

Does land tenure security enhance sustainable land management? Evidence from mountainous regions of Thailand and Vietnam

Andreas Neef, Chapika Sangkapitux** and Klaus Kirchmann**

** Institute of Agricultural Economics and Social Sciences in the
Tropics and Subtropics, Chair Agricultural Development Theory and Policy,
Prof. F. Heidhues, University of Hohenheim (490 A)
70593 Stuttgart, Germany*

*** Department of Agricultural and Resource Economics,
Kasetsart University, Bangkok 10900, Thailand*

Abstract

Neoclassical theory states that land tenure security plays an important role in determining long-term investment for sustainable land use. The case studies from Thailand and Vietnam presented in this paper show contrasting results. Although ethnic minority groups in mountainous regions of northern Thailand are disadvantaged with regard to access to permanent land use rights, long-term investments in land resources are common practice. Minority farmers in ecologically fragile watershed areas of northern Thailand where agriculture is in conflict with the reforestation policy of the Thai government react to increasing tenure insecurity by planting fruit trees and other perennials, by converting rainfed land into paddy terraces, and by applying various forms of erosion control measures. Similar responses can be observed in mountainous regions of northern Vietnam. Upland farmers in Bac Can province adopt soil conservation practices mainly to obtain long-term land use certificates under the new land law. In contrast, intensive land utilization under monocropping without soil conservation practices is found in Son La province where land use rights are relatively secure due to recent land reforms. This paper concludes that the relationship between tenure security and long-term investments should not be viewed as unidirectional. Long-term investments can occur under extremely insecure tenure regimes as they increase farmers' perceived tenure security. On the other hand, improved tenure security does not automatically lead to higher long-term investments and to a more sustainable land use.

Keywords: land allocation, land tenure security, long-term investments, sustainable land management, Thailand, Vietnam

1. Introduction

There are many studies supporting the neoclassical hypothesis that tenure insecurity is correlated negatively with the quality of resource management. Over-exploitation and degradation of natural resources, such as deforestation and non-agricultural practices, are often characterized as a result of incomplete, inconsistent or non-enforced property rights, as the costs of resource use are born by the society as a whole, whereas the benefits are accrued to individuals (Coase 1960, Bromley & Cernea 1989, Wachter 1992, Hanna & Munasinghe 1995). The general implication of this theorem is that to avoid the overuse of natural resources, privatising of land rights and allocation of land titles can contribute to sustainable land resource management by stimulating long-term investments to improve soil fertility and productivity.

The objective of this paper is to broaden the perspective on the relationship between tenure security (including perceived) and sustainable land use. It is based on information obtained from three interdisciplinary study projects conducted during 1997-1999 under the coordination of University of Hohenheim (Germany) and in collaboration with Kasetsart University and Chiang Mai University (Thailand), Hanoi Agricultural University and Thai Nguyen University of Agriculture and Forestry (Vietnam). Mae Salong and Mae Chan watersheds in Chiang Rai province, Mae Sa watershed in Chiang Mai province, Northern Thailand, and two provinces of Northern Vietnam, Bac Can and Son La, were selected for the study projects.

2. Natural resource policies, land tenure systems and land use patterns in northern Vietnam and northern Thailand

For decades, government policies toward ethnic minorities living in erosion-prone and ecologically fragile highland areas of northern Thailand and northern Vietnam have adopted top-down approaches following the concept that minorities are a threat to national security and natural resources, because of their uncontrollable mobility across borders, their extensive poppy cultivation for opium production and ‘unsustainable cultivation practices’, like shifting cultivation. Hence, various government policies aimed at forcing these mobile groups to settle in „fixed“ villages,

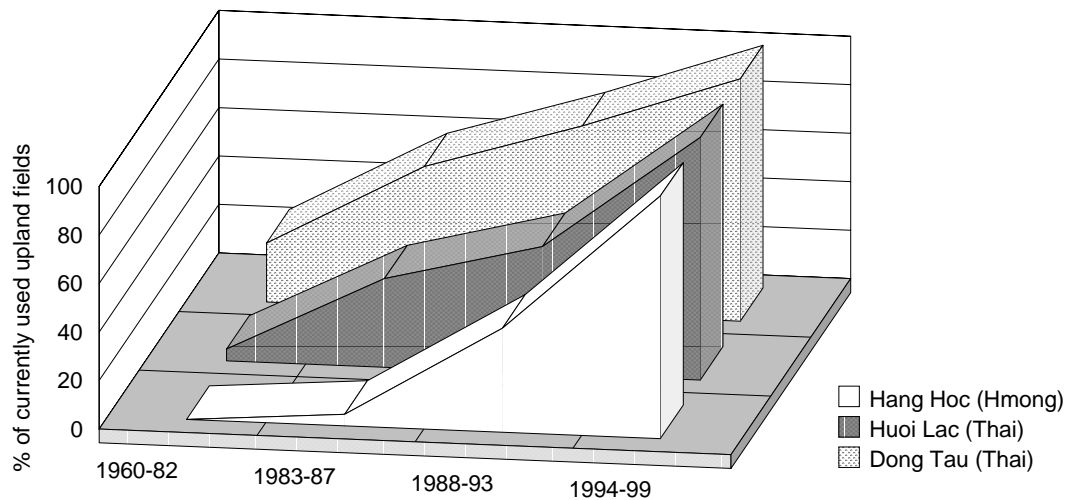
to abandon slash and burn practices and to adopt permanent cultivation. Some groups still live under insecure property rights without legal basis on their land, and are threatened by relocation out of fragile areas. These policies often fail to recognise the interlinkages between natural resource policies, tenure system, and land use patterns in highland areas of the two countries. The results of the study projects presented in the following sections provide, however, remarkable evidence that policies intended to promote sustainable resource management need fundamental changes in approach and content.

2.1 The case of northern Vietnam

2.1.1 Recent changes in land policies

Land allocation policies in Vietnam underwent three stages of reform moving from collective towards more individual land control systems. The first step was the Directive 100 in 1981 which shifted responsibility for production from the agricultural cooperatives to farm households. Land allocated to co-operatives could be subcontracted to individual households. By the end of 1987, already 30% of the agricultural land in Vietnam was under private use (Nguyen Van Tiem 1992). The second step began with the first land law and Resolution 10 issued in 1988. It restored the farm household as the main unit of agricultural production, which led to a large-scale decollectivisation in most parts of the country (Tran Thi Van Anh & Nguyen Manh Huan 1995). In the third stage, land use rights were allocated to farm households with the second land law, initiated in 1993, providing long-term tenure security of 20 years for annual crops and aquaculture and 50 years for forest and perennial crops (Dao The Tuan 1995, Rambo et al. 1995). The concomitantly issued so-called *red book certificates* guarantee the rights to exchange, transfer, inherit, mortgage, and lease land use rights. The land reform was complemented by additional reforms in the institutional sector ranging from improved supply with and access to high-yielding varieties, fertilisers and pesticides to the development of a rural credit system.

Figure 1. Periods of appropriation of currently used upland fields



Source: Kirchmann & Neef 1999

Initially, *red book certificates* were issued mainly in urban centers, in the major lowland rice growing areas, and in mountain valleys (Wandel 1997). However, in the last two years more and more remote areas in the uplands of northern Vietnam have been included in the land allocation process.

In many cases, the issue of land use certificates by and large confirmed the already existing agricultural structure. Figure 1 suggests that appropriation of upland fields by individual farm households is not a new phenomenon. Despite the strong governmental control over land and the high degree of collectivization during the 1970s, rural families were granted 160m² of agricultural land per family member for individual use. In the Black Thai village of Dong Tau, 24% of the fields currently under cultivation were allocated to the respective farmers already before 1982. More than 75% of all upland fields were allocated prior to the land reform in 1993. In the more recent Hmong settlement of Hang Hoc, however, upland fields were mainly appropriated under customary tenure in the late 80s and in the 90s.

2.1.2 Long-term use rights, short-term effects and soil conservation practices

Many studies of upland areas in Vietnam, such as Rambo and Le Trong Cuc (1995), Bergeret (1995), Hirsch & Nguyen Viet Thinh (1996), and Mellac (1997) indicate that land allocation processes in the uplands often lack transparency and provoke inequalities among ethnic minority groups and between individuals. This is

confirmed by interviews with key persons in various villages of Yen Chau district, Son La Province as well as Ba Be district and Cho Don district, Bac Can Province carried out from 1997-1999. In Son La Province the land allocation process has focused on the valleys and foothills, the high altitude uplands have hardly been touched (see table 1).

Table 1. Tenure status of different land use systems in Song Da watershed, Son La province, northwestern Vietnam

Land tenure status	Valley based systems		Upland based systems	
	Paddy based system	Diversified system (paddy/others)	medium altitudes (< 800 masl)	high altitudes (> 800 masl)
Land use certificate/ permitted tenure	48%	66%	25%	5%
Without permits	51%	34%	73%	95%
Rented	1%	2%	2%	0%

Source: SFDP, 1994

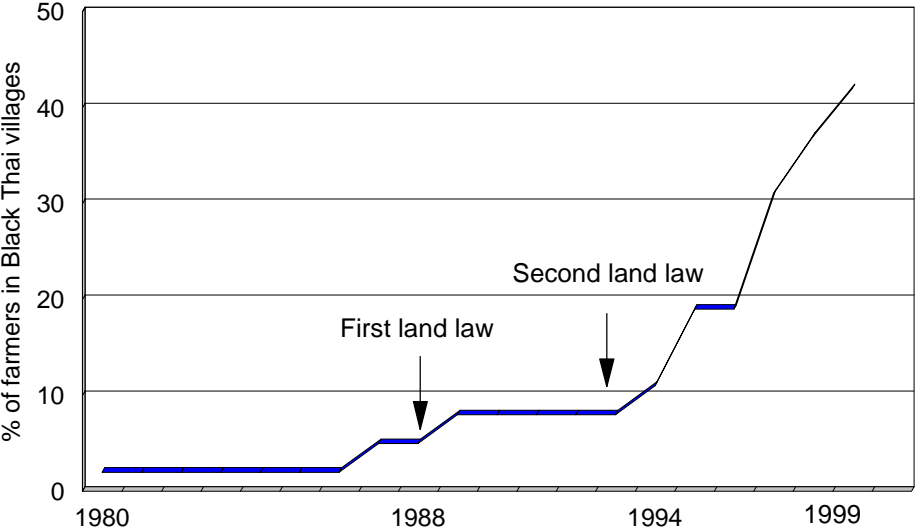
The uneven progress in land allocation between valley and upland areas reflects, at the same time, an ethnic discrimination. The Black Thai, the province’s ethnic majority, hold a significant share in political power and occupy most of the paddy and fertile upland fields. They have been granted long-term use rights from the beginning of the land allocation process, whereas most of the Hmong, who are socially and economically marginalized and cultivate exclusively the higher altitudes, remain without legal status to most of their land.

In Cho Don District, Bac Can Province, long-established Tay families who hold the political and administrative power control both the redistribution of lowland paddy fields as well as the allocation of sloping lands and forest areas. Here, the Kinh (ethnic Vietnamese) and especially the Dzao minority are disadvantaged. They are forced to abandon their traditional long fallow system and adopt permanent cultivation due to limitation of land resources. This has confronted the Dzao with immense problems of adjusting their farming systems (Mellac 1997). Tenure insecurity, against commonly held views, can also promote soil conservation measures. Thus, under tenure insecurity, Dzao minority farmers adopted agroforestry systems for erosion control in order to be viewed as „conservers“, even though they did not perceive soil erosion as a

major problem. This is supported by the evidence that they do not use the stalks and leaves of the bushes to improve soil fertility and control erosion in the uplands, as recommended by extension workers, but carry the mulch to their lowland paddy fields to improve rice yields. Highland farmers in this area believe that the adoption of soil conservation measures is often a precondition to obtain long-term land use certificates in sloping land (Neef 1999).

In Son La province, Black Thai farmers also have substantially adjusted processes their agriculture practices. However, these adjustments responded more to market forces than to changes in tenure security. Intensified use of upland fields, together with switching from subsistence to high value cash crops (e.g. sugarcane, maize, fruit trees like mango, tea, and coffee), and adoption of new technologies (e.g. application of chemical fertiliser and pesticides, high yielding varieties, deep ploughing techniques) have considerably improved crop yields and farmers' income.

Figure 2. Farmers using animal traction for ploughing on upland fields (Black Thai villages)



Source: Kirchmann & Neef 1999

While these benefits of a more intensive utilization of land resources are clearly perceived, negative effects on natural resources (e.g. soil and water contamination from excessive use of agrochemicals, soil degradation from intensified use of land and deep ploughing) are still not taken into consideration by farmers. Deep ploughing of

sloping land has considerably increased following the privatisation of farming in the late 1980s and early 1990s (see figure 2). It is enhancing erosion and leading to accelerated depletion of soil nutrients. These changes in agricultural practices are mainly found in the upland fields where secure use rights were recently assigned primarily to Thai households. The expected long-term investments still do not take place on a larger scale. There is practically no evidence of increased adoption of soil and water conservation measures on the upland fields with use rights secured by red book certificates.

In contrast to the Black Thai villages, changes in agricultural practices in the studied Hmong villages are not due to stronger market orientation but rather induced by the allocation process of land use certificates itself. In the few Hmong villages where farmers were granted red book certificates, farmers change from shifting cultivation to more permanent cropping. The traditional fallow periods are sharply reduced or even abandoned. In Hang Hoc village almost no reserve land is left that can be taken under cultivation in a legal way. Thus, the pressure to intensify farming on the currently used fields will certainly further increase.

A similar effect can be observed in the Hmong villages where land titles have still not been extended to farmers but land was measured and classified as agricultural or forest land respectively. The classification is accompanied by a ban on opening new fields in the forest area which leads to a more intensive use of the remaining agricultural fields (Kirchmann & Neef 1999).

The case studies from northern Vietnam indicate that individual land use rights through allocation of long-term land use certificates have the potential to stimulate agricultural growth in the short run. The breakdown of the cooperative systems and the individualization of agricultural land use has been a strong incentive for farmers to increase productivity. It can not be stated, however, that the allocation of red book certificates have led to more sustainable land use practices. In the case of the Hmong villages, land allocation even has adverse effects as long-fallow cycles are reduced because of the fear of losing land that is laid fallow. The major policy implication is that the land allocation process has to be monitored carefully to avoid undesired effects.

2.2 The case of northern Thailand

2.2.1 Forest policies and tenure security

In the highlands of Northern Thailand where many ethnic minority villages are located, farmers’ livelihood system is often in conflict with government policies. Large areas have been declared forest reserves, watershed areas and wildlife sanctuaries (Ganjanapan 1998). As such all settlements located in these protected areas are theoretically illegal and villagers live under the permanent threat of eviction. Apart from facing forced resettlement, the problem of land insecurity is very crucial in these areas where the villagers have no property rights over their land. Additionally, land claims by the Royal Forest Department (RFD) for intensive reforestation program, starting in the late 80s and early 90s (see table 2) have substantially increased tenure insecurity.

Table 2: Forest and related policies and their impacts on ethnic minorities in Thailand

Forest and related policies	Impacts on ethnic minorities
1960s: Highland development programs (opium eradication) 1961: National Park Act 1964: National Reserved Forest Act 1989: Logging Ban 1992: Wild Animal Reserves and Protection Act 1992: Reforestation Act <ul style="list-style-type: none"> ● forest areas are claimed under state property, but <i>de facto</i> there is an open access situation ● settlement in the protected areas is considered illegal and minority villages are under threat to be relocated ● forest and land use in protected areas has to be authorized by the RFD ● forest areas must be maintained at 40% of the total land area. To meet this target, the government would have to increase the forest area by 46 million rai (=73600 km²) 	<ul style="list-style-type: none"> ● no legal rights of land and forest resources ● forced relocation from protected areas ● loss of cultivated and fallow land claimed by RFD for reforestation

Source: Sathirathai 1995, Ganjanapan 1998

As a consequence, many villages lost considerable parts of their farmland. In Ban Tard, Mae Salong Watershed, 90% of agriculture land was claimed for reforestation, and 20% in Ban Pakasukjai, Mae Chan watershed (see table 6 in the

annex). Additional pressure comes from high birth rates and continuing immigration from neighbouring countries. Along with growing market influences through improvements in infrastructure, this induced considerable changes in agricultural land use patterns (Turkelboom et al. 1995).

2.2.2 Impacts of tenure insecurity on land use patterns

The response of farmers in Mae Chan and Mae Salong watershed, Chiang Rai province, to increasing land insecurity caused by reforestation programs is to plant fruit trees. Farmers believe that land with tree or perennial crops will not be claimed for reforestation. Other strategies are the conversion of rainfed into terraced land for paddy, adoption of soil conservation measures (e.g. contour lines and hedgerows), and a shift from fallow systems to permanent cultivation (see table 3).

Table 3. Strategies of farmers to secure land rights in two villages situated in a reforestation area of northern Thailand (sample of 30 households per village)

Strategies to secure land use rights	Ban Thad (without project)	Ban Pakhasukjai (with project)
Planting of fruit trees	87%	83%
Planting of other perennial crops (e.g. tea)	10%	20%
Converting rainfed fields into paddy fields	10%	33%
Abandoning fallow systems	30%	13%
Applying erosion control measures	0%	27%
Construction of fences	17%	0%

Source: Sangkapitux, Neef & Knuepfer 1999

Most of these strategies are regarded as sustainable land use and supposed to protect farmland from being claimed by RFD. Even though the benefits of these long-term investments are not immediately perceived by the villagers, they nevertheless practice those strategies to underline their claims to their land. The construction of rice terraces and the establishment of contour lines, which are labour-intensive and costly, are only applied in Ban Pakhasukjai where a local NGO is extending credit to farmers willing to practice 'conservation farming'. Without support from external

organizations, the strategy of villagers in Ban Thad is to adopt permanent cultivation, and abandon their traditional fallow systems, as the RFD tends to claim fallow fields first.

Due to lack of capital, labour and knowledge in planting fruit trees and in establishing erosion control measures, performance of these activities is often poor and economic returns are insufficient. However, many villagers continue these activities, as they want to demonstrate their ‘environmental awareness’ to the authorities thus hoping to receive Thai citizenship which they believe would protect them from being expelled from the watershed where their settlement still has no legal basis.

The situation in these two areas provides strong evidence that tenure insecurity plays a major role in determining long-term investments in soil and water conservation, even though they are not regarded as an economic priority by upland farmers. As the responses do not reflect the highest economic return in utilizing their land, the conservation practices are found only on marginal parts of their land that is jeopardized by reforestation claims of the RFD, or on minimum areas required by NGOs. On other plots which are more secure and located near the residential area, the farmers often try to maximize income by intensifying these plots, and by growing high value cash crops with fast turnover, such as ginger and cabbage, in order to compensate the loss from sacrificing some parts of their land for soil conservation and tree planting. As these high value crops require high levels of chemical fertilizer and pesticide, and induce high rates of soil loss, on-site and off-site effects of such practices are enormous. It can be argued that security of tenure (perceived by farmers) could also contribute to unsustainable resource use.

Land use patterns in Ban Mae Sa Mai, Mae Sa watershed (see table 4) dominated by fruit tree and vegetable plantations are similar to those of the two villages in Mae Salong and Mae Chan watersheds. However, in this area changes in cropping patterns from food crop cultivation to permanent fruit orchards and vegetable plantations are not farmers’ strategies to improve land security even though the village is located within the Doi Suthep National Park where farmers have no legal basis for their land. Changes are mainly driven by market forces and institutional support by the Royal Project Foundation.

Table 4: Land tenure and land use in Ban Mae Sa Mai, Mae Sa Watershed

Crops/land use	Owned land (without title)	Rented land (no written contracts)
Paddy rice	3.9%	4.8%
Upland rice	2.0%	15.9%
Corn	0.8%	31.7%
Vegetables	8.5%	47.6%
Fruit trees	83.9%	0.0%
Fallow	0.8%	0.0%

Source: Schiller 1999

Table 4 indicates strong differences between land cultivated by ‘land owners’ and rented land cultivated by tenants generally without written leasing contracts. Whereas most of the ‘land owners’ adopted perennial crops (mainly lychee trees) despite lacking land titles and formally illegal settlement, rented land is cultivated only with highly erosive (corn) or pesticide-intensive crops (cabbage).

The new land use patterns bring about substantial environmental problems, both in this region and in downstream areas due to intensive use of chemical fertiliser and pesticides. The report of the study project on „Environmental issues in watersheds of northern Thailand: a case of Mae Sa Watershed“ conducted in 1998, shows alarmingly high rates of pesticide residues in mother’s milk and blood, and an unusually large number of farmers have been reported to suffer from diseases caused by chemical pesticides. Losses in biodiversity in the areas under intensive use of the chemicals add to these problems.

Environmental effects are made worse by the high water requirement of these crops. Although the problem of water scarcity has not yet been perceived by many farmers, key informants of the village revealed that in the near future water supply will become a crucial issue in this area due to continuous increase in lychee plantation (own investigations 1998).

3. Conclusion

Evidence from the two countries indicates that the link between tenure insecurity and overexploitation of land resources is complex and varies by ecological, economic and institutional setting. Long-term investments in land, such as soil conservation practices and planting of perennial crops, are often found under insecure ownership rights. In protected areas of northern Thailand where the state claims all land as his property and where no legal rights on land resources have been assigned to individual households and communities, soil conservation practices and fruit tree planting are adopted by highland farmers as strategies to secure their long-term land use rights. However, adoption of those measures is found mainly on these plots of land where the risk of land being claimed by the state is highest. In areas under relatively secure tenure, monocropping and intensification without conservation measure are commonly practiced. These findings are confirmed by one of the case studies in highland areas of northern Vietnam. Incentives for long-term investments in land resources do not come from the farmers' perceived conservation benefits and economic profitability, but rather from their intention to have land use rights secured in the long run. The results show that long-term investments can also take place under high tenure insecurity. On the other hand, the study provides evidence that more secure property rights may not always lead to more investment in natural resource capital and more sustainable land resource utilization, but rather to intensive over-exploitation of the resources. This is in sharp contrast with neoclassical theory which directly links tenure security to investments in resource conservation. Under these conditions, to enhance land tenure security, for example by granting land title, may not automatically promote sustainable resource use.

It can be concluded that the relationship between tenure security and sustainable resource management is not mono-directional. Interaction between tenure regime and resource management is much more complex than stated by proponents of neoclassical theory. The conclusion is that the relationship between land tenure security, long-term investments and sustainability of land use practices has to be carefully analyzed prior to any intervention in land tenure regimes.

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Annex

Table 5. Background information of the study villages in northern Vietnam

	Son La province, Yen Chau district				
Villages	Na Pan	Dong Tau	Huoi Lac	Hang Hoc	Co Say Bo Kieng Chi Day
Ethnic group	Black Thai	Black Thai	Black Thai	Hmong	Hmong
Households / population	180 / 1077	156 / 758	53 / 278	18	10 / 83* 16 / 133* 11 / 92*
Sample size (households)	12	29	24	11	4 11 7
Cultivated land per household in hectares	1.42	1.45	1.04	1.68	n.a.
Land title	yes	yes	yes	yes	no

* estimations based on average household members

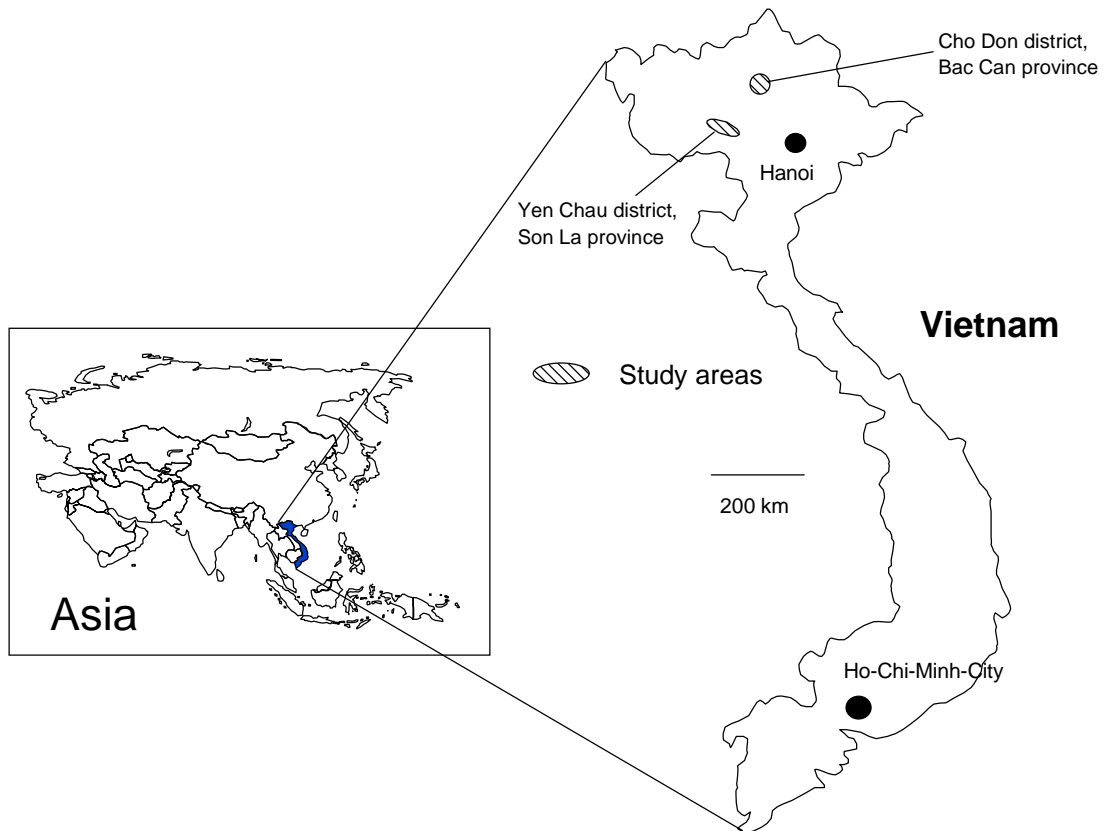
Source: Own survey 1999

Table 6: Background information of the study villages in northern Thailand

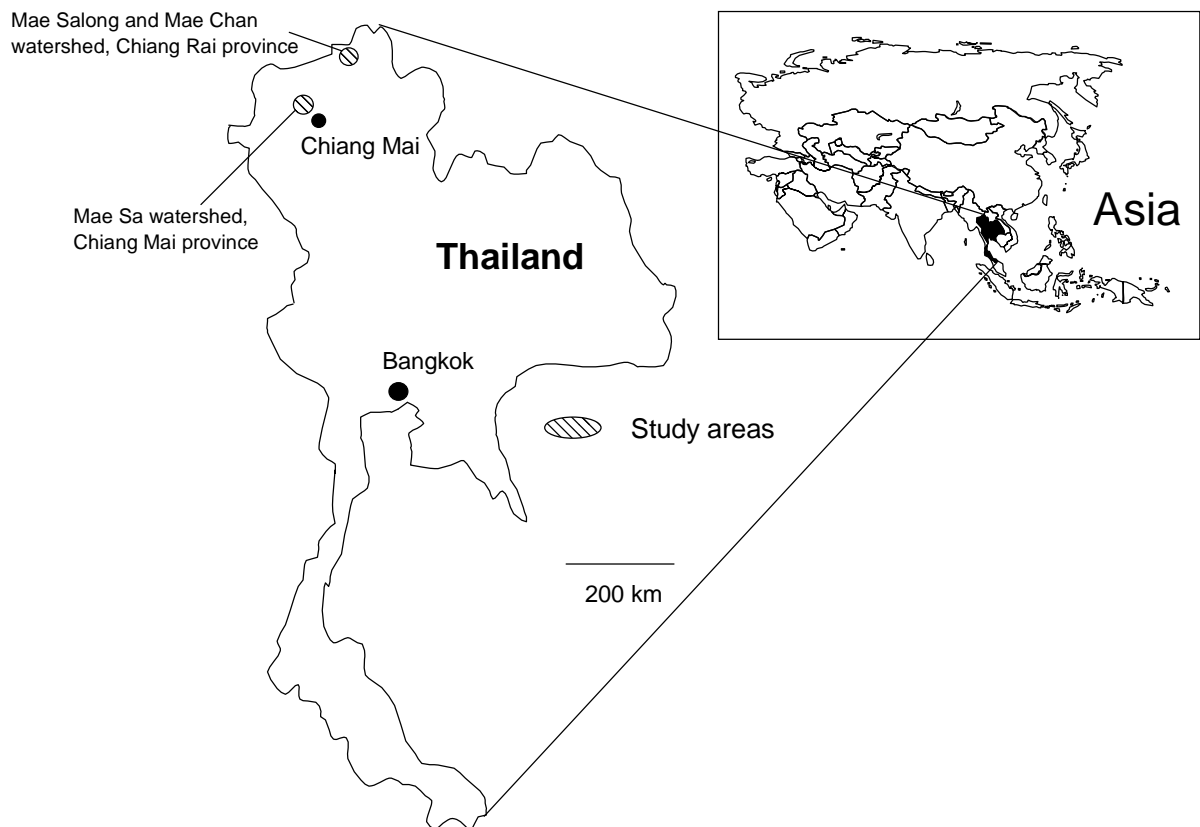
Items	Ban Thad Mae Salong Watershed	Ban Pakasukjai Mae Chan Watershed	Ban Mae Sa Mai Mae Sa Watershed
major ethnic group	Lisu	Akha	Hmong
household/population	103/685	88/450-500	186/1,537
sample size (households)	30	30	60
cultivated land/household	0.7 ha	2.0 ha	1.6 ha
land title	no (declared as watershed conservation area)	no (declared as watershed conservation area)	no (declared as National Park)
institutions	<ul style="list-style-type: none"> Royal Forest Department 	<ul style="list-style-type: none"> Royal Forest Department The Hill Area Development Foundation (HADF) 	<ul style="list-style-type: none"> Royal Forest Department Royal Project
% loss of farmland as impact of reforestation	90%	20%	n.a.

Source: Sangkapitux, Neef & Knuepfer, 1997

Map 1. Study areas in Vietnam



Map 2. Study areas in Thailand



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