Changes in the Management System of the Resources in the '*Miang* Tea Gardens': A Case Study of PMO Village, Northern Thailand

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ABSTRACT The cultivation fields of tea trees, the so-called '*miang* tea gardens', are scattered in the forested area of the mountainous region of northern Thailand. The '*miang* tea garden' system has been evaluated as a successful form of 'agroforestry' and 'community forest management'. This paper aims to elucidate the process of changes involved in the management system of *miang* tea gardens in the last three decades from 1970 to 2002 when land-use and the subsistence were completely different. The study was conducted at the PMO *miang* village where had been researched in 1970 by Keen, one of the socio-economic researchers. As of September 2002, PMO village consisted of 32 households with a population of 87; 30 households were earning their livelihood through *miang* tea gardens management and *miang* production. The field survey was conducted between February and November 2002 and between July and August 2004, using interactive questioning to interview all the households who managed the *miang* tea gardens. Prior to 1970, forest materials except for tea trees had been utilized and managed by the village as co-managed resources. In the 1970s, an increase in the cultivation of tea tree seedlings led the villagers to set up borders for each garden; this was done to define the usufruct of each seedlings. Thus, the usufruct of forest materials, including tea trees, was confined to the relevant user of the garden. From the late 1980s onwards, following the decline of the *miang* market, the villagers began to introduce other crops in their gardens. This land-use change allowed the villagers to recognize their gardens as cultivation fields. Thus, the resources comprising their gardens were emphasized its conceptual characteristic as the 'property managed by an individual for each subsistence activity'. In conclusion, it is indicated that the villagers should adopt changes in the management system

and the conceptual characteristic of *miang* tea gardens, induced by the villagers themselves, as strategies for maximal utilization of their gardens as cultivation fields.

Keywords: *miang* (fermented tea for chewing), tea trees cultivation, land-use changes, resources management, northern Thailand

INTRODUCTION

The cultivation fields of traditional tea, used mainly for the production of fermented tea for chewing, the so-called '*miang* tea gardens', are scattered in the forested area of the mountainous region of northern Thailand (Le Bar, 1967; Van Roy, 1967; Keen, 1978; Moriya, 1981; Sasaki, 1981).

The fermented tea for chewing, referred to as '*miang*', was often consumed as a part of social customs, while smoking cigarettes or drinking beer, when visitors arrived or when the family was seated together in the evening (Van Roy, 1967; Keen, 1978; Moriya, 1981). However, it is becoming increasingly difficult these days to find *miang* in Thai homes, particularly among the younger generation. Although the custom is changing, the traditional use of *miang* during traditional and religious ceremonies, such as funerals or new building ceremonies, continues (Sasaki et al. 2007).

The *miang* tea gardens have been set up using multiple layers in order to maintain the conditions that are suitable for tea trees; tea trees, *Camellia sinensis* var. *assamica*, are planted in the lower layer and some canopy trees in the upper layer are retained as shade trees in order to moderate the exposure of sunlight. Adjacent to these tea and canopy trees, usually on ridges or along streams, patches of small forests have been reserved for fuel wood collection¹ (Photo 1). Such constitution of the *miang* tea garden system has been characterized as an 'agroforestry system' or an 'agrosilvopastoral (agro-

silvo-pastoral) system'—an integrated combination of agriculture, animal husbandry and forestry (Watanabe, 1989, 1998, 2002; Watanabe et al. 1990). The function of this system has also been evaluated as the buffer zone between the agricultural field in the lowland and the natural forest in the mountainous region (Preechapanya, 1996, 2001; Santasombat, 2003).

Photo 1. *Miang* tea garden. Tea trees are cultivated under the shade trees remained in the gardens. Patches of small forest have been reserved for fuel woods collection on the ridges or along streams.

While there were a considerable number of studies focusing on the unique land-use pattern of the *miang* tea garden system, there were few studies that focused on *miang* production or villages that engaged in *miang* production (so-called *miang* villages). Therefore, there was little information on the subsistence activities of and detailed land-use pattern in *miang* villages.

Keen (1972, 1978) is one of the researchers who conducted a study on *miang* villages, focusing on the socio-economic aspects of *miang* villages in 1970. He reported on the subsistence of several *miang* villages and provided necessary information related to land-use pattern, land tenure, tea production and composition of population in *miang* villages. In particular, Keen mentioned a community named 'Pang Ma O village' (hereafter, the PMO village) in both his reports and described it more than any other community included in his study.

In our previous study on the PMO village (Sasaki et

al. 2007), we referred to Keen's research conducted in 1970 and clarified the long-term population and land-use dynamics in a *miang* village in the last three decades from 1970 to 2002 when Thailand encountered drastic socio-economic changes. We also reported that the structure and composition of *miang* tea gardens and the condition of *miang* production from 1970 to 2002 underwent a drastic change due to rural developments and national industrial restructuring. Based on the variations in population and the number of households, we stipulated that the village history of the last three decades could be divided into two phases—the 'expansion phase' and the 'decline phase'. The 'expansion phase' extended from 1970 to the early 1980s; during this phase, the villagers focused on cultivating tea trees in order to increase *miang* production, subsequent to improvements in the productive infrastructure. The 'decline phase' extended from the late 1980s to 2002. During this period, the villagers attempted to diversify the products cultivated in the *miang* tea gardens by planting fruit and/or coffee trees or by pruning tea trees in order to convert the tea products obtained from *miang* into drinking tea leaf, in an attempt to cope with the recession in the *miang* market. In conclusion, we indicated that the PMO villagers changed the land-use pattern of their *miang* tea gardens, which has categorically been evaluated as 'sustainable land-use', according to the changes in the socio-economic condition inside and outside the village (Sasaki et al. 2007).

On the other hand, *miang* villages have generally retained their 'customary rules' to maintain the constitution of the *miang* tea gardens; these customary rules are basically suitable for maintaining the favourable condition for the cultivation of tea trees. The PMO village has also retained its rules since the time *miang* began to be produced in the village. The following are examples of the activities that were banned in the village: logging shade trees in *miang* tea gardens, cutting more than one timber tree from the forest patch annually, selling forest products, cultivating upland rice in the gardens and using chemical fertilizers and pesticides.

It has been said that these rules consequently contributed to the conservation of environment and forested landscape, and therefore, the management system of *miang* tea gardens practised by the villagers has been mentioned as the successful form of a community forest (Santasombat, 2003). However, owing to the changes in land-use and subsistence for survival in the last three decades, it is suspected that these management systems with customary rules in the PMO

¹ The following is the process of producing *miang*: 1) harvesting tea leaves, 2) steaming tea leaves for one or two hours, 3) tying steamed leaves with a bamboo band and 4) fermenting tied tea leaves in a cement tank or a bamboo basket for one to six months. The process of steaming tea leaves requires a large quantity of fuel wood.

village have also changed.

Previous studies on the changes in the management systems of common resources in a community focused on a locality that showed variance between the 'legal landholder' and the 'actual user' or on cases in which subsistence and the traditional usufruct of resources in a locality suffered external changes such as the enclosure for forest conservation or development with a huge investment².

This study aims to reveal the process of spontaneous changes in the management system of the resources following the transformation of subsistence and to show how the villagers adopted variance between the rules in the village and the land-use changes required for their economic activities, in two divided phases from 1970 to 2002 when land-use and the subsistence strategies in the village were completely different. Further, this study will discuss the changes in 'the conceptual characteristic of the forest resources', including the *miang* tea gardens for the PMO villagers.

STUDY SITE AND METHOD

Study Site

The study was conducted at the PMO *miang* village in the Mae Na sub-district, Chiang Dao district, Chiang Mai province (Fig. 1). This village is located northwest of Chiang Mai city at an approximate distance of 60 kilometres (N19°16'29, E98°54'12, 900–1200 m altitude) and on the southern side of Chiang Dao mountains, which are primarily covered by hill evergreen forests. Since the PMO village was established in this locality around 1890 by the people who engaged in *miang* production, the villagers produced only *miang* as their subsistence activities (Keen, 1972).

The PMO village comprises seven communities that have 70 households with a total population of 223 in 2002. Since Keen (1972, 1978) had conducted his research in the P community, which is the largest of the seven communities in the village and which operates as

Fig. 1. Study site. PMO village is located approximately 70 km northwest of Chiang Mai city, northern Thailand.

the centre of the seven communities, this research, too, focused on the P community in order to compare the socio-economic condition of the village in 1970 and 2002.

Basic data and information pertaining to the P community—population, working population and land use—are presented in Table 1.

As of September 2002, the P community consisted of 32 households with a population of 87. Of these, 30 were earning their livelihood through *miang* tea gardens management (cultivating tea trees and harvesting tea leaves) and through *miang* production (steaming and fermenting tea leaves). The remaining two households—consisting of four people—had retired from *miang* production and were earning their livelihood by leasing out their *miang* tea gardens to other families (Sasaki et al. 2007). The village is inhabited by Thai people from northern lowlands, known as 'Khon Muang'.

This paper refers to this P community as the PMO village according to Keen had referred in his reports (1972, 1978).

Method

The field survey was conducted between February and November 2002 and between July and August 2004.

The author used interactive questioning to interview all the households who belonged to the studied communities and who managed the *miang* tea gardens.

² Harada (2001) revealed the failure process of national park management caused by the unilateral encroachment of the forested area by the government, from a case study in Java, Indonesia. Sato (2004) analyzed the resource utilization changes of the Karen people which was caused by the encroachment of the conservation area and diffusion of cash crop cultivation. Inoue (2004) indicated that the introduction of cash crops by the outside traders and the governmental forest policy had huge impacts on the shifting cultivation system of indigenous inhabitants, Kalimantan, Indonesia. Tsuchiya (2001) indicated that the government and partial actors designated the World Heritage in Shirakami-sanchi area, Japan, without involving the rural people in the locality, and unilaterally limited their traditional practice and utilization of forest materials in those areas.

Table 1. Basic data and information pertaining to the studied community in PMO village.

Items	1970	2002
Number of households	36	30
Population	173 (4.8/HH*)	78 (2.6/HH)
Ethnic group	Northern Thai	Northern Thai
Main age group	Teen (27.3 %) under 10 (26.2 %)	Forties (31.8 %) Twenties (17.6 %)
Households managing <i>miang</i> tea gardens	33 (91.7 %)	28 (93.3 %)
Working population in household	128 (3.6/HH)	48 (1.7/HH)
Households employing the laborers from outside of the village	ND**	11 (29.3 % of 28 HH)
Number of the laborers from outside of the village	ND	37 (3.4/HH)
Total number of <i>miang</i> tea gardens	35 (1.1/HH)	99 (3.5/HH)
Total area of <i>miang</i> tea gardens	105.0 ha (3.0 ha/garden)	159.1 ha (1.6 ha/garden)
The average of annual income from the sale of <i>miang</i>	ND	49,680 baht***/HH

Source: 1970; Keen (1972), 2002; Household survey in 2002

*HH = household

**ND = No data

***1 baht = 0.02 USD (September 2002)

The interview focused on land-use in the *miang* tea gardens and the developments that occurred there in the last three decades. Other questions in the interview focused on customary rules, limited activities in the *miang* tea gardens and their village, forest utilization and the concept and present condition of the co-management system of forest resources, including the *miang* tea gardens.

RESULTS AND DISCUSSION

The legal status of *miang* tea gardens in the PMO village

In the mid-1920s, a businessman in Bangkok applied to the government and requested a fifty-year lease for a land in order to establish a drinking tea factory in a locality that was mostly occupied by the PMO village, which was inhabited prior to this application. However, although the lease for that land was granted, he could not set up the factory due to financial difficulties. Hence, the villagers who had inhabited this locality and had used it without legal permission for long were required to pay rent for their lands, including *miang* tea gardens (Keen, 1972, 1978). Since they were required to pay rent, it could be said that this remarkable incident provided the legal usufruct of their lands to the PMO village.

As of 2002, of the 27 households, 14 (48.3 %) utilized their own gardens; 3 (10.3 %), leased gardens; and 12 (41.4 %), both owned and leased gardens. In 2002, 22 out of the 35 leased gardens were owned by 14 individuals living in

the lowland areas of Chiang Mai province. Most of these owners were migrants from the PMO village (Sasaki et al. 2007). This data included cases in which the individual who was granted the legal usufruct of the garden and the one who utilized the leased garden in the village were different. Therefore, to clarify the changes in the actual resource management in the village, this study focuses on the individuals who actually utilized these resources and referred to the 'usufruct' as the 'right to utilize the *miang* tea garden and other materials and products in the village'.

'Expansion phase'—emphasizing the individual usufruct of resources in the garden

1) Co-management of forest resources (before 1970)

Although the borders of *miang* tea gardens had been determined as of 1970, the villagers of PMO village emphasized their usufruct of 'specific tea trees' over a specific area (Keen, 1978). It is believed that the borders of each garden were expediential symbols to clarify the users of tea trees.

Moreover, the interview conducted in 2002 revealed the activities for which the villagers utilized their resources. Around 1970, all the villagers were permitted to use any of the forest products, except tea trees; therefore, the villagers were able to gather fuel for daily use and for steaming *miang* in the forest patches near the residential area. Further, regardless of the owners, the villagers were permitted to graze their cattle³ anywhere in the village. On the other hand, however, such utilization

of the gardens and forest products was strictly limited by customary rules.

It is considered that the management system of forest resources prior to 1970 had followed the same pattern as that in 1970. Keen (1972) noted that 16 of the 36 households (44.4 %) in the PMO village had members who had migrated to the village in the previous four years³. This data indicated that the population pressure on the forest resources in the 1960s might have been lower than that in 1970.

As regards these practices, it is indicated that prior to 1970, the villagers had communally utilized their forest resources, including land and products, within the limitation of the customary rules; only tea trees had been managed individually as cultivated products.

2) Clarifying the borders of each miang tea garden (1970s)

As mentioned earlier, due to the increase in the number of immigrants to the village, the number of households increased from 36 in 1970 to 60 in 1982 (Sasaki et al. 2007). This indicates that the population increase during the expansion phase coincided with the widespread population increase in the lowland areas of Chiang Mai province⁵. Further, it suggests that the surplus working population had migrated to the PMO village in order to engage in *miang* production.

Following such an increase in population, the PMO villagers expanded the area of *miang* tea gardens by converting forested land into *miang* tea gardens, and increased cultivating tea tree seedlings (Sasaki et al. 2007). Subsequently, these changes in land-use led to the possibility that the usufruct of tea trees seedlings, especially those cultivated near the borders between gardens, would become vague and unclear. Thus, PMO villagers defined the borders between gardens to clarify the usufruct of each seedling. The borders, which had been regarded as symbols, assumed a greater significance as the dividing line of each garden. Consequently, the usufruct of all resources contained in a

divided garden—tea trees, other materials and products in forest patches—were confined to the relevant user of each garden.

In the 2002 interview, a villager referred to as N (a married female in her sixties) narrated this change as follows. 'In former times, we could gather fuel and forest products such as fruits and herbs. But after dividing each garden, all of these uses were banned. Some elder people had to buy fuel from others because they could not carry fuels from their gardens to the village by themselves.'

Simultaneously, in this phase, grazing cattle was banned by the villagers' meeting⁶ due to the following two reasons: (1) for the purpose of protecting their planted seedlings from being trampled on by the cattle and (2) the changes in the shipping system of *miang* products from using cattle to using cars. This change was also considered as an indication that the villagers had begun to recognize the divided gardens as the resources utilized individually.

While the villagers were permitted to use the resources in the gardens, the customary rules continued to influence the utilization of the resources and activities within the village. Hence, it might be concluded that while they were permitted to utilize the resources contained within the *miang* tea gardens as individual usufructuary resources, all resources had been under the administration of the 'village' as a common concept for the villagers.

'Decline phase'—from the resources of the village to the property of the individual

1) Recognizing the value of gardens

From the late 1980s onwards, there was an increase in the number of villagers migrating to outside their village. Thus, the total number of households in the village decreased from 60 in 1982 to 53 in 1992. This figure decreased further to 32 in 2002. The total population of the village in 2002 was 87 (2.7/household). This was partially due to the migration of the working population to other industries, following the rise in these industries and the recession in the *miang* market after the various cultural changes that occurred in generations (Sasaki et al. 2007).

As part of their first attempt to cope with the recession in the *miang* market, the villagers were faced

³ As of 1970, 9 households (25.0 %) owned cattle (Keen, 1972). During the interview, some villagers stated that more than 100 cattle had grazed in the *miang* tea gardens in the late 1960s and early 1970s; in addition, the villagers had grazed the cattle in their tea gardens not only for the purpose of selling calves but also for weeding in the gardens and for transporting their *miang* products to the market in the lowland.

⁴ Moreover, Keen (1978) reported that 57 % of the households across 24 *miang* villages in the Chiang Dao area had migrated to their respective villages in the previous 10 years.

⁵ The population of Chiang Mai had increased from 798,483 in 1960 to 1,026,450 in 1970 (the average population growth rate per annum was 2.6 % from 1960 to 1970). This was because of natural population growth as well as the inflow of immigrants into Chiang Mai (Pardthaisong, 1978).

⁶ The villagers' meeting is organized by the head of villagers, two sub-administrative officers and 10 villagers who are elected by the villagers except for children in school and the preschooler. The meeting discusses issues pertaining to community facility, public project and penalties for the violation of customary rules.

with the challenge of introducing other products in their gardens. Hence, in 1992, the villagers introduced coffee tree seedlings for the first time in the PMO village; this was followed by the introduction of fruit tree seedlings in 1996, such as pomelo (*Citrus maxima*), lychee (*Litchi sinensis*) and longan (*Euphoria longan*). In 2002, 16 households (53.3 %) introduced these types of fruit trees in their gardens (Sasaki et al. 2007).

These attempts at diversification of products cultivated in the gardens made the villagers recognize the value of gardens, which had been enclosed solely for the purpose of clarifying who the user of tea trees in the former phase was, as the 'cultivation field' for new products.

As described earlier, the villagers had been permitted to utilize the resources which were essential for *miang* production—tea trees and forest materials for fuel. The 'village' as a common concept for the villagers performed the function of a traditional authority for the panoptic management of those resources.

However, as the villagers began to utilize the 'land' as a cultivation field, it was indicated that the *miang* tea gardens and resources comprised gardens had modified the conceptual characteristic from the 'resources utilized by an individual for a subsistence activity, but managed by the village for maintaining the constitution of gardens' to 'the resources utilized and managed by individuals for a subsistence activity'.

2) The significance of retaining customary rules

Since the conceptual characteristic of the usufruct was changed, why did the PMO villagers retain their customary rules? This section aims to answer this question by citing case examples of two villagers referred to as D (a married male in his forties) and N (a married male in his forties). These villagers introduced other products in their *miang* tea gardens much before the other villagers did.

N first introduced coffee tree seedlings in two of the eight gardens that he used in 1990. As of 2002, he cultivated coffee trees in an area of 2 rai (= 0.32 ha) and obtained a harvest of approximately 57 kg of coffee per year⁷. He stated that this harvest was rather lower than what he had expected because most of the coffee tree seedlings that he had planted had been damaged by pests; due to the customary rules prohibiting the

use of chemical pesticides, consequently, the seedlings died before maturing enough to harvest. As of 2002, N realized that the coffee tree cultivation was providing him with only a little extra money; further, he did not consider it possible to convert the main products obtained from *miang* to coffee beans.

On the other hand, D first introduced fruit tree seedlings at the largest scale in the village—30 pomelo seedlings, 30 lychee seedlings and 5 Rambutan (*Nephelium lappaceum*) seedlings. However, in 2002, he stated that none of these trees had matured enough to harvest; he believed that this was because he had not used any fertilizers.

On being asked why they had refrained from consistently using chemical pesticides and fertilizers, both the villagers answered as follows: 'We utilized the water of the stream coming from the top of the mountain through the *miang* tea gardens. If we had to use any chemical materials in our gardens, it would have polluted our water which is also used as drinking water. We believed that it would be beneficial to keep our water clean and safe. We also knew that the trees were growing slowly due to the geographic condition, such as steep slopes and high altitudes, because we inhabit areas that restrict the cultivation of crops. Thus, it would be more beneficial for us to maintain the *miang* production for as long as there is a demand for *miang* during traditional ceremonies, rather than continuing our efforts to cultivate other crops. Therefore, we retained our rules for maintaining suitable conditions for tea tree cultivation.'

An interview with these two villagers provided an insight into the significance of retaining the customary rules; the customary rules guided the villagers with respect to the conservation of their living environment and maximal utilization of the field and resources for subsistence activity.

Hence, assuming that the new favourable crop would be eventually found and introduced in order to cope with the rapid decline of the *miang* market, it is expected that the customary rules would change in terms of contents in response to the changes in the land-use system which is suitable for cultivating new products. The next section discusses an incident that can be regarded as a preliminary of the expected changes.

3) A preliminary for providing favourable state for conversion of subsistence to other products

Since 2001, the green tea market in Thailand has been demonstrating a rapid growth following the drastic rise in the 'green tea boom', which was triggered by a beverage

⁷ The selling price of fresh coffee beans was 35 baht/kg; therefore, N's approximate income from coffee tree cultivation was calculated to be 2,000 baht/year.

company that had its main set-up in Taiwan. As of 2004, this market was making a total sales of 1.5 billion baht per year (approximately 30 million US\$). Sweetened green-tea beverages were commonly available at the early stage of the boom. In 2004, some companies began to promote differential products which highlighted the 'healthy drink' aspect with characteristics such as high nutrient content, high-quality raw materials (tea leaves, natural water) and low sugar content (Tsuzuki, 2004).

The rise of the green tea market influenced the subsistence activity in the PMO village. Although most villagers as of 2002 had little interest in the production of drinking tea leaf for black tea⁸ due to the unstable selling price (Sasaki et al. 2007), we identified a definite increase in this type of production in 2004 (Sasaki et al. unpublished data).

The number of households that had changed their entire production from *miang* to drinking tea leaf for green tea increased from 1 (3.6 %) in 2002 to 4 (14.3 %), and the number of those households that converted a part of their production to drinking tea leaf production increased from 4 (14.3 %) to 6 (21.4 %). This indicated that the PMO villagers had recognized the production of drinking tea leaf for green tea as a favourable subsistence that enabled them to convert their products with minimum investment, and to make the best use of the experience they accumulated in tea cultivation.

As the villagers' awareness increased, an absent usufructuary who had moved to lowland from the village also began to explore the business opportunity in his land which he had the legal usufruct for and which he had not leased to others.

In 2003, he burned, cleared and bulldozed his *miang* tea garden (approximately 4.5 ha calculated using land trace with GPS and the analysis using GIS software) in order to establish a dense commercial tea plantation in the PMO village. Although all his activities violated and ignored the customary rules of the PMO village, the villagers' meeting mentioned above refrained from intervening in this affair, regarding them as 'problems involving financial terms'. However, when the absentee bought his garden, the PMO villagers also bought or leased their gardens⁹. Thus, this incident indicated that 'the village' as the main actor managing resources tacitly

accepted the changes in the conceptual characteristic of the villagers' gardens from the 'resources managed by the village' to the 'property managed by individuals'.

On asking the villagers what they thought of this incident, some villagers, especially the heads of households in their forties and fifties, stated that 'it was quite a difficult problem', 'we could not interpose in this matter' or 'there was nothing to do because he had already cut the trees'. It was suspected that the villagers, too, had implicitly accepted the changes in the conceptual characteristic of their gardens as 'the individual property'. This was because when they would be forced to violate their rules following the conversion of subsistence, it would be better to manage their gardens as their own property. Both the absentee-related incident and the village's response could be regarded as preliminaries for providing favourable state for villagers' subsistence strategies in the future.

CONCLUSION AND RECOMMENDATIONS

Subsistence strategies in the *miang* tea gardens

Following the changes in the land-use pattern, the villagers of the PMO village changed the way they managed their resources including the *miang* tea gardens. Since the villagers aimed to maximally utilize their gardens as cultivation fields, they changed the concept of the usufruct which granted the villagers their flexible and profitable subsistence strategies (Fig. 2).

As of 2004, the villagers showed the tendency to maintain their subsistence through tea tree cultivation and through the utilization of *miang* tea gardens for drinking tea leaf production as their new subsistence, rather than to introduce other cash crops. It is expected that the villagers would maintain the constitution of the *miang* tea gardens not because of the sustainable use of their resources but because of the most profitable land-use pattern for tea trees cultivation that enables them to convert their tea products with minimum investment and to make the best use of the experience that they have accumulated in tea cultivation.

In previous studies discussing the management of common resources, 'the locality' has tended to be described as 'the passive stakeholder' that were forced the changes in their traditional resources management by the external investments or legal conflicts. This study

⁸ Although the same tea trees are used for *miang* and drinking tea leaf for both black tea and green tea, these products require different tree management techniques. In the case of *miang*, tea trees are usually 1–3 m tall and are pruned every two or three years. In the case of drinking tea, tea trees are pruned every 3–4 months in order to maintain a height of 50–70 cm. Tea leaves for *miang* production are harvested four times a year, while those for drinking tea are harvested six times a year.

⁹ In 2002, the average price of a garden was 19,080 baht (9,980 baht/ha) and the average annual rent of a garden was 1,690 baht (1,190 baht/ha).

Fig. 2. Changes in the management concept of miang tea gardens and forest resources.

indicates that 'the locality' also could be 'the main actor' that changes their management systems and conceptual characteristic of common resources as their flexible subsistence strategies responding the marketing dynamics.

Consequently, the characteristics of *miang* tea gardens as the 'agroforestry system' or 'the successful form of a community forest' would be considered to be the incidental aspects that make the villagers attempt

to retain the conditions that are suitable for tea trees cultivation. In this respect, the villagers have been flexible with regard to the change in their land-use pattern. Therefore, it can be said that the aspect of land-use pattern should not be evaluated as the first priority for villagers. The studies focusing on the superficial aspect of 'agroforestry' or 'community forestry' should overlook the indicators of changes in land-use and subsistence.

The possibility of introducing 'green tourism'

As the villagers began to convert their land-use pattern, the urban residents began moving to the village.

Recent years have witnessed an increase in the number of people who have a sense of environmentalism in Thailand, especially those among urban residents (Sato, 2002). These movements allowed the mass media to consider traditional agriculture and the village, including *miang* villages, as 'the villages living with local knowledge (ภูมิปัญญาพื้นบ้าน, phumpanya phun ban).'

The PMO village received the 'village with a forest' award from the National Oil Company of Thailand in 2003; further, the village has been broadcasted in a special program called 'marvellous forest'. Since then, eco-tourists have been visiting the village in order to see 'the natural forest' and 'the local village and villagers living with forested land'. However, as mentioned above, the PMO village has changed its land-use pattern following the socio-economic change. Consequently, there is a contradiction between tourists requesting that the PMO village be maintained as the 'unspoiled village' and the PMO villagers' actual utilization of the gardens for their living. In response, the villagers, too, embraced the contradiction of the subsistence strategies, the acceptance of eco-tourism that maintains the *miang* production or the development of *miang* tea gardens for the possibility of new products.

When the PMO village specifically attempts to develop their gardens as tourism resource, this study recommends the introduction of 'green tourism' as the possibility for their new option of land-use. 'Green tourism' or 'agro-tourism' was first introduced in continental Europe; it aimed to interact with rural and urban residents through agricultural activities. This idea has already been accepted and is currently being implemented in many developed countries including Australia, United States and Japan (The Japanese Organization for Urban-Rural Interchange Revitalization).

Green tourism in the *miang* village which introduces various activities and experiences, such as harvesting tea leaf, producing *miang* or drinking tea leaf, gathering forest products and staying in the villager's house, should be encouraged in order to utilize not only the forest resources including *miang* tea gardens but also human resources such as the people who have accumulated experience and knowledge of the agricultural activity and the forest utilization.

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