

**Sluse Joint Basic Course 2000-2001**

**Field Study Report, Location 3**

**Ban Tho Saman, Song District, Phrae Province,**

**Northern Thailand**

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## **Introduction to Northern Thailand.**

*"...Although economic differences exist between South East Asian countries, they have similar environmental problems, such as: overexploitation of their natural resources, deforestation, decrease in land fertility ..."* (DANCED, 2000)

The above conditions of natural resource management and land use in South East Asia are reflected in rural Thailand, which has been increasingly linked to market economy, hence urban and global economy, like in many other countries in the region. (Buch-Hansen, 2000)

Since the 1950's Thailand has experienced a rapid economic growth. This was initially based on a use of the natural resources, but has become increasingly dependent on manufacturing industry in the urban areas. In 1994 about 60% of the labour force was employed in the agricultural sector, but it's share of GDP was only 12 % (Fairclough & Tasker 1994:22).

The economic crisis in 1997 has once again shifted emphasis on the agriculture sector, creating greater pressure on the natural resource base. Presently, all land suitable for agriculture has been used (DANCED 2000:10). This was partly due to many temporary workers in the cities lost their job and returned to farming. The ones suffering most were the small-scale farmers being dependent on off-farm income (Buch-Hansen, 2000).

Since the 1970's Thailand has been a net importer of timber, primarily because the growing rice production in the country has been based on expansion into forest areas. From 1950 to 1980 the rice production increased by more than two thirds. This has contributed to severe environmental degradation in many areas (Hirsch 1993:15). But on the other hand, the growing paddy rice production created the economic surplus in the 1950's and 1960's. Today 25% of Thailand's paddy fields are located in the North (Buch-Hansen, 2000).

At national level the environmental degradation caused concern and resulted in changes within the national environmental policy. The 7<sup>th</sup> (1992-1996) and 8<sup>th</sup> (1996-2001) National Economic and Social Plans put an emphasis on integration of economic and social development and natural resource management. This issue was furthermore addressed by the new Constitution from 1997, which encouraged public participation in the protection and management of Thailand's environment and natural resource base. The constitution addresses the important role of community based organisations and local institutions, and decentralisation of government programmes implementation is presently promoted. One example is the formation of the Tambon Administrative Organisations (TAO) on sub-district level (DANCED 2000: 13-15).

Various development projects are aiming at improving the living conditions for the poorest part of the rural population. This includes improving basic infrastructure and employment opportunities and instruction in farming practices (Phongpaichit & Baker 1999:64).

Different policies attempt to stop further encroachment of forests in Thailand. The aim is to leave 25% of the land as commercial forest and 15% as natural forest. This is being pursued through different policies as afforestation programmes, resettlement programs or granting of usufructuary rights, and not least supporting a change from extensification towards intensification of farming practices (Hirsch 1993: 15,16,20). In the 1960's, the expansion of agricultural land was 45% per year and today it is 1% per year (Buch-Hansen, 2000). A reason for the big expansion of agricultural land in the 1960's and 1970's was the government focus on agricultural export, supported by subsidies, taxes and other economic and political means (Baker & Phongpaichit, 1998).

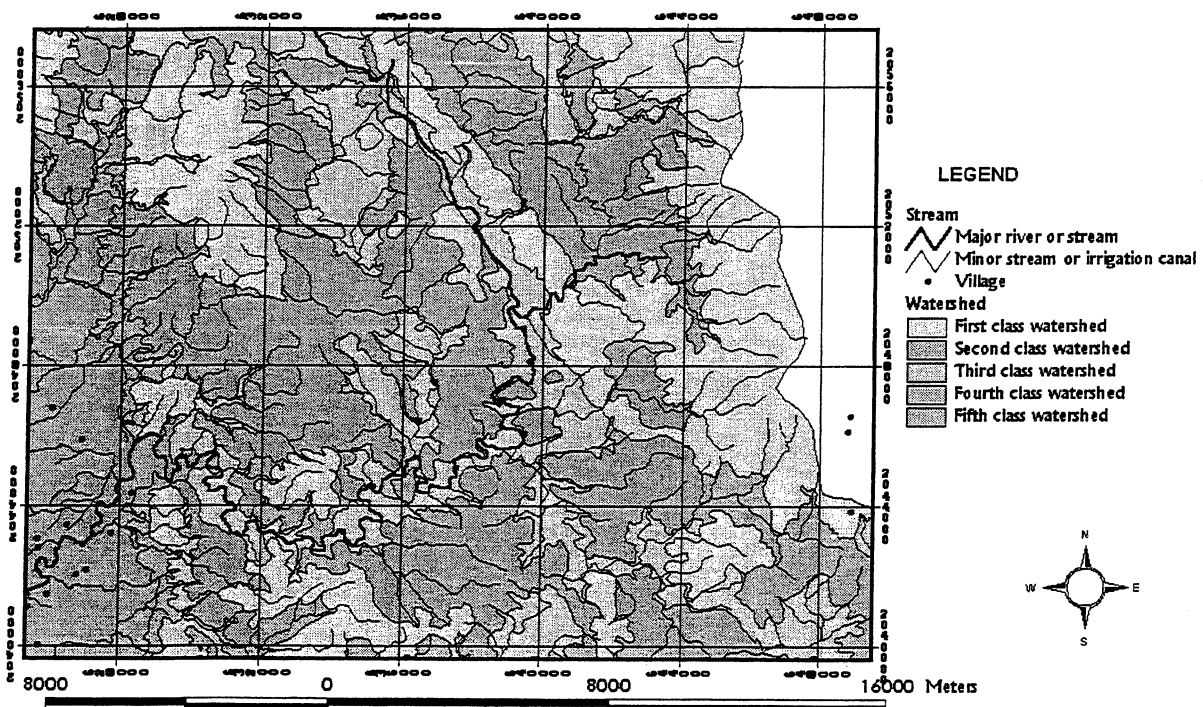
The building of dams in the northern part of Thailand is part of this intensification. In particular areas this has led to increased water supply, higher yields, a change from subsistence to cash crop production and integration into the market economy (Cohen and Pearson 1998). The dependence of the cash economy has caused problems for many poor farmers, who have a low income and limited access to financial support. To obtain a loan from a bank the farmer needs a title deed, and this is a constriction to many of the poorest farmers in the rural areas. The farmers have to find ways of supplementing their low income or finding credit, and this often involves loan from the Bank of Agriculture and Co-operative (BAAC), private moneylenders, the Middleman or the State.

Until now, relatively low population and expanding agriculture have not forced the majority of farmers to invest in intensification of agriculture and the use of agricultural input is still relatively modest for most of the farmers. But other commercial, export oriented farmers are closely related to agribusiness companies providing seeds and other agricultural input. (Buch-Hansen, 2000)

Thailand's position as natural resource and agricultural exporter is often related to the increasing deforestation and environmental consequences, such as irregular flooding and a total logging ban was the outcome of the flood in 1989 (Bello et al., 1998). Deforestation is especially considered as an ecological problem in Northern Thailand, because the area is the main water supply to the Chao Phraya Basin and the central plain. The remaining forest in the north constitutes the main watersheds and water flow irregularities in these areas have potentially huge impact on water supply and quality, e.g. siltation from soil erosion in the lower areas (Bello et al., 1998).

In order to protect the watersheds, a classification with different watershed classes was introduced. Map 1 illustrates the classification of Song Watershed, situated in Mae Yom Watershed, Northern Thailand. The map also indicates the villages, in which the four groups of students in the SLUSE Field Course did investigations (highlighted with yellow), which are situated in WSC2, WSC4 and WSC5. The northern villages were studied by location 1, the south-western villages by location 2 and 3, and the eastern most village by location 4.

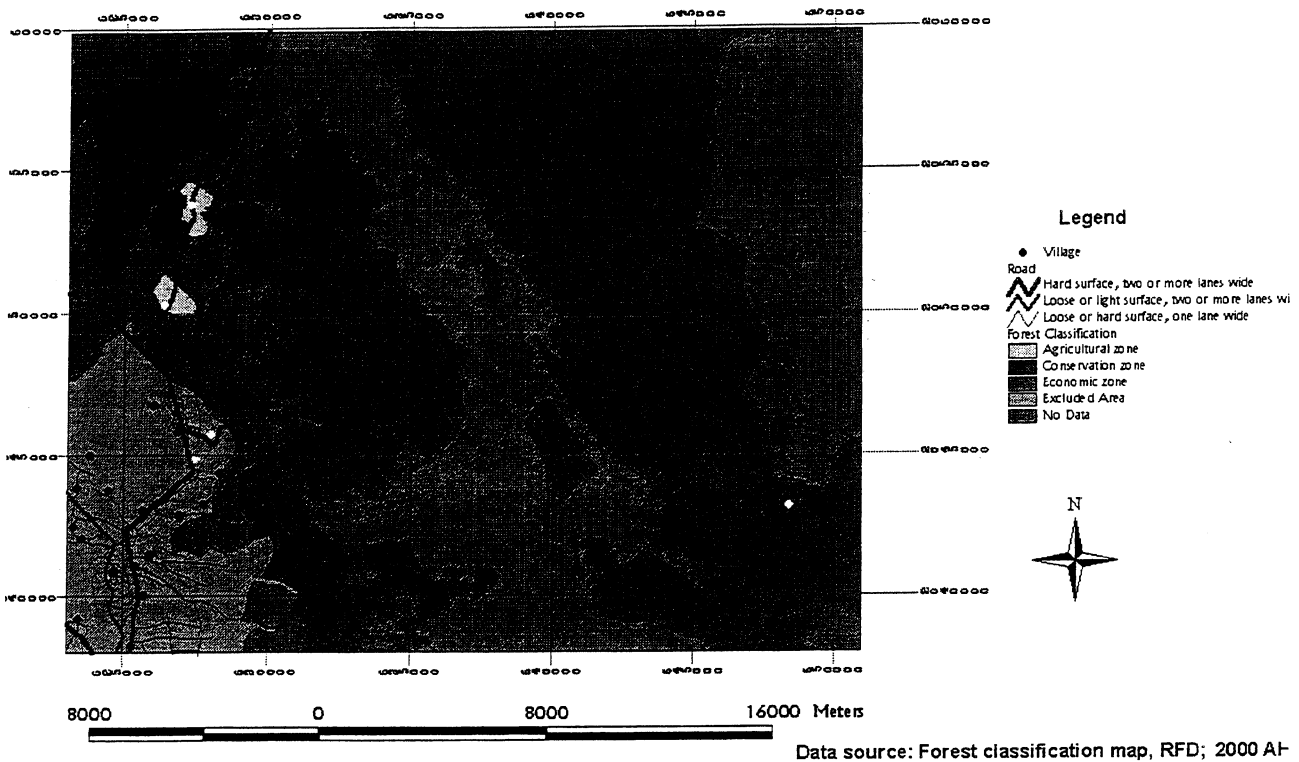
## Watershed classification



Data source: Topographic map, 1992, Thai Survey Department and watershed classification map unknown date, RFD; 2000 AH

One example of the government policy for conserving the remaining forest is the classification of land use in different zones. Map 2 shows The Royal Forest Department's classification in agricultural, economic and conservation zones. These zones are related to various restrictions such as prohibition of timber extraction and agricultural land use purposes.

# Forest Classification in Song Watershed

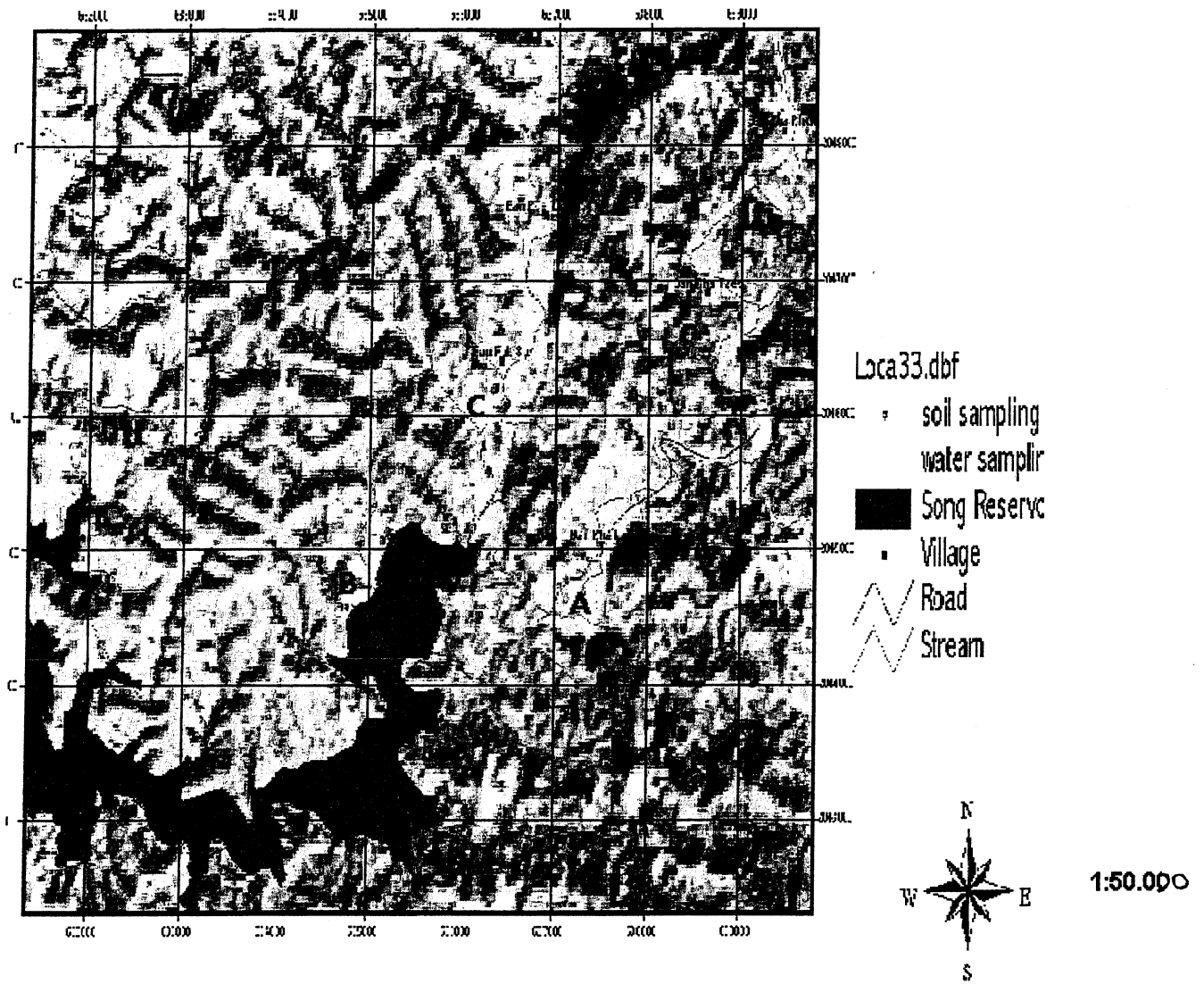


The field study was carried out between 13<sup>th</sup> October and 3<sup>rd</sup> November 2000 in Phrae Province, located in Mae Yom Watershed on latitude 18°25' - 18°39' N longitude 100°10' - 100°25' E, covering an area of approximately 406 km<sup>2</sup>. Song Watershed is situated in the sub-humid tropical climate zone. The annual rainfall is 1200 mm and almost 90% fall in the rainy season in August and September. The cold and dry season is from November to March, when it starts getting warmer again (Rungrrojwanich, 1998).

## List of References to Introduction.

- Bello, W. et al., (1998): *A Siamese Tragedy Development and Disintegration in Modern Thailand*, Zedbooks, London, NY.
- Buch-Hansen, M., (2000): *Is Sustainable Agriculture in Thailand Feasible?*, Accepted in Journal of Sustainable Agriculture.
- Cohen, P & R. Pearson (1998): *Communal irrigation, State, and the Capital in the Chiang Mai valley (Northern Thailand: Twentieth Century transformation)*". Journal of South East Asian Studies 29:1 (Marts 1998) by National University of Singapore.
- DANCED, (2000): *Thai Danish Country Programme for Environmental Assistance 1998-2001*. DANCED, Miljø Ministeriet.
- Fairclough & Tasker (1994).
- Hirsch, P. (1993): *Political Economy of Environment in Thailand*. Manila: Journal of Contemporary Asia Publishers.
- Phongpaichit, Pusuk & Chris Baker (1999): *Thailand- Economy and politics*. Oxford University press.
- Rungrrojwanich S., Paramee S. and Judge S. (1998): *An introduction to Yom Watershed Research Station Phrae Province Northern Thailand Watershed Research Sub-Division of Forest Environment Research and Development Division, Royal Forest Department*.

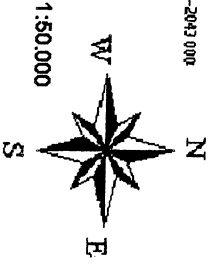
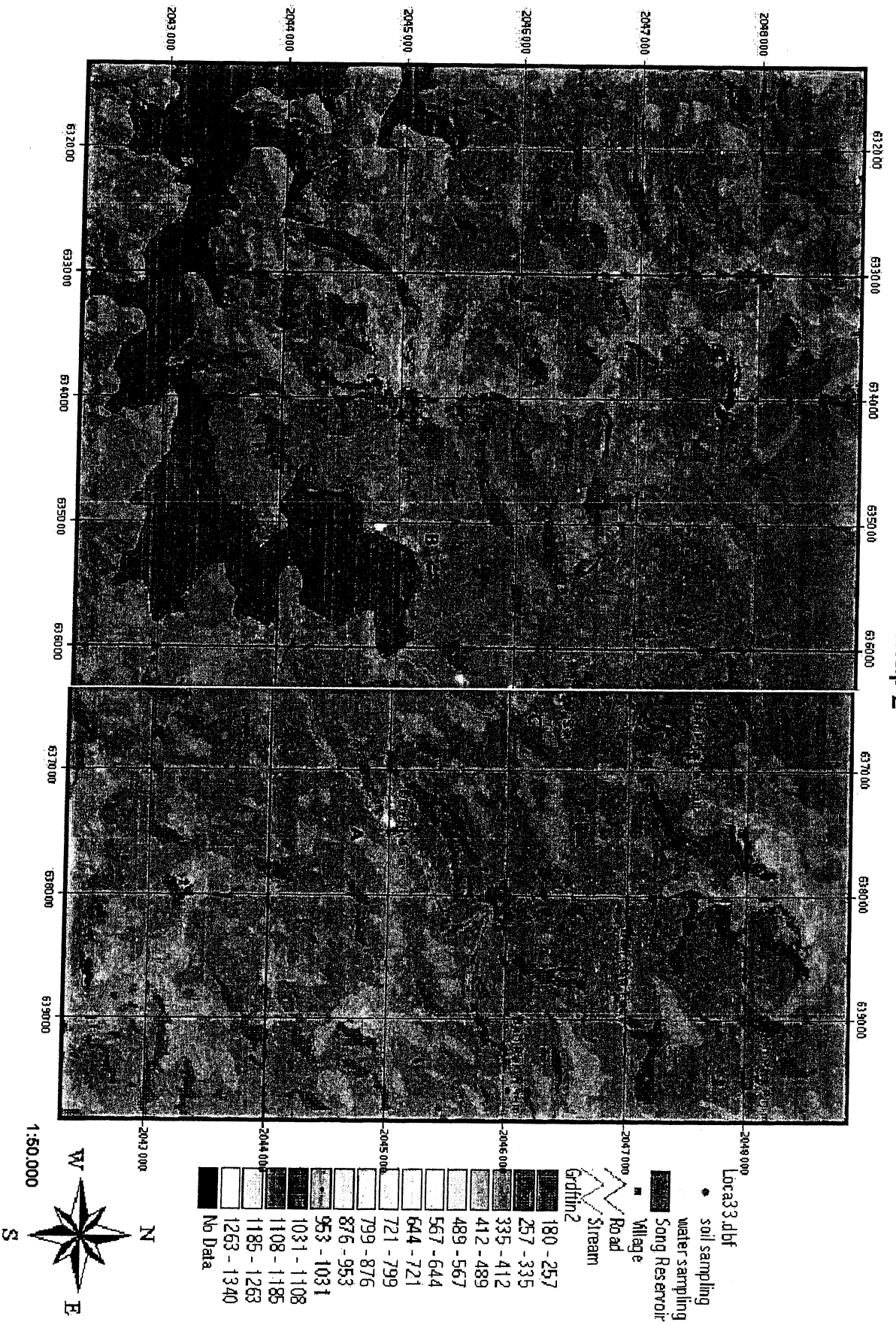
# Soil and Water Map 1







# Soil and water map 2





## **Abbreviations:**

- **BAAC:** Bank of Agriculture and Co-operatives
- **Danced:** Danish Cooperation for Environment and Development
- **IMF:** International Monetary Foundation
- **LRO:** Agricultural Land Reform Office, Office under the ministry of Agriculture and Co-operatives
- **M10:** Mu 10, administrative name for the nearby village
- **NS-3:** *Nor-Sor 3*, land document
- **NTPD:** Non-Timber Forest Products
- **Rai:** Thai area measure, 1200 m<sup>2</sup>
- **RFD:** Royal Forest Department
- **SPK:** *Sor Por Kor*, land document
- **STK:** *Sor Tor Kor*, land document
- **WB:** World Bank



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## **1 ABSTRACT**

The paper gives an account of the methodology used in a field study of livelihood strategies and upland farming in Northern Thailand. The findings of the study are referred and the methodology and findings are discussed. It is concluded that semi-structured interviews, which has been the principal method of collecting data, in connection with other methods, such as written sources, participant observation and soil- and water-sampling, are well suited for obtaining a broad and general impression of the relation between socio-economic and environmental problems. Finally some proposals for further studies are developed, based on what the present study has indicated.

## 2 INTRODUCTION

Our field study was carried out in Ban Tho Saman located in the Tao Poon Sub-district, Song District, Phrae Province. The village with 218 households is located downstream of the Song Reservoir. 70% of the villagers are farmers and 27 households, or 12%, cultivate upland. The flat, irrigated lowland area is situated along the Song River and is surrounded by a mountain range. The upland area is located in the upper part of the Song catchment and is officially a reserved forest zone. Upland agricultural activities are taking place in the flat areas along the Mae Than Stream, with maize and cotton constituting the main crops. Many of the farmers have cultivated upland fields for generations, but they do not have land certificates.

We have found upland farming interesting, because it is a complex and contested topic where socio-economic problems are linked with state policy and natural resource management. Upland farming can lead to deforestation<sup>1</sup> and soil erosion, which is why the Government has enforced forest protection policies. These policies affect upland farmers because they are now illegal squatters and are unable to get land certificates. The insecure tenure situation can have impact on the agricultural practices used. Without land certificates farmers may not have incentives to invest in soil conservation measures, which with time can cause soil degradation. Another problem is that when soil quality decreases new forest area may be cleared for fields.

To understand the livelihood strategies of upland farmers of Ban Tho Saman it has been our aim to clarify their motivations. Another issue we have looked into was whether the upland agricultural strategies can be viewed as sustainable. Some of our initial assumptions about the farmers' motivations for upland farming were that they went upland for economical reasons, the lowland tenure situation, good farming conditions and/or mere tradition.

To understand why upland farming is taking place and to allow for specialisation and in-depth research we have chosen to study different disciplinary topics. The objectives of our investigation are divided into tenure, economics and natural science.

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<sup>1</sup> Permanent conversion of natural forest into other land uses.



## 2.1 Objectives

### Overall

- Why do farmers from Ban Tho Saman cultivate upland areas?
- What type of environmental consequences does upland farming cause?

### *Tenure*

- What kind of ownership or access right to land do farmers have low- and upland?
- How do institutional policies at different levels influence the tenure situation?
- How does the current management of tenure and access rights to the natural resources influence the sustainability of the upland farming systems?

### *Economic*

- What are the economic motivations for farming upland?
- What are the costs and benefits of upland farming?

### *Natural Science*

- What farming practices do they use upland?
- What is the impact of upland farming on soil fertility?
- How does upland farming effect the water quality of nearby streams?
- Has the agricultural area increased during the last decade?

## 3 METHODOLOGY

### 3.1 Presentation of Methodology

The aim of our fieldwork methods has been to provide relevant data that would help us understand why farmers cultivate upland areas. We have applied an array of methods both social- and natural scientific to employ an interdisciplinary examination of our research questions. In this section we will give a description of the group work, a chronological outline of the working process and a review of the standard methods used.

### 3.2 The group work in Thailand

During the project period in Thailand we worked in several groups. In this section we will explain how and why these groups were formed. The three groups that we worked in were;

- The Main group
- The Subject group
- The Interview group

#### 3.2.1 *Main Group*

The main group consisted of three Danish and six Thai students<sup>2</sup>, three interpreters, three Thai teachers and two Danish teachers. Our educational backgrounds covered a wide spectrum of disciplines and this was a good starting point for interdisciplinary work. In this forum we discussed the overall objectives of our research, designed a project plan and planned several fieldtrips to the village and to the upland area.

#### 3.2.2 *Subject Group*

Reflecting the division of our objectives, we made three subject groups with the following topics; Natural Science, Economics and Land Tenure. This group formation allowed in-depth subject related discussions. In the subject groups we discussed who we should interview, prepared interview guidelines, discussed what official documents we needed and prepared for soil and

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<sup>2</sup> Thai students; Public Administration, Human Settlement Planning Geography, Forest Management, Soil Science, Resource Management and Environmental Horticulture. Danish students; Anthropology, International Development Studies and Geography and Environmental and Natural Resource Economics (Bachelor in Biology).

water sampling. In these groups we were able to evaluate the interviews and the data collected during the fieldwork and thereby improve our methods.

### *3.2.3 Interview Group*

The interview groups consisted of members from every subject group, so that each subject group was represented. The idea behind this group formation was to ensure that questions from every subject group were posed at the interviews, along with follow-up questions. The interview set-up normally consisted of 1 or 2 Thai students, a Danish student and a translator. There was a main interviewer who could be either a Danish or Thai student. The other person(s) acted as the “back-up” interviewer, responsible for asking follow-up questions.

## **3.3 Process**

Before our arrival in Thailand the project design was somewhat different from how it turned out. From the outset we had been aware that our project design had to be flexible to adjust to the circumstances of our project site and to the interests and working methods of our Thai colleagues. During our first days of cooperation we shared ideas and interests, which resulted in a project design that we all could agree upon. During the project period we still had to make several adjustments in accordance with the circumstances we met.

First we wanted to interview a key informant, the Headman of the village, and get his help in identifying upland farmers, but he was unavailable at the time. Instead we interviewed the Headman’s Assistant who turned out to be a key person in connection with upland farming. The Headman’s Assistant is an upland farmer herself and could therefore assist in identifying and locating the farmers who cultivate upland fields. The staff at the Health Care Centre were also very helpful in identifying the upland farmers, they gave us a village map and a list with 27 names and addresses, which was a good point of departure for conducting interviews.

Our goal was to locate and interview as many of the 27 farmers as possible. Unfortunately the harvesting season had just started so many farmers and entire families had gone upland to live there for the harvest season. Instead we chose to interview some of the farmers’ wives in the village. Later we also interviewed several farmers at their farms upland. We managed to conduct 20 interviews with upland farmers.

After interviews with upland farmers we found it relevant to interview lowland farmers, to get comparable information. Other key persons and institutions that provided us with valuable information were identified as the fieldwork progressed. The Headman of a nearby village (M10; Mu, an administrative unit), who was also the middleman for upland farmers, became the most important key informant. He made the upland excursions possible by providing boats and guiding us around in the area.

### 3.3.1 *Interviews*

We conducted interviews with the following people (in chronological order);

- Headman's Assistant; to get more detailed information about upland farming.
- The village Headman; get information about the history of upland farming.
- The Doctor at the Health Care Centre; to get general information about the village, information about health insurance and economic status of villagers.
- Twenty upland farmers; to get detailed information about upland farming.
- Two Middlemen; to understand their role and influence and also to learn more about the agricultural practices taking place upland (through interviews with the upland farmers we learned about the importance of the Middleman). One of the Middlemen was Headman of M10, who guided us around in the upland area
- Ten lowland farmers; to get another perspective and a different set of opinions of why some farmers cultivate upland areas.
- Officer at the Agricultural Office to get information about farming in general in Ban Tho Saman and about government support projects. We also wanted to get information about the history and future of the upland area, and about the consequences of upland farming.

The lists of guiding questions we used when conducting interviews changed several times. The first set were simply labelled 'natural scientific', 'economic-' and 'tenure questions' and were used only as inspiration to more specific targeted sets for 'wives of upland farmers', 'upland farmers', 'workers and renters', 'village Headmen' and 'Middlemen'. One or two interviews were improvised - which was only possible because we knew the contents by heart. But in spite of the many changes a core of questions remained more or less the same, supported by a common understanding and consensus in the main group.

After having completed all interviews we gathered the information in one big data table. This was in order to compare information from the different interviews and make it clear what information was missing. The idea behind this table was to create an overview.

At the end of our field study, we wanted to gather the upland farmers for a community meeting. We wanted to share our findings and give them advice on future farming practices. Unfortunately the meeting was cancelled because of bad weather.

### 3.4 Methods

Table: Project Approach

	Objective	Methodology	Indicators
<b>Tenure</b>	1. What kind of ownership or access right to land do upland farmers have? 2. How do institutional policies at different levels influence the tenure situation? 3. How does the current management of tenure and access rights to the natural resources influence the sustainability of the upland farming systems?	<ul style="list-style-type: none"> <li>Semi-structured interviews (up- and lowland farmers, Agriculture Extension Office)</li> </ul> Documents from: <ul style="list-style-type: none"> <li>From Royal Forest Department</li> <li>Agricultural Land Reform Office</li> <li>Department of Agriculture Extension</li> </ul>	<ul style="list-style-type: none"> <li>Tenure situation and access rights to land</li> <li>Land certificates.</li> <li>Inheritance of land.</li> <li>Forest policies</li> <li>Land Reform Policies</li> <li>Agriculture Extension Policy</li> <li>Tao Poon Sub District Policy</li> </ul>
<b>Economics</b>	1. What are the economic motivations for farming upland? 2. What are the costs and benefits of upland farming?	<ul style="list-style-type: none"> <li>Semi-structured interviews (up- and lowland farmers, Middlemen, Health Care Centre)</li> </ul> Statistical data from; <ul style="list-style-type: none"> <li>Phrae Province Song District Tao Poon Sub District office</li> </ul>	<ul style="list-style-type: none"> <li>Yield per rai.</li> <li>Input costs.</li> <li>Other costs.</li> <li>Income from upland farming.</li> <li>Other income.</li> <li>Loans and collateral</li> <li>National and Economic and Social Development Plan Aid</li> </ul>
<b>Natural Science</b>	1. What type of farming practices do they use upland? 2. What is the impact of upland farming on soil fertility? 3. How does upland farming effect the water quality of nearby streams? 4. Has the agricultural area increased during the last decade?	<ul style="list-style-type: none"> <li><i>Soil</i>: soil samples, observation and interviews (upland farmers)</li> <li><i>Water</i>: water sample and observation</li> <li><i>Forest</i>: semi-structured interviews (up- and lowland farmers, Agriculture Extension Office), GPS/GIS</li> </ul>	<ul style="list-style-type: none"> <li>NPK, pH, EC, texture and colour, farming practices and use of chemicals.</li> <li>Turbidity, EC, pH.</li> <li>NTPF and extent of deforestation</li> </ul>

#### 3.4.1 Social Science

##### PRA

Participatory Rural Appraisal (PRA) is a selection of participatory methods<sup>3</sup>. The idea behind PRA is to get information on cultural, political and economical issues in a short time period by simultaneous participation of many farmers. PRA and, to a lesser extent, Rapid Rural Appraisal

(RRA) methodologies are well suited for promoting dialogue between field workers and villagers. From such dialogue the field worker can obtain relevant information while simultaneously helping villagers to identify, and find solutions to, their problems and needs. The value of these techniques is that they allow the field worker to involve villagers as participants, and therefore are more likely to address the real needs of rural communities and find solutions that are efficient and sustainable<sup>4</sup>.

In our field study we employed some of these methods; participatory mapping and income ranking. We also used the semi-structured interview, which is part of PRA. In this section we will briefly outline our methodology.

#### *Semi-structured interview*

One of the most important sources of information for monitoring agriculture development projects are qualitative interviews. Qualitative interviews with project participants and other key informants help in understanding the complex ecological, cultural, and other situations with which a project must deal. They can also provide an in-depth understanding of the perspectives, attitudes, and behaviour patterns of the target population, which will not be fully captured by other modes of data gathering.

Qualitative interviews are classified according to three types:

1. Informal conversational;
2. Topic-focused; and
3. Semi-structured, open-ended<sup>5</sup>.

In the field, semi-structured interviews quickly became the most used method. The semi-structured interview is a mixture between a structured interview and a qualitative interview where you try to exploit the advantages of both. Semi-structured interviews superficially resemble the interviews conducted for structured surveys but differ from them in three main ways.

1. The questions are open-ended; respondents are encouraged to express themselves fully rather than respond to a predetermined list of options.

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<sup>3</sup> Furze et.al, pp. 56-59

<sup>4</sup> Jackson pp. 1-11

<sup>5</sup> Casley et al., p.11

2. The sequence of the questions is not predetermined; the interviewer is still allowed to exercise discretion in controlling the course of the interview.
3. Additional questions can be asked in order to pursue interesting leads<sup>6</sup>.

The semi-structured interview has been defined as: "Informal interviews with checklists but without questionnaires, which permit probing and following up on the unexpected, without the requirement that all the checklist points must be covered in any one interview"<sup>7</sup>.

The interviewer takes the role of a curious and inquisitive outsider and the respondent answers in-between the formality of the structured interview and the exposure of the qualitative interview. It requires that questions be used as guidelines only, and continuously are reformulated and adjusted. It is well suited for getting an overall view in preliminary research and in our view its major setback must be that the information extracted can seem scattered, uncertain, provisional or superficial although this is not necessarily the case.

The interview method we applied was a relatively structured form of the semi-structured interview. We followed the checklist points consistently and in a chronological manner. When interviewing we had the interview guide in front of us, making the interview more formal than intended. The reason for this was that we wanted comparable information. This should be possible because the information from various respondents is comparable enough to determine the simple frequency of responses, although the main emphasis will continue to be placed on the in-depth understanding provided by the respondents<sup>8</sup>.

We found that in order for the interview to give good results, the interviewee must participate. To create a good interview atmosphere, we found the following important:

- Present yourself
- Be straightforward
- Say 'thank you' in the end
- Be emphatic
- Try to understand the 'logic' of answers

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<sup>6</sup> Casley et al., pp. 13-14

<sup>7</sup> Furze et al., p. 58

<sup>8</sup> Casley et al., pp. 13-14



- If you ask abstract and sensitive questions, begin with a parallel subject
- Find simple questions that lead in the right direction or talk about linked subjects
- Realize that people don't necessarily trust you or might misinform you without intention
- People have certain positions, cultural roles and personal interests, and consequently might say what they find opportune
- It can be useful to be sceptic
- Look for inconsistency and contradictions, and sometimes 'provoke' answers. The best is if this 'critical' attitude can become a conscious reflexivity, for example when you start to ask questions like; “Can the 'local community' be seen as a neat consensual group?”, “Might power dynamics prevent some local people from articulating their views freely?” and “Are we aware enough not to be biased by our sympathies and antipathies when individuals have opinions and points of view different from our own?”

### *Income Ranking*

Income ranking can be described as: “Methods for eliciting knowledge and preferences from informants”<sup>9</sup>. We did not use informal diagrams or any kind of participatory tools in our income ranking. We just asked them to rank their incomes with simple direct question such as, “Which income is more important for you, fishing or upland farming?”

We also wanted to do a wealth ranking with one of the key informants. Wealth ranking is a grouping of the households in different categories of wealth<sup>10</sup>. This will allow for discussions of wealth criteria, power vulnerability, etc.

### *Participatory Mapping*

Participatory mapping is a simple method that provides an effective method for field workers to collect socio-economic and bio-physical data.

Participatory mapping can be described as:” The use of formal maps, whether general or specialised, and preparation of informal maps based on information and on local knowledge”<sup>11</sup>.

We used participatory village mapping for locating upland farmers. We asked key informants to indicate the households of upland farmers on the village map. During initial interviews we also

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<sup>9</sup> Furze et al, pp. 58-59

<sup>10</sup> Furze et al., p.79

<sup>11</sup> Furze et al, p. 58

asked the interviewee to locate their upland fields on a formal map of the upland area. We only used formal maps for participatory mapping and we didn't ask the participants to draw maps of the village or of the upland area themselves.

### 3.4.2 *Natural Science*

#### *Soil Sampling*

To investigate if upland farming has any consequences on soil, water and forest, we wanted to investigate the soil and water properties of the upland area.

The soil fertility indicators that we were able to measure with the equipment were plant available nutrients; mineral N, plant available P and exchangeable K (NPK), pH, electric conductivity (EC) and observations of soil texture and colour. pH is relevant to measure since pH has an influence on the availability of nutrients for the crops. EC indicates the total amount of soluble salts in the soil, a saline soil can affect a plant's respiration and thereby its growth<sup>12</sup>. The properties of soils are important for determining soil fertility. Soil texture and colour can reveal information about the parent material along with general characteristics of the soil. The colour can show the degree of fertility of the soil, the darker the colour the higher content of organic material. The soil structure and texture soil determine the ability of the soil to retain moisture for plant growth, to allow the drainage of excess water and to permit rainwater to infiltrate into the soil<sup>13</sup>. The extent of soil erosion was evaluated by observation of erosion rills and the soil surface. Information on the history of the soil was gained through interviews with the farmers.

Soil samples were taken in fields of the farmers we also interviewed. We took composite samples along zig-zag transects. In the first couple of fields we used a small auger, and took approx. 10-15 sub-samples at approximately 20 cm depth. Due to the high clay content of the soil it was difficult to get the soil out of the auger. We therefore changed to using a larger auger making it necessary to only take 4 sub-samples at 20 cm depth. About 1 kg soil was taken from every field with a different crop. From large fields located on slopes, we took samples from three levels; upper, middle and lower.

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<sup>12</sup> Briggs p. 335

<sup>13</sup> Briggs p. 336

We investigated three areas upland along the Song Reservoir (A, B and C see map). We examined fields of six farmers from Ban Tho Saman whom we also interviewed. We took soil samples from 4 maize & 5 cotton fields, a field under fallow and from the forest (control).

- **A:** Farmer #1, 1 maize, 1 cotton field and forest
- **B:** Farmer #2, 1 maize field
- **C:** Farmer #3, 1 maize, 2 cotton fields and one field under fallow  
Farmer #4, 1 cotton field  
Farmer #5, 1 cotton field  
Farmer #6, 1 maize field

First we estimated the texture of the soil by finger test. The colour was determined according to the Munsell soil colour chart. Thereafter the soil was air-dried in the shade, crushed and sieved. Aliquots were taken for the single analysis. We used the Kasetsart University Soil Test Kit to measure NPK and pH. The test kit is designed for fieldwork purposes and the test results for NPK are therefore not exact values but given in classes. For N and P the classes are; very low, low, medium, high and very high. The K values are only given in three classes; low, medium and high. Nevertheless it is still a good tool to make a quick and easy soil analysis. EC was measured in the water-suspension phase of a soil:water (1:2) suspension. To measure EC, a Milwaukee Pocket EC-meter was used and the result was multiplied by a correction constant of 3,6.

#### *Water Sampling*

Reservoirs are prone to silting, which occurs when rain causes major movement of sediment<sup>14</sup>. To evaluate the consequences of upland farming and determine the extent of siltation and contamination of nearby water streams, water samples were taken from water streams near the fields where soil samples were collected. Samples were taken from the middle of the stream at a depth of about 15 cm. As a control we took a sample from a water stream in the forest. The water's EC, pH and turbidity were measured. To measure EC, Milwaukee Pocket EC-meter was used and pH was measured with Oakton Pocket pH-meter. Turbidity was measured with a portable turbidimeter (Model 2100P).

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<sup>14</sup> Briggs p. 494.

### 3.4.3 GPS

Mapping of the upland area was limited to include only the fields of upland farmers from Ban Tho Saman. With the use of GPS we obtained coordinates at the soil and water sample sites and then plotted them on a topographical map (1:50000). On this map the Song Reservoir has been added and its borders are estimated.

## 4 FINDINGS

### 4.1 Land Tenure

The farmers cultivating upland can be divided in two main groups: those who only cultivate upland and those who cultivate both upland and lowland. There are ten farmers in each group among the farmers we interviewed. Common to both these groups is that they farm upland because there is not enough land available lowland and because it is necessary to meet the economic requirements of the household. The Song District Agricultural Officer confirms this. To the question: "Why do the farmers cultivate the upland area?" she answered: "There is not enough agricultural area in lowland so farmers have to go upland. The upland area is also more fertile."

In the cases where both low- and upland farming is practiced, lowland farming is predominantly satisfying subsistence and upland farming is predominantly satisfying the cash-crop needs. Some farmers have inherited small areas in lowland, but these fields aren't sufficient to meet their needs, therefore they also cultivate upland.

Farmers who only farm upland have different reasons for this. Some farmers once had land and used to grow tobacco in the area that is now flooded by the reservoir. The Song District Agricultural Officer confirms this: "About ten years ago they used to cultivate tobacco in the upland area but there were some problems about the prices and quotas of the crop. These problems led to a change of crops". From the interview with the village Headman's Assistant we know that other farmers never acquired land in the lowland area, either because they came to the village at a point of time where all areas in the lowland were already occupied or because they were not able to inherit land. To clarify which relation the household have to the area they are farming upland and how they acquired the land we have divided respondents into five categories and indicated how the area is divided between them<sup>15</sup>(see table below).

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<sup>15</sup> The division of households corresponds to what respondents have declared was their relation to the land. The sum of the areas ascribed to each category constitutes the entire area cultivated by respondents. With this division it remains unclear to what extent the workers are working on land that other respondents own.

Table 1: Status of upland farmers.

Category of Farmers	# Of Households	Area in rai <sup>16</sup>	% Of total upland area	Average Rai per household	# Of households with lowland fields
<i>Renters</i>	4	92	34	23	2
<i>Inheritors</i>	6	90	33	15	4
<i>Cleared land</i>	5	43	16	8,6	2
<i>Bought land</i>	1	10	4	10	0
<i>Work on land</i>	3	33	12	11	0
<i>Uninformed</i>	1	4	1	4	1

The farmers who are renting and who have inherited land are cultivating 67% of the upland area, only 16% have cleared land (within the last ten years). It is interesting to note that the average area of households renting land is far greater than the cleared areas. This could indicate that some of the households are not doing so out of pure economic necessity but to extract a profit.

Most farmers have an NS 3 (*Nor-Sor-3*) certificate for lowland fields, whereas they do not have certificates for upland fields. Since 1981 the RFD (Royal Forest Department) has issued STK (*Sor-Tor-Kor*) -certificates to the upland farmers. During the last half of the 1980's RFD stopped renewing these documents and by the time the Song Reservoir was built all certificates, which were issued for a five-year period, had expired. In 1999 the Land Development Officer started to survey the upland agricultural area with the intention of giving SPK (*Sor-Por-Kor*) certificates, issued by the LRO (Agricultural Land Reform Office) to the farmers cultivating there. Common to both STK and SPK documents is that they are usufruct certificates that can only be transferred by inheritance, i.e. they cannot be sold. This is to secure that the distribution of land remains in the hands of many farmers. But whereas the former STK certificate, which was tied up with certain restrictions, no such restrictions exists on the present, or rather coming SPK certificates. In other words, SPK certificates can be used legally as collateral but cannot be sold. So far only few of the farmers who are farming upland have received SPK certificates, which means that the relation of these to the sustainability of the upland area remains unknown. In the following section we will highlight the parts of the Thai forest policies that can contain possibilities of conflicts. We will return to and elaborate upon this in the "Discussion of Findings".

<sup>16</sup> 1 Rai= 1200m<sup>2</sup>

#### 4.1.1 *Forestry Policy*

From 1985 onwards reforestation has assumed an increasing importance in Thai politics (see appendix 1). The majority of this reforestation is to take place through the planting of forest for economic utilisation by the state (in our area mainly planting of teak). A smaller part is the conservation of the existing tropical monsoon forest by declaring it "Forest Reserves" and protecting it against encroachment. The stated aim 'to both utilize and conserve' can seem a contradictory, especially when the main emphasis is put on utilisation.

From 1997 onwards a reform of the administrative system to increase the participation of the citizens was set in motion. This reform implies an acceleration of the distribution of land certificates to the citizens, and a decentralization of public land management to the local communities. In Ban Tho Saman this entails distribution of SPK certificates to upland farmers. It seems that some ambiguity of competence concerning the process of distribution remains between RFD and LRO. The Land Management Section of RFD assigns which land should be given to villagers. It seems that land reform can only take place after RFD decided which deforested areas should be used for agricultural purposes. Perhaps there is an incentive in this for the farmers to clear new forest areas because they can get a SPK certificate if the area is 'deforested'.

#### 4.2 **Economics**

Upland agriculture is an essential income for all 20 households we interviewed. Maize and cotton are the dominating crops and have been that since the building of the dam. In the table below a review of prices on inputs and benefits in relation to maize and cotton, are given.

**Table 2 Amount and price on inputs**

<b>Inputs</b>	<b>Maize</b>	<b>Price</b>	<b>Cotton</b>	<b>Price</b>
	<i>kg/hectare</i>	<i>Bath/kg</i>	<i>kg/hectare</i>	<i>Bath/kg</i>
<b>Seeding</b>	17-33	50-100	67-117	200
<b>Fertilizer</b>	125-150	6-9 cash 9-10 credit	67-117	6-8 cash 9-10 credit
	<i>L/hectare</i>	<i>Bath/L</i>	<i>L/hectare</i>	<i>Bath/L</i>
<b>Herbicides</b>	7-17	120-200	7-17	120-200
<b>Insecticides</b>	4-8	120-200	4-8	120-200
<b>Workers</b>	2-5 (for 4-5 days)	60-120 B/day	2-5 (for 4-5 days)	60-120

Table 3 Yield of maize and cotton

<i>Yield</i>	<i>Kg/hectare</i>	<i>Price (Bath/kg)</i>
<b>Maize</b>	5000-8333	2,1-3
<b>Cotton</b>	1667-2083	14-17

For 12 of the 20 upland farmers maize constituted the main income, for three of the upland farmers cotton was the main income. It is possible that some farmers have experienced a decrease in income as a result of the shift from tobacco to maize and cotton.

#### 4.2.1 Loans

Many of the upland farmers take loans in form of money or seeds. They can loan money (10,000-80,000 Bath) from BAAC and frequently a group of farmers take a loan collectively. When farmers do not have land certificates, they use their forthcoming harvest as collateral.

Another loaning possibility is through the Middleman. He gives them credits in terms of seeds, fertilizers and chemicals and he also buys the harvested products. Most of the upland farmers are dependent on the Headman of M10 who is the middleman for most upland farmers.

Taking private loans is also a possibility for the farmers. We interviewed a farmer with many economical problems who had taken a private loan. Our investigation doesn't reveal the extent of private loans.

#### 4.2.2 Logistics

After construction of the Song Reservoir, transportation to the upland area has become a big problem for the farmers. It is difficult to transport products to and from the area. Depending on the location of the fields, harvested products are either transported by boat to the lowland area, or the products are stored upland until it is possible to drive to the area during the dry season. The upland farmers are therefore now very dependent on the middleman. He offers several services to the upland farmers such as:

- Tilling the land, price 300 Bath/rai
- Transports seeds and chemicals
- Prepares the Maize for sale



- Transports the products to the market
- Rents land to farmers (he rents out more than 1000 rai to upland farmers)
- The Middleman buys seeds and sells products to another middleman in Phrae who works for the big Thai company (C.P. Limited).

The middleman almost has monopoly of the upland area. He controls most of the trade, taking place. The wealthy upland farmers are more independent because they have boats themselves and are able to trade directly at the markets. The poor farmers are dependent on the Middleman, because they have no alternatives.

#### *4.2.3 Other Incomes of the upland farmers*

##### *NTFP*

The majority of upland farmers are dependent on NTFP. Mostly NTFP are used for subsistence use, but mushrooms, bamboo shoots and the bark from Mulberry trees are sold at the local market. The wild that they hunt is used for subsistence but also for selling. Especially poor farmers are dependent on the additional income from NTFP-products, but none of the farmers.

##### *Workers*

When it isn't season for upland farming many of the farmers are workers for other farmers and in local construction. When employed as workers in lowland during the harvest season the wage is 60-80 Bath/day. For spraying pesticides on the fields workers get 130-140 Bath/day. The wage for local construction is 100Bath/day. For three of the households, worker wages were the main income.

##### *Fishery*

Fishing in the reservoir is another alternative income for some farmers. From fishing they can earn 100-150 Bath/day. Fishery was the main income of one household.

##### *Urban employment*

When children of the household work in urban areas, they often send money to their parents: 2000-3000/month. This income is the main income of one household.

### *Lowland farming*

The farmers who also farm lowland own or rent two to four rai, where they grow sticky rice. Sticky rice is used for subsistence but also used for the upland workers. The workers are paid 10 Bath less compared to lowland workers, but instead they receive food and accommodation. Sticky rice production is an important alternative production, especially for farmers with small upland fields. Upland farmers who also have lowland fields cannot in general be described as being wealthier than farmers without lowland fields.

### *Governmental Support*

There are several possibilities for governmental support. The Agricultural Land Reform Office supports the farmers with free herbicide, insecticide for cotton (though only one litre) and fertilizer (50 kg). The support from the Agricultural Land Reform Office is not common, the majority of the farmers have to buy their inputs.

Another kind of governmental support is from the Health Care Centre. They give support to the old and weak.

### **4.3 Natural Science**

The twenty farmers we interviewed cultivate 272 rai in the upland area, of which 72% is cultivated with maize fields and 28% with cotton fields. Some farmers only grow maize (40%), others only cotton (5%), but most grow a combination (55%).

Maize is grown twice annually; from December to the harvest in February and from August to the harvest in October. The cotton season is from September to December. Machines are used for tilling, but otherwise the work is carried out manually. The farmers help each other during the harvest period.

The use of fertilizers and chemicals upland were investigated through semi-structured interviews and observations. Approximately 50% of the farmers use fertilizers for maize and most use fertilizer, insecticide and herbicide for cotton. When taking soil samples in cotton fields, the farmers warned us about touching the plants because the crops had just been sprayed with insecticide and a strong smell of chemicals lingered in the air. Farmers who do not use fertilizers find it unnecessary because the soil fertility is good or they simply cannot afford it. Many farmers have experienced that during the last decade yields are smaller due to nutrient exhaustion of the

soil. Many farmers now find the use of fertilizers necessary. One farmer experienced a 40% decrease of his maize yield during the last ten years. Because of inconsistency in our interviews we cannot give exact numbers of how many of the farmers use chemicals and how much. Therefore we cannot be certain if chemicals are used superfluously and what the consequences are. The fertilizers used most frequently are 16-20-0 and 40-0-0. The results of soil texture and colour are shown in the table below:

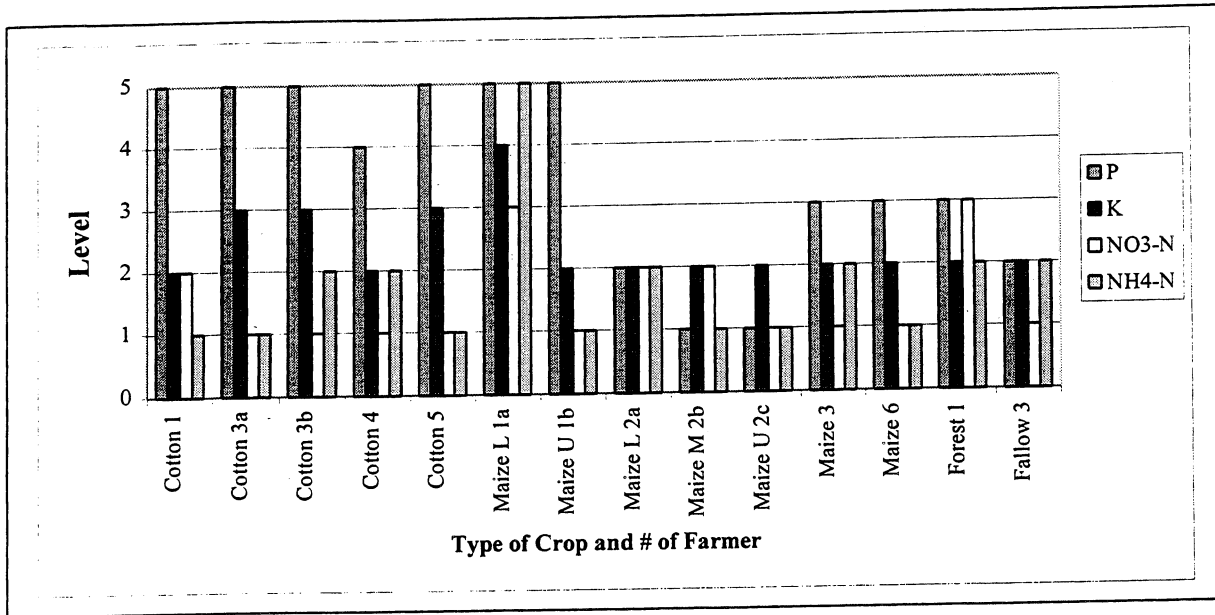
**Table 4: Soil Texture and Colour (L=lower, M=middle, U=upper level of fields)**

Area	Coordinate (UTM)	Farmer	Land use	Soil Texture	Soil Colour
A	637309E 2044977N	1	Forest	Clay	Dark reddish brown
A	637351E 2044981N		Cotton	Loam-clay	Dark brown
A	637365E 2044965N		Maize L	Clay-loam	Very dark greyish brown
A	637441E 2044923N		Maize U	Clay-loam	Between dark brown
B	635126E 2045070N	2	Maize L	Clay	Dark greyish brown
B	634851E 2045026N		Maize M	Loam-clay	Dark greyish brown
B	635186E 2045128N		Maize U	Loam-clay	Dark brown
C	636527E 2046082N	3	Fallow	Silt-loam	Dark yellowish brown
C	636479E 2046025N		Cotton	Loam-clay	Dark brown
C	636424E 2046022N		Cotton	Loam-silt	Dark yellowish brown
C	636388E 2046193N		Maize	Loam	Brown-dark brown
C	636354E 2046183N	4	Cotton	Loam-silt-clay	Dark brown
C	636398E 2045907N	5	Cotton	Loam-silt	Dark yellowish brown
C	636318E 2045574N	6	Maize	Silt-loam	Brown-dark brown

In areas A and B loam-clay and greyish brown are the dominating characteristics. In area C loam silt and dark yellowish brown are the dominating characteristics.

### 4.3.1 NPK

The results of the NPK test kit are shown below. The results are grouped according to the type of crops (the numbers indicate the different farmers):



Figur 1: NPK results. P is plant available P, K is exchangeable K and N is mineral N (Level 1= very low, 2=low, 3= medium, 4=high, 5= very high. K only levels 2, 3 and 4)

In general the NPK test verifies which farmers use fertilizers on their fields. Fertilizers are used for all cotton fields, and the results for these fields show that most P-values are very high and the K-values are mostly medium. Farmer 1 and 3 also use fertilizers on their maize fields; the P values are higher than in maize fields where fertilizers aren't used.

The forest sample shows somewhat higher values for P and N compared to the fallow field and the fields where fertilizer hasn't been applied. But in general the natural fertility of the soil is low-medium and it can be deduced that if permanent agriculture is taking place in the upland area it will cause exhaustion of the limited nutrients. Therefore if farmers are to maintain the same yield, addition of fertilizer or other farming techniques will be necessary. Especially exchangeable K can become a limiting nutrient in the future. Many farmers are using fertilizers 40-20-00, but they should be aware that adding K is also necessary.

#### 4.3.2 *PH and EC*

The pH of all soil samples is in the range from 6-7, with an average of 6,5. The EC values are measured to be between 0,54 (forest) and 4,25 ms/cm (fallow) with an average EC of 1,62 ms/cm (see appendix 2). pH and EC values show no signs of soil degradation

Intensive farming upland has caused an exhaustion of soil nutrients. Erosion rills were visible in only a few fields. Soil erosion causes the upper soil layer, including organic material to be washed away and in general this is a sign of soil degradation. Apparently soil erosion didn't seem to be a problem and the farmers didn't comment upon this. But further investigations are necessary to address the problem of soil erosion properly.

#### 4.3.3 *Water Samples*

The results of water samples are shown in the table below.

**Table 1: Water sample results**

Area and # of farmer	Coordinate	EC	pH	Turbidity (NTU)	Observations
A, 1 forest	635567E 2042384N	0,55	8,1	2,73	17:00 Waterfall. No agriculture nearby
A, 1 pond	637457E 2044963N	0,36	7,15	2,09	13:00 Pond with still water. Used for drinking and domestic use
A, 1 stream	637503E 2045003N	0,33	8	6,94	12:30 Stream. Water used for mixing chemicals for use on fields
B, 2, stream	635008E 2044825N	0,27	7,9	9,52	15:30 Bank of river (still water). Same usage as above
C, 4 &5 stream	636354E 2045975N	0,37	7,6	1,98	11:30 Stream. Domestic use
C, 6 stream	636272E 2045521N	0,37	7,2	2,37	15:00 Bank of river (still water) Mix water from stream with chemicals

The highest EC value is from the forest, which is probably caused by leaching of limestone, which releases calcium-carbonates making the water more alkaline than average. The average EC value is 0,38 ms/cm and shows a low salt content of the water streams. PH is in average 7,66. Most of the turbidity values are below 5, which make it suitable for human recreation. The highest value is measured in location B in the still water at the bank of the river. This can

probably be explained by higher algae content. The turbidity values in general are low and give no indications of runoff from fields.

#### *4.3.4 Forest*

Through informal conversation we were told that illegal logging is taking place, but due to the sensitivity of the subject we didn't ask inquire further into this. Most farmers are aware that clearing forest area is illegal, and we were told that an Officer from the Forest Department often inspects the upland area.

Some farmers admitted that they have cleared land for their fields, but most said that they occupied land that had been fields for generations. Concerning expansion of the area both farmers and the Agriculture Extension Officer assured that this wasn't taking place, they explained that all suitable, flat areas are cultivated.

## 5 METHODOLOGICAL DISCUSSION

In this chapter we will discuss the development of our group work and the practicality of the methods –social as well as natural– used in relation to our findings and experiences.

### 5.1 Group Work

#### 5.1.1 *The process*

During the first half of the project period, the group work was progressing smoothly and everyone were working with great eager and enthusiasm. Toward the end though, the structure of our project plan started to crumble, everyone were exhausted and our eagerness had disappeared. Now we only concentrated on collecting all the necessary data for preparation of the debriefing note. During this process several disparities were revealed, but we refrained from taking it up for discussion and instead kept frustrations to ourselves.

#### 5.1.2 *Cultural differences*

To navigate in another culture can be extremely difficult. Samovar and Porter have described communication between individuals as a transaction between private worlds, where symbolic meanings words and actions can be very different; when this communication is intercultural the difference between the partners will increase<sup>17</sup>. Therefore we must to some extent be willing to put our own world-view 'at risk' and open up to another kind of rationality, but at the same time our sense of identity must be keen enough to give us a point of departure and a possibility of comparison. Of course it helps to acquire some knowledge of the culture and country beforehand but essentially the alien culture must be seen, experienced, interpreted, and 'translated' into familiar terms and concepts in a process extending over some time before a well founded and reliable impression can be said to have taken root.

Differences between the Thai and the Danish culture were revealed in discussions concerning which questions are sensitive and inappropriate. In the two cultures, we view the sensitivity of various topics differently. Asking about wealth and status is inappropriate in Thailand. In the Thai culture people are considerate that others should not 'loose face'.

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<sup>17</sup> Samovar et al., pp. 8-9

### 5.1.3 Disciplinary differences

The differences in educational background were one of the main sources of discussions and misunderstandings between the Danish and Thai students, but also internally among the Danish students. Social and natural science use different methodology and have different interests.

### 5.1.4 Communication problems due to language difficulties

To communicate with people that you do not share the same language with can be quite difficult. It was a first-time experience for us to work with interpreters and it took a while to get accustomed to it and be able to utilise the interpreters in the most optimal way. The most profound problem when working with interpreters is that conversations become very slow which is frustrating. There were also possibilities for many misunderstandings, either because the interpreter didn't understand the question you wanted to pose, or didn't understand what the interviewee answered.

### 5.1.5 Flexibility of the Interview group

It was hard to accentuate an identical interview procedure every time although this would have been ideal to obtain comparative results. The Thai students and especially those who spoke the Northern dialect were able to create a good interview atmosphere and they could make qualitative interviews a flowing conversation. But this interview form hampered the Danish interviewer. It was difficult for a person speaking through an interpreter to interrupt a flowing conversation and pose follow-up questions. When the Danish student was the main interviewer, the conversation became more formal and less relaxed, which wasn't good either, a catch-22 situation.

### 5.1.6 Evaluation of interviews and data

The purpose of the Subject Group was to be able to evaluate the data and improve the interview-guidelines if needed. This group structure could have given more rewarding results, had we used it consistently, but we often found that we had too much work and this part of the process seemed to be given less priority. Because of this fault we didn't evaluate our questionnaires and only succeeded in targeting them to a certain extent.



## 5.2 Social Science

### 5.2.1 *Reliability*

The problem of reliability is not unique to qualitative interviewing, Casley and Kumar writes: “But because of the subjective nature of the written summary it is particularly pertinent in this context. When by definition there is no totally objective test that can be applied in qualitative interview situations, judgement of reliability must be based on an assessment of respondent-related factors. Such factors can be:

- Knowledge
- Credibility
- Ability and Willingness to respond
- Ulterior motives
- Bars to spontaneity
- Desire to please
- Other factors: recent events, mental and physical state”<sup>18</sup>.

#### *Knowledge*

The knowledge of the respondent is obviously a factor that should be considered. We have assumed that both the key informants and the farmers would know what they were talking about. They would have practical experience with the majority of the topics in the questions we asked them. There were, however, some issues they were less knowledgeable about. For example some of the farmers’ wives appeared to have limited knowledge about the yield per rai and of the actual incomes of their husbands. The Headman of Ban Tho Saman did not know very much about the history of the upland area and who was farming there, because he was farming lowland himself.

#### *Credibility*

There are more reasons to be sceptical about the credibility of the respondents. The reasons for this can be stated briefly as “everyone is speaking from a position!” People have vested interests in relation to economy, social status, and many other factors. These interests will also have an influence on their willingness and ability to respond, they create bars to spontaneity and influence answers through ulterior motives. In other words, people in less powerful positions are likely to

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<sup>18</sup> Casley et al., pp. 21-24

say what they think will please the more powerful, or at least will not make them subject to negative sanctions. We assumed that the upland farmers would be the least powerful in the village, and therefore would be reluctant to answer 'sensitive' questions concerning income, ownership and the like. In some respects this was justified, but in many cases we were also surprised by the openness and frankness of the respondents.

### *Stakeholders*

The question of *Ability and Willingness to respond*, *Ulterior motives* and *Bars to spontaneity* makes it relevant to talk about the 'stakeholders' in the upland area. The stakeholders can be described as the institutions and persons who have interest in the area, from the upland farmers to multinational companies and supranational organisations. The stakeholder's ability and willingness to respond is dependent on his position, 'does the stakeholder have access to and knowledge about the information we are interested in (the ability question) and does the stakeholder have an interest in sharing the information with us (willingness to respond and ulterior motives)?'

The institutional stakeholders in our investigation can be listed in the following way:

- International institutions and agencies (IMF, WB, etc.) – only influences official respondents indirectly as the external motivation for national conservation policies.
- Development organisations (Danced, Tuced, NGO's, etc.) – also constitute an indirect normative influence as funding agencies.
- Commercial stakeholders (Monsanto, C.P. Limited, middlemen etc.) – has a more direct influence, because they buy the products of the forest and farms, and thereby partly govern the local economic conditions.
- Public institutions at the national, regional, and local level (RFD, BAAC, Land Reform Office, Tamboon, etc.) – also have a relatively direct influence as they lay down the rules official respondents relate to.
- Official and unofficial farmer organisations constitute a rather direct influence as they support the self-reliance of the farmers and their ability to exert influence on more powerful stakeholders.

The stakeholders influence the respondents in different ways and to different extents according to the position of a respondent. For example upland farmers can be expected to have different views

on the RFD and conservation than the lowland farmers. Officers from the RFD can be expected to have opinions on rights to land in reserved areas that differ from the opinions of a land reform officer. The best way to estimate the reliability of answers is to realize that they can be 'biased' by such positioning.

### 5.2.2 *Semi-structured interview*

The most serious limitation to structured interviews, according to Casley and Kumar, is that when they are conducted many interviewers tend to confine themselves to the written questions only - they do not peruse promising leads and thus in effect conduct a fully structured interview. The value of the information generated is then too dependent on the quality of the questionnaire<sup>19</sup>.

We had disagreements of how answers should be registered and analysed demonstrated the ambiguity of the semi-structured interview method. By making unified data table for all answers we confined ourselves to a quantified model and excluded some of the nuances that could be accentuated by all the atypical answers. Although they were still registered, their representation and influence in reality was on the decline.

### 5.2.3 *Participatory Mapping*

We used participatory mapping to collect information about distribution of the fields among the upland farmers. The time constraint was the main reason why we only used participatory mapping in a limited measure.

The shortcomings with the current PRA methodologies are the tendency to sketch a map without adequate consultation with local villagers. The effect is that the methodology becomes more 'rapid' than 'participatory' and contains no useful information. It is important to realise that informants should have time to participate and that they may only be able to supply accurate information on things of immediate relevance to their everyday lives<sup>20</sup>.

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<sup>19</sup> Casley et al., p. 14

<sup>20</sup> Jackson pp. 1-11

#### 5.2.4 *Income Ranking*

We had planned a participatory income ranking, but when we realised that the household didn't have more than four sources of incomes we chose to make indirect ranking part of the semi-structured interview.

#### 5.2.5 *Wealth Ranking*

We had planned a wealth ranking of the upland farmers with the doctor from the local Health Care Centre. The doctor is an authority in the local society, and as a civil servant he doesn't have any economical or other kind of connection with the upland farmers, also he didn't have land upland. We didn't use this method, because the Thai students found it impolite and inappropriate to ask a third person about wealth. We found that we had to comply with the cultural norm.

### **5.3 Discussion of Natural Science Methods**

To get an overall picture of the soil and water quality of the entire upland area, a more thorough investigation would have been necessary. First of all, the small area of our investigation did not represent the entire upland area. An extensive investigation of the upland area was impossible due to time constraints and difficult accessibility to areas further upland. Concerning selection of methods we used not much was open for choice. We were restricted by the fact that the distance to the upland area was far, and made it impossible to bring a lot of equipment and time limitation made thorough on-site investigations unachievable.

Furthermore to understand the extent of soil erosion, a combination of parameters should have been investigated, for instance, slope, land use maps, watershed class, soil serial map, identification of plant cover, soil profile, soil surface, soil compaction, etc.

### **5.4 GPS**

A limitation to our GPS map production was that we only visited 3 destinations. This meant that we could not gain empirical data of the entire upland area, but only of these 3 destinations.

## **6 DISCUSSION OF FINDINGS**

### **6.1 The Institutional Conflict**

Both RFD and LRO are departments of the Ministry of the Agriculture and Co-operatives, but they have conflicting objectives. RFD manages and protects the forest area against illegal logging and expansion of agricultural area. RFD is an old organisation (established in 1896) and is in fact one of the government institutions that has played the strongest role in extending the control of central government into most remote areas. It is “notorious for being extremely conservative and unwilling to allow any of “its” land to be allocated to other departments<sup>21</sup>. The effect has been that a significant area was closed off for settlements and more pressure was put on the areas open to cultivation. This has brought forest policy in direct conflict with the land settlement projects.

The newly founded (1997) LRO has the objective to secure the farmers’ tenure rights. The reason why only a few farmers have received certificates is unknown, but it seems that the politically stronger RFD have postponed this issuing of SPK certificates. The LRO seems to have only a small chance of securing the farmers’ tenure rights because RFD is a more powerful organisation.

### **6.2 Song Reservoir**

The construction of the Song Reservoir in 1995 was an initiative from the Government and the opinions about it vary. The lowland farmers of Ban Tho Saman maintain that the Song Reservoir has had an overriding positive influence on their yields. Due to better irrigation the lowland fields now produce three yields per year. Further Monsanto has initiated contract farming in the lowland area, which on a short-term basis has been a success, the farmers are able to get higher prices for their products and have financial security. In addition to this fishing in the Reservoir generates an additional income for several farmers. However the upland farmers are not all satisfied with the reservoir. It has made transportation of seeding, fertilizer, chemicals and harvested products more difficult, they either have to use boats or they take a detour with vehicles during the dry season to reach the area. The reservoir has caused flooding of many fields even an entire community was flooded. The people who lost fields in this area were unable to get land lowland due to scarcity of land. Therefore many of them started farming upland, where they either rent or have cleared land.

Undertaking the cultivation of cash crops- leads directly to a total dependency on the market and therefore on market prices<sup>22</sup>. Though, in the upland area the farmers are not only dependent on the existence of a market but also on the Middleman. He is the buyer of harvested products and seller of inputs giving him a powerful and monopolistic role. This monopolistic role allows him to set higher prices than would have prevailed under a perfect competition market.

### 6.3 Environmental consequences

Soil erosion and soil degradation weren't apparent problems of the upland area. Most fields were located on flat areas, minimising the risk of soil erosion. But since we only made investigations in a small area, we cannot comment upon the entire upland area. Use of fertilizers, herbicides and insecticides has become more common, which can have consequences for the environment. Many fields are located close to the edges of the Reservoir, so during intensive rainfalls, fertilizers and chemicals can be washed away from the fields into the Reservoir which can cause eutrophication<sup>23</sup> of the water. This will not only affect the fish population in the reservoir but it will also have consequences for lowland farming. The methods we employed do not tell us the extent of this problem. Another consequence of the upland farmers is that when they hunt in the forest, they are a threat to the wildlife, especially bears and tigers.

The upland situation can be characterised as the "Wild West", poor and landless workers can clear land for farming in the reserved area, enabling them to break free from poverty. Squatters are thwarting the national conservation objective of maintaining these areas in their natural state. In the area also more wealthy and powerful people like the middleman can make money from renting out fields and organising illegal logging. From this we can conclude the governmental intention of making the area a conservation zone have not been entirely successful.

Ownership is an important factor in securing institutional credit. In previous articles it has been shown that "the credit worthiness of borrowers with land collateral has been seen to be 150% higher than that of the group with no land collateral. This inability to receive formal titles of ownership, and therefore have access to institutional financing, is found to result in farm

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<sup>21</sup> Hussain et al., p. 47.

<sup>22</sup> Hussain et al., p. 46

<sup>23</sup> The enrichment of bodies of fresh water by inorganic plant nutrients (e.g. nitrate, phosphate). The biomass of phytoplankton and herbivorous zooplankton increases, and species diversity decreases.

households being forced to borrow from local moneylenders<sup>24</sup>. The insecure tenure situation can lead to unsustainable use of the land, since the farmers aren't able to finance soil conservation measures for their fields<sup>25</sup>. These socio-economic factors have resulted in a lack of farm investment and land improvement, which may lead to a shortening of the fallow from a traditional 10-15 years period to a period of only 3-4 years. This is not enough time to replenish the nutrient levels of the land to the point that is necessary to sustain agriculture. Decreasing yields can lead to a vicious circle of reduced fallow and further soil degradation of the fields.

Successful management of the upland area requires;

- That the government recognizes and accepts the fact that people of Ban Tho Saman and other nearby villages are dependent on the upland area for agricultural purposes and it is therefore important that land certificates are issued.
- By defining tenure rights and issuing land certificates farmers will get financial security and be able to take loans.
- Loans can be used to make investments in soil protection measures and on better logistic possibilities, which can make upland farming sustainable on a long-term basis.
- Upland farmers should be urged to organise trade organisations like the lowland farmers to avoid the higher prices set by the Middleman.
- Soil doctors should advice the upland farmers on the use of fertilizers and chemicals, so that soil nutrients are balanced and give optimal conditions for growing crops.

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<sup>24</sup> Hussain et al., p. 46

<sup>25</sup> Qwist-Hoffman, p.29

## 7 CONCLUSION

Our principal method for collecting data was semi-structured interviews with upland farmers and key informants. Apart from the mentioned difficulties with conducting and recording these interviews, they must be said to have fulfilled their primary purpose: to collect data that would enable us to get a broad and encompassing picture of the problems linked with upland farming in a reserved forest zone. The reasons for the relative success of the method must, for a large part, be ascribed to the fact that our Thai colleagues conducted most of the semi-structured interviews. They were good at creating an atmosphere of confidence and mutual trust with the respondents. Also in many instances both the interviewer and the interviewed were women, which might have contributed to mutual understanding.

Despite our difficulties it must be concluded from our results that we accomplished to pursue interesting leads and make our respondents express themselves fully. The semi-structured interviews provided us with an understanding of the motives, attitudes and practices of our target population. We could not have achieved this without supplementing this method with others that could confirm our findings. Participant observation, natural scientific method, and collection of statistical and textual data were necessary for the completeness of our impression. Before we started our fieldwork we planned to use several methods, both to collect and to cross check our findings. We were especially interested in implementing the Participatory Rural Appraisal methods like Participatory Mapping, and Participatory Ranking of wealth and income but only succeeded to a certain extent. It may be that our findings could have been encompassing and maybe even more reliable if we had used the participatory methods as we planned.



## 8 PERSPECTIVES

The findings in this report were collected in a short time period. We therefore find, that our research isn't sufficient for development initiatives to be based on. Still we think that our research has revealed some of the important problems in relation to the upland area. Therefore we have made some suggestions for further research in the upland area.

- Settlement situation: A thorough study focusing on the farmers' motives to go upland: Are the majority of upland fields used by poor farmers who are dependent on their upland income or is the upland area mostly used by farmers with some economic resources, who simply invest in the upland to increase their income? We find that such information is necessary to formulate a realistic strategy for creating a solution to the tenure problems in the area.
- Economical conditions: After an investigation of the upland farmers' social status and dependency of the area, a study of the economical conditions of upland farming is necessary. Especially the influence of the Middleman could be interesting to clarify: How many Middlemen are trading with upland farmers? Do the farmers have any realistic alternatives to the Middleman-system? Such facts could highlight the economic structure of the upland farming, and might lead to a proposal for a redistribution of land (and profit) in favour of the poor farmers.
- Physical consequences: An investigation of the full extent of upland farming should include the dynamics of the agricultural area: Is it increasing, stable, or decreasing? What kind of crops is grown and which non-timber forest products are collected? Finally, a study of the long-term sustainability of the land use is necessary. These studies could be used as a basis for a realistic conservation policy in the area.

## 9 APPENDIX 1

In the cabinet resolution December 3rd 1985 a National Forestry Policy was determined. The resolution contains 20 paragraphs, most of which clearly addresses private utilization of the forest resources. In 4 it is stated that it is the aim of the government that at least 40% of the Thai area should be covered by forest: 15% by conservation forest and 25% by forest for economic utilization. In §11 it is claimed that a conscience about forest conservation must be build among the Thai citizens, and in §12 that the government will set up a human resource management plan and a human settlement plan in the local areas so that they will be related to the national resource management plan. These intentions are also expressed in the Tao Poon Sub-district Policy, although the environment and natural resource problems are only prioritised as number 6 out of 8.

In a folder from the Prae Regional Forestry Office (2000) we learn that the office is responsible for the development and control of the forested areas, and for helping villagers to use deforested areas as agricultural land. The Forest Land Management Section should assign which forest is conserved and which should be given to villagers. The ecological system in the forested area has to be rehabilitated into a healthy habitat. Wood industry, forest products and hunting are permitted under forest law. The Forest Plantation Promotion Section assigns areas for plantations, which are promoted both in conserved areas and to rehabilitate deforested areas.

The National Economics and Social Development Plan 8 (1997-2000) states five objectives of which the last two are the most interesting. In objective four it is stated that the government wants both “to utilize and conserve natural resources and environment”, and objective five is a reform of the administrative system, to develop the human resources and increase the participation of the citizens. The plan lists 12 “targets” of which the last four are the most interesting:

9. To decrease the ratio of poverty of the Thai citizens  
(Less than 10% of the population should be poor).
10. To conserve and increase the forest area  
(In accordance with the 03-12-85 resolution).
11. To increase the choice of agricultural farming methods.

12. To increase the investments in quality of life.

The intentions of Plan 8 is coined out in the Agricultural Extension Policy of which the aims are:

1. To encourage the self-sufficient economics for agriculturalists.
2. To encourage quality and quantity of food production.
3. To encourage export of the agricultural products
4. To encourage sustainability of resources management and Bio-diversity.

In the National Land Management Plan 4 (1997-2000) aims are:

1. To accelerate and distribute land certificates to the citizens who own and utilize their land (depending on land code)
4. To manage land use and provided the state's land benefit to support economic development and increase income distribution in the rural areas (see also plan 8).
5. To decentralize public land management to local communities.
6. To reform the administrative system of the land department.
7. To increase the participation of the private sectors and local organisations in the activities of the land department.

## 10 APPENDIX 2

Table 2 EC and pH values of soil samples

Area	Coordinate	Farmer	Land use	EC	PH
A	637309E 2044977N	1	Forest	0,54	7
A	637351E 2044981N		Cotton	1,55	6
A	637365E 2044965N		Maize L	1,69	6,5
A	637441E 2044923N		Maize U	1,58	7
B	635126E 2045070N	2	Maize L	1,8	6
B	634851E 2045026N		Maize M	1,19	6
B	635186E 2045128N		Maize U	1,22	6,5
C	636527E 2046082N	3	Fallow	4,25	6
C	636479E 2046025N		Cotton	1,19	7
C	636424E 2046022N		Cotton	0,97	7
C	636388E 2046193N		Maize	1,8	7
C	636354E 2046183N	4	Cotton	1,22	6
C	636398E 2045907N	5	Cotton	2,77	7
C	636318E 2045574N	6	Maize	0,86	6,5

## 11 APPENDIX 3

### 11.1 Interview guide for farmers working in the upland

- 1) Are you renting, owning or just working the area here?
  - a) if you rent, what is the price? (B/rai/year)
- 2) If owner....
  - a) How did you get the upland area? (Inheritance, clearing, buying)
  - b) How long did it belong to you? (questions concerning the middleman)
  - c) How many workers do you have? And how much do you pay them?
- 3) Do you have land in the lowland? If yes.....
  - a) How big is the area?
  - b) What type of land certificate do you have?
  - c) How did you get the land?
  - d) How long did it belong to you?
  - e) What is your income from the lowland area?
  - f) Yield, Kg/rai
- 4) What is the size of your upland area?
  - a) How many fields, and what are the sizes of the different fields? What are the locations?
- 5) What type of crops do you have in upland?
  - a) What is the yield kg/rai for maize? For cotton? Has the yield increased or decreased, and why?
  - b) Who do you sell your products to? And how are they transported?
  - c) What is the price of getting credit? (interest rate)
- 6) Do you use any chemicals? If yes, who provide you with seeds and chemicals? And what are the prices?
- 7) How is the soil quality in your fields?
  - a) Has the soil fertility decreased?
  - b) Is soil erosion a problem for you? When it rains, does the top soil layer wash away?
- 8) How do you get to the upland? (means of transportation)
- 9) Do you collect NTFP? Which?
- 10) Observations!!!!!!!!!!!!!!

Notes!!!

## Literature

**D. Briggs, P. Smithson, K. Addison and K. Atkinson:**  
“Fundamentals of the Physical Environment”  
Routledge, London & New York, second edition 1997.

**D.J. Casley and K. Kumar:**  
“The collection, Analysis and use of Monitoring and Evaluation Data”  
World Bank, Washington D.C., 1996.

**B. Furze, T. De Lazy and J. Bickhead:**  
“Culture, Conservation and Biodiversity. The Social Dimension of Linking Local Development and Conservation Through Protected Areas”  
John Wiley and sons, Chichester 1996.

**B. Jackson, M. Nurse and H.B. Singh:**  
“Participatory Mapping for Community Forestry”  
Rural Development Forestry Network Paper 17e, 1994

**M.J. Hussain and D. L. Doane:**  
“Socio-Ecological Determinants of Land Degradation and Rural Poverty in Northeast Thailand”  
Environmental Conservation, Volume 22 number 1 spring 1995.

**Helle Qwist-Hoffmann:**  
“Conservation into Farming System – A Case Study from a Participatory use Planning Process in a Forest Village Settlement in Northern Thailand”  
Food and Agriculture Organisation of the United Nations, Bangkok 1994.

**L. A. Samovar R.E. Porter, eds.:**  
“Intercultural Communication: A Reader”  
Wadsworth Publishing, Belmont 1982.

“Watersheds Turbidity”  
Water Resource Characterization DSS – Turbidity, [www.h2oparc.wq.ncu.edu/info/turbid](http://www.h2oparc.wq.ncu.edu/info/turbid) (12-01-99).