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TOPIC:
LAND ADJUDICATION IN THAILAND: IMPACTS ON LOCAL LAND-USE,
LIVELIHOODS AND FOREST AND WATER RESOURCES IN BAN PANG HAEW
VILLAGE



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Acronyms and Abbreviations

TLTP	Thailand land titling project
RDF	Royal Forest Department
TAO	Tambon Administrative Organisation
NS3	Ngor sor saam
NS4	Chanoot
BPH	Ban Pang Haew
PRA	Participatory Rural Appraisal
CLUM	Community Land Use Mapping
SSI	Semi Structured Interview
FGD	Focused Group Discussion
GPS	Global Positioning System
GIS	Geographical Information System
dbh	Diameter at Breast Height (1.3m above ground level)
Ha	Hectare
NTFP	Non Timber Forest Products
NGO	Non Governmental Organisation

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Abstract

Land adjudication which entails officially granting land titles to individuals has occurred in Thailand mainly from 1984 to 1994. Intended to secure land for mainly farmers' livelihoods, however, this has resulted in mixed impacts including changes in land ownership through sales and speculation that plays roles in land-use decisions with consequences on natural resources and socio-economic conditions of local people. In view of this a study was undertaken at Ban Pang Haew, a village in Chiang Mai Province in Northern Thailand to try to answer the question "*How does land adjudication influence local land-use, livelihoods, forest and water resources in Ban Pang Haew Village (BPH)?*". Questionnaire to households, semi-structured interviews, focus group discussions and community land-use mapping were employed for data gathering. Analyses of the results show that land-use has changed substantially especially regarding agricultural lands that have been changed to residential, speculative and orchard lands. Conservation forest was significantly converted to banana orchards. Households' socio-economic conditions have greatly been modified from 1984 to now. Majority of the local people work outside agriculture and mostly outside the village but not all have permanent jobs. The income flow is variable in frequency and amounts. Having sold their agricultural lands, households' expenses have increased due to the need of purchasing food and transportation to work. Thus, the villagers fear their livelihoods in the future could be jeopardized. Conflicts have also emerged on the communal forest boundaries but it was not too clear whether land adjudication alone produced this outcome

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1. INTRODUCTION

1.1 Background of study (All)

According to Lawrence (1985), land adjudication is a term now used in many English speaking countries to describe the process whereby all existing rights in a particular parcel are finally and authoritatively ascertained. Although the definition differs somewhat between countries there are some major similarities; in practice the process of adjudication includes five major steps of which the most important are demarcation of boundaries, adjudication of rights and clear registration of rights (Burns, 1985).

Traditionally all land in Thailand was formally owned by the King. The governmental interference in the rural regions was minimal, and widespread clearance of forest for farmland cultivation and establishment of new settlements was both common and generally tolerated (Feder et. al., 1988). As a result of the gradual opening of the Kingdom to the international markets in the second part of the nineteenth century and the increased commercialization of rice worldwide the government of Thailand initiated the first of many reforms of land rights which aimed at giving title documents for the most important rice land in the country (Feder et. al., 1988). A long series of adjustments and further reforms followed including the land code of 1954 which defined two main types of secure land documents; *Ngor sor sam* NS3's and *Ngor sor gor* NS4 (Chanoot or Chanod). The Land Code of 1954 failed however, just like its predecessors, to adjudicate all of the rural land of Thailand and as a result the Thailand Land Titling Project (TLTP) was initiated in 1981 (Bowman, 2004; Burns, 1985; Feder et. al., 1988).

The first phase of the TLTP was a study of the extent of titled land areas in Thailand. It was first planned after a major study in 1981. The Study found that although 46% of the country was covered by farmland only 12% of this agricultural land was covered by title deeds. Of the remaining agricultural land, 49% was held under less secure, though officially recognised, documents that gave the farmer the right to cultivate the land, but not the guarantee that they would not be evicted without notice. Eighteen percent (18%) was cultivating the land without any form of legal deed and the remaining 21% was comprised of illegally encroached forest reserves (Bowman, 2004). The Thai government recognised the land titling and consequent land security as the most important issue in rural development, as a farmer that do not fear sudden eviction would be much more inclined to loan money to

make investments in their farmland, also the title deed would provide the farmers with a genuine collateral for bank loans (Bowman, 2004; Burns, 1985).

The TLTP was launched in 1984 partly financed by the Bank of Australia and with technical assistance from the Australian Agency of International Development with the ambitious goal of registering and titling all the remaining cultivated land as well as forest reserves and government controlled lands in Thailand by the end of 2004 (Burns, 2004). The first implementation phase of the TLTP began in the nine Northern Provinces one of which was Chiang Mai Province. These provinces were picked as they were characterized by widespread poverty and agriculture as the primary livelihood activity (Bowman, 2004). The TLTP was a major undertaking and was expected to result in more than 13 million issued title deeds to the poor farmers. It was also expected to deliver considerable social, financial and economic benefits to the Thai people as well as the Kingdom of Thailand itself (Burns, 1985; Feder et. al., 1988 and Bowman, 2004). The early reports of the implementation are generally very positive. Most of the reports hail the success of the project that largely went according to plan in the early stages issuing title deeds at a fast tempo (Feder et. al. 1988; Burns, 1985). Nowadays however, the drawbacks of the project are obvious and, some argue, even more evident than the actual benefits. In the Northern Provinces, where the lands available for cultivation are somewhat limited due to the topography of the region, land developed into a valuable commodity (Miyake, 2003). The commercialization that followed the TLTP, as well as the rapid population growth, led quite predictably to land scarcity and became the onset of numerous conflicts between small-scale land-less farmers and the beneficiaries of the development (Miyake, 2003). Despite all the good intentions, the TLTP has had some serious unforeseen side effects that have had significant negative impacts on the poor rural regions of Northern Thailand. Although the intended purpose of the project was to provide the farmers with more security, the project promoted the commercialization and privatization of land in the rural communal areas and gave rise to a new breed of land speculators and capitalists in Thailand (Cleary et. al. 1996; Vandergeest et. al., 1995; Anan 1994). Unpredicted by its planners the TLTP coincided with the onset of the economic boom in the South-East Asian region and did not emphasize enough on education of the poor farmers. Consequently, many of these saw the land documents not as a security that would promote investments in intensified agriculture, but as an opening of a legal way of transferring their land easily (Miyake, 2003). The result was that following the issuing of legal title deeds many of the recipients, mainly the poorest of the farmers, sold their land to land speculators who offered large amounts of money, or used their land as collateral for loans and subsequently lost it.

Many of the farmers who either decreased or lost their land altogether was forced to work as wage labour inside or outside the agricultural sector. For most of the farmers this led to decreased living standard that only worsened after the economic crisis in 1997 (Miyake, 2003). The subsequent scarcity of land in the Northern Provinces might have caused changes local livelihoods. Not only livelihoods but also the land use upon which many households drew their livelihoods could also have been impacted land adjudication- resulting in land uses changes.

Land-use change could be described as any permanent change in the primary purpose for which a particular land-cover type is exploited by humans (Lambin and Geist, 2006). This definition makes land-use inseparable from land-cover.

According to Lambin and Geist (2006), the outcomes of land-use / cover developments depend on interacting or mediating factors such as market access, institutions, and the policy environment. Formal policies on economic development, credits as well as the policy climate together with property rights can have tremendous impact on land-use/cover changes (Lambin and Geist, 2002 cited in Lambin and Geist, 2006. p. 63). The institutional factors are often linked with land reforms and titling (adjudication) process in Thailand (Kemp, 1985). However, these factors thrive only when other conditions prevail (Geist *et. al.*, 2006). We expect this to be happening in Ban Pang Haew village (BPH), which has been affected by the land adjudication in Thailand. We further hypothesize that land adjudication with on-going up-market housing and resort building could influence changes in land-use; especially agriculture and forest land-uses which were dominant twenty-five years ago (Aumtong, *et. al.*, 2009)

Land-use/cover changes have critical implications for the socio-economic systems of any society as well as consequences on natural resources (Lambin and Geist, 2006). Natural resources that we want to attend to in this study are forest and water resources since our study area, (BPH) forms part of an important watershed in Chiang Mai Province, Thailand .i.e. the Mae Ram Watershed (Aumtong, *et. al.*, 2009). Vogt (1999) has noted that large scale land-use changes in Northern Thailand leaves secondary forests there in danger of vanishing. Regarding the socio-economic system, emphasis will be on households' livelihood strategies emergent from land adjudication vis-a-vis land-use changes.

The above context led us to undertake a field study to address some questions outlined below.

1.2 Research Questions (All)

The overall research question for this study has been formulated as follows:

How does land adjudication influence local land-use, livelihoods, forest and water resources in Ban Pang Haew Village (BPH)?

The above research question has been sub-divided as following:

1. What are the impacts of land adjudication on local land-use and natural resources in BPH?
2. How has land adjudication together with land-use changes impacted on local socio-economic conditions of households in BPH?
3. What are the impacts of land adjudication on conservation and communal forest conflicts?

1.3 Study area description (EGC)

Our research area was Ban Pang Haew village, located in Mae Ram District, Chiang Mai Province in Northern Thailand. The X Coordinate is 488158 and Y Coordinate is 2094511. The number of household and populations are 124 and 721, respectively.

BPH village's topography is predominated by flat land with small hills (elevation range between 300 - 600m above sea level) and national forest. The lower stream region presents slope classes of 0-12 % and 12- 35 %.

The area is drained three water sources namely: Mae Ram sub-watershed, Pang Haew irrigation ditch and Huay Pong Sub-watershed. The area covers 17.4km² which are 32.10% of the whole Mae Ram sub watershed.

There clearly is a seasonality in temperature and precipitation amounts which is typical for subtropical monsoon influenced regions. The warm and dry season is not as extended as in other parts of Thailand, like in North-East Thailand while the rainfall amount and the temperature are appropriate for agricultural use.

Deciduous Dipterocarp Forest or/and Dry Dipterocarp Forest are very common in this region but the most encountered are evergreen forests. While the first occupy 2.1km², that is approximately 3.87% of the watershed in the lower stream region the latter counts for 8.0km². The Dipterocarp Forest is a sparse forest type with various kind of shrubs (*Vietnamosasa spp.*) growing on the ground. In rainy season there are more than 50 kind of

mushrooms which come out such as *Lentinus*, *Russula sp.*, *Craterellus sp.* The dry soil types in this area consist of clay, sandy pebbles and ferralitic to plinthic horizons. These soil types have not good drainage.

About the social aspect of the area, villagers work inside and outside of the community. Villagers who work in agriculture are divided into two groups: farmers who have their own land and farmers who rent the land. The economy has undergone a change from sufficiency economy to capitalism system and the income from agriculture has decreased. This occurred when outsiders came to BPH village to buy the agriculture land for building resorts and for speculative purpose.

2. METHODOLOGY (All)

2.1 Data Collection

The main sources of data for this research was from semi-structured interviews with resource respondents, administering questionnaire surveys, focus group discussion (FGD), other specialized publications, community records, research publications obtained from the internet and relevant library resources.

2.2 Types and Sources of Data

Both primary and secondary data were used in this study. Primary data was obtained from the survey with resource people through semi-structured interviews, administering of questionnaires, and focus group discussions. Transect walks and direct observations in the field provided first hand information on the land-use change situation.

2.2.1 Primary Data

Data collection was done through participatory rural appraisal (PRA) approach of focus group discussion (FGD). Also, administering structured questionnaires and conducting semi-structured interviews was effected in the study location. Besides, geographic positioning system (GPS) mapping, spot photographs; transect walks, participatory mapping and direct observations were used to assess the land-use and forest cover changes.

2.2.2 Secondary Data

Dossiers on land-use change, official documents and published studies were reviewed for information on the land-use situation, local livelihoods and institutional changes in land among others in the Mae Ram lower watershed. However, documented data was generally difficult to access.

2.3 Sampling Procedure

In this study, stratified random sampling was used, taking care to ensure that the respondents had better understanding of the research questions and could provide the best opinions for the

study. Stratification was effected based on four (4) criteria: 1) Respondents who practise agriculture on their own land, 2) Respondents who practise agriculture on rented land, 3) Respondents who are landless after having sold their land and 4) respondents who own residential land only.

2.4 *Questionnaire Survey*

Some household data and opinions about the research questions were gathered using close-ended as well as open-ended questionnaires. The selected sample size comprised of the heads of 28 households to represent the total 124 households. (APPENDICES 2)

2.5 **Semi-Structured Interviews**

As pre-conceived by the interview guide matrix and spontaneous open-ended questions, four intensive mutual discussions with key informants such as the village elders, local officials, and Communal forest officials gave them time and scope to present their opinions on the ongoing land adjudication process. In addition to the semi structured interviews a number (15) of unstructured interviews were conducted at the end of the questionnaire sessions which were used to address the specific questions that were not addressed during the key informant interviews.

2.6 **Focus Group Discussions (FGD)**

Three FGDs as functions of Participatory Rural Appraisal (PRA), involved at least 5 older residents of the village. The respective participants were not younger than 28 years, and they had been resident in the BPH for at least 25 years. This ensured that valid data was obtained from the participants. The discussions articulated the land adjudication process and its associated effects on natural resources (water, forest), land-use change and livelihoods. The participatory FGD was valuable in providing baseline information for the study. The FGD method enhanced triangulation and reliability of data collected in this study.

2.7 Community Land-Use Mapping with GPS and GIS (CLUM+GPS-GIS)

In order to characterize land-use/cover changes in BPH since 1984, this method was adopted as modification of Participatory Mapping (Chambers, 1997). As a first step a transect walk through the village landscape was undertaken with two older local persons. This enable physical familiarization with the landscape and necessary questions based on observations were asked and responses noted. The exercise was aided by recording GPS waypoints of key features and points of observation of land-use phenomena. This was repeated with another set of local people (two). Areas in the village that were not covered with the local people were visited later by the researchers.

The local participants for the transect walk were gathered and given an aerial photo of the lower watershed within which BPH was located, to trace the boundary of their community and the various observations made. A transparent polythene sheet was place over the aerial photos to aid mapping. Emphasis was placed on land ownership changes, land-use before 1984 and the current (2009) land-use/cover. This phase was repeated using different set of local older people who had not participated in the transect walk. There were no significant discrepancies but to get a third dimension to triangulate the map for validity reasons, the village headman was also asked in a separate meeting to comment on the sketch amps made by the two groups. He did not observe any difference with ground reality.

The output was then transferred to ArcView 3.2a ® for further processing and analysis of land-use changes. A final validation was done by revisiting some areas and recording GPS coordinates and particularly for forest areas, mapping areas converted to agriculture. Final land-use/cover maps of before 1984 and in March 2009 were produced.

2.8 Static Forest Inventory

The inventory was done to assess the stocking level of communal forest, which had not undergone any obvious cover changes. Five plots measuring 20m by 20m each were laid randomly except the fifth plot which was purposefully laid to capture the stocking in the disputed Communal forest area. All trees above five centimetres (5cm) diameter at 1.3m above ground (dbh) were enumerated and measured. As the forest had been completely burnt no other variables were taken. The stocking level per hectare was estimated and the minimum

and maximum dbh recorded. The assessment of the conservation forest was mainly in regard to forest conversion as it appeared to be the most important phenomenon.

2.9 Data Analysis

Descriptive statistics were used to describe the socio-economic, political and technical characteristics emergent from land-use and its impact on the livelihoods of stakeholders and natural resource management. Computation of percentages, fraction to depict the trend of land-use change and shifts in the nature of livelihoods was done to process the data collected. Land use change data was mainly analyzed by the use of ArcView 3.2a GIS software.

2.10 Challenges of implementing the methods in the field work

Conducting field work is never an easy feat and in many cases these challenges will reflect the outcome to a certain extent. The following chapter will present some of the major challenges that were encountered during the field work, how they affected the results as well as how they were avoided... The major challenge in this project was the language barrier. The backbone of the survey was consequently a close cooperation with the interpreters that mediated all information. This work method implies that all information recorded is not only translated but interpreted as well which largely enhances the risk of biased data. Furthermore, it is possible the nuances and even important details have been lost during translation. Some counter measures were used to avoid or at least diminish the impact this type of bias. Whenever feasible all of the gathered information was verified by use of additional interviews with key informants and the data obtained was ultimately triangulated. A lot of the data required to make an indebt analysis was exasperatingly unobtainable due to numerous reasons. For instance all statistical data from the previous Phu Yai Baan (Village Headman) had disappeared along with its possessor. I addition, the bureaucracy in Thai administrations have posed a bit of a challenge as on a number of occasions the key informants that was expected to provide valuable information would suddenly be unavailable and the replacements chosen by the agencies were significantly less knowledgeable – mildly put. In general unavailability of respondents was a big issue. As more than two thirds of the intended respondents were working outside of the village during daytime and only came home late in the evening. It was necessary to adjust the intended work plan so that a large

number of the interviews could be conducted in the evening. Generally though, the villagers were open to answer questionnaires and conduct interviews even after returning from work. It should be mentioned that it turned out that a significant part of the village population were related to each other. Although it is unclear how much this could have influenced the answers given it is highly likely that they would be biased in questions implicating any illegal activities from other villagers and some consideration should be put into avoiding this bias by investigating the family ties within the village if possible

The main limitation of the CLUM+GPS-GIS was sole reliance on local people's knowledge. Multi-temporal and multi-spectral satellite image and aerial photographs geo-reference baseline data could have improved reliability of data. That notwithstanding, the methods used gave valid data since the local older people know much of what has happened in their own village at what period.

2.11 Limitations for analysis of socio-economic conditions of household

During our research we have focused on obtaining information on the repercussions of land adjudication on the household economy. Although normally we should have a baseline to make a thorough comparison (e.g. past and present), this was not possible.

The process of data gathering in order to realize this analysis has been impeded by the fact that most of the information that we were interested in was not available, either due to personal decisions made by the informants, the refusal of authorities to collaborate, or the fact that the information did not exist at all.

Nonetheless, we have managed to get some background information, so we consider that the following analysis is vital for our study, as it presents the reality that we have dealt with in the field.

The main sources of the gathered data have been of course the administered questionnaires, supported by semi-structured interviews and focus group discussions. Moreover, the basic field information handbook has provided us with data obtained in August 2008 by our Thai colleagues on another field course.

3 RESULTS AND DISCUSSIONS

3.1 Nature of land-use/cover changes in BPH (KAO & JJ)

This section describes and demonstrates how land-use/cover has been altered since land adjudication began in Thailand about twenty-five years with particular reference to BPH village. The findings are based on FGI, CLUM + GPS-GIS, Key Informant Interviews Researchers Observation and discussed drawing on literature.

The main land-use categories that existed before land adjudication fully rolled out in the mid 1980's were residential, agricultural (mainly paddy rice) and forest land-use (Fig. 3.1). Forest land-use includes communal forest cover, conservation forest and national park. According to Lakanavichian (2001), conservation forest is not clearly distinguished from other forests and conservation areas entails national forests with certain types of land-uses and fewer restrictions. This seems to be the case of conservation in BPH in view of our findings. Presently in 2009, there are evidence of major changes in the land-use at BPH in the past. By means of GIS techniques embracing active participation of local people (i.e. Community land-use mapping, with GPS and GIS), substantial changes in land-use have been observed. These changes are enlisted below and illustrated in Fig. 3.1 and Fig. 3.2

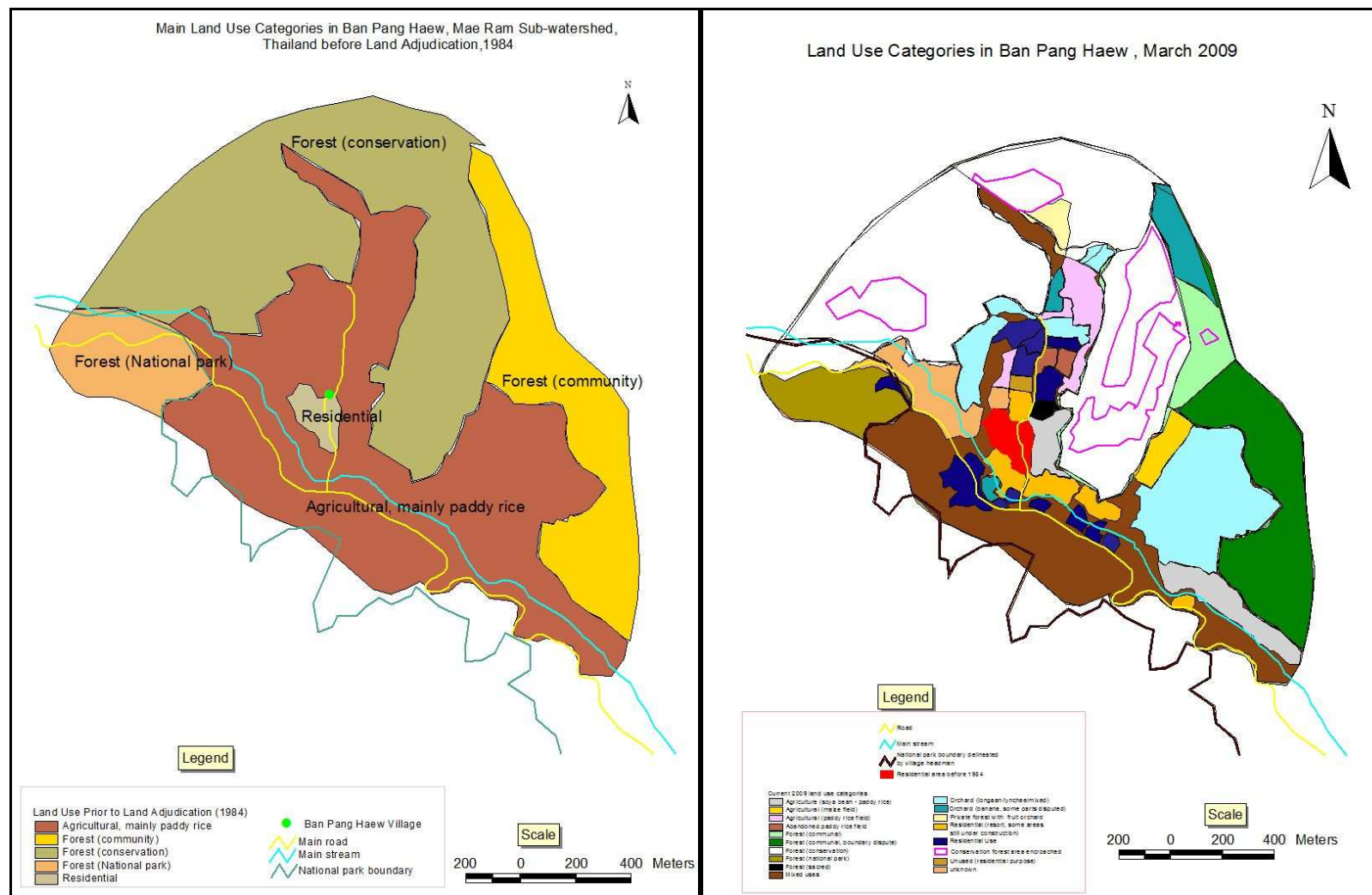


Fig. 3.2: Land-use categories of Ban Pang Haew before land adjudication in 1984 and in March, 2009 Compared

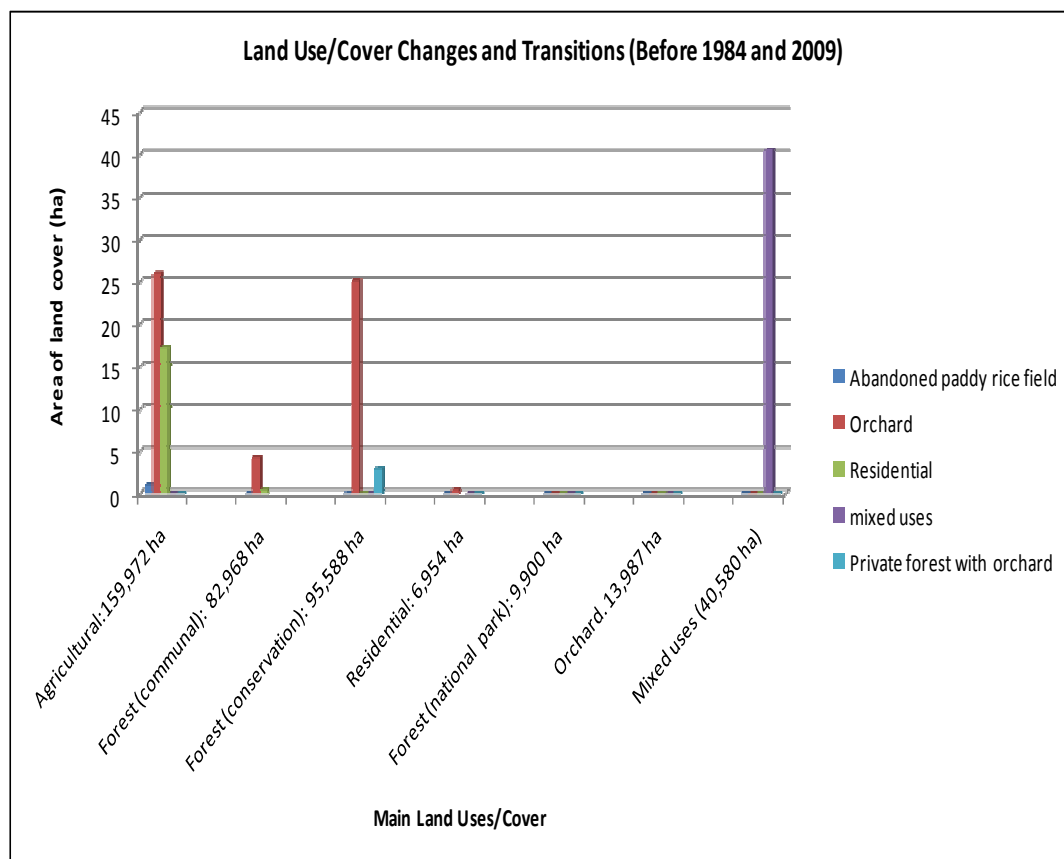


Fig. 3.2: Transitions and changes in land-use/cover (between 1984 and 2009)

3.1.1 Impact on Agricultural Land-use/Cover

Areas that prior to land adjudication were, mainly used for subsistence agriculture have undergone some transitions (Fig.3.2). Some paddy rice fields have been abandoned and are currently under no use because an outsider land speculator purchased it from the original local owner and now awaits appreciation of the land value so that he could resell it. Paddy rice, which was the predominant agricultural land-use (50.52ha), has now reduced to about three (3.05ha). Much of the paddy rice fields were lost to residential uses (gaining about 17.5 ha) which include resorts and vacation homes. The paddy rice fields also lost substantially to orchard (about 27 ha, comprising longan, lyche, mango and banana). This loss has not been characterized as agriculture because, the orchards under reference were mainly part of the land bought by outsiders and the primary purpose is not agricultural use. The orchards are being used as means to secure the property, with active use. The land regulations in Thailand require active use by owners (Nabangchang-Srisawalak, 2006). It was mentioned by a key informant and observed by the researchers that an area of about five hectares, which was sold to a real estate company in Chiang Mai by local owner, is now

under orchard. About 40 ha were still under mixed uses so land-use change was not characterised for this area.

These findings point out a net loss of agriculture land in BPH village due conversion to non-agricultural uses (not forest) and modification of some agricultural land-uses. This emphasizes the general trend in Thailand (Nabangchang-Srisawalak, 2006)

3.1.2 Impact on Forest Land-use/Cover and Forest Resources

The impact of land adjudication is complex but it could be simplified as follow: Granting of land titles to local people (mainly NS3 or NS4) – Sale of land to outsiders – Landlessness – Encroachment of forest areas. This last phase is reported and discussed further below.

Fig. 3.1 and Fig.3.2 illustrate changes in forest area since land adjudication.

3.1.2.1 Conservation forest area

The conservation forest area, which is composed mainly of planted teak and supposed to be managed directly by the Royal Forest Department (RFD), has changed dramatically. It was gathered that the local people in the village were involved in the establishment of the teak plantation in the conservation forest more than thirty years ago.

Areas of conservation forest lost to orchard (mainly banana) and private forest use mixed with orchard are about 25 ha and 3 ha respectively (Fig.3.1 and Fig. 3.2). The process of clearing conservation forest for banana orchard is still going on in the village as portions of the forest has been newly cleared and would be farmed in the rainy season according to a key informant. The conservation forest had been cleared in a peculiar manner; clearance from the central part to the periphery by first felling or poisoning big trees and later burning the site. It was observed, e.g., that an area of about 0.2 ha (1.25 *rai*) has been slashed and burned with newly dug holes waiting for the start of the rain for planting banana. This according to the informant was done less than a week before our field observation. It was revealed that key persons in the village most of whom are now landless because they sold their own land some years ago were engaged in the farming in the conservation forest area. The assistant village head was involved. This may indicate a link with power structure in the village administration.

The area with banana had been fenced and parcelled by individuals. A probe as to why the farmers did not cultivate any other crops apart from banana revealed, that banana is not difficult to maintain but very difficult to eradicate, which helps the farmers to occupy the land with the hope that they could speculate ownership in the near future.

The private forest referred above is an area of conservation forest which was occupied by teak and now belongs to a Thai military general, who has built a vacation house and established fruit orchard. Part of the teak plantation had been exploited by the said police officer and part still remains. It was not known who granted that area to the police officer.

3.1.2.2 Communal Forest Area

The area under communal forest has not experienced any significant changes although; its boundary is being disputed with Ban Oy village as a result of land adjudication. This is documented and discussed in the sub-section 3.3.

There were no obvious signs of felling of trees in this area. However, towards the border with Ban Oy village, there has been intensive cutting of pole size trees. It was revealed that one needs permission from the village committee to be able to fell trees from the communal forest area. But it must be for own use especially local house construction. On the contrary, no permission is required for collecting NTFPs such as mushrooms, buk and bamboo shoots from the communal forest. Stocking assessment of the communal forest was done and summarized below in Table 3.1.

Table 3.1: Tree Stocking of the Communal Forest in Ban Pang Haew

Plot	Average stocking per hectare	Average diameter (1.3m from the ground)	
	(cm)	Minimum	Maximum
1	1,325	6	36
2	1,025	17	61
3	1,225	16	49
4	1,150	8	27
5	825	12	23
Average	1,110	12	39

NB: The average stocking in this table were extrapolated by counting and measuring all trees above 5cm diameter at 1.3 m above ground level (dbh). Using a plot dimension of 20 m by 20 m, the total per plot was multiplied by 25 to estimate the equivalent figure per hectare.

The stocking level of trees is generally high in the Communal forest. The trees were predominantly of the *Dipterocarpus* species. The structure was quite uniform, and mimicking an even aged forest. Very few trees were above the average maximum dbh of 39 cm and most of them were below 20 cm dbh. Plot five had the lowest stocking. This is probably due to the fact that this plot fell into the area under dispute with Ban Oy village where cutting of pole size trees was conspicuous. This area was under competing claims. Tree utilization was thus concentrated in the area being disputed but there was no obvious utilization in the area not disputed.

3.1.2.3 *Major threat to forest resources*

Bushfire seems to be a major threat to both conservation and communal forest. The whole area of forest in the village was burnt at the time of visit. Probing on the causes of the bushfires, a key informant revealed and corroborated by SSI with village headman, that it is generally intentionally done by the villagers to augment growth of bamboo shoots and mushrooms at the beginning of the rainy season and also to ease collection of the same. Personal observation also was made and two charcoal production sites in conservation forest area and one adjacent communal forest area were seen (Plate 3.1). Similarly, conversion of forest lands to orchards is an important threat. As one key informant puts it, “if the RFD does not come to stop the farmers, the whole conservation forest will disappear in less than five years because when they have not stopped farming, other people also start clearing the forest”.

According to Hirsch (1990) the forest land in Northern Thailand has dwindled substantially over the recent decades; from a total land cover percentage of about 69% in 1961 to less than 50% in 1985. More recent study has estimated that on a national scale the areas covered with forest are down to about 25% of the combined landmasses (Royal Forest Department, 2000 in Ephandhu). The apparent loss of the forest reserve is all the more interesting when considering the fact that since January 1989, all legal logging has been banned by the Thai government (Bowman, 2003).

Despite subsequent advances in the legislative initiatives designated to protect forest reserves, to stop deforestation and even initiatives that should promote re-forestation the forest land cover has diminished ever since (REFF). The background for this development is partly due to the Land Adjudication process but social economic factors as well as farming tradition

The RFD needs to respond quickly with appropriate measures if it wants to salvage the remaining conservation forest area.



Plate 3.1: Charcoal production closer to conservation and Communal forest

It can be concluded that forest conversion has been significant in the conservation forest but not in the communal forest. The conversion of forest land to orchards could be attributed to landlessness (Buch-Hansen *et. al.*, 2006) that resulted from land adjudication with its concomitant land sales in BPH village. This corroborates Nabangchang-Srisawalak (2006) findings that reduction in agricultural land in Thailand has been compensated by encroachment on forest areas. However, we acknowledge that multiple interacting factors (Lambin and Geist, 2006) might have influenced this process.

3.1.3 *Impact on Water Resources*

The main impact of the land adjudication on water resources can be associated with reclamation of flood plain of the stream traversing the village, permanent vegetable farming closer to stream channel within the village and water abstraction for ornamental purposes.

Some areas that were paddy fields closer to the stream channel have been reclaimed and built up. The process was on-going. Plate 3.2 shows part of the Mae Ram stream within the BPH, which is being reclaimed for building a resort.



Plate 3.2: Part of Mae Ram Stream in BPH under reclamation for resort building

This phenomenon may alter the stream flow dynamics of the village which may cause seasonal flooding as well as altered natural distribution of stream water.

Vegetable farming closer to the stream channel could imply draining of chemical substances into the stream since the farmers use pesticides and chemical fertilizers. This could upset the biochemical processes in the stream and have consequences for fish life, organic enrichment and weed growth in the stream among other impacts. These could merit further study had it been on a large scale.

It was observed that both the local citizens and the resort owners use substantial quantity of water on ornamental plants and lawns within the residential areas. Others had constructed small fish ponds in their house compounds and some resort and vacation house owners also had swimming pools. The fish are local species obtained from the stream. The main sources of the water for the fish ponds and swimming pools were the water source from the community piped bore hole or channels connected to the village irrigation system that abstracts water from the Mae Ram Stream. This we refer to as ornamental use of water resources. This kind of water use, according to one FGD was not present until land adjudication began and introduced new people into the village but now practised by local people as well.

The Mae Ram stream has played an important role in the past life of the villagers and, although they have gotten access to other sources of water over the years, to some extent it continues to do so even today. Nowadays the situation is somewhat changed.

Four years ago in 2005 a water tower and purification system collecting and cleaning water from a couple of nearby ground water bore holes was constructed. The reason behind the construction was, according to some respondents, that the villagers were advised by somebody not to drink the river water anymore, most likely as a result of pollution. Though, when enquired about the actual source of that advice, no one could provide any substantial information. There are a lot of these communal water projects in Chiang Mai Province and these are generally established as a joint venture between local organizations and government agencies but managed by the villagers (Eltner et. al., 2006). According to the local TAO, the water plant in BPH is managed by a villager appointed by the TAO. How payment for water is arranged is unclear. By observation it could be noted that many houses are fitted with a water meter which would indicate a communal water system with water fee based upon the actual consumption (Eltner et. al., 2006). It was also observed that some of the villagers were actively reading the meters, even after dark, which strongly indicates that the system is active. However, interviews indicated that the payment for water was a fixed monthly fee.

As explained in the previous chapters, one of the main impacts of land adjudication in BPH is the invasion of outsiders, and the change from a subsistence farming system to the present situation where most of the villagers work as wage labour in- or outside the village. Another major impact is the land use change which has seen the disappearance of many of the rice paddy field that twenty-five years ago dominated the landscape. Paddy rice cultivation is characterized by a substantial demand of water (Miyake, 2003). Therefore it would be expected that the move away from this land use could lower the demand for water in the village. It is no easy feat though to get an overview on the water management situation in BPH as informants are frequently contradicting each other and even physical evidence. In many similar cases in Chiang Mai Province, the outsiders have introduced a whole new standard of water consumption (Eltner et. al., 2006 and Miyake, 2003). In BPH the outsiders live in, or more accurately own, large upscale houses with massive gardens around them. In this village these outsiders use their houses as holiday homes only and they are rarely present, but have become significant consumers of water. On at least one account one of these holiday homes was surrounded by a park with fountains and even rice paddy fields that the owner, according to the housekeeper had installed for entertainment value only.

There are some evidence of some disputes between the villagers and the outsiders over water mainly in the dry season. According to an informant, in the dry season the outsiders are using too much water causing slight shortages of water available to the villagers. Apparently the outsiders are supposed to pay a fixed fee for their water use which

generally does not inspire any disputes, however, in the dry periods the villagers sometimes find this fee insufficient and consequently limit the supply of water to the outsiders. When enquired about what source of water it is that the outsiders are using the answer was somewhat ambiguous as interviewee responded positively in both cases when enquired if the water in question was either the river or the borehole water. It was not possible to get in contact with any of the outsiders either. However, there are defiantly evidence of a periodically water shortage and following restriction in the driest seasons and at least indices of the direct negative impact of the outsiders. Whether or not the land use change away from agriculture that results from the land adjudication has had any positive or negative impact on the water consumption is still unclear and will require further investigation to uncover.

3.2 Impacts of land adjudication together with land-use changes on socio-economic conditions of households in BPH? (BMT)

In trying to find the answer to our research question regarding the impact of land adjudication on the socio-economic conditions, there is first of all the need to set the context of our analysis. In the following few lines we will try and give a short definition of household economics and explain the dynamics of this sector.

Margaret Reid, in *Economics of Household Production*, 1934, was one of the first to use this term but without any sensitive impact on the economic thinking on household production. (Yun-Ae Yi, 1996)

The *household economy*, as we could easily imagine only by reading the term, describes the collective economic activities of households.

When dealing with household economics one has to bear in mind the fact that labor (which actually represents time and effort of the household members, thus the human capital) and capital (which is the use of tangible *non human capital* like land, vehicles, etc) are the two of the most important factors of production. (Duncan Ironmonger, 2001)

The measurement of the household economy emerged as a focal point for many researchers once the household was recognized as a major centre of production, not just consumption. Thus, being directly related to the household economy, household production is strictly the production of goods and services using own capital, for own consumption as for example meals, accommodation, child care, etc. (Duncan Ironmonger, 2001)

Along the side, one of the major influencing factors of household economy is represented by remittances. They have been identified as the third pillar of development as their volume is

second to foreign direct investment and higher than overseas development assistance, aiming at measuring the economic impact on migration mostly on the home economy (Alessandra Alfieri, Ivo Havinga and Vetle Hvidsten, 2005). The remittances of internal migrants contribute in various ways to the well-being of the household of origin. At the same time being an effective means for low income households to overcome income shortages. Macro perspective, remittances contribute to equalization of income distribution among household having out migrants (Keiko Osaki, United Nations, 2003).

3.2.1 Social factors (EGC)

The study on the age class distribution of the community shows a higher population of younger generation compared to the older generation (Fig. 3.3). The study also reveals the younger generation are more oriented towards non agricultural activities than the agricultural activities as there is an increase security on non agricultural activities. This gradual change in the orientation has been encouraged by the process of the land adjudication which favours them to sell their land to the outsiders an easy way of money.

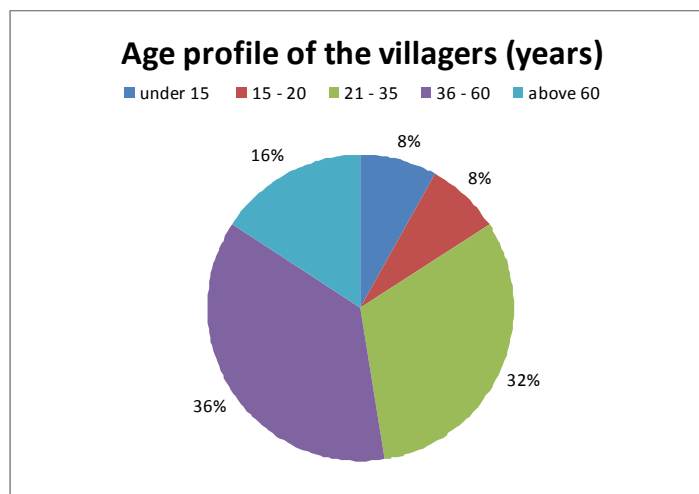


Fig. 3.3: Age profile of the households

More over the study on the villagers educational status reveals the fact that about 83% of the population had education which comprises of 42% of them have primary school education, 29% have secondary school education, 3% have kindergarden school education, and 9% have university education (Fig. 3.4). Through the past 20 years there has been an gradual increase as it palyed a key role for the villagers to find a job in the town/city.

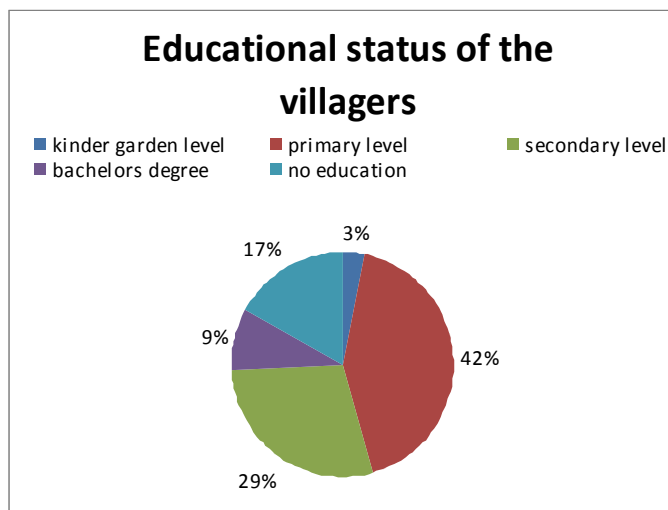


Fig. 3.4: Educational status of the households

3.2.2 Main economic indicators (BMT, NNK & IHT)

In the past, the main activity for the villagers has been agriculture. The main problem according to semi-structured interview has been that the farmers could not sell their products outside the village as there was no agricultural market and they were not getting any agricultural subsidies. At the same time, most of the villagers were subsistence farmers. Although organised in “working groups” (helping each other with seeding, harvesting, etc), this was not enough to help them keep their lands farmed in a proper way. Lack of education and information concerning cropping techniques has led thus, towards what we could call a „farmers nightmare”. They have been blinded by the vast amounts of money that they would get from outsiders, for their lands. At the same time, debts and the low savings rates played a major part, influencing them to sell out.

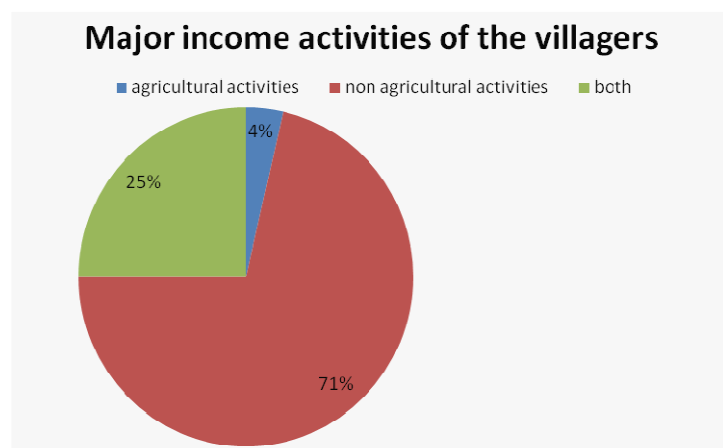


Fig. 3.5: Major income activities of BPH villagers.

Unplanned selling of sections of household land to outsiders has in some cases resulted in the eventual sell of the remaining agricultural land, thus forcing the household to seek income from non-agricultural activities elsewhere. The appreciating land value has so far appealed to the agricultural land owners in BPH to sell parcels of their respective lands in order to earn more money. The facilitating factor in the developments was noted to be the on-going land adjudication process. These observations were made by the respondents in the fifteen (15) semi-structured interviews and the focus group discussion.

For most of the villagers owning land, this represented the starting of their fall. Shortly after selling, bad investments and bad management of obtained money, has led them towards poverty.

kind of activities villagers are engaged when working inside the community

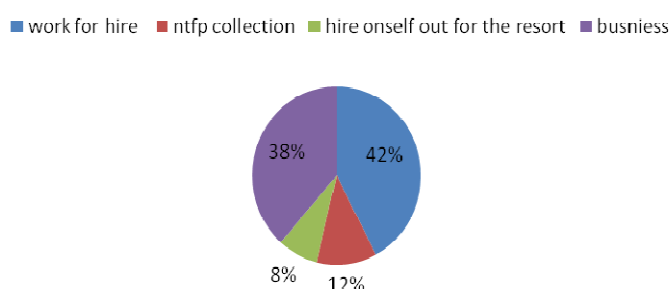


Fig. 3.6: Kinds of activities BPH villagers are engaged in within the community

Nowadays, there has been a shift in the main income generating activities. As agricultural lands have been generally sold by farmers, younger generations from the village are either inclined towards going outside the village to look for a place to work and get better wages or opening their own business in the village with the help of their parents. Thus, as illustrated

in Fig. 3.5, currently 71% of the interviewed villagers have an income from other activities, 25% are still practicing agriculture, while a small per cent of 4% have an income from both types of activities.

In that which concerns the type of activities people are involved in within the community Fig. 3.6 offers a very relevant overview.

As a result, our sampled population has revealed the following: 42% of the villagers work for hire, 38% own their own business, 12% are engaged in NTFP collection and last but not least 8% work for the newly

Forms of activities villagers are engaged when working outside the community

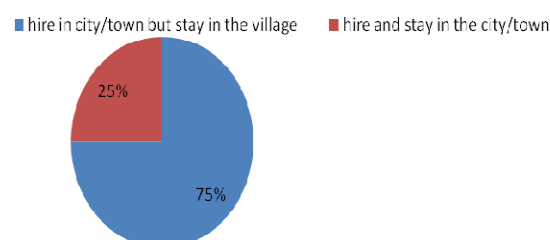


Fig. 3.7: Activities villagers do outside the community

established vacation houses and resorts.

When talking about the households' members working outside the village (Fig.3.7), we have found out that a majority of 75% were travelling each day to neighbouring cities to work, and then return at the end of the day, while the rest of 25% were working and living in the cities. The latter group is the one that we had in our view when it came to analyzing remittances and the household dependency on them.



Fig. 3.8: Household savings

From the selected sample, quite a high number of households have been able to save money through different means that were put at their disposal (e.g. Savings group, Village fund, Bank) and according to the basic field information handbook, the saving rate (*Amount saved/ Total income*) in august 2008 was 57.14%, while the debt rate (*Total debt/ Total income*) for the entire village was 42.85%.

During research, the questionnaires and semi-structured interviews enabled us to observe that need for wealth played an important role in the decision of people to sell their lands. Some have been constrained to sell due to debts that needed to be covered and some have just been attracted by the idea of trying to improve their livelihood in a fast and secure way.

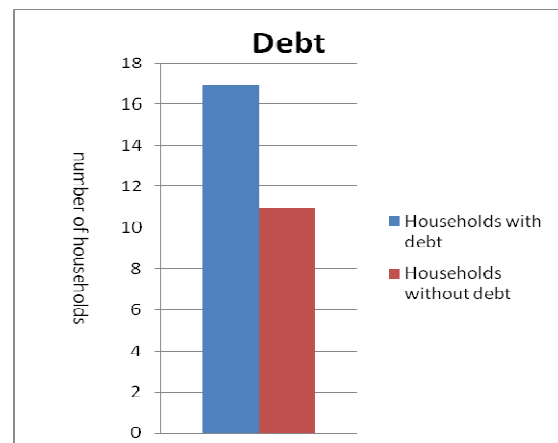


Figure 3.9: Household debts

Consequently, the increasing expenditures, over the last twenty (20) years for the subsistence farmers have also been an incentive for them to sell land.

The two bar graphs on the left show a relatively highly indebted household proportion. From this sample more than half affirm that they can clear the debt within a year.

According to the basic field information handbook, the level of income has been divided into 6 categories. As it can be clearly seen (Fig.3.10), there are major discrepancies within the village in that which concerns incomes. We have 32% of the sample having incomes higher than 12000 baht, in the category of 18% we have both villagers earning between 9001-12000

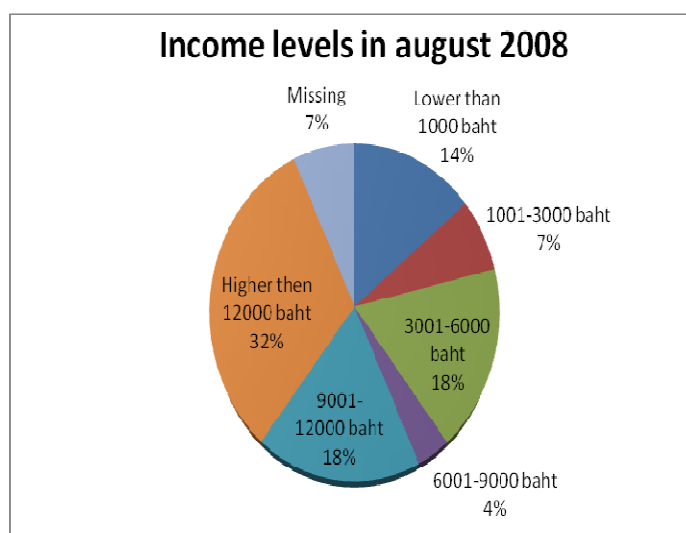


Fig. 3.10: Average household income levels, August 2008

baht per month and villagers earning between 3001- 6000 baht, while the population earning less than 3000 baht per month reaches 21.4%.

As depicted in table 3.2, the tendency of villagers to move towards the city looking for a job is substantiated by the better income that they get by doing so.

Table 3.2: Average monthly incomes compared

Average Income from agriculture baht per month			Average income from working in the city baht/month				
4703.53			6000-12000				

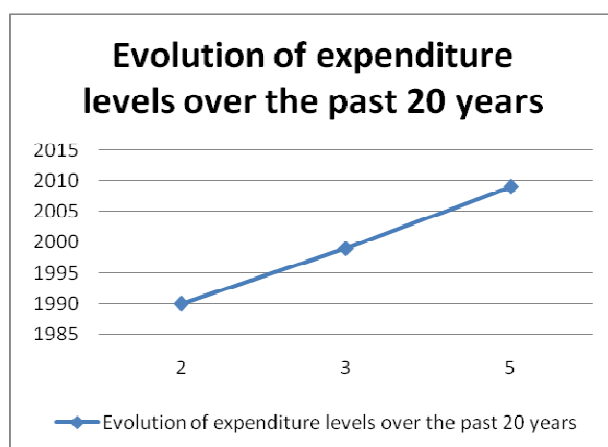


Fig. 3.11: Evolution of expenditure levels over the past 20 years

In order to try and get a glimpse at the past, we have tried to conduct a PRA exercise which has proved to be difficult to manage but provided us with some strong evidence on the economical changes that have occurred at the household level. To start with, the elders have been given 20 pebbles. Then they have been asked questions concerning household economics over the past 20 years. We are of course aware that this information can

be biased to some extent, but nonetheless it gives us an idea about the changes that took place

along the time. As it can be clearly seen, the exercise revealed that overall expenditures at the household level have had an ascending trend. The same exercise session has let us looked into the correlation between wage rates and overall households' income (see Fig. 3.12). The result was that wages within the village, along with incomes have increased along

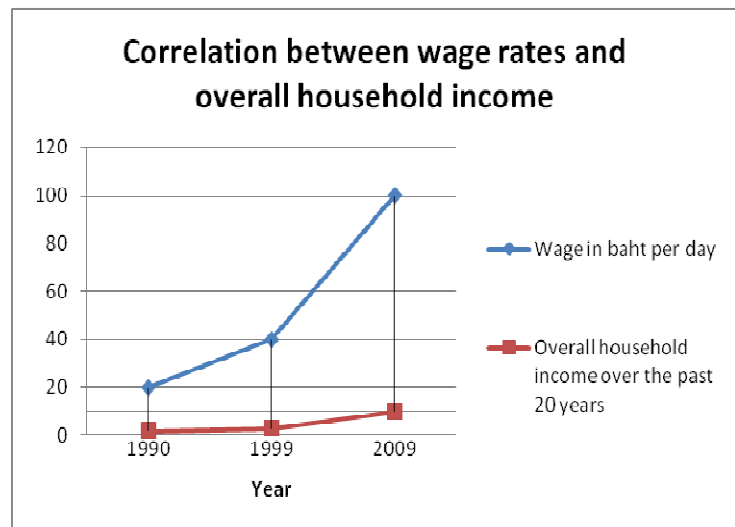


Fig. 3.12: Correlation between wage rates and overall household income

the time, as expected from 20 baht per day in 1990 to 100 in 2009. We have to keep in mind though, that this is a mere attempt to try and get a basis for our analysis.

When referring to monthly non agricultural expenses (see Fig. 3.13), more than 50% of analysed household have expenses between 5001-10000baht, while 21% spend under 5000 baht per month.

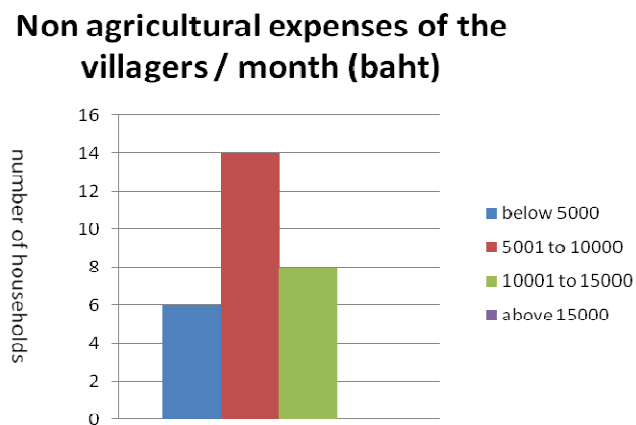


Fig. 3.13: Average monthly non-agricultural expenses of households expenses in the village 10 years ago and in the present (2009). The comparison reveals the fact that these kinds of expenses have seen a dramatic increase over the years.

The two bar graphs (Fig. 3.14) below indicate the cropping

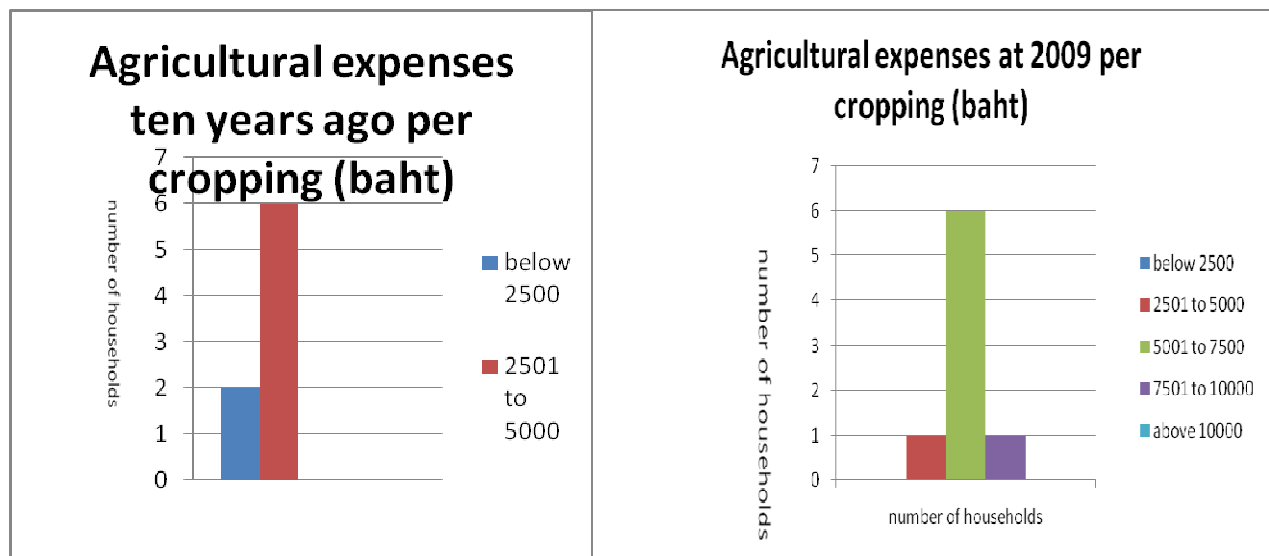


Fig. 3.14: Average agricultural expenses per cropping for 1999-2009

Five households have been found to be dependent on remittances, of which only three are entirely dependent for their livelihood sustenance. From our collected data, the average monthly remittance per household is of 3,000 Baht. Although we encountered only a few households that have benefited from remittances, we can firmly state that remittances are significant in supplementing the incomes of very poor families in the village.

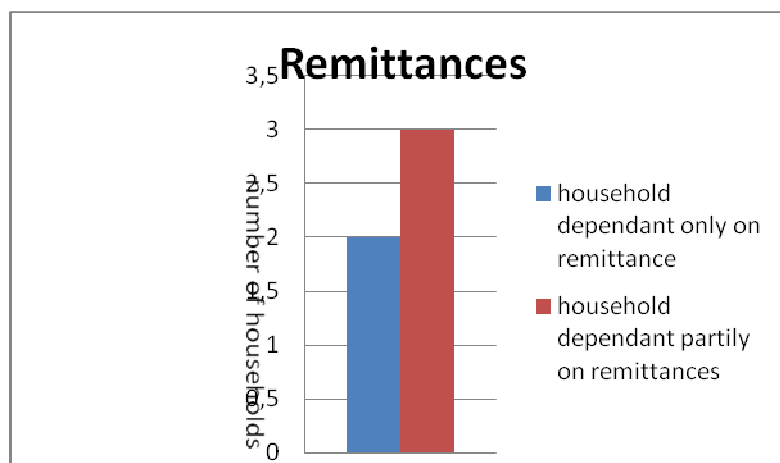


Fig. 3.15: Dependence of five households on remittances

3.2.3 Discussions and analysis (BMT & IHT)

BPH, the research location of this study has been a village that has successfully continued to exist despite the endless economic obstacles that it had to surpass.

The region is one of those where the contradictions between groups and the problems of agrarian reform are most acute, a situation widespread in Northern Thailand in the future, on

account of very rapid population growth, the penetration of the merchant economy, and agribusiness penetration on a strictly capitalist basis. It was found that tenancy conditions alone are not an adequate explanation of class formation and of class struggle in the Northern Thai peasantry. They seem to be linked to increasing economic vulnerability among farmers already close to the margins of economic survival (Bruneau, M. 1984).

In conducting the analysis we have started out by setting as a main hypothesis the fact that land adjudication along with the change of land ownership has impacted on household economic indicators. Management of the profit that villagers have once they have sold their lands represents the main issue in our case.

Villagers have thus been faced with the opportunity to manage huge amounts of money. The lack of knowledge along with the temptation of an immediate profit has led them towards taking bad decisions which have derived into a series of interlinked consequences.

First of all, the community has confronted itself with issues regarding the ability to save money and clear their debts. In this sense, the appearance of the community Savings Fund six years ago has enabled villagers to put some money aside and start clearing their debts within one year. Nonetheless there still are villagers who are indebted.

In terms of income, land adjudication has enabled the villagers to enjoy a considerable income for only a short period of time. Once the money had been spent, the villagers are forced into finding new means of earning an income. A result of that (see figure 3.10) is that income classes within the village are highly differentiated. This might be due either to the fact that not all community members managed to find jobs or because they are too old to continue working. Moreover, before going to the field the hypothesis that we have started out with was that job availability in the area would be one of the main problems that the village is dealing with. The overall trend of household income levels (3.12), show that the population has actually managed to surpass to some extent the availability of job opportunities as most of the villagers are daily labourers, and it's also a matter of being in the right place at the right time in order to get a good job(key informant interview).

Last but not least, remittances are as well a direct result of land adjudication, as the opportunity for working outside the community has risen. If we look at this issue from the perspective of villagers, one can state that they have actually been forced to go and work outside the village. But labour is not always available or easy to find in neighbouring villages.

The growing costs associated with the intensive commercialization of agriculture are the most important variables. The farmers who do not own or cannot afford to rent sufficient land feel increasing economic pressure as the costs of farming and maintaining a household arise. Another critical factor remains the limited alternative sources of income. Moreover, in Ban Pang Haew low income is a direct effect of the burmese migration. This population asks for lower payment and this works in the detriment of the locals that face thus a shortage in work opportunities. This is why the outsiders do not really contribute to the well-being of the community, they do not bring any capital and they are not seen as a part of this group.

To sum up, land adjudication and selling of the land has impacted on the economy of the household in two opposite directions: first, the negative one, villagers have been forced to pull away their main income generating activity, agriculture, as a direct result in the changing of ownership. Second, the positive one, villagers have given money obtained from selling the lands, to their children, to help them with their carriers and at the same time to support their departure from the village in the search of good paid jobs in the city.

Thus, we can finalize this discussion by stating that from the economical point of view, the village will rise from its „fall” only if accurate legal as well as technical measures are taken at higher levels, in order to support the remaining farmers (e.g subsidies), and the rest of the population (e.g. seminars on working opportunities outside the village).

Migration is one of the strategies adopted by individuals, households or communities to enhance their livelihoods (Haan, J., 2000). According to Van Wey, L. K. (2003), land ownership (a subset of land adjudication) is considered a determinant factor of migration in rural areas where households which have smaller land or with no land choose migration in order to get a supplement for the rural income. A total of 78% of the household questioned have any type of work migration. In our study, work migration was classified into three categories. The first category includes people who stay in the village and work in the cities (84%). The second one includes people who stay and work in the city (10%) and the third category includes people who are non household members but send remittances (6%). These are illustrated in Fig. 3.16.

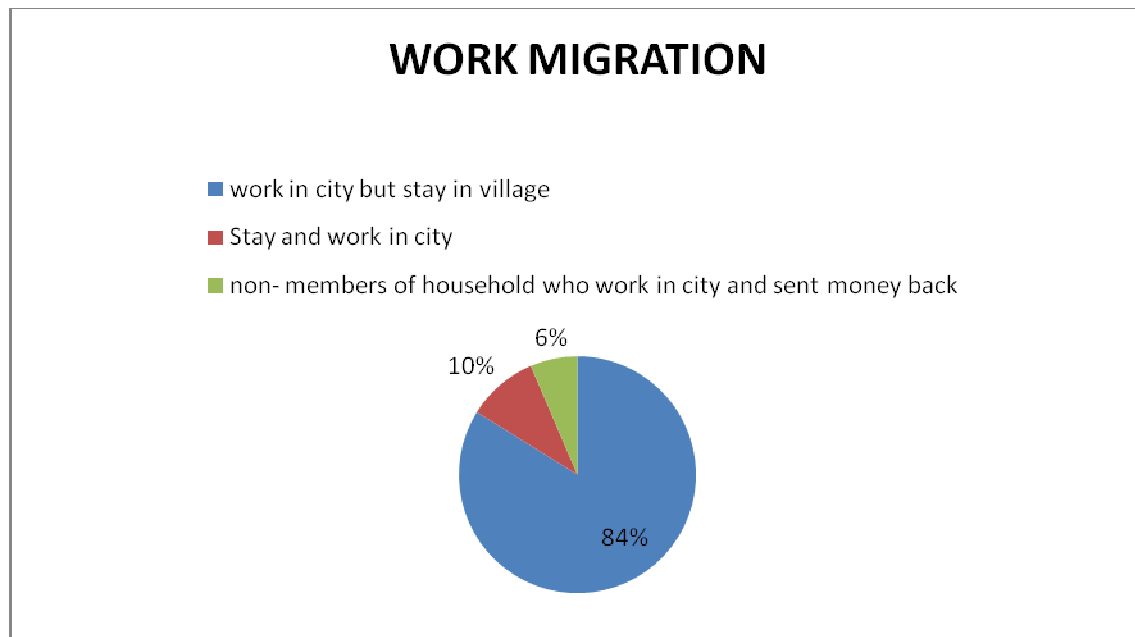


Fig. 3.16: Work migration pattern

The chart shows that the most common migration in Ban Pang Heaw is a “partial” migration; most of the villagers (84%) continue living in the village and the migration is only produced in the work. One of the causes is the road development introduced 20 years ago. According to Van Wey, L. K. (2003), in the 1980s, Thailand government designed programs to develop the relationship between rural and urban areas. These programs included an improvement in transportation which laid a way for higher volumes of migration. In our case, BPH village is only situated around 25 kilometers from Chiang Mai and with the road development, villagers can go and come back from the village to the city in a short period of time.

3.3 Impact of land adjudication on conservation and communal forest conflicts (BMT & IHT)

In our research location, the forest is one of the most valuable natural resources for the community. There are three different types of forests: the forest inside the National Park (established by law in 1963), the Conservation Forest and the Communal Forest. The one that we have focused on in this study is the communal forest one as it has provided us with a very interesting escalating conflict. Land adjudication has been identified as being the core of it, due to the fact that it represented the way that villagers took control over their lands. Bad decisions, along with a faulty management have soon led towards their pitfall. At

the same time, it had a definite impact on the natural resource management in the area, bringing into the light issues that high officials as well as villagers have to find a solution to.

First of all, we have found out that the timber and non-timber forest products (e.g. bamboo shoots, mushrooms) gathered by locals are used for own consumption only, but the communal forest is not the main provider of NTFP's, as villagers prefer going into the National Park due to its proximity to the village. For the collection of timber products though, villagers need the permission of the village committee to go into the communal forest.

Furthermore, according to the key informant during the past 25 years, villagers, driven by the



Plate 3.3: Tree poisoning inside the conservation forest area

desire to achieve a higher social status and escape the hooks of poverty started selling their lands to outsiders. From our data they have been attracted in the area by the good infrastructure (mainly road and electricity), good weather, nice scenery and the most important the existing gaps in the land adjudication process. These aspects

have contributed to a continuously increase of land prices in the area.

People who sold their lands in the past have now reached the moment when they see themselves forced to try and claim new patches of land through “unorthodox” methods. The village committee allows cutting of only old or dead trees. But the villagers managed to come up with a way that they could get what they want. Thus they are able to cut down trees, after poisoning them first, and then plant banana trees. The main actors of the processes referred above are the landless villagers. As a result there have major areas of the conservation forest have been deforested. By using this “strategy”, villagers hope that after taking care and exploiting the plots for a period of up to 10 years, they will be able to obtain documents of tenure.



Plate 3.4: Felling of teak trees in conservation forest area

The main issue here though, is that the communal forest boundary dispute between Ban Pang Haew and the neighboring village, Ban Oy, has not been

resolved yet. Both villagers from BPH and Ban Oy are trying to keep their ground, as the land prices in the area have been increasing lately and there has never been a clear demarcation on the boundaries of this forest. There are no documents to attest the validity of any of the claims. The only ones that are seen as being capable to put an end to this conflict are the elders and the actual and former headmen of the two villages. The communal forest is being administered by the village committees. In BPH, this committee is not functioning as it should (according to BPH's headman), due to the unsolved boundary problem.

Before going further into analyzing the essence of the conflict it should be mentioned that Ban Oy's communal forest spreads across 10000rai (according to the semi-structured interview with Ban Oy's assistant village headman), while BPH's communal forest is only about 2000 rai (according to basic field information handbook). Observations gave some clue that the people in Ban Oy are better off than the ones in BPH (nice, big houses, good roads, watered roads and cultivated paddy/soy fields - which show increased water availability).

The main problems that have been identified during our semi-structured interviews with our key informants (BPH headman, Ban Oy assistant village headman, elders from BPH) is that there is an acute lack of communication and sometimes disinterest which lead in the end to a deepening of the conflict. Although the RFD should be the one setting the frame, and intervening in such a case, it seems as if this authority is not really doing much to help resolve this conflict. Meetings between the two parties have been scheduled (village headmen, village elders) and an officer from the RFD has been asked to attend in order to resolve the boundary issue.

3.3.1 Analysis of progress triangle

The progress triangle is a tool used in order to assess the potential of dealing with a conflict through collaboration and more important the extent to which certain aspects of the situation need to be changed in order to establish good potential for collaboration. According to Pruitt and Rubin, 1986 and Walker and Daniels, 1997, collaboration is the alternative for approaching a conflict situation, in contrast to competition, accommodation, and inaction. At the same time the process stresses on the way interdependent groups work together on a common problem in order to achieve a win-win situation. (Gray 1989)

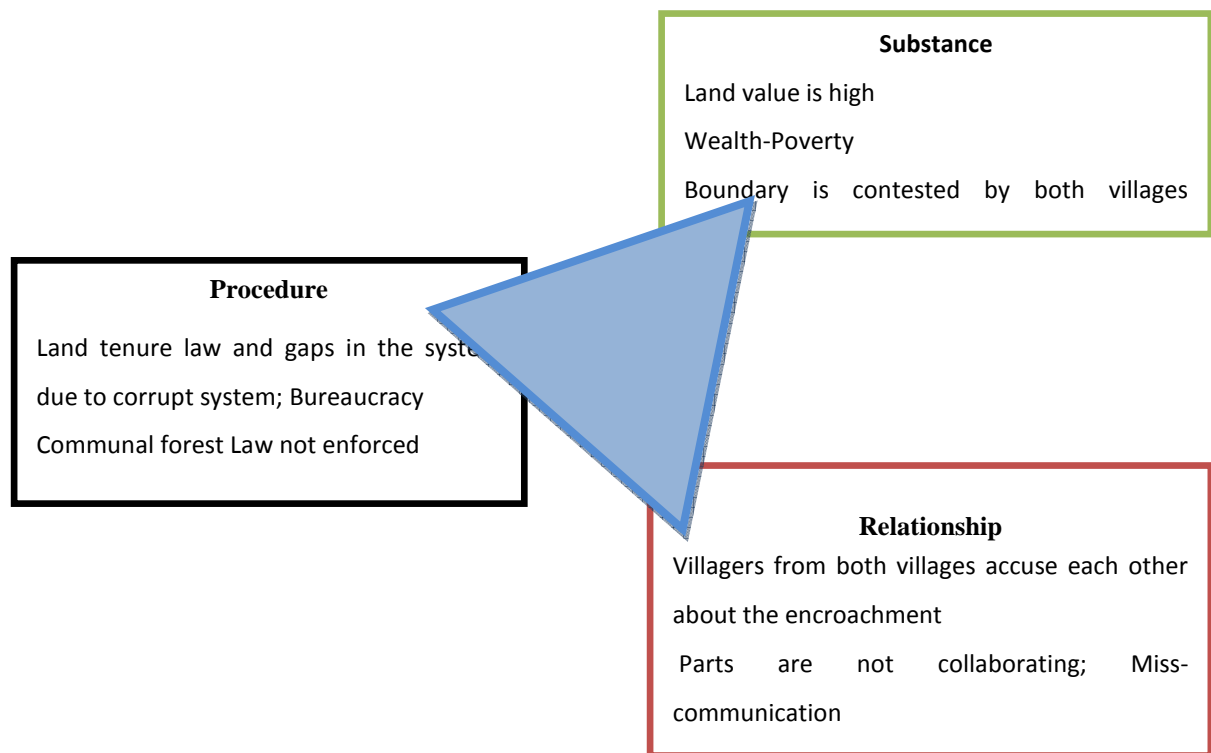


Fig. 3.17: Progress triangle of the conflict

3.3.1.1 *Substance of the conflicts*

Over the past 25 years, the land value has increased dramatically due to land adjudication. The poor villagers were forced to sell their lands either because of the thought of getting good money to improve lifestyle and pay debts, or because they have been forced to do so, as the land around them had been bought by outsiders, and the farmers no longer had access to markets. According to villagers headmen and elders from both villages know the boundaries of the Communal forest. Although the Community Forestry Division of the RFD has used poles to mark the borders of the communal forest, they are being contested.

3.3.1.2 *Procedure*

Land tenure law has been at the root of the discussed problem, along with the corruption of high authorities that have not taken any measures in order to try and diminish the conflict. The different existing land titles make it very easy for people to try and „conquer” new patches of land. Moreover, the community forest Act is still pending to be

fully approved. Although the process started more than ten years ago, it has not been successfully passed

3.3.1.3 *Relationship*

Both villages affirm that their way of demarcating the boundaries is the ideal one. Furthermore, from our findings we can state that there is a lot of miscommunication between parties. This is partly accentuated by the fact that the main actors for resolving this issue are the village headmen. Thus, this frame provides us with an escalating conflict.

3.3.2 **Stakeholder identification and analysis regarding the conflicts**

The primary aim of stakeholder *identification* is to name all those who could and should have a stake in a planning and managing the conflict. Thus, this was done by investigating their aims, status, interests and positions.

In this study identification was started by examining the functions of the disputed natural resource. Using each of the functions of the resources and identifying who uses, has an impact on, and benefits from those resource functions, a list of stakeholders could be developed (Renard, 2004).

Primary Stakeholders	Secondary Stakeholders	Key Stakeholders
Villagers in Ban Pang Haew with land	Village committee of Ban Pang Haew	Villagers of Ban Oy
Villagers in Ban Pang Haew	Village committee of Ban Oy	Villagers in Ban Pang Haew
Villagers of Ban Oy	Royal Forestry Department	Villagers in Ban Pang Haew with banana plantation
	National Politicians	National Politicians
	Communal forestry Division	
	TAO	
	Outsiders	

Villagers in BPH with land – they are not that inclined towards claiming new patches of land as their patches spread over more than 10 Rai. But that does not mean that they would not be tempted.

Villagers in BPH - this category refers to landless villagers. They are the ones that would benefit the most from a boundary demarcation in their favor, as we found out during our interviews that they are the ones already doing the encroachment

Villagers of Ban Oy - are better off than villagers of BPH, their Communal forest spreading over 1000 Rai (semi-structured interview with headman assistant of Ban Oy), compared to BPH's which spreads over around 20 Rai (according to Basic field information booklet) For them the forest is seen more as a natural resource, than as a potential wealth source.

TAO - is the local government unit. Below district (*amphoe*) and province (*changwat*), they form the third administrative subdivision level and it is usually translated as "commune" or "subdistrict" in English. They are collaborating with village committees and Royal Forest Department.

Communal forestry Division – Division under RFD, dealing directly with Communal forest issues, setting boundaries, giving assistance to villagers

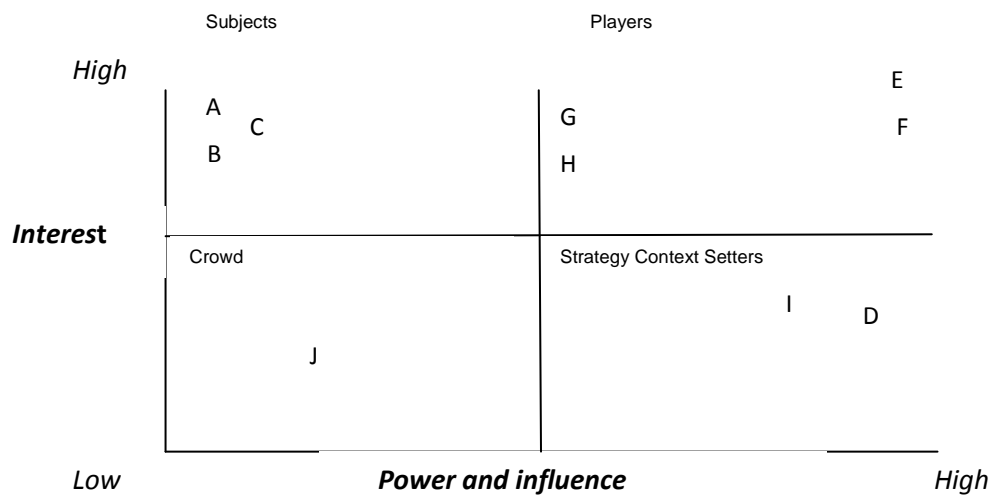
National Politicians – aim towards achieving solid forest legislation. The process is very laborious though.

Village committee of Ban Oy – represents the interests of villagers; inclined towards better output for own villagers

Village committee of BPH - represents the interests of villagers; inclined towards better output for own villagers

3.3.3 Power interest grid for identified stakeholders

Once stakeholder identification was reasonably completed, it was possible to assign priorities, and then to translate the 'highest priority' stakeholders into a table. The challenge has been to focus on the 'right stakeholders' who are currently important and to use the tool to visualise this critical sub-set of the total community.



A-Villagers in Ban Pang Haew with land

B-Villagers in Ban Pang Haew

C-Villagers of Ban Oy

D-TAO

E-Communal forestry Division

F-National Politicians

G-Village committee of Ban Oy

H-Village committee of Ban Pang Haew

I-Royal Forestry Department

J- Outsiders

Fig. 3.18: Power interest grid of stakeholders

Actors, who have the power to act in a way that has an impact on the future of the strategy making, are both *players* and *context setters*.

In exploring the potential for stakeholder management to support collaboration or alliances it is the *players* and *subjects* who are of interest. For the most part of the unaffected bystanders – *crowd* – are unimportant for stakeholder analysis, unless they can be encouraged to become interested and powerful (Eden & Ackermann, 1998).

3.3.4 Dual concern model and conflict handling strategies

The dual concern tool has enabled us to build the model below, describing how the stakeholders deal with conflict. This model does not provide a full explanation of strategic choice but helps to understand a fair number of decisions about what strategy to empathy (Pruitt & Kim, 2004, p.23, chapter 3: Strategic Choice).

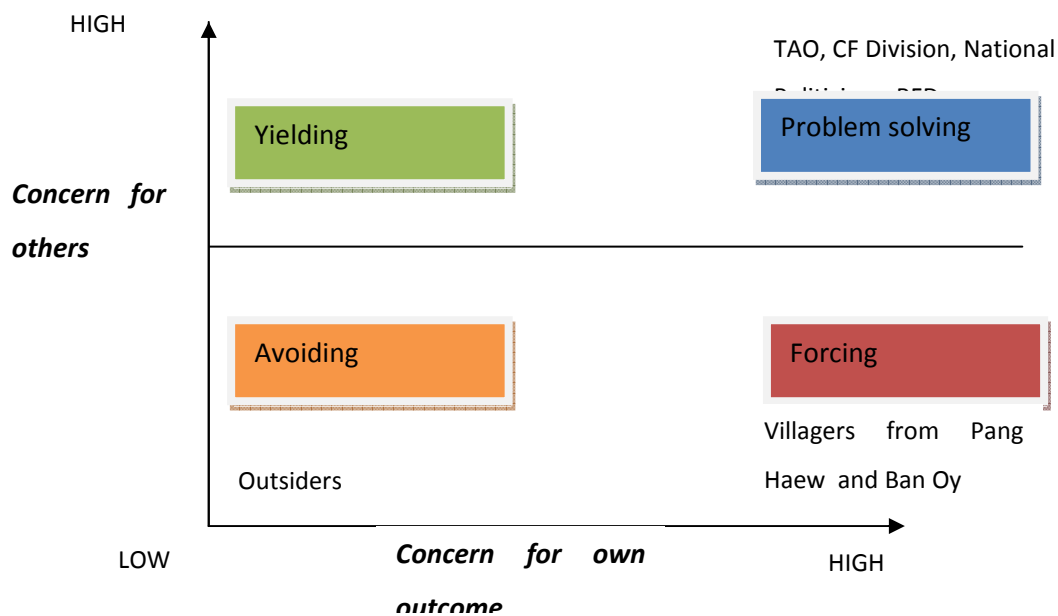


Fig. 3.19: Dual Concern model and conflict handling strategies

The main issue in the discussed conflict is that both villagers from Ban Pang Haew and Ban Oy, are *forcers*. They do not want to give up in obtaining what they think is rightfully theirs. High authorities on the other side are inclined towards *problem solving*, but they seem not to be able to come up with decisions that would favor the process of decreasing conflict intractability.

3.3.5 Systems thinking of the conflicts

Systems are sets of entities, physical or abstract, comprising a whole where each component interacts with or is related to at least one other component and they all serve a common objective.(Charles François, 1999)

Systems thinking is a framework that we have used in the assesment of our conflict. It is based on the belief that the component parts of a system can best be understood in the context of relationships with each other and with other systems, rather than in isolation.(Capra, F. , 1996). Having this theoretical basis along with reliable data obtained through thorough investigation, serve us as a starting point for proceeding towards drawing a systems map. System mapping is a very powerful systems thinking tool, that can explain a problem and identify solutions in an ilustrative way .

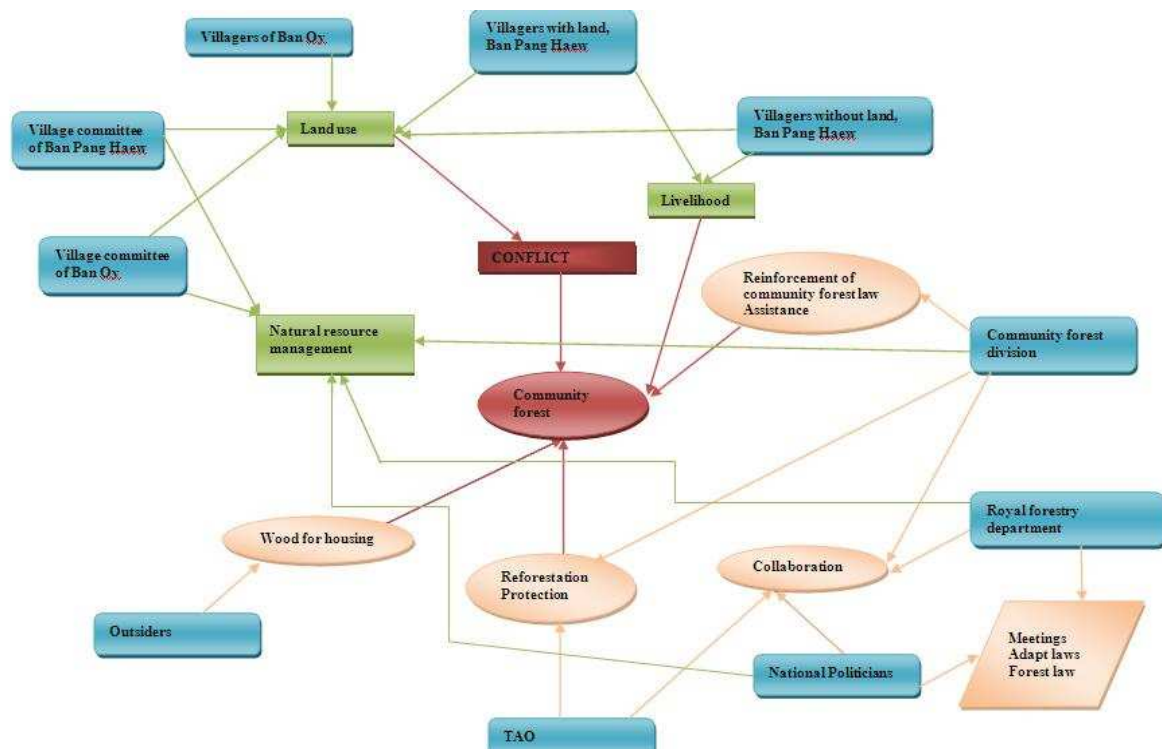


Fig. 3.20: Systems map of the conflict

3.3.6 Collaboration Potential of stakeholders, discussions and possible solutions

One can clearly see from the Fig. 3.20, that the essence of this problem is that collaboration between stakeholders is only done at high levels (TAO, Royal Forestry

Department, National Politicians, Communal forest Division). At the same time, high authorities do not focus on the relationship that they have with the villagers. Their actions are not directed towards the well-being of the villagers but more towards natural resources and trying to manage them the best possible. Unfortunately, this is not the path to follow, as forest management in Ban Pang Haew is for now almost inexistent. The village committee is the one that has full authority and it seems that the existing departments of higher authorities don't really bother to inspect in depth the problems that have arisen in the area.

Power decentralization in Chiang Mai province, does not seem to be working as it should. The endless chain of institutions concerned with decision making, constrains the process of communication with lower levels.

Another fact that needs to be taken into consideration is that the two villages belong to different tribes. That is why, one has to keep in mind that the two communities are characterized by different values and different approaches should be enacted when trying to come up with ideas for improving the situation in the area.

This study has revealed many flaws at all levels. In the following lines, we will try and give a few suggestions for the improvement of the existing situation. First of all, village committees should be assisted in depth by the Communal forest Division with all legal aspects, as well as maintenance and advice regarding the Communal forest. Second, it should be pretty clear by now that the village headmen play a key role in trying to solve this conflict as they represent the link between authorities and villagers. This is why there is an urgent need for them to be kept informed by the use of meetings, trainings, seminars on different themes (e.g. natural resource management). By doing so, they will be able to pass on the main information to the villagers (e.g. by making use of local radio post utilized for general announcements in Ban Pang Haew). Furthermore, once the Communal forest Law will be passed, its reinforcement should be done in bottom-up procedure. In applying it, there will be an assurance of the fact that local values and norms will be at the basis of this procedure along with taking into consideration the needs of the locals. Although this seems feasible, a major obstacle is the fact that there are clear signs of corruption within the system and that means that the process might become sluggish. One way of partially overcoming this problem would be the appearance of an NGO in the region to help dealing with the major issues of the communities in the area. Moreover, NGOs have the power and knowledge to influence the processes in favor of the villagers and at the same time help them achieve better living standards.

To conclude, we could say that land adjudication has generated a spiral of behavioural patterns. By this, we refer to the fact that although villagers have been given ownership rights, this has actually worked against them in the beginning, as they have lost their lands in a very short period of time. Even so, nowadays, gaps in the land tenure law, provides them with the incentives to claim land in order to improve their livelihoods.

The only way to end this vicious cycle is that responsible parties take immediate action. Otherwise, we shall not see a resolution of the conflict soon.

In any case, further investigation is needed in order to better assess the existing escalating infringement.

4. CONCLUSIONS (AII)

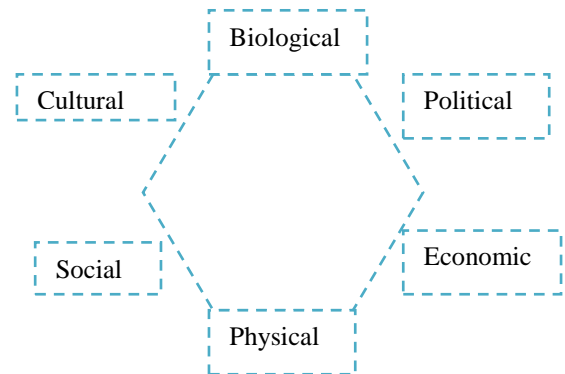
Our research exposed some complexities associated to the land adjudication process and its impact on the natural resources, their management, and socio-economic dimensions of BPH in Northern, Thailand. These are given in the following paragraphs:

- The land titling process has so far facilitated the selling of agricultural land at will by the villagers, thus rendering them landless or leaving them with small land parcels that cannot sustain meaningful agriculture. This scenario has in turn caused the villagers to start encroaching on both the conservation forest and disputed areas of communal forests, in a supposed bid to lay ownership claim on the land. No government authority at both highest and lowest level is attending to this presently.
- There is the tendency that agriculture will be displaced completely as land prices are increasing and speculation is high in the area while residential land use will increase in the long run. This may further push and pull local people especially those with links to power to further clear forest areas.
- Notable shifts in land-use, from agriculture to off-farm activities involving work migration, as occasioned by the facilitative adjudication process has occasioned significant changes in the nature of livelihoods. The increasing expenses and the relatively low incomes in the village have precipitated further selling of respective lands to outsiders who have built holiday homes in the village and land speculators. This has further caused villagers to seek off-farm employment in order to bolster their livelihoods.
- Despite the resource conservation efforts in terms of legislation, communal conservation efforts such as afforestation, reforestation, and the cleaning of water canals; there are retrogressive tendencies such as unwarranted encroachment on forest land. This has resulted in the contradiction of positions and interests among the stakeholders, thus prompting the vicious cycle of conflicts of interest. The situation is well fueled within the framework of land adjudication, and the general land-use change from agriculture to off-farm occupation.

4.1 Suggestions

When looking at Ban Pang Haew, repairing the harm that has been done in the past along with the occurrence of land adjudication is rather difficult.

One way to start dealing with the existing problems is by touching upon every aspect that this study has dealt with. It all has to be seen from an interdisciplinary point of view. As a result, the ecosystem that we have dealt with, maintains biological, economical, social and cultural values. But as it has been noted before, the political aspect is the one that sets the frame for managing all of the above categories. The ecosystem based management is a process that



The ecosystem –Based Management Hexagon
Source: Daniels and Walkers, 2001

integrates them all and furthermore, represents comprehensive strategy aimed at protecting and enhancing sustainability, diversity and productivity of natural resources (Daniels and Walker, 2001).

Natural processes along with social systems, need an adaptive management in order to face resulting uncertainties. In our case this comes in very in handy, as there is the need for reassurance that the process is being dealt with precautions and that any failure can be dealt with.

At the same time, understanding of ecosystem processes and how ecosystems respond to environmental perturbations is a factor of great importance being one of the main issues of our study.

By using this powerful method, ecological, social, and economic goals of the village can be easily integrated, villagers will be recognized as key components of the ecosystem, and ecological, as well as political boundaries shall be taken into consideration.

Furthermore, identified stakeholders will engage in a collaborative process that will enable them to define problems and find feasible solutions. (EBM Network, 2007)

In conclusion, the proposed method reveals the potential for sustainability of both human and ecological systems.

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APPENDICES 1

SYNOPSIS: BAN PANG HAEW GROUP

TOPIC

CHANGING LAND USE IN BAN PANG HAEW: IMPLICATIONS FOR PEOPLES LIVELIHOODS, COMMUNITY FORESTRY AND NATUARL RESOURCES

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(2009)

1. INTRODUCTION

1.1 Context and Background

Land use changes occur in many places as an interaction among factors of land attributes, social arrangements and socio-economic conditions, which generates outcomes that, affect the livelihoods of people in the area in one way or the other. In Ban Pang Haew village in the

Mae Ram Lower Watershed, quite a recent development of land use change has taken place (Aumtong, *et.al.*, 2009). The prominent changes are a shift from agricultural land use to tourist resort and up market housing development. This is a new land use introduced by people from outside the watershed. On the other hand community forestry is emerging as another land use. The boundary of the community forestry area has been demarcated although contested. Invariably, most former farmers find other means of livelihood when there is no more interest in agriculture or other forces have driven them to do so.

Tourism and associated resort and housing development may not necessarily contribute a significant portion of household income (as an indicator of livelihood). Forsyth (1995), for example, found in Pha Dua, Northern Thailand that the oldest and wealthiest families benefited from tourism and that poor people connected to them only could make some benefits from tourism. It is uncertain if the local people are the real beneficiaries or outsiders get the bulk of the benefits. This does not necessarily mean, the poor could not have other ways of benefiting. In reality well coordinated activities related to tourism could be a good source of livelihood.

Thailand seems to be using forestry as the main basis for natural resource management. The National Forestry Policy of Thailand promotes Community forestry in the form of reforestation on public land by private sector, tree planting on marginal agricultural land and establishment of forest woodlot for household consumption. Successful adoption and implementation of community forestry initiative will depend on the bio-physical attributes of the area, the decision making context as regards institutions, rights, etc. but more importantly the economic conditions of the community of interest.

In Ban Pang Haew, where a high proportion of the people are considered affluent (at least in terms of land titled as *chanoot* and modern houses) with different priorities from the minority poor (Aumtong, *et.al.*, 2009), it is uncertain who will participate in community forestry projects and with what incentives or disincentives. Moreover, as local government units are empowered by law, they seem to have much say in how community forestry would evolve. A study by Hares (2006) carried out in Chiang Mai Province indicates that there seems to be a conflict between government's goals of conservation and that of inhabitants in six villages. Government considers conservation as restrictions of forest resource use whereas inhabitants of six villages in Chiang Mai Province think of conservation as sustainable use. ASFN Report (2008) indicates that most of the CF projects in Thailand tend to focus on resource

conservation rather than an integrant management strategy that consider both the rehabilitation and sustained productivity of the resources. In this regard, community forestry initiative in the village needs consideration with regards to addressing livelihood issues.

Moreover, there seem to be active migration of the working group to other areas for employment. This could be accompanied by remittances to family members left behind at the villages. Remittances could be a significant contributor to livelihoods especially when it offers opportunities to make new investments. Nonthakot and Villano (2008) affirm that migration and remittances hold a very important role in rural development.

While people with improved livelihoods could opt for forest conservation to improve environmental services, the same may not apply to people who are poor and with unsecured livelihood. Therefore, introduction of CF could provoke mixed reactions for different categories of people in the village, whether a new entrant or and indigene; wealthy or not; dependence on remittances or independent, etc.

The on-going developments in Ban Pang Haew have implications in terms of improvement or otherwise of the livelihoods of the people, natural resources and programmes related to them, particularly community forestry. Therefore, the processes and outcomes of these developments in the village need investigation. This study, therefore, aims to analyse the problem stated below.

1.2 Study site description

Our research location is based in the village of Ban Pang Haew, in the lower stream of Mae Ram watershed, in Northern Thailand, which is predominated by flat land with small hills that present an elevation range between 300 - 600m above sea level.

The area in state property has changed because of demesne¹ that allows farmers to get certifications of land ownership hence the characteristics of land-use and the demesne has changed in this region.

The proposed area for study has not got any own springs and it is supplied by the water input from the regions above. It covers 17.4km² which are 32.10% of the whole Mae Ram sub watershed.

¹ *Territory over which rule or control is exercised*

There clearly is a seasonality in temperature and precipitation amounts which is typical for subtropical monsoon influenced regions. The warm and dry season is not as extended as in other parts of Thailand, like in North-East Thailand while the rainfall amount and the temperature are appropriate for agricultural use.

Deciduous Dipterocarp Forest or Dry Dipterocarp Forest are very common in this region but the most encountered are evergreen forests. While the first occupy 2.1km², that is approximately 3.87% of the watershed in the Lower stream region the latter counts for 8.0km². The Dipterocarp Forest is a sparse forest type with various kind of shrubs (*Vietnamosasa spp.*) growing on the ground. The dry soil types in this area consist of clay, sandy pebbles and ferralitic to plinthic horizons. These soil types are shallow in slope areas. The predominant soil group in the region is no.62 which is kept as natural forest to protect environment and headwater.

Last but not least, in that which concerns the elevation, the lower stream region presents slope classes of 0-12 % and 12- 35 %.

1.3 Problem Statement

How does the changing land use (tourist resorts and up market housing) together with increasing dependency on migration work influence local livelihoods and the utilization as well as maintenance of local natural resources?

1.3.1 Research Questions

The problem above will be approached by addressing the following research questions:

1. How and why have local livelihoods changed in the recent past?
2. Who are the actual local beneficiaries of the recent land use change?
3. What conflicts of interest exist with villages higher up in the watershed?
4. What are the conflicts of interest between local people and higher level authorities as a result of land use development?
5. How has the development in land-use impacted on local forest and other natural resources?

6. How would the development in land use be in harmony or conflict with CF?

2. METHODOLOGY AND RESEARCH DESIGN

2.1 The Questionnaire Survey

In this study, we will *choose* close-ended structured questionnaires, considering that as tools of research, they have advantages that suit to our limitation in the field. For example; the questionnaires will be relatively cheap, fast to be administered and they will provide *easy-to-analyse* uniform answers concerning our specific research objectives and operational questions. The questionnaire survey will be carried out in order to collect information and opinions of respondents who will include heads of 30 household who will respond to issues regarding main livelihood and emerging land-use activities, migration, reasons for various transitions in the livelihoods, and remittances. The sample size of 30 households will be selected to represent the total 100 households. The questionnaires to census officials will depict statistics of households involved in various land-use change activities, dependence on remittances, and proportions of those displaced because of the various land-use developments. Both participants and non-participants in community forestry, and local construction officials will respond to questions on respective natural resources. (<http://en.wikipedia.org/wiki/Questionnaire>)

2.2 Semi-Structured Interviews

The semi-structured interview technique will be used to collect qualitative data. As pre-conceived by the interview guide matrix and spontaneous open-ended questions, intensive mutual discussions with key informants such as the village elders, local officials, community forest officials and project officers will give them time and scope to present their opinions on the ongoing land-use changes and therefore reveal the nature of conflicting interests, beneficiaries in the land-use change transition as well as the livelihood status. This research tool will confirm documented literature and present an opportunity to explore new insight. (<http://www.fao.org/docrep/x57e/x57e08.htm>).

2.3 Focus Group Discussion (FGD)

The focus group discussion as a function of Participatory Rural Appraisal (PRA), will involve eight (8) residents who will comprise a representative sample for the study in the study. The respective participants will not be younger than 28 years, and they will be expected to have lived in the location for at least ten (10) years. This will ensure that reliable data is obtained from the participants. Topics of discussion will address accessibility to the natural resources (water, forest, NTPs and agricultural land). Matters regarding new benefits as a result of land-use change, and participation in community forestry will be addressed too. The participatory FGD will be valuable in providing baseline information for the study. The FGD method will enhance triangulation and reliability of data collected in this study. (www.rd.ap.gov.in/Health/FGD_Guide.pdf).

2.4 Forest Inventory

This approach will be used to assess the abundance of selected NTFPs and trees of interest to local people. Considering that the forest area is about 10 Km², five temporary sample plots totalling 0.1 km² (1% sampling intensity) will be laid to take a static inventory of the forest resources. Tree diameter at 1.3 metres above ground level (dbh) will be the main parameter to estimate the stocking levels of trees. For NTFPs locally methods of quantifying the selected NTFPS will be adopted considering the specific product characteristics.

2.5 Desk Review

Documents of forest acts and community forestry plans will be cross-checked to confirm reports on permits, statistics about the impact of the new land-use change on the intensity of the extraction of the forest resources. This review will also capture the legislation on mitigating community forestry activities, and the associated rights of the participants.

2.6 Analysis of Satellite Data/Aerial Photographs

The FAO cartographic data, aerial satellite images spanning the last ten (10) years; and dossiers will be used to determine and simulate the forest-cover changes during the last decade. The expertise of the Geography Department of Chiang Mai University will be sought in classification of aerial photos but efforts will be made to ground truth the classification of forest cover changes.

2.7 Conceptual Framework

Graphs, pie-charts and table related data will be used in our research. This approach should provide a better understanding of input or output relationship and thus give general guidelines and indications which are useful to the stakeholders in the Mae Raem watershed, with regard to the land-use change. In our research, the results presented in the graphs, tables and pie-charts will be key in assessing the desirable advantages of the above methods of data presentation. The ease of interpreting and computing the data using the above methods will be useful.

2.8 Sampling Procedure

In this study, simple random sampling will be used, taking care to ensure that the respondents have better understanding of the research questions and could provide the best opinions for the study. Stratified sampling may be enlisted when determining the real beneficiaries in the land-use change developments.

2.9 Data Collection

Our main source of data for this research will be from semi-structured interviews with resource respondents, administering questionnaire surveys, focus group discussion (FGD), other specialized publications, community records, research institution-Royal Forest Department (RFD), the internet and relevant library resources.

2.10. Types and Sources of Data

We will use both primary and secondary data in our research. Primary data will be obtained from the survey with resource people through semi-structured interviews, the administering of questionnaires and focused group discussions. Transect walks and direct observations in the field will provide first hand information on the land-use change situation.

2.10.1 Primary Data

Data collection will be effected through participatory rural appraisal (PRA) approach of focus group discussion (FGD). Also, administering structured questionnaires and conducting semi-structured interviews will be effected in the study location. Besides, aerial satellite photographs; transect walks and direct observations will be assessed to indicate the forest cover change.

2.10.2 Secondary Data

Dossiers on community forest Acts and land Acts and other land-use change data and desk reviews will be consulted to provide information on the land-use situation in the Mae ram.

2.11 Data Analysis

Descriptive statistics will be used to describe the socio-economic and technical characteristics emergent from land-use and its impact on the stakeholders, and the obstacles they are confronted with. Cross tabulation and computation of percentages on the trend of land-use change will be done to process the data collected.

3. PLANNED COLLABORATION WITH PARTNERS

Collaboration between the Thai and Danish students will have to work as a perpetuum-mobile. This implies establishing a common ground to use as a point of departure of this project, continuous dialogue for exchanging useful information, agreeing on important aspects regarding the main topics in discussion and of course establishing a harmonious and fruitful relationship that will enhance our collaboration.

Before leaving to the field, contact has been established with our counterparts and exchange of information has taken place through emails. The Thai students have helped us obtain a thorough understanding of the issues that have appeared along the time in our research location. Upon arrival both sides will have to decide on several issues like: team forming, dividing tasks and prioritizing actions.

We propose the following team structure based on the background of the involved students:

Livelihood group: 1 Danish student and 1 Thai student

Community forestry group: 2 Danish students and 1 Thai student

Tourism group: 1 Danish student and 1 Thai student

Agriculture group: 2 Danish students and 1 Thai student

This allocation of students will help us achieve higher efficiency during field work. Of course, this means that we will need to set clear goals and use appropriate methods to attain them.

The subgroups will prioritize their actions according to the commonly decided time frame. Furthermore, they will perform the tasks that have been presented with at meetings and fulfill them within the set deadlines.

4. TIME FRAME

The research activities would be carried out as follows:

Phase	Activity	Location	Duration
1	Preparation of the synopsis	Life Science	3 rd to 25 th Feb. 09
2	Submission and presentation of the synopsis	Life Science	25 th to 27 th Feb. 09
3	Orientation programme and Collaboration with Thai students	CMU SLUSE	4 th Mar. 09
4	Pre-testing of questionnaires Introduction and Demonstration of field equipments	CMU SLUSE	5 th Mar. 09
5	Group work Work plan presentation	CMU SLUSE	6 th Mar. 09
6	Leaving CMU to Base camp Introduction to key villagers	Base camp	7 th Mar. 09
7	Semi structured interview with village elders	Base camp	8 th Mar. 09
8	Questionnaire session with village households	Base camp	9 th - 11 th Mar. 09
9	Preparation for mid term presentation	Base camp	12 th Mar. 09
10	Midterm presentation	Base camp	13 th Mar. 09
11	Semi structured interview with local officials (Agriculture Department , Forest Department and Department of Town and Country Planning)	Office	14 th Mar. 09
12	Focused group discussion with village elders	Base camp	15 th Mar. 09
13	Focused group discussion with community forestry participants	Base camp	16 th Mar. 09

14	Back to Chiang Mai and Preparation of the final presentation	CMU SLUSE	17 th - 18 th Mar. 09
15	Submission of draft report	CMU SLUSE	19 th Mar. 09
16	Presentation of report	CMU SLUSE	20 th Mar. 09
17	Data analysis, report writing and submission.	Life Science	24 th Mar. to 6 th Apr. 09

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APPENDICES

Table representing research questions and methodology

RESEARCH QUESTIONS	OPERATIONAL QUESTIONS	METHODS OF DATA COLLECTION	SOURCES OF DATA/INFORMATION	SAMPLING TECHNIQUES/STRATEGIES
1. How and why have local livelihoods changed in the recent past?	1. What were the main livelihood activities of households in the village 5-10 years ago?	Semi-structured interview on livelihood trends.	Key informant in the village (Preferably and elderly citizen)	One or two key informants (The information gathered by this method could be used to assess any need of stratifying the respondents)
	2. What livelihood activities are households engaged in now?	Questionnaire administered to households Literature review	Heads of households	30 households randomly selected
	3. What are the reasons for the change in livelihood activities?			
	4. How many household members migrate for			

	<p>work elsewhere? Abroad or within Thailand?</p> <p>5. How important are remittances to households</p> <p>6. Where do households heavily dependent on remittances invest /expend this income?</p>			
2. Who are the actual local beneficiaries of the recent land use change?	<p>1. What activities related to tourism, housing and CF are local people engaged in now?</p> <p>2. What group of villagers are involved in new land-use activities?</p>	Questionnaire	<p>Households still engaged in agriculture (paddy rice)</p> <p>Other household heads</p>	Simple random sampling of 30 heads of households but where the random did not capture households growing paddy rice on their own land, a purposive sampling will be adopted to capture at least two(2) of them

<p>3. What conflicts of interest exist with villages higher up in the watershed?</p>	<ol style="list-style-type: none"> 1. Is there a history of conflicts between Ban Pang Haew and other villages? 2. If so, what is the nature of the conflicts? 3. What conflicts currently exist between BPH and other villages? 4. Who are the main actors within the villages are involved? 5. What are the interests, goals, positions, capacities and relations between actors? 	<ul style="list-style-type: none"> • Key informant semi-structured interviews with Local leaders or village-elders. Interviews conducted in neighbouring villages pointed out by the initial informants as being in conflict with BPH. 	<ul style="list-style-type: none"> • Key informants in involved villages. Village-elders with good knowledge of local history. 	<p>Snowball sampling technique, as neither the conflict, nor the actors, is known before conducting the first interview.</p>
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4. What are the conflicts of interest between local people and higher level authorities as a result of land use development?	1. Which conflicts on land use are in the village? 2. What are the interests and positions of contention of actors? 3. What are the power relations of various agents	Semi-structured interview	Local leaders (village leaders, sub-district official, district level official, Agencies/Department	Two representatives of each level of authority related to the conflicting issues
5. How has the development in land-use impacted on local forest and other natural resources?	1. How has the extraction of various products changed over the past 10 years?	FGD	Residents of at least 10 years of adult life in the village (Not less than 28 years of age)	At least 8 resident (10 consistent years)
	2. What changes have occurred in forest cover?	Analysis of satellite data/aerial photographs Review of Secondary data on land cover changes	Satellite image/aerial photos of the village- 1999 -2002: 2008-2009. Base map of land cover. FAO GFRA 2005 Reports on disasters like wildfires	Two sets of data for the two reference years

	3. What changes have occurred in fresh water availability and distribution?	FGD	Residents of at least 10 years of adult life in the village (Not less than 28 years of age)	At least 8 residents (10 consistent years)
6. How would the development in land use be in harmony or conflict with CF?	1. What are the perceptions of local people about community forestry	Questionnaires	<ul style="list-style-type: none"> Households 	30 representatives of households
	2. How many households are involved in community forestry project?	Semi-structured interview with project staff	Community forestry officer in charge of Ban Pang Haew	At least one senior officer of community forestry project
	3. What is the productive status of the areas designated as community forest areas?	Forest inventory to assess the stocking levels per unit land area of locally demanded timber/construction tree species and three selected prime local NTFPs	Designated and/or active community forest areas	Five random square temporary sample plots (measuring 20 m X 20 m each) and measuring all trees above 10 cm diameter at 1.3 m above ground level and using the appropriate technique to estimate quantities for selected NTFPs per unit area.

	<p>4. What are the rights and benefit arrangements for community forestry participation?</p>	<p>Desk study: Review of community forestry working document.</p> <p>Focus Group Discussion with community forestry participants.</p> <p>Semi-structured interview with community forestry officers</p>	<ul style="list-style-type: none"> • Community forest laws or working document • Participants of community forestry project • Community forestry officer in charge of Ban Pang Haew 	<ul style="list-style-type: none"> • Eight heads of households participating in community forestry for FGD • At least one senior officer of community forestry project
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Questionnaires

Dear respondent,

We are a group of six M.Sc. students studying Agricultural Development at Copenhagen University, Faculty of Life Sciences. We are undertaking a survey on changing land use in Ban Pang Haew. We are investigating how the change over the last 15 years has affected your livelihoods, your use and dependency of natural resources and the community forestry project in your village. We have identified that households are directly affected by or at least have an interest in the recent developments in this community in one way or the other. Therefore we would greatly value your contribution. We have selected your household at random as we want an overview from the whole Ban Pang Haew but not specific individuals. All responses are anonymous; the information will be treated confidentially and will not be traceable to you in any way.

It is important to emphasize that there are *no right or wrong answers* we are interested only in your personal opinion. You are of course allowed to decline to answer specific questions or inform the interviewer if you feel uncomfortable in any way.

Thank you for your assistance, it is much appreciated.

Sincerely,

Bogdan, Isaac, Kwame, Naveen, Elena and Jakob

Master students, Agricultural Development, Faculty of Life Sciences, University of Copenhagen.

Introduction:

Answering this questionnaire will take no longer than *one hour* of your time.

Are you interested in and willing to participate in our survey?

Time: Start.....End.....

Date:-03-2009

Interviewer's Name:

1.0 Household Characteristics

Household Number:

Name of the HH head:

Are you the head of the household? (Please circle appropriate answer)

- (i) Yes
- (ii) No

If yes, please jump to question 1.2 and continue.

1.1 In case you are not the head of household, what is your relation to the household head?

(Please circle appropriate answer)

- (i) Father
- (ii) Mother
- (iii) Uncle
- (iv) Aunt
- (v) landlord/landlady
- (vi) other, please specify.....

1.2 What is your age? (Please circle appropriate answer)

- (i) 25-34
- (ii) 35-44
- (iii) 45-54
- (iv) 55-64
- (v) Older than 65

1.3 What is your level of education? (Please circle appropriate answer)

- (i) Primary/Elementary school
- (ii) High/secondary School
- (iii) University or Professional level

1.4 Were you born in this village? (Please circle appropriate answer)

- (i) Yes
- (ii) No

If yes, please jump directly to question 1.6 and continue.

1.5.1 Where did you come from? (Please circle appropriate answer)

- (i) Another town/village within Tambon
- (ii) Another town/village within Ampur
- (iii) A town/village within Chiang Mai Province
- (iv) Outside Chiang Mai province but within Thailand
- (v) From outside Thailand

1.5.2 For how many years have you been living in Ban Pang Haew? (Please circle appropriate answer)

- (i) Less than 5
- (ii) 5-10
- (iii) 11-15
- (iv) 16-20
- (v) More than 20 years

1.5.3 Why did you move to live in Ban Pang Haew? (Please elaborate)

.....
.....
.....
.....

1.6 Land characteristics

1.6.1 Do you own any land? (Please circle appropriate answer)

- (i) Yes
- (ii) No

If no, jump directly to 1.7 and continue.

1.6.2 If **yes**; **how** many rais of land do you own presently?.....rais (1 rai = 1600 m²)

1.6.3 Do you have a chanoot or any other kind of *legal* documents covering any proportion of your land?

- (i) Yes
- (ii) No

If yes, please indicate the type of the document and the area it covers

Category of land Document	Size in rai	Remarks (e.g purchased from an individual)
E.g. Chanoot (NS 4)		

1.7 Land history

1.7.1 How much land did you own 10-15 years ago?.....rais.

1.7.2 Have you sold/rented/mortgaged your land within the past 15 years? (Please circle appropriate answer)

- (i) **Yes**

(ii) No

If yes, please indicate the details in the table below, if no jump directly to 2.0

Category of land Document	Size in rai	Since when (Year)	Period in case of rent and mortgage	Value of Sale/Rent/Mortgage per year (Baht)
Sold				
Rented				
Mortgage				

1.7.3 How do/did you use the money obtained from the sale/renting of your land? (Please circle appropriate answer)

- (i) To support education of household
- (ii) For household food purchases
- (iii) Health
- (iv) Own business
- (v) Others, please specify.....

2.0 Current and Recent Past (5-10 years ago) most important livelihood activities

2.1 What activity(ies) was(were) the main source of living for you and your household now? (Please list a maximum of three in order of importance)

- 1:.....
- 2:.....
- 3:.....

2.2 What activity(ies) was(were) the main source of your living 5 – 10 years ago? (Please explain)

.....
.....
.....

2.3 If there is difference between 2.1 and 2.2 responses probe further: If you have changed your livelihood activities please indicate what caused you to do so?

.....

.....

.....

.

.....

.....

.

3.0 Migration Work and Remittances

3.1.1 Has/Have any member(s) of your household moved to live and/or work in another town/town/village in the past 5 -10 years? (Please circle the appropriate answer)

- (i) Yes
- (ii) No

If yes, please jump to question 3.1.3 and continue

3.1.2 How many members of your household have migrated?

.....

.....

3.1.3 What is the relation of the migrators to the head of the household? (Please circle the appropriate answer)

- (vii) Father
- (viii) Mother
- (ix) Uncle
- (x) Aunt
- (xi) landlord/landlady
- (xii) other, please specify.....

3.1.4 Has He/she moved to (Please circle appropriate answer)

- (i) Another village/town in the Tambon?
- (ii) Another village/town/city in the Ampur?
- (iii) Another village/town in the province?
- (iv) Another town/city in Thailand?
- (v) Outside Thailand?

3.1.5 How many members of your household work outside but live in this village?.....

3.1.6 Is the work permanent or seasonal (at certain periods of the year)? (Please circle appropriate answer)

- (i) Permanent
- (ii) Seasonal

3.1.7 What benefits do you get from your relatives who work outside this village?

- (i) Money , average per every three months(BAHT)
- (ii) Material possessions
- (iii) Household items and appliances, please list
.....
.....
.....
- (iv) Capital goods (e.g. cars, farm machinery, etc.) specify
.....

3.1.8 How frequent are remittances made from your relatives living outside this village?
(Please circle appropriate answer)

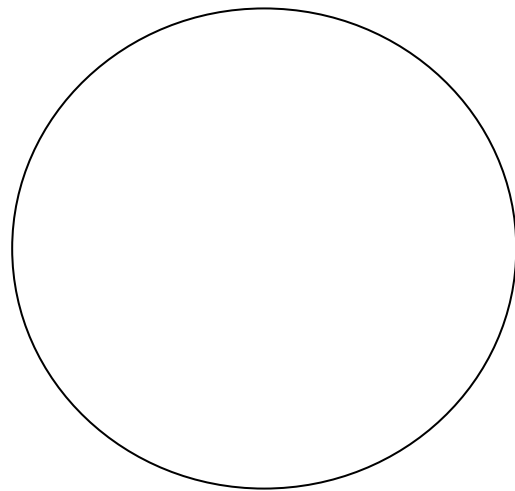
- (i) Monthly
- (ii) every three months
- (iii) every half year
- (iv) every year

3.1.9 How much of your household income is based on remittances? (Please circle appropriate answer)

- (i) [1/4]
- (ii) [1/3]
- (iii) [1/2]
- (iv) [1/1]

3.1.10 In a pie chart, please draw the proportions of the household income used for the following expenditures:

- 1. Consumption
- 2. Education
- 3. Business Projects e.g. trading
- 4. Health
- 5. Property development e.g. building
- 6. Other (specify).....



3.1.11 Do you or any member of your household undertake any of the following (Please circle appropriate answer)

- (i) Work at tourist resort/holiday home of somebody else
- (ii) Work as tourist guide
- (iii) Rent my house/room to tourist
- (iv) Sell food or souvenirs to tourist
- (v) Other related activities, specify.....

4. Community Forestry

4.1 Do you or any member of your household work in the Community Forestry project?

(Please circle appropriate answer)

- (i) Yes
- (ii) No

4.2 In what way is the forest important to your household? (Please circle no more than the four most appropriate answers)

- (i) It provides construction material (wood)
- (ii) It provides medicinal products
- (iii) It provides fuel wood
- (iv) It provides other products (e.g. honey, mushroom, etc.)
- (v) It moderates local climate
- (vi) It protects our water bodies
- (vii) It attracts more tourists and so makes my 'business' go on.
- (viii) I can practise my religious rites there
- (ix) Other (please specify).....
- (x) It is not important to me

If **not**, important please explain why the forest is not important to your household?

.....

.....

.....

.....

.....

4.3 Are you/your household involved in the Community Forestry project? (Please circle appropriate answer)

- (i) Yes
- (ii) No

If no, please jump to 4.5

4.4 If **yes**, why did you join the project? (Please circle appropriate answers)

- (i) To have free use of forest products
- (ii) To have easy access to forest products even though I will pay
- (iii) To protect the watershed
- (iv) To get access to credit facility that I could invest elsewhere
- (v) To get employment and income
- (vi) To gain social recognition
- (vii) Other (please specify).....

4.5 Are there any reasons why you could not or have not joined the CF project?

- (i) I have other important activities/job to do
- (ii) I do not need the products from the forest
- (iii) There are so many difficult rules
- (iv) I was not allowed to join because of my status (citizenship, ethnic background)
- (v) The project will take my land
- (vi) Other (please specify).....

4.6 Are there any misunderstandings or disputes on the community forest boundary between inhabitants of this village and

With	Write Yes or No	What misunderstanding/conflict?
Surrounding villages?		
Some people in this village?		
RFD officials?		
Others		

4.7 Has anyone in Ban Pang Haew tried to resolve the boundary disputes, how did they try to do it and what was the outcome?

.....

.....

.....

.....

.....

5. Forest Product usage

5.1 Which forest products did you use the most 10 years ago? Indicate relative availability in the table below

Forest Product	Availability 10 years ago (Use 1. Abundant, 2. Fairly available and 3. Scarce)	Availability now- 2009 (Use 1. Abundant, 2. Fairly available and 3. Scarce)	What are the reasons for the changes in availability

5.2 Which of the forest products above are you no longer collecting/using? (Please explain)

.....

.....

.....

.....

.....

5.3 Why are you no longer collecting or using the abovementioned forest products? (Please explain)

.....

.....

.....

.....

.....

Thank you so much for your time!

CHECK LIST FOR SEMI STRUCTURED INTERVIEWS

This interview is being conducted by students of Chaing Mai and Copenhagen Universities to study *land use change impact on livelihoods and natural resources*- a research title selected. All the information that interviewees give is confidential. You as key informants are highly appreciated in giving us valuable information that gives inputs for the successful accomplishment of our study.

INTERVIEW WITH VILLAGE KEY INFORMANTS

- What are the main livelihood activities of the villagers?
- Have there been any change in the livelihood activity of the villagers in past 10-15 years
- What are the changes that have occurred and reasons for the changing their livelihood activity
- What are the main source of income and expenditure of the village?

Conflict

- What kind of conflict are existing in the village
- Reasons for the conflict
- Who are the people (various categories) involved in the conflict
- What do you suggest is a fair outcome for this conflict

INTERVIEW WITH LOCAL OFFICIALS (Agriculture, Forest and Town and Country Planning departments)

- What kind of conflict are existing in the village
- Reasons for the conflict
- Who are the people involved in the conflict
- What do you suggest is a fair outcome for the conflict

INTERVIEW WITH COMMUNITY FORESTRY OFFICIALS

- How do the local people benefit from the CF project?
- How many households are involved in CF project?
- What are the conflicts existing with the introduction with CF?

- What would you consider as the best approach to overcome the said conflicts?.

CHECK LIST

This Focused Group discussion is being conducted by students of Chaing Mai and Copenhagen Universities to study *land use change impact on livelihoods and natural resources*- a research title selected. Information given in this discussion will not be traced to individuals here. You as participants are highly appreciated in giving us valuable information that adds inputs for the successful accomplishment of our study.

FOCUSED GROUP DISCUSSIONS WITH VILLAGE REPRESENTATIVES

- What kind of product (timber and non timber products) do people in this village extract from the forest?
- How important are these products obtained from the forest important to the people (this village)?
- Have there been any changes in the use and availability of these products obtained from the forest in the past 10 -15 years?
- What are the changes and reasons for changes mentioned already?
- What has happened to forest cover in this village over the past 15 years?

FOCUSED GROUP DISCUSSION WITH COMMUNITY FORESTRY PARTICIPANTS

- What are your perceptions on CF?
- What kind of rights do you enjoy over the forest with the introduction of CF?
- What kind of CF activities are you involved in?
- What are the benefits sharing arrangements used for community forestry in this village?
- Are there some issues about community forestry that you think should be resolved?
- What would you consider as the best way to address/solve these issues?

APPENDICES 2

แบบสอบถาม (Questionnaire to Households)

ปัจจัยและเงื่อนไขที่มีอิทธิพลต่อการเปลี่ยนแปลงการใช้ที่ดินภาคการเกษตรสู่ภาคธุรกิจการท่องเที่ยว

(Factors and conditions influencing on change of land use from agricultural activities to tourism)

i. Introductory information

หมู่บ้านชื่อ (Name of village).....

บ้านเลขที่ (Address / House No.).....

หมู่ที่ (Moo/Village number).....

ii. ข้อมูลทั่วไป (Household Characteristics)

iii. ชื่อเกษตรกรกรผู้ให้สัมภาษณ์ (Name of respondent)

☐ นาย Mr. ☐ นาง Ms. ☐ น.ส. Miss

ชื่อ (First name).....นามสกุล (Surname).....

iv. สถานภาพในครอบครัว (Status in family).....

v. อยู่หมู่บ้านนี้มานานกี่ปีแล้ว (Settlement period in the village)ปี (Years)

vi. จำนวนสมาชิกในครัวเรือน (Number of family member)..... คน (person(s))
แบ่งเป็น

เพศชาย จำนวน (Male).....คน (person(s))

เพศหญิง จำนวน (Female).....คน (person(s))

vii. ผู้มีรายได้จำนวน (Number of family members who have income).....คน

viii. ผู้ไม่มีรายได้ (Number of family members who do not have income).....คน

อาชีพ (Kind of career).....จำนวน

(Number).....คน

อาชีพ (Kind of career).....จำนวน

(Number).....คน

อาชีพ (Kind of career).....จำนวน

(Number).....คน

ix. ช่วงอายุของสมาชิกในครัวเรือน (Age range of family members)

ต่ำกว่า 15 ปี จำนวน (Number of member(s) aged under 15)คน (person(s))

15 – 20 ปี จำนวน (Number of member(s) aged between 15-20 years old)

.....คน (person(s))

21 – 35 ปี จำนวน (Number of member(s) aged between 21-35 years old)คน
(person(s))

35 – 60 ปี จำนวน (Number of member(s) aged between 35-60 years old)คน
(person(s))

มากกว่า 60 ปี จำนวน (Number of member(s) aged above 60)คน
(person(s))

x. การศึกษาของสมาชิกในครัวเรือน (Education background of family members)

ไม่ได้ศึกษา จำนวน (Number of member(s) who has no education in school).....คน

ประถมศึกษา จำนวน (Number of member(s) with primary-school-education level).....คน

มัธยมศึกษา จำนวน (Number of member(s) with secondary-school-education level).....คน

ปริญญาตรี จำนวน (Number of member(s) with bachelor-degree-education level).....คน

อื่นๆ (Others).....

1.0 การถือครองที่ดินของครัวเรือนและการใช้ประโยชน์จากที่ดินในช่วงปี 2540 – 2551
(Household land tenure and land utilization during 1999 - 2009)

1.1 ในอดีต(ย้อนหลัง 10 ปี) มีพื้นที่ถือครองจำนวน (Number of lands possessed in the last 10 years)แปลง.(Plot(s))

1.2 รวมทั้งหมดที่อยู่ในหมู่บ้าน (Total number of land in the village)ไร่ (Rai)

1.3 พื้นที่เช่าจำนวน (Number of rental land(s)แปลง (Plot(s) รวมทั้งหมด (Total number).....ไร่ (Rai)

แปลง ที่ Land No.	พื้นที่ Size of land		การใช้ป ระโยชน์ ในพื้นที่ Kind of land utilisati on	ระยะเวลา การ ถือครอง Period of land possessio n	ประเภทกา ร ถือครอง Type of land possessio n	การได้ม า ของที่ดิน How to get the land	สภาพการถือครองพื้น ที่ Status of land possession now (2009)	
	ไร่ Ra i	งาน Ngarn					ปัจจุบัน In the present	เนื่องจาก Reason(s) any changes from 10 years ago

ปัจจุบันมีพื้นที่ถือครองจำนวน (Number of lands possessed in the present time)แปลง
 (Plot(s) รวมทั้งหมดที่อยู่ในหมู่บ้าน (Total number of land in the village)ไร่ (Rai)
 พื้นที่เช่าจำนวน (Number of rental land(s)แปลง (Plot(s) รวมทั้งหมด (Total
 number).....ไร่ (Rai)

1.4 In case you have you sold/rented/mortgaged your land within the past 10 years, what is the total area of land you have sold/rented/mortgaged and value of the said land? (Please use the table below)

Land transactions	Size in rai	Since when (Year)	Period in case of rent and mortgage	Value of Sale/Rent/Mortgage per year (Baht)
Sold				
Rented				
Mortgage				

1.5 How do/did you use the money obtained from the sale/renting of your land? (Please circle appropriate answer)

- (vi) To support education of household
- (vii) For household food purchases
- (viii) Health
- (ix) Own business
- (x) Others, please specify.....

2.0 เศรษฐกิจในครัวเรือน (Household Livelihood Strategies)

รายจ่าย (Household Expenses)

รายจ่ายนอกภาคการเกษตร (Non agricultural expenses)

2.1. ท่านมีค่าใช้จ่ายในภาคนอกการเกษตรเรื่องใดบ้าง โดยมองจากค่าใช้จ่ายทั้งหมดตลอด 1 ปี (What kinds of non-agricultural expenses do you have yearly?)
 จงเรียงลำดับจากค่าใช้จ่ายที่มากไปหาค่าใช้จ่ายที่น้อย โดยใช้หมายเลข 1- 9 (1 หมายถึงมากที่สุด , 9 หมายถึงน้อยที่สุด)

Please prioritize from the highest to the lowest expenses, by using No.1-9 (1 refers to the highest, 9 the lowest)

- ☐ ค่าจ้างแรงงาน (Payment for labor)
- ☐ ค่ารักษาพยาบาล (Health fee)
- ☐ ของใช้ฟุ่มเฟือย เช่น เลี้ยงผ้าแบรนด์เนม (Entertainment expenses e.g. soft drinks, liquor, etc.)
- ☐ ค่าเล่าเรียนของบุตรหลาน,ตัวท่านเอง (Expense of education of children, yourself)
- ☐ ค่าเดินทาง (ค่าน้ำมัน/ค่าโดยสารรถ) (Transportation fare e.g. fuel, bus ticket)

- ☐ ของใช้จำเป็น เช่น ยาสีฟัน ผงซักฟอก สบู่ฯ (Necessary articles e.g. toothpaste, detergent, soap etc.)
- ☐ ภาษีบำรุง เช่น ภาษีที่นา (Tax e.g. paddy-field tax)
- ☐ ค่าอาหาร (Food)
- ☐ สาธารณูปโภค (ค่าน้ำ/ค่าไฟฟ้าฯ) (Expense of public utilities e.g. water, electricity etc.)
- ☐ Other

2.2 รายจ่ายในภาคเกษตร (Agricultural expenses)

ท่านมีค่าใช้จ่ายดังต่อไปนี้หรือไม่ (ตอบได้มากกว่า 1 ข้อ)

Do you have expenses as the following? (You can choose more than 1 answer)

- ☐ ค่าเช่าที่ทำกิน (Land rent)
- ☐ ปัจจัยการผลิต (Production inputs)

2.3 How much money do you spend on your farm production activities now?

_____ How much money were you spending
on the same land unit ten (10) years ago?

จงเรียงค่าใช้จ่ายจากมากไปหาน้อย โดยเรียงลำดับจาก 1- 6 (1 หมายถึงมากที่สุด, 6 หมายถึงน้อยที่สุด)

Please prioritize from the highest to the lowest expenses, by using No.1-6 (1 refers to the highest, 6 the lowest)

- ☐ ปุ๋ย (Fertilizer)
- ☐ เครื่องมือการเกษตร (Agricultural equipment)
- ☐ เมล็ดพันธุ์ (Seed)
- ☐ ค่าเก็บเกี่ยว (Expense of harvest)
- ☐ ค่าใช้จ่ายในการขนส่ง (Expense of product carriage)
- ☐ สารเคมี (Chemical substance) Land clearance and weeding

2.3.0 รายได้ (Income)

4.3.1 รายได้ในภาคการเกษตร (Income from agricultural activities)

ท่านมีรายได้ในภาคเกษตรจากแหล่งใดบ้าง จงทำเครื่องหมาย ✓ หน้าตัวเลือกต่อไปนี้ (ตอบได้มากกว่า 1 ข้อ)

(What kind of agricultural activities have you gained income? Please mark ✓ following choices (You can choose more than 1 answer)

- ☐ พืช (Cropping)
- ☐ ประมง (Fishery)
- ☐ รับจ้างในภาคการเกษตร (Agricultural employment)
- ☐ เลี้ยงสัตว์ (Livestock-raising)

2.3.2 รายได้นอกภาคการเกษตร (Income from non-agricultural activities)

รายได้ในชุมชน (Income within the community)

ท่านมีรายได้ในชุมชนจากแหล่งใดบ้าง จงทำเครื่องหมาย ✓ หน้าตัวเลือกต่อไปนี้ (ตอบได้มากกว่า 1 ข้อ)

(Which source in the community have you gained income? Please mark ✓ following choices (You can choose more than 1 answer)

- ☐ ขายแรงงาน (Work for hire)
- ☐ หาของป่า (NTFP collection and sale)
- ☐ ขายที่ดิน (Sell the land)

- ☐ รับจ้างในภาคธุรกิจ รีสอร์ท (Hire oneself out for the resort business)
- ☐ Own business

รายได้นอกชุมชน (Income from outside the community)

การรับจ้าง (Hired labour)

ท่านมีรายได้จากการรับจ้างจากแหล่งใดบ้าง จงทำเครื่องหมาย ✓ หน้าตัวเลือกต่อไปนี้ (ตอบได้มากกว่า 1 ข้อ)

(Which source of hire have you gained the income? Please mark ✓ following choices (You can choose more than 1 answer))

- ☐ รับจ้างในเมืองหลังฤดูกาลเก็บเกี่ยวทางการเกษตร (Hire in town/city after harvest)
- ☐ รับจ้างในเมืองแบบเข้าไปเป็นกลับ โดยไม่มีการทำการเกษตรเลย (Hire in town/city, but stay in the village without working for agricultural field)
- ☐ รับจ้างในเมืองโดยไม่มีการทำการเกษตรเลย (Hire and stay in the town/city without working for agricultural field)

2.4 หนี้สิน (Debt)

ท่านมีหนี้สินหรือไม่ จงทำเครื่องหมาย ✓ (Do you have debt? Please mark ✓)

- ☐ ไม่มี (No)
- ☐ มี (Yes) จงเรียงลำดับหนี้สินจากมากไปหาน้อย โดยใช้หมายเลข 1- 2 (1 หมายถึงมากที่สุด, 2 หมายถึงน้อยที่สุด) และโปรดระบุ (Please prioritize from the highest to the lowest amount of debt, by using No.1-2 (1 refers to the highest, 2 the lowest, and then specify the details))
- ☐ หนี้สินในภาคเกษตร โปรดระบุ (Debt within agricultural activities, specify).....
-
- ☐ หนี้สินนอกภาคเกษตร โปรดระบุ (Debt outside agricultural activities, specify).....
-

ท่านและสมาชิกในครัวเรือนสามารถชำระหนี้สินทั้งหมดได้ทุกปีหรือไม่ (Are you and your family member(s) able to clear all debt every year?)

- ☐ ไม่สามารถชำระได้ทั้งหมด (No)
- ☐ สามารถชำระได้ทั้งหมด (Yes)

2.5 เงินออม (Saving money)

ท่านมีการออมทรัพย์ หรือไม่ จงทำเครื่องหมาย ✓ (Do you have saving money? Please mark ✓)

- ☐ ไม่มี (No)
- ☐ มี (Yes) ท่านมีรูปแบบในการออมทรัพย์ รูปแบบใด (ตอบได้มากกว่า 1 ข้อ) (What kind of saving do you have (you can choose more than 1 answer))
- ☐ กลุ่มออมทรัพย์ในหมู่บ้าน โปรดระบุ (Saving group within the village, please specify).....

.....
.....

☐ กลุ่มองค์กรเงินต่างๆ โปรดระบุ (Other financial group(s), please specify).....

.....
.....

2.6 Please mention the main activities you were doing to support your household's living in terms of income generation and what you consumed ten (10) years ago.

.....
.....

2.7 Please mention the main activities you are doing to support your household's living in terms of income generation and what you consumed now (2009).

.....
.....

2.8 NB to interviewer: If there are any changes of main livelihood activities, ask respondent to explain why the changes in livelihood activities (10 years ago to the current, 2009) below

.....
.....

2.9.0 Migration Work and Remittances

2.9.1 How many members of your household work or lives outside this village?.....

2.9.2 Is the work outside village permanent or seasonal (at certain periods of the year)?

(Please circle appropriate answer)

(ii) Permanent

(ii) Seasonal

2.9.3 What benefits do you get from your relatives who work outside this village?

(v) Money , average per every three months(Baht)

(vi) Material possessions

Household items and appliances, please
list:.....
.....
...

(vii) Capital goods (e.g. cars, farm machinery, etc.)
specify.....

2.9.4 How frequent are remittances made from your relatives living outside this village?

(Please circle appropriate answer)

(v) Monthly

(vi) every three months

(vii) every half year

(viii) every year

2.9.4 How much of your household income is based on remittances? (Please circle appropriate answer)

(v) [1/4]

(vi) [1/3]

(vii) [1/2]

(viii) [1/1]

.....
.....

2.9.5 Do you or any member of your household undertake any of the following (Please circle appropriate answer)

- (vi) Work at tourist resort/holiday home of somebody else
- (vii) Work as tourist guide
- (viii) Rent my house/room to tourist
- (ix) Sell food or souvenirs to tourist
- (x) Other related activities,
specify.....

2.10. Living standards before and after selling the land

2.10.1. Has there been any changes in your households living conditions that you consider significant since you sold your land, please explain

.....

.....

.....

.....

2.10.2. Do you have any regrets for selling your land, please explain?

.....

.....

.....

3.0 Forest Products and their importance to households and Conservation of forest and water resources

3.1 Which forest products did you use the most 10 years ago and now (2009)? Indicate relative availability and importance to your household livelihood in the table below.

Forest Product	Availability 10 years ago (Use 1. Abundant, 2. Fairly available and 3. Scarce)	Availability now- 2009 (Use 1. Abundant, 2. Fairly available and 3. Scarce)	Rank importance-10 years ago(Use 1. Very important, 2. Important, 3. Less important, 4. Not important)	Rank importance Now (2009) (Use 1. Very important, 2. Important, 3. Less important, 4. Not important)

3.2 Has there been any major change in the availability of any of the above products? ☐ Yes ☐ No. If yes, please explain how it has changed.

.....

.....

.....

.....

.....

.....

.....

.....

3.3 Which of the forest products above are you no longer collecting/using? (Please mention and explain why you no longer collect or use these forest products)

.....

.....

.....

.....

[illegible]

APPENDICES 3

LIST OF SEMI STRUCTURED INTERVIEWS

1. The interview with the official of the royal forestry department

The forest in Thailand were controlled and managed by the king's of the various provinces. With the movement of foreigners and international companies into Thailand, the forests were opened for logging operations with special rules and concessions. But this operation was carried on an intensive scale and forest were been exploited more than their carrying capacity.

Soon the king realised the importance of the forest for the nation and started to mark the boundary of the forest with the help of the foresters for an effective management. The royal forestry department was established under the ministry of the Agriculture for the management of the forest resources in kingdom of Thailand.

By 1961 the first forest act was passed which emphasized on conservation and sustainable management. With the of the forest law the logging operations were banned completely in the forest.

In 2002 the RFD was shifted to the ministry of Environment and Natural Resources_and splitted into 3 different departments as

1. national park department
2. costal zone department
3. royal forestry department

These changes were made to have effective control and management of the forest and also act as a monitoring agency over the other departments.

The management powers were splitted among the three departments as

1. national park controls over the national park (establishment and management)
2. costal zone controls over the costal areas
3. royal forestry department controls over the rest of the forest (conservation, productivity and community forest)

National park department

It was established to conserve the richness of forest and promote tourism through the establishment of the national park.

The national park would be established on following considerations

1. areas which consist of unique qualities
2. areas potential for tourism

Steps involved in creation of the national park

1. An official notice would be send the Tao and the concerning villages about the creation of the national park , the notice consists
 - a. the boundary of the national park
 - b. the area of the national park
2. Soon after the notice is send , the villagers are allowed to make claims over the area of the national park through courts
3. If claims are not made then the area would be included in the national park
4. After settling all the disputes the national park would be established with the official signature of the king.

Limitations in national park

1. logging is ban
2. collections of NTFPS is allowed special considerations

2. Interview with Director of the community forest division

There is no reinforced community Forest Law yet;

There is one pending, that needs to be approved by parliament, senate, government and then finally signed by the King.

They are aware about encroachments, conflicts. (But just not doing much about it- own comment)

They have demarcation polls for community forest.

For now, village committees are the ones managing the forest.

Boundary problems- they provide support – aerial photos;

Info programs, in villages in school and through the village headmen.

He did not want to answer the question concerning conservation forest...probably because he does not want to interfere.

3. Semi Structure and Transect walk through community and conservation forest

Used for collection of NTFP's

There used to be animals present; deer and rabbits, but these are now much scarcer than before. Unclear timeline though!

Part of the National Park has been privatized,,, although it is against the law.

Government land (royal forestry department) has been cleared by villagers to grow banana and Lychee.

- One of the villagers with land in the cleared forest is the village headman assistant. No name mentioned.
- Cutting down trees done in a definite pattern.
- Cutting of Mae Ketaew trees and Teakk trees.

Seasonal River:

Some trees are chemically treated to kill them gradually

Conservation forests are under Royal F. Dept.

Cutting trees to plant bananas started about 2 yrs ago... they are fenced seem to indicate interest in ownership of land. No comments from our guy guide.

The community was involved in planting the teak according to our guide.

Villagers claim the forest dept. Does not care for the teak,,, so they cut them down and plant bananas.

Remaining forest are dominated by teak and dipterocarpus... The teak are likely to be cut down by the villagers next year,,, they are even prepared for cutting by evidence seen in the forest. Some areas of banana have been abandoned and other indicates active cultivation and maintenance.

Debarking of trees

CF cannot be cut down as it belongs to the community... some parts were cleared by accident by seven people from the village who planted bananas and sold the land to outsiders... unclear story... man seemed distressed when he answered.

Size about 20 rai.

APPENDICES 4

CHECK LIST FOR FOCUSED GROUP DISCUSSION

- ☐ Who uses the resource(s)?
- ☐ Who benefits from the use of the resource(s)? Who wishes to benefit but is unable to do so?
- ☐ Who impacts on the resource(s), whether positively or negatively?
- ☐ Who has rights and responsibilities over the use of the resource(s)?
- ☐ Who would be affected by a change in the status, regime or outputs of management?
- ☐ Who makes decisions that affect the use and status of the resource(s), and who does not?

These questions have been answered using field observations, discussions with key persons, literature reviews and personal experience.

Stakeholder identification in Ban Pang Haew, Community Forest conflict

Resource	Functions	Stakeholders	Comments
Forest	NTFPs		
	Recreational		
	Habitat for fauna		
	Habitat for wildlife		
	Firewood		
	Logging		