodology used includes stakeholder analysis (participatory techniques), direct and participant observations, key informant interviews and secondary data analysis.

Forest resource and land tenure systems in Thailand

HISTORY OF FOREST LAND ENCROACHMENT AND FRONTIER AGRICULTURE

To what extent should various actors have access to and control over forest resources in an open arena (Neef and Schwarzmeier, 2001)? Forest land encroachment has been the main cause of natural resource deterioration and degradation in Thailand, where most farmers in upland and highland areas clear forests to make way for frontier agriculture. In this section, land uses, including in forest areas, are presented and analysed for a better understanding of their relationships, particularly with forestry and agriculture.

Several direct causes of deforestation have been identified by researchers, academics and other involved agents. These causes are discussed in the next chapter. RFD's past attempts to rehabilitate degraded forests have had little success owing to the overwhelming constraints posed by illegal forest encroachers (Jantakad and Gilmour, 1999). It is estimated that about 1.3 million households live on surveyed (official) forest lands (TFSMP2, 1993), mainly as a result of incoherent and uncoordinated government policies regarding natural resources and agricultural expansion. During NESDPs 1 to 6, agricultural development for export was the main priority in Thailand's development, and farmers were encouraged to expand their farmland. Later, during NESDP 8 (1997 to 2001) – almost too late – the government recognized the negative environmental impacts that result from economic development without proper consideration of sustainability, the environment and local people's involvement. In the current NESDP 9 (2002 to 2006), the main focus is on restoring degraded natural resources and utilizing them soundly.

The logging ban announced in January 1989 was a response to severe floods with disastrous and tragic consequences centred in Nakorn Srithammarat province, southern Thailand (Phonpanpua, 1999; PER, 1992). Flooded areas covered all eastern coastal provinces from Chumporn, southwards to Narathiwat. The floods, and massive landslides that accompanied them, were caused by unusually heavy rains from 19 to 24 November 1988, which totalled 1 051 mm and caused 373 deaths (Nutalaya, 1991); the meteorological station in Nakorn Srithammarat province recorded the highest rainfall, at 447.8 mm, on 21 November (Wongwisetsomjai, 1991), and three villages were buried under between 1 and 3 m of sand and debris. This was the most devastating of the floods that occasionally occur in southern Thailand, and Nutalaya (1991) estimates that the total damage was B7 357 million. Thailand's location in the heart of continental Southeast Asia gives it a monsoon climate with irregular typhoons and depressions from the South China Sea. Several parts of the country suffer from frequent flash floods and similar disasters.

The catastrophe convinced the government to issue its Cabinet Order of January 1989, banning commercial logging and terminating timber concessions in natural forests, particularly in the uplands (Jantakad and Gilmour, 1999). The ban was the result of strong public pressure, as described by the Project for Ecological Recovery (PER, 1992) "the anti-logging sentiment that had started long before the flood now expanded, gaining momentum from these two events". The first of the two events referred to was the Thai conservation community's negative response to a ruling in favour of granting 22 logging companies rights over their concessions. These concessions were in areas demarcated as national parks and/or wildlife sanctuaries, such as Huay Kha Kaeng Wildlife Sanctuary, which was then awaiting the granting of World Heritage Site status by the United Nations Educational, Scientific and Cultural Organization (UNESCO); the sanctuary became a World Heritage Site, together with Thung Yai Naresuan Wildlife Sanctuary, in 1991. The second event referred to was the devastating flood described in the previous paragraph.

Following the logging ban, PER drafted a policy paper entitled "Ten measures to save the forests" (PER, 1992), which was submitted to the government with the backing of 21 NGOs. The policy paper demanded three main points: a comprehensive plan for protecting forest areas that had been part of concessions; economic and conservation forests to be administered under separate

regulations; and recognition of the rights of local villagers to own and manage their ecosystems as community forests.

As a consequence, the government altered the target areas for conservation and economic forests to 25 and 15 percent of the entire country area, respectively, thereby switching the original goals in the first National Forestry Policy of 1985. The Thai Forestry Sector Master Plan (TFSMP) was developed during 1990 to 1995, with expert support from the Finnish International Development Agency (FINNIDA). The TFSMP focuses on developing a forest policy based on sustainable management and the conservation of natural forests and ecosystems, a strategy for implementing this policy, the national capacity to implement the strategy through sustainable and participatory methods, and the capacity for monitoring and evaluating progress (TFSMP2, 1993). Unfortunately, the TFSMP has not been implemented for several reasons, including the opposition of several parties, particularly some environmental NGOs. The Thai Forestry Master Plan, which is different from the TFSMP, was finally launched in 2003, in response to the Queen's comments and suggestions.

The logging ban was one of the most drastic forms of forest protection ever launched in Thailand, but it did not affect all logging in the country, as FIO is allowed to process logs from plantations and mangrove forests and confiscated logs. Following the logging ban, private reforestation, in addition to RFD (government) reforestation, has been encouraged, but the ban also officially ended the relationship between RFD and logging concessionaires, creating uncertainty in RFD's forest management scheme (IUCN, 1996).

Specific measures of the logging ban aim to protect remaining forests, enforce strict rules and punish forest encroachers. Although logging is perceived to have caused severe deforestation nationwide, when conducted carefully and in a technically appropriate manner it does not contribute significantly to large-scale deforestation (FAO, 1998). Logging did, however, lead illegal loggers or land-grabbers to continue into forest areas, destroying as they went, because prior to the ban forests were more accessible and vulnerable to clearance for agricultural expansion. The people and environmental groups involved stress that the main objectives of the logging ban are to protect and conserve the remaining natural forests, and to capacitate local people (stakeholders) to participate in forest management and conservation as a form of multi-party resource management. Integrated participatory development with proper conservation measures is desirable within the new framework.

Forest land encroachment continues, although at a far smaller scale. Figure 5 shows agricultural expansion (farmland), and some decrease in forest areas. In 2000, RFD claimed that agricultural areas were only 10 percent greater than forest areas, and that the increasing trend of forest resource destruction was continuing. However, the conflicting relationship between forestry and agriculture can be seen, and the possibility for convergence remains limited.

FIGURE 5
Land use in Thailand, 1976 to 2001

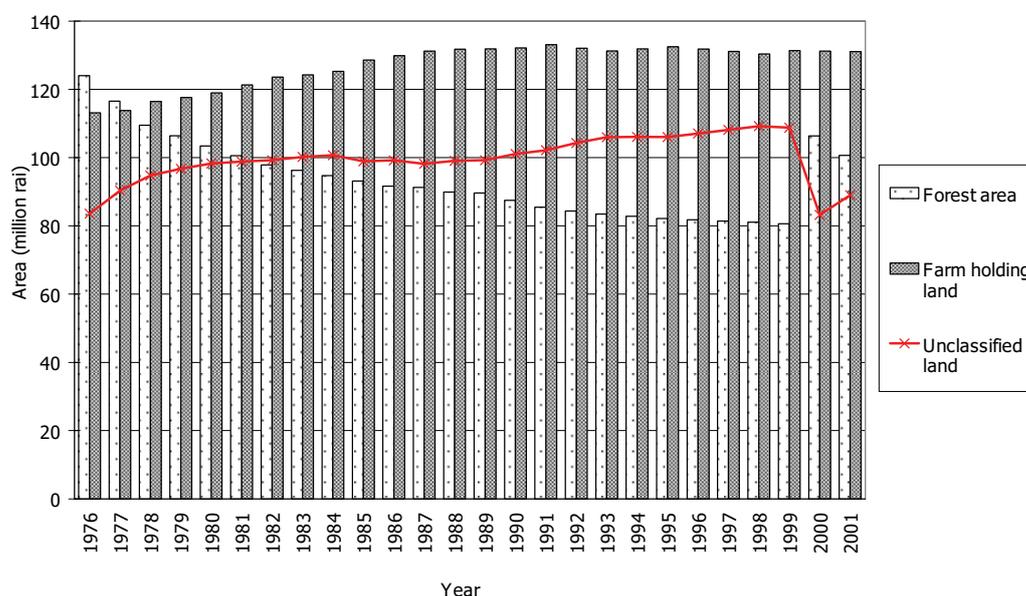
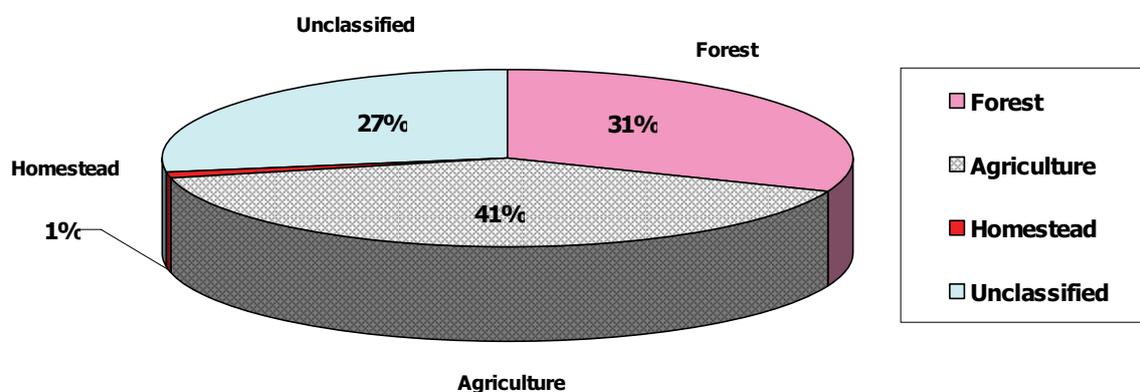


FIGURE 6

Ratios of land uses in Thailand, 2001



COMPARISON BETWEEN LAND TENURE AND FOREST RESOURCE TENURE

The conflicting relationship between forestry and agriculture in Thailand is understandable given the continuous population increase since the early 1970s. This section presents types of landholding that imply security of tenure (Figures 7 and 8) and analyses the comparison between land tenure and forest resource tenure for a better understanding of the relationship between the two systems.

Officially, there are three main types of landownership in Thailand: title deed (full ownership); NS3 (Nor Sor Sam); and NS3-K (Nor Sor Sam Ko). The security of land tenure ranges, in decreasing order, from the highest level of land title deed to NS3-K and NS3, respectively. In NS3-K and NS3 tenure, rights can be revoked if the land is idle for some time within the first ten years. However, NS3-K tenure is recorded as coordinates on a map, implying that this type of ownership cannot be revoked as easily as NS3 tenure, for which no coordinates are recorded. Figure 7 shows the number of plots under each type of landholding, and Figure 8 shows how total areas of landholding increased from 1987 to 2005. Title deeds increased greatly between 1992 and 2005 owing to a government project to accelerate land titling.

Figure 7
Types of landholding in Thailand, 1987 to 2005

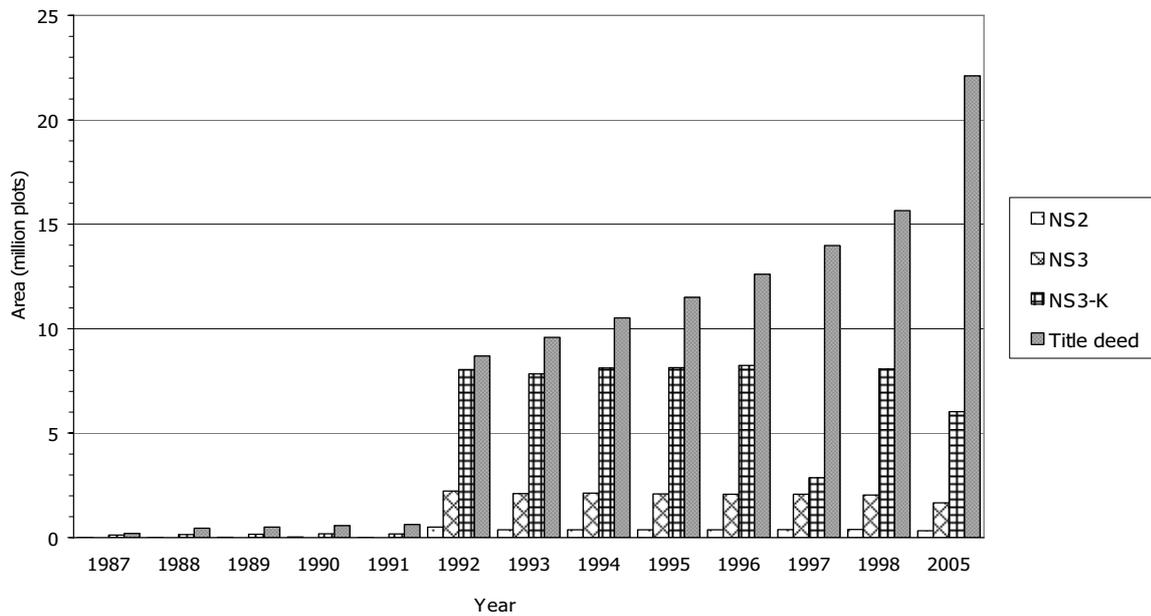
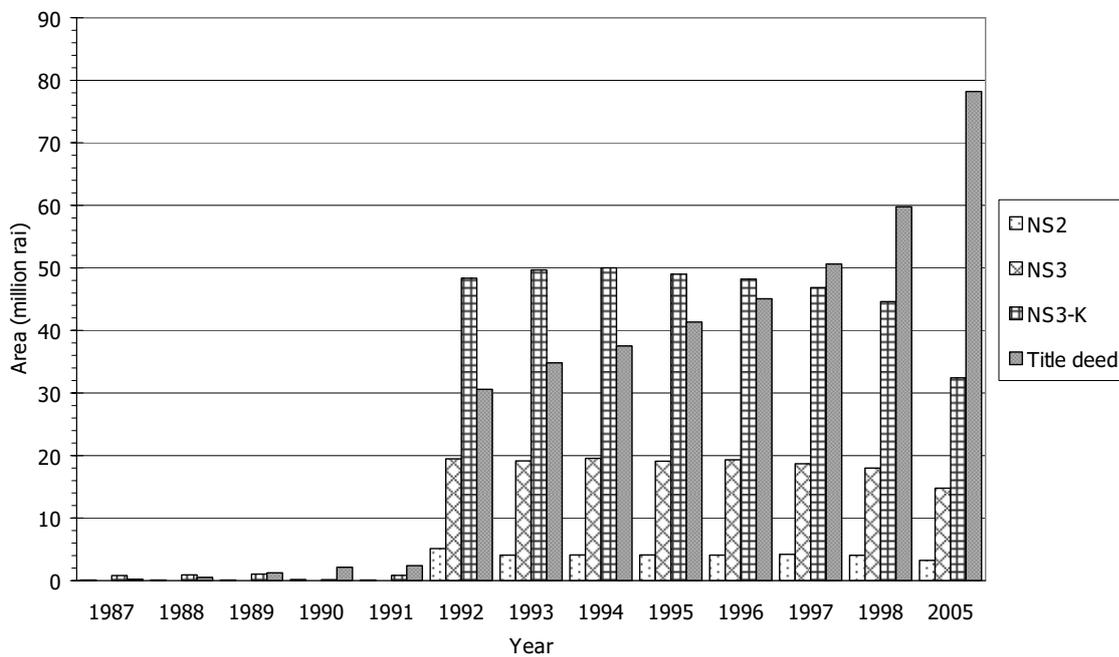


FIGURE 8
Areas of landholding in Thailand by type of landownership, 1987 to 2005



The forest tenure system remains similar to the original framework for State ownership of forest. The forest areas under the State’s jurisdiction have been increased by annexing various forest resource types, as shown in the conservation of forest areas (Table 3). Forest resources and land areas are likely to remain under State ownership because there is no way of changing this at present.

When the Cabinet revoked all commercial concessions in January 1989, it did not announce its reasons for doing so, but these can be summarized as (TFSMP5, 1993; IUCN, 1996; Jantakad and Gilmour, 1999; Phonpanpua, 1999):

- protection and rehabilitation of natural forests;
- conversion of degraded forest land to sustainable and productive land uses;
- increased security of livelihoods for forest-dependent people;
- increased capacity to implement strategies through sustainable and participatory methods;
- conservation of soil, water and biodiversity.

The following are the major forest conservation activities that have been implemented since the logging ban:

- demarcation and declaration of conservation forest areas under such categories as national parks, forest parks, wildlife sanctuaries, no-hunting areas and forest reserve;
- strengthened enforcement of forest laws and regulations, including strict forest patrolling;
- relocation of the people residing inside forest reserves or conservation forests to buffer zones or designated areas;
- attempts to limit the upland or mountainous agriculture areas occupied by hill tribes or under shifting cultivation.

It has been difficult to relocate the people living inside conserved forests because of their concerns that relocation is likely to push them on to degraded or marginal land unsuitable for their farming livelihoods. Relocation projects that have not yet been found satisfactory for all involved parties include the Khor Jor Kor Project (the Project for Land Allotment to the Poor in the Degraded Forest Reserve) and some hill tribe relocation projects, such as those in the forest villages of the north and upper northeast. The Khor Jor Kor Project began in 1990, but the farmers affected protested so strongly that it was revoked in June 1992 (Phantasen, 1995).

Land titling is impossible in the forests of Thailand because all forest land is officially owned by the State. Although there have been a few programmes for granting forest land usufruct, the outcomes of most of these have been unsatisfactory. The clearest examples of this were in RFD's Sor Tor Kor (STK – national forest land allotment) Project, which resulted in farmers transferring usufruct rights to other people, even though such rights can only be transferred through inheritance within the farming family (Lakanavichian, 1995). The farmers usually claimed that they had not sold their usufruct rights but just allowed other people to use their STK lands. The project stopped granting follow-up STK2 certificates after the STK1 certificate programme was evaluated during its fifth year of implementation. (More details on this project are given in the following section.)

RFD, DNP, other environmental agencies, academics, NGOs, local people and other stakeholders must change their approach to natural resource management and conservation from a centralized to a decentralized and more participatory one, with more community-based responsibilities. The roles of agents with direct responsibility, such as RFD, must be more effectively defined to include proper partnerships and a greater focus on integrated approaches to forest resource conservation and development. The forest tenure system is likely to remain as it is, so stakeholders must direct their efforts to their roles and responsibilities.

TRENDS IN FOREST TENURE AND OWNERSHIP

Most of the 1.3 million households in the forests of Thailand are in conservation forests. Although the government agreed to decentralize its forestry functions and authority to regional and provincial offices outside Bangkok as part of the 2002 bureaucratic reform, the outcomes of this have not yet been satisfactory. Bureaucratic reform was stimulated by the 1997 Constitution, which was the first of its kind to be drafted by representatives of all types of people from all over the country. In order to conform to the conventions of good governance, the Government of Thailand has to become smaller and more effective. Its functions and decentralization in the area of forestry have yet to be analysed, but the clearest feature of the present situation is that State forest ownership has been

strengthened, while forest-dependent people are pursuing their *de facto* rights in the forest through community forestry (CF) or community-based forest management.

Some forest-dependent people residing in national forest reserves were granted usufruct rights, such as those granted during the STK project. STK certificates granted villagers the right to use land and pass it on to their heirs, but not to sell it. The STK programme was implemented from 1982 to 1987 (the number of years varied from area to area according to the intensity of local forest land use), with funding from the World Bank. A total of 800 000 STK certificates were granted to more than 700 000 households, covering a total of 1.15 million ha, or approximately 2 percent of Thailand's total land area (Poffenberger, Soriaga and Walpole, 2005).

Unfortunately, a study by Lakanavichian (1995) found that many STK right holders were transferring their rights to others, even though they had no formal ownership documents. Most right holders are not satisfied with the tenure security of their STK, and would prefer title deeds. FIO granted a different type of usufruct right to forest villagers, which required the villagers to work with FIO, but the regulations and requirements governing these rights have been diluted since the first FIO usufruct rights were granted in 1971.

Villagers in both the uplands and the lowlands have continued to encroach into forests, and efforts to control shifting cultivation have been ineffective, owing to the expansion of upland hill-tribal villages and increased population. The only obvious change is that shifting cultivation has been limited by forestry laws and regulations, and is now called rotational cultivation. In practice, however, forest villagers are forced to limit their rotations because they cannot find the additional land they require, despite the intense control of forestry officers. Lowland people have recently encroached into the forest reserves, other conservation forests and upland watersheds, for similar reasons of land pressure and scarcity. Conflicts are inevitably breaking out, particularly in the north and northeast.

There have been instances of organized groups of villagers moving in and living in prohibited forest reserves, such as occurred in the northeast at Phu Pan National Park, Sakol Nakorn province in March 2000 and at Dong Yai Forest Reserve, Kalasin province in late 1999. The first case was caused by RFD's unfulfilled promise of granting arable land to villagers. The villagers, who had joined the Communist Party of Thailand at the same time, moved out of the occupied forest to give way to the government, which later declared the forest the Phu Pan National Park. After 20 years, the villagers claimed that their livelihoods had suffered and that they had very few means of making a living as a result of their landlessness.

In the latter case, villagers in Kalasin province had also given way to the government for the creation of Dong Yai National Forest Reserve, in which they claimed their customary land rights. Later, the government granted the land to commercial plantations of *Eucalyptus* spp., causing resentment among the villagers, who decided to move back on to their own parcels of customary land, thereby coming into severe conflict with RFD. At present, RFD officers are attempting to move the villagers back off the forest land, but the results look like a game of hide and seek, with villagers putting up what Lakanavichian (1995) calls "manipulative resistance". The trend of conflicts between government officials and villagers has been stimulated and increased by opposing views and misconceptions on the part of RFD that villagers are incapable of managing forest land, and on the part of villagers that RFD officials are unreliable and ineffective.

At present, the government, through RFD, is focusing on forest rehabilitation with a particular emphasis on biodiversity conservation. It is important to point out that conservation without the sustainable management of ecosystems may be impossible. As already mentioned, the best approach, including for forest plantation schemes, is to involve local people, who are far more likely to participate if the responsible agents employ genuine participatory approaches. RFD, which is responsible for policy and practices in natural forests, needs to adopt a new role in emphasizing the active participation of different stakeholders in planning, implementation, monitoring and evaluation. It is also necessary to change land-use practices in degraded forests by introducing sustainable and productive land uses that incorporate responsible stakeholders, including local people, local organizations and RFD officials.

Thai people understand and are interested in various natural resources and environmental agendas in the Constitution of October 1997; this emphasizes the "rights of rural people in participating actively in the management and utilization of natural resources". Participation is seen as a major strategy for implementing policy and ensuring sustainability. Moreover, individuals and

NGOs have emphasized the need to change the attitudes and roles of RFD, DNP and local people regarding partnerships. Stakeholders must combine the management and conservation of forest resources for suitable planning and implementation.

Conservation was first launched in 1960, with establishment of the Khao Yai National Park. Since then, the protected area system (PAS) has continued to expand with the increase of conservation forests. At present, about 8.1 million ha (16 percent of the country's total land area) is included in PAS (Jantakad and Gilmour, 1999). DNP claims that it has already established PAS on more than the targeted 25 percent – in fact, on 27.5 percent (Phantasen, 1995) – of the total land area specified in the National Forestry Policy after the logging ban. However, as Table 4 shows, these DNP figures include recreation areas.

TABLE 4
Natural conservation and recreation areas, 1994 to 2001

Category	1994		1997		2000		2003		2004	
	Units	ha								
National park	79	4 021 615	82	4 233 226	102	5 222 610	103	5 278 220	103	5 278 220
Forest park	42	52 746	66	86 061	68	85 212	58	73 032	70	83 372
Wildlife sanctuary	37	2 888 639	44	3 201 189	53	3 484 880	55	3 574 899	55	3 574 899
No-hunting area	43	295 889	43	297 239	49	330 455	56	445 277	56	434 646
Botanical garden	13	2 051	15	5 649	15	5 896	16	6 014	16	6 014
Arboretum	44	2 716	49	3 081	54	3 608	55	3 661	55	3 661

Sources: RFD, 1998; 2004.

The most recent information from RFD sources suggests that there are 30 national parks awaiting royal decrees to become effective (National Park Division 2005, personal communication), in addition to those in Table 4. The exact numbers and areas are, however, less important than the main point, which is that the significant increase in national conservation and recreation areas represents a strategic conservation improvement in the eyes of the RFD administration and personnel. State conservation forests can be seen as providing security of tenure for the government, particularly RFD and DNP.

However, substantial gaps in PAS coverage remain (Ingles, 1999, cited in Jantakad and Gilmour, 1999). Management of PAS and forest reserves is problematic, because groups of stakeholders, including forest-dependent people and illegal loggers, have encroached into the areas and continue their forest land-use practices inside the protected forest. As a consequence, many researchers and NGOs, and some policy-makers conclude that the participation of local people, forest-dependent dwellers and other involved agents is necessary for the effective conservation and sustainable management of forest resources, even though forest tenure and ownership remain with the government. In other words, the State owns all the forests and their resources.

Forest management and community forestry in Thailand: status, trends and institutional arrangements

FOREST MANAGEMENT: PAST, CURRENT AND FUTURE SITUATION AND TRENDS

Past and current situation

Since 1989, Thailand's forestry sector has been managed under the logging ban regime, which will continue as no revocation of the ban is foreseen for the near future. As already mentioned, the outcomes of the logging ban do not seem to have brought much change from the pre-ban situation, and the ban has become a symbolic strong wall without solid internal structure. Some people even claim that "the logging ban should remain if the forest is just to be destroyed" (TFSMP2, 1993). The forest has indeed deteriorated, despite the ban, and now neighbouring countries are blaming Thailand for their own forest destruction. Legislation has not been sufficiently adjusted to take full account of the logging ban, and the only clear changes in legislation were the demarcation of an increased PAS and the strengthening of law enforcement.

The timing of the ban also had both positive and negative impacts on Thailand's forestry sector and on forests as a whole. As discussed in the previous chapter, the catalyst for and timing of the logging ban were so clearly politically motivated that very few of the parties concerned were given incentives or powers. At the time, the environmental movement in Thailand was relatively strong and played a significant role in political policy, so it was inevitable that some of the people involved and some of the international community were shocked by, rather than appreciating, the imposition. However, the beneficiaries of logging concessions and wood industrialists were forced to accept the ban and to rearrange their activities outside Thailand. Many of them continued to exploit forest resources, conducting both legal and illegal operations at the same time.

The themes of sustainable management and the decentralization of authority over natural resources have been discussed among academics and NGOs in Thailand since the 1980s; theories have yet to be put into practice however. The only clear sign of natural resource decentralization is the transfer of authority to local governments, through Tambon Administrative Organizations (TAOs), with elected representatives from each village. The Tambon is the sub-district level that is hierarchically below the district level, and TAOs administer independently under the Tambon Administrative Act of 1994. TAO members have recently learned their responsibilities towards natural resources and the environment through the Local Organization Decentralization Act of 1999.

It is generally accepted that the causes of deforestation and forest degradation in Thailand are diverse (Kashio, 1995b; Jantakad and Gilmour, 1999) and include:

- agricultural expansion – for both permanent and shifting cultivation;
- farmers' need to improve productivity for better economic conditions, leading to the expansion of agricultural land;
- rural poverty, including that of disadvantaged and landless people;
- population growth and migration, resulting in increased population in forest areas;
- poorly planned and managed activities of both legal and illegal logging operations;
- poor coordination of policy planning and implementation among the government agencies involved in forest resource management and conservation, and weak institutional capacity for these activities;

- infrastructure development and improved access to frontier areas, particularly in terms of roads, dams and mining.

Two other driving forces have also stimulated forest destruction in Thailand: political instability and/or lack of political will; and lack of adequate training and research for strengthening the capacity to mitigate problems. In recent years, as in many other countries, Thailand has established a national programme for natural resource conservation and plantations, in the hope that natural ecosystems can be restored and resources will once more become abundant. However, many forest ecologists say that harvested tropical rain forests take at least 100 years to return to their original stocking levels and species composition (Kashio, 1995b). For this scenario to work, annual timber harvests should not exceed 1 percent of total forest land.

At present, RFD is encouraging large- and medium-scale private plantations, along with strict protection of the remaining forests. RFD has recognized the importance of people's participation and cooperation since the mid-1980s, but its rigid technocratic and top-down bureaucratic structure makes it difficult to implement participatory projects that involve local people in the collaborative management of forest resources and the environment. As long as RFD's top-down attitudes and poor support for staff continue, the concept of sustainable forest management (SFM) will remain an empty promise. In the meantime, policies for participatory forest management and the joint management of natural resources are incoherent; understanding and trust are necessary before any real collaboration among involved parties is possible, and SFM needs to be planned and worked towards.

The following are complementary policies and incentives that would help SFM to become fully effective:

- RFD's roles and attitudes need to be substantially changed, and its organization requires restructuring with a view to the future. RFD was established in 1896, so it is not surprising that changes need to be made.
- Institutional capacity is needed. Involved agencies should capacitate institutions, make partnerships and carry out activities with all the parties involved. It is also necessary to establish transparency and accountability in forest management.
- Security of land tenure and access to resources for local people would help discourage forest encroachment, but forest tenure under RTG is still rigid at present.
- Local people's rights to use and manage their community forests must be approved. (The Community Forestry Act has been waiting for approval since 1992.)
- There is need to develop local institutions and to recognize local communities' traditional rules and regulations. These can help the planning and implementation of natural resource management at the local level through TAOs.
- Cooperation and coordination should be built up among the agencies involved in policy planning, the implementation of natural resource management, and monitoring and evaluation.
- It is important to gain the collaboration of key stakeholders who can help resolve conflicts over land uses and overlapping land areas between local people and RFD/DNP. During such conflict resolution, it is necessary to establish the agreement of both parties regarding the identification of boundaries and the demarcation of land.
- Inappropriate or obsolete legislation/regulations need to be replaced. The political will to do this is needed.
- Government officials must employ socially acceptable methods (based on equality, not superiority) when working with local people and other parties.
- It is essential that all stakeholders be involved in the participatory planning of decentralization schemes.

Implications of forest plantations and new alternatives

Large-scale plantation projects have adopted various approaches, one of the most frequent of which was that used in the Forest Plantation Project to Commemorate the Jubilee of the King's Reign, which invited all Thai and non-Thai residents to plant trees; all types of donation were welcome. The project was planned for 1994 to 1996, but RFD requested the government for an extension to 2002, because the project's goal of 5 million rai (800 000 ha) planted had not yet been met. In 1997, of the 2.73 million rai (436 800 ha) reserved for plantations, only 1.03 million rai (164 800 ha) – or 37.73 percent – had been completed (Green World Foundation, 1999). The 5 million rai target was divided into two categories: 3 million rai were to be planted by the private sector, and 2 million rai by government agencies. Table 5 shows the total areas reforested between 1906 and 2004. Table 6 shows the areas reforested between 1994 and 2004; the grand total reforested over the ten-year period was 709 177.95 ha.

TABLE 5
Reforestation by the government and the private sector, 1906 to 2004

Period	Number of years	Area (rai)	Area (ha)
1906–1960	54	50 984	8 157.44
1961–1966	5	142 500	22 800.00
1966–1971	5	171 820	27 491.20
1972–1976	4	294 861	47 177.76
1977–1981	4	1 357 615	217 218.40
1981–1986	5	1 901 180	304 188.80
1987–1991	4	764 750	122 360.00
1992–1996	4	943 750	151 000.00
1997–2002	5	996 837.50	159 494.00
2003–2004	1	163 268.75	26 123.00
Total		6 787 566.25	1 086 010.60

Sources: Green World Foundation, 1999; RFD, 2004.

TABLE 6
Reforestation by RFD, FIO and the private sector, 1994 to 2004

Year	RFD (ha)	FIO (ha)	Private sector (ha)
1994	48 829.41		62 778.20
1995	114 280.84		51 823.20
1996	93 167.76		18 622.84
1997	28 298.88		16 629.44
1998	22 269.42		4 446.92
1999	27 179.82		4 322.48
2000	21 355.76		6 633.44
2001	23 563.60		-
2002	27 334.88		3 448.8
2003	1 760	132 736.26*	-
2004	1 280		-
Total	407 736.37	132 736.26	168 705.32

Source: RFD, 2004.

Tables 5 and 6 indicate that the forest plantation policy has been of little use to the forestry sector; if this slow reforestation rate continues, Thailand may have to import logs and sawnwood indefinitely. The total reforested area of 1.07 million ha between 1906 and 2004 is clearly insignificant compared with the total deforested area of 10.76 million ha between 1961 and 2004. The reforested areas since 1994 shown in Table 6 account for 65.3 percent of the total reforestations since 1906, implying that the other nearly 90 years of reforestation achieved only 34.7 percent of the

total. The years 1994 and 1995 were very productive for private plantations, accounting for 67.9 percent of the total for this category. Forest degradation and deforestation seem likely to continue at rates of about 2 to 2.6 percent a year (FAO, 1999).

Discussion of the failure of reforestation and the inability to combat deforestation in Thailand has become increasingly critical. The government, via RFD and DNP, adheres to its original concepts of reforestation, as outlined in the Forest Plantation Act and DNP's establishment of PAS. For example, in February 2000, the government approved plans for a 750 000-rai plantation (120 000 ha) in degraded forest in Tha Takiab and Sanam Chai Khet districts of Chachoengsao province, to be managed by a large company, Kaset Rungruang. The plantation was to be divided, with 250 000 rai being planted by the company itself, and the remaining 500 000 rai by farmers as contract tree farming (*The Nation*, 2000). This was to be a joint project between China and Thailand, aimed at producing wood products for a new pulp factory to be established in Thailand.

However, the main species in the plantation was to be *Eucalyptus* spp., which was widely criticized by local farmers, who call it the "evil tree"; "it depleted the water in the only canal that passes through my farm", according to one. If the plan was implemented, local villagers thought that conflict would be inevitable, owing mainly to land conflicts and their hatred of *Eucalyptus* trees. Land conflict would break out because the villagers have occupied the land for more than two decades and some even reside illegally in the area. The RFD Director General supported the project and stressed that, "it will finally enable the government to get the land back from the villagers, and the plantations will also raise forest cover". Local authorities, including forestry and military officials working with the villagers, stressed that a number of villagers would reject the plan.

As shown in Table 1, the remnants of forest in Thailand are about a third or less of the total land area, and must be preserved as specified in the Royal Decree regarding the revocation of all commercial timber concessions in natural forests. After more than a decade of the logging ban, it seems that the economy has suffered as much as the environment from illegal forest extraction in Thailand and its neighbours. Deforestation continues in Thailand, and is increasing in neighbouring countries, particularly Cambodia, Myanmar and Lao People's Democratic Republic. The demand for wood products continues to rise, while the supply declines.

The economic effects of the logging ban can be seen by comparing projected figures of future consumption with the quantities that were subsequently required. For example, in 1972, the projected demands for sawn and veneer logs were 24 million m³ for 1980, and 33 million m³ for 2000 (de Backer and Openshaw, 1972), but actual consumption in 1998 was only 1.18 million m³ according to RFD's most current data. This implies that the forest industries were far less active than had been expected in 1972, and a likely reason for this is the 1989 logging ban.

In the meantime, the remaining forest industries rely heavily on FIO's legal and confiscated timber. FIO has been permitted to maintain and utilize its own plantations, concessionaires' plantations and confiscated logs from illegal practices outside the conservation areas. The owners of wood industries are uncertain about the government's policy, even though the reforestation policy clearly implies that many more plantations must be established for conservation purposes. Private plantations of fast-growing species, such as *Eucalyptus* spp., *Acacia* spp. and *Cassia* spp., can produce wood for the general market, but reserve species, such as teak and dipterocarp, require specific RFD approval. RFD must assess whether or not this plan can be sustainable in the future, and adjust it as necessary.

To compensate for the commercial logging ban, the government reduced log import tariffs and opened all borders to timber imports (Pragtong and Thomas, 1990). Lao People's Democratic Republic has responded to this by imposing very high taxes on log exports, and introducing plans to improve its forest management capability, including inviting Thailand's wood industry to invest in wood processing facilities for exports to Thailand. The government of Myanmar has increased its conflict with ethnic minority rebels over timber export routes in forest areas near the Thai border, but the minorities continue to export sawlogs and sawntimber to Thailand, both legally and illegally. The World Wide Fund for Nature (WWF) estimates that nearly all exports from India, Lao People's Democratic Republic, Cambodia, Thailand and the Philippines are illegal, and a third of those from Malaysia may also be illegal (WWF, 1996).

Irrefutable evidence of an illegal timber trade was discovered along the border between Thailand and Cambodia, even though this border was officially closed in late 1994, following the murder of 22 Thai timber workers in November of that year (Global Witness, 1995). Cambodia's Secretary of

State for the Environment, during an interview on 6 March 1995, claimed that as many as 300 log trucks a day were still crossing the border. Global Witness (1995) pointed out that this may have been a serious underestimation of the scale of illegal trade, because 100 trucks a day were crossing the border to supply the Suan Pha timber concession in Thailand's Trad province alone. As long as the Thai logging business continues to operate in neighbouring countries, deforestation is worsening in Thailand and its neighbours.

In 1996, Global Witness claimed that Cambodia was Thailand's main source of timber imports; for instance, up to 750 000 m³ of illegal timber a year was entering the Thai harbour of Kalapangha, Trad province, while the governments of both Thailand and Cambodia were doing nothing to stop it, in spite of the timber export ban that the Government of Cambodia imposed on 31 December 1996 (Global Witness, 1997). In addition, nine Thai logging companies operating along the border with Cambodia were illegally importing more than 120 000 m³ of illegally felled timber (Global Witness, 1997). The best response to this situation would be for the Government of Thailand to do all it can to prevent illegal logging in Cambodia and other war-wrecked neighbours, thereby showing that Thailand takes a responsible attitude to its own SFM scheme without overexploiting its neighbours' forests.

COMMUNITY FOREST MANAGEMENT: *DE FACTO* RIGHTS AND LIVELIHOODS

The CF concept was introduced to Thailand in the mid-1970s, and is based on the belief that State control over forest management is too bureaucratic and centralized. Centralization contributes to deforestation through inefficient natural resource management as a result of complex and time-consuming bureaucratic controls, together with inflexible top-down rules and regulations that lack adequate feedback from the bottom, or local level. CF has existed throughout the history of village settlement in Thailand, but it was not called CF. New settlers in or near the forest normally agreed to set aside some existing forest or grazing land for communal use. Although CF has taken many forms and served various functions in Thailand, the Community Forestry Act of 1992 has been under development for more than a decade and has still to be finalized. RFD's first draft of the act was limited to addressing the communities' role in fast-growing tree plantations (Poffenberger, Soriaga and Walpole, 2005). Villagers, NGOs and academics began informal discussions of the issues relating to CF policy, legislation and implementation in 1990.

A CF Division was created in 1986 under the Office of Reforestation within RFD, with the aim of developing new participatory programmes. At the same time, increasing numbers of NGOs and academics in Thailand were developing expertise in CF programmes, implementation and strategies, and some worked closely with the CF Division. Unfortunately, Thailand continues to lack comprehensive legislation dealing with the forest resource rights and responsibilities of forest-dependent populations, many of whom are ethnic minorities. Nationwide, at least four major types of CF can be identified: (1) newly organized community protected forests, which have emerged as a response to illegal logging; (2) monastery (*wat*) forests, which are restricted areas where plants and animals are protected; (3) wetland forests, which communities protect to ensure that there is a breeding ground for fish, frogs and crabs, and a source of bamboo, timber and fuelwood; and (4) cultural forests, which have economic, historical or religious significance (Poffenberger, Soriaga and Walpole, 2005). Figures 9 and 10 show the areas of CF projects already approved by RFD. The areas of community forests managed by local communities are shown in Figure 9. More details are provided in Annex Tables A3 and A4.

FIGURE 9
Areas of CF projects approved by RFD by region, 2000 to 2005

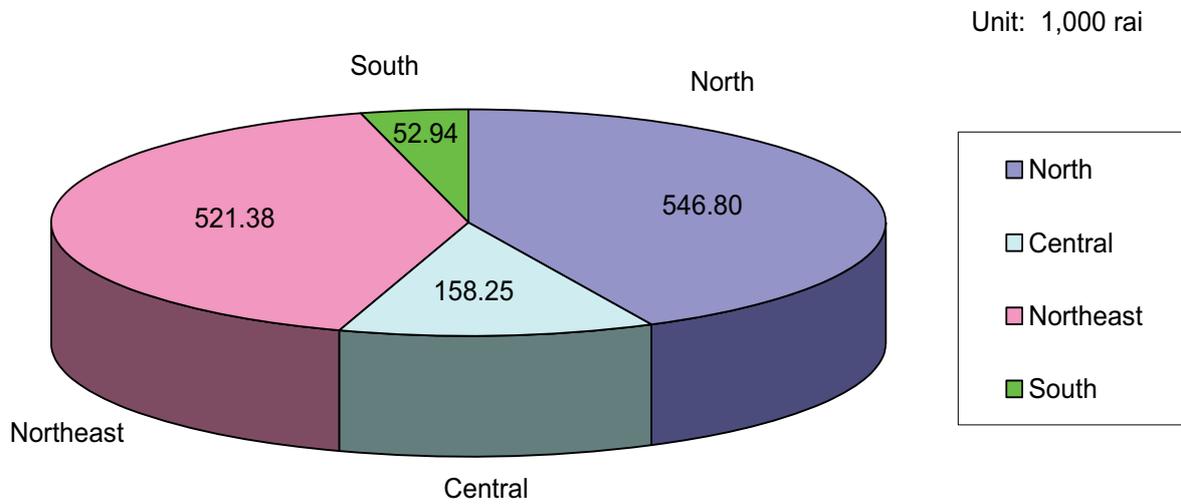
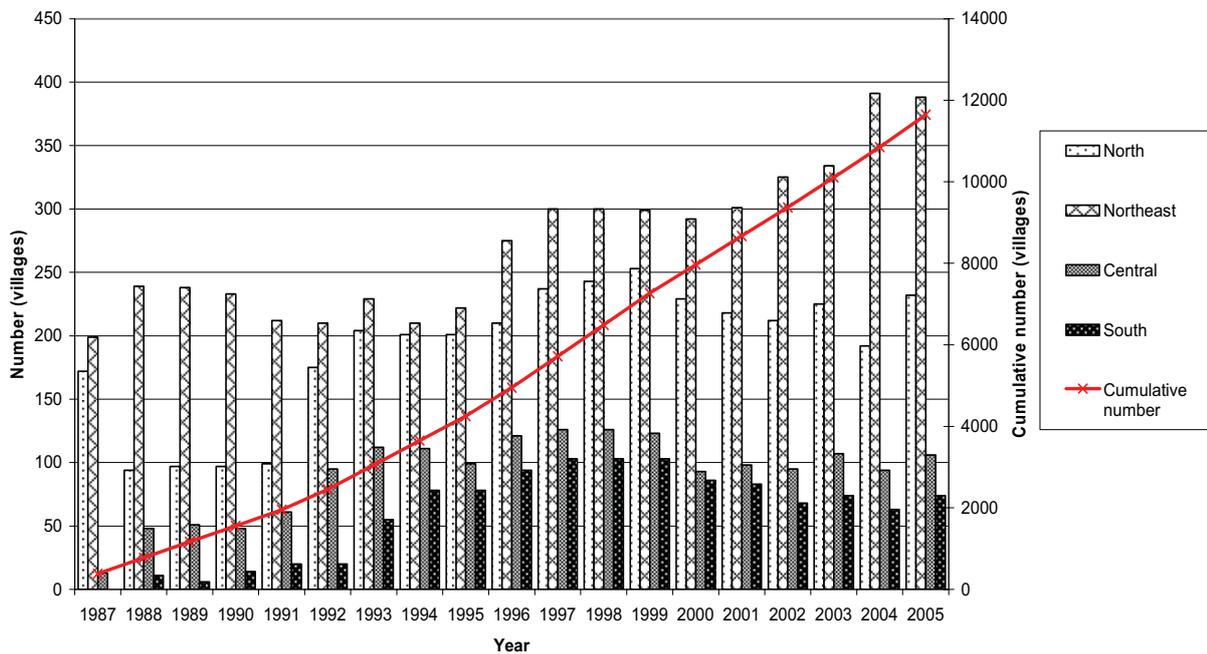


FIGURE 10
Numbers of community forests by region, 1987 to 2005



The positive impacts of forestry policies are reflected in the increased numbers and areas of CF and PAS, including national parks, forest parks and wildlife sanctuaries, as shown in Figure 10. However, the cost-impact ratio and effectiveness of these conservation areas cannot be analysed because the monetary and non-monetary values of the conservation practices used have not been evaluated. People in Thailand recognize that conservation practices are good for the country, but conservation should not affect the livelihoods of forest-dependent people. In cases where forest-dependent villagers have to move out of their villages in demarcated forest land for conservation purposes their livelihoods are likely to be jeopardized and marginalized. The balance between excluding and including local people in forest areas must be carefully calculated, so that CF projects can be implemented effectively, whether they have been formalized or not. Throughout Thailand,

there are an estimated 7 million ha of degraded State forest land, much of which is inhabited. If a truly enabling Community Forestry Act is approved by the Thai legislature, it is likely that CF will rapidly be integrated as a major component of the forestry sector (Poffenberger, Soriaga and Walpole, 2005).

The current forest conservation policy aims to protect the remaining forests, establish as many human-made forests as possible, and focus on natural regeneration. Enhanced conservation of national parks and wildlife sanctuaries is necessary. Based on World Bank (1998) recommendations, key measures to be taken include: more effective enforcement of the logging ban through enhanced policing capabilities (surveillance, log monitoring and trade control technologies), more effective prosecution and tougher penalties; increased and more frequent monitoring of changes in forest cover, using satellite images and ground verification; increased staff capacity; effective demarcation of protected areas, in consultation with local communities; participatory management planning for protected areas and buffer zones; involvement of local communities and NGOs in the implementation of management plans; and full financing of recurrent management costs through increased user and service fees, as well as concession fees when applicable.

Watershed conservation has been a major issue in the north of Thailand. Watershed areas in mountainous regions are Thailand's only source of headwaters. The causes of watershed degradation are similar to those of deforestation. The logging ban in natural forest should have yielded positive outcomes for watersheds, but pressure and conflict between the uplands and lowlands and between the government and forest encroachers have emerged, and national policies have been irregularly implemented in some areas, resulting in increased destruction of watershed areas. Watershed areas are categorized into five classes (Box 1), with class 1 (both 1A and 1B) considered as prioritized conservation forest. This category is so significant for conservation that upper class 1 watersheds on slopes of more than 35 percent cannot be utilized in any way, and no humans are allowed to reside in these areas.

BOX 1

Watershed classes (WSCs)

WSC1: Protected or conservation forest and headwater sources. This class is divided into two subclasses:

- WSC1A: *Watershed protection forest*: protected forest areas, including the headwaters of rivers, usually at high elevations and on very steep slopes. Should remain as permanent forest cover.
- WSC1B: *Disturbed WSC1*: areas with similar physical and environmental features to class 1A, but with portions cleared for agriculture, which requires special soil conservation measures. Where possible, these areas should be replanted as forest or maintained as permanent agroforestry.

WSC2: *Commercial forest*: for protection and/or commercial forest, with mining and logging allowed within legal boundaries, usually at high elevations with steep to very steep slopes. May be used for grazing or crop production, with soil conservation measures.

WSC3: *Fruit tree plantations*: uplands with steep slopes and less erosive land forms. May be used for commercial forests, grazing, fruit trees or certain agricultural crops, with soil conservation measures.

WSC4: *Upland farming*: areas with gentle sloping land suitable for row crops, fruit trees and grazing, with moderate need of soil conservation measures.

WSC5: *Lowland farming*: gentle slopes or flat areas needed for paddy fields or other agricultural uses, with few restrictions.

Over the past 25 years, many hill tribal people have migrated into the uplands, highlands and mountainous areas in the north, stirring up much conflict. Many hill tribes claim to have been in upland areas for as long as 80 to 100 years, and some tribes have been present in Thailand for more

than 100 years. The total population of hill tribes was 991 122 in 1998, according to the Public Welfare Department (cited in Phonpanpua, 1999), but researchers and demographers find it very difficult to estimate hill tribe populations owing to the dynamic in- and out-migration along the borders with Lao People's Democratic Republic and Myanmar.

Hill tribal people are often blamed for destroying watershed forests for shifting or swidden agriculture, and debates on this issue have been ongoing for the past 40 years. However, shifting cultivation practices have been reduced or stabilized because shifting cultivation in protected watershed areas is illegal, there is limited available land for cultivation in mountainous regions, the population is too large for the arable land, and the government has been seeking alternative livelihoods for the people affected. An analysis by Lakanavichian and Van Cappellen (1989) indicates that shifting cultivation is neither critical nor unbalanced when there is unlimited arable land and a small population. As this is not the case in the highland watersheds, shifting cultivation has naturally declined and become less productive. The next challenge is to make the shifting cultivation system sustainable and viable for farmers, without destroying the environment. Many studies and attempts to do this are under way, and shifting cultivators are under pressure to adopt rotational cultivation.

Options for the way forward

CONTRIBUTION OF TENURE ARRANGEMENTS TO SFM AND POVERTY ALLEVIATION

The impacts of forestry policies in Thailand, particularly under the logging ban regime, are interrelated. The worst impacts have probably been those affecting the environment, followed by economic and social impacts. The minimal preparation prior to launching the logging ban created difficulties and even hardship in balancing wood production and consumption while conserving forests. It is clear that Thailand has been unable to tackle the problems of unbalanced imports and exports of timber and wood products. The Thai forestry and forest product industries have lost much income, causing some of the parties concerned to overexploit neighbouring countries, leading to increased deforestation in those countries. The government encouraged log concessionaires to move their operations to neighbouring countries after the declaration of the logging ban, but this has resulted in damaged forests all over the region.

The logging ban led the government to reverse its target areas for forests, to 25 percent conservation forest and 15 percent economic or production forest. The latter should be managed under CF, with the full participation of local people and communities.

One of the most important lessons learned relates to the need for legislative and technical preparation and suitable planning. Any country aiming to impose a logging ban should study past experiences, and set up the process carefully and gradually, paying close attention to the likely environmental and socio-economic impacts and their effects on forest-dependent livelihoods.

Specific tenure arrangements between RFD and villagers for the collaborative management of community forests and reforested areas must be put in place. Forest management activities are unlikely to proceed well under the current ownership regime for State forest. During the wait for enactment of the Community Forestry Act, RFD should provide security for informal or *de facto* community-based forest management so that forest-dependent people can implement programmes productively. SFM may be attainable.

RECOMMENDATIONS FOR THE WAY FORWARD

Community forest management should be considered as a way of promoting SFM and poverty alleviation. If community forests are to be conserved and managed properly, the Community Forestry Act should include two important clauses: allowing communities to use forests sustainably; and acknowledging the rules and regulations framed by officially recognized committees with local participation. Stakeholders can finalize the forest resource tenure system in relation to CF roles and responsibilities when the Community Forestry Act is enacted. Forest-dependent villagers should be able to continue their management and utilization of community forests without impeding the claims and rights of communities.

Conservation policies should be adjusted in order to take community participation and benefits into account. Many researchers and RFD and FIO officials suggest that Thailand should produce its own timber and wood products, while protecting its forest and the environment. This is possible only if forest-dependent people – be they forest dwellers, illegal loggers or city dwellers – are involved. Responsible agencies, including RFD and DNP, must alter their personnel's attitudes and behaviour so that they start progressively to work more with local people. Many local communities in Thailand have demonstrated that they can protect and manage community forests effectively.

The following two suggested policy options provide ways of setting up SFM and forest conservation, while helping the rural poor by reducing poverty. Both options aim to change the view that natural forests and government plantations should be free from logging. (Although private owners of plantations can operate logging under the 1992 Plantation Act, State forest plantations are preserved as a type of conservation forest.) The participatory approach is at the centre of both options.

Option 1: Community forest management with timber production

Community forest management, incorporating small- and medium-scale plantations (private or communal) for commercial production, with technical assistance from RFD. This option integrates all of the biophysical and socio-economic factors, leading to closer cooperation between the State and the people. TAOs, local groups and local people should be at the centre of plantation operations on available land, which can be either State degraded forest land or the community's own communal/public land.

The government must adjust the rental procedures for State forest land so that small farmers and communities can be involved.

A CF committee/working group should be elected to work on sustainable timber production in the community, incorporating the social and environmental services that lead to SFM.

Favourable land taxes or incentives are needed to promote reforestation, conservation and intensive land uses, which must be sustainable. One such incentive could be no, or very low, royalty fees for logging.

Training on nursery techniques, plantation maintenance and harvesting is necessary. RFD must simplify the bureaucratic procedures and regulations for logging.

TAOs and RFD must operate the market system transparently and accountably, and ensure the equitable sharing of costs and benefits.

Trees should be integrated into farming systems throughout the country so that agroforestry can contribute to economic and environmental goods and services in the same way as communal or private plantations.

Option 2: Collaborative forest rehabilitation

Collaborative forest rehabilitation implemented by government agencies and incorporating local people in degraded forest areas. Partnership with local communities should be set up, focusing on SFM with sustainable flows of wood outputs.

The forest rehabilitation programme needs to establish clear procedures for the sharing of costs and benefits among partners.

The programme for this should be set up in the most practical and transparent way possible. RFD and other forestry units should establish effective laws and legislation controlling wood production and consumption, while local partners should formulate the process on the ground.

Native species should be used for forest rehabilitation. This ensures high survival rates and convenient maintenance for local people. Co-managed nurseries could produce seedlings for plantations.

Timber production should be based on subsistence, with any extra production being available for income, if the capacity allows.

The government should shorten the bureaucratic procedures for logging; logging legislation needs an effective and convenient legal framework. The Forest Act of 1941, which oversees logging operations, needs a thorough overhaul (the current government has called for all legislation to be updated).

The government needs to provide incentives, such as low rents for degraded State forest land in small farmers' forest rehabilitation programmes, exemption from royalty fees for timber harvesting and low land taxes.

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ANNEX

TABLE A1
Numbers of landholdings in Thailand by type, 1987 to 2005 (in millions)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2005
Title deed	0.20	0.45	0.50	0.57	0.63	8.70	9.59	10.51	11.50	12.61	13.99	15.65	22.11
NS3-K	0.13	0.15	0.16	0.18	0.18	8.05	7.84	8.12	8.14	8.24	2.86	8.07	6.03
NS3	0.00	0.00	0.00	0.00	0.00	2.22	2.11	2.13	2.10	2.08	2.08	2.04	1.66
NS2	0.01	0.01	0.01	0.03	0.01	0.51	0.37	0.37	0.37	0.38	0.38	0.39	0.33

Sources: Department of Land, annual reports for 1987 to 1998. Available at: www.dol.go.th/doc/planning/land_doc2.htm.

TABLE A2
Areas of landholdings in Thailand by type, 1987 to 2005 (in million rai)

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	2005
Title deed	0.24	0.51	1.24	2.13	2.41	30.60	34.81	37.54	41.34	45.06	50.61	59.78	78.20
NS3-K	0.82	0.93	1.05	0.14	0.84	48.37	49.69	50.02	48.99	48.22	46.86	44.60	32.42
NS3	0.00	0.00	0.00	0.00	0.00	19.47	19.15	19.55	19.08	19.31	18.68	17.98	14.79
NS2	0.12	0.11	0.11	0.16	0.11	5.14	4.07	4.12	4.12	4.08	4.19	4.05	3.25

Sources: Department of Land, annual reports for 1987 to 1998. Available at: www.dol.go.th/doc/planning/land_doc2.htm.

TABLE A3
Numbers of community forests in Thailand by region, 1987 to 2005

	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	Total
North	172	94	97	97	99	175	204	201	201	210	237	243	253	229	218	212	225	192	232	3 591
Northeast	199	239	238	233	212	210	229	210	222	275	300	300	299	292	301	325	334	391	388	5 197
Central	13	48	51	48	61	95	112	111	99	121	126	126	123	93	98	95	107	94	106	1 727
South	0	11	6	14	20	20	55	78	78	94	103	103	103	86	83	68	74	63	74	1 133
Total	384	392	392	392	392	500	600	600	600	700	766	772	778	700	700	700	740	740	800	11 648

Sources: Extension programmes

TABLE A4
Numbers and areas of authorized community forest projects by region, 2000 to 2005

Region	Villages	Projects	Area (ha)
North	1 492	1 405	87 488
Central	747	665	25 320
Northeast	2 690	2 317	83 420.8
South	512	506	8 470.4
Total	5 441	4 893	204 699.2

TABLE A5
Numbers and areas of forest conservation and reserve areas, 2004

Conservation type	Number	Area (million ha)
1) Conserved areas under laws and cabinet resolutions		
<input type="checkbox"/> National parks	103	5.28
<input type="checkbox"/> Wildlife sanctuaries	55	3.57
<input type="checkbox"/> Forest parks	70	0.083
<input type="checkbox"/> No-hunting areas	56	0.43
<input type="checkbox"/> Watersheds class 1	25	9.32
<input type="checkbox"/> Mangrove conserved forests	-	0.04
Subtotal		18.72
2) Other conservation areas	1 221	23.04
Total		41.76

Sources: RFD, 1998; 2004; Green World Foundation, 1999.