



# A dichotomous agricultural practice

## A case study of Huai Phrom village



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# Abstract

Since the Green Revolution in the 1960s brought technological development and agrochemicals to Thailand, there has been a threefold increase in the cereal production and an increase in the agricultural share of land in Thailand. To avoid a new crisis such as the 1997 economic crisis the Thai government led by the late King Bhumibol introduced Sufficiency Economy and New Theory Farming to make the Thai people self-sufficient and more resilient towards future crises. These different philosophies and policy incentives does not align, why the aim of this report has been to document and assess the underlying rationales of homegarden versus field cultivation practices in the village of Huai Phrom. To this end data was collected under four main themes that constitute the pillars of this report: the economic realities, the social structures in and around the village, natural environment, and the institutions influencing the agricultural practice in the village. Embedded in the theoretical framework of political ecology, the main results reveal that there is a dichotomous agricultural practice in the village of Huai Phrom, and that this dichotomy is influenced by health and environmental concerns, the economic realities of the villagers, nationalism and Buddhist philosophy and local knowledge, which has placed the villagers in an institutional wilderness in which they have to navigate.

# Acknowledgements

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# List of abbreviations

ADO: Agricultural Development Official

HP: Huai Phrom

NTF: New Theory Farming

SE: Sufficiency Economy

SSI: Semi Structured Interviews

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# 1. Introduction:

A large portion (47.3%) of Thailand's population is currently living in rural areas while being occupied in the agricultural sector (FAOSTAT 2017). Even though there has been a drop in the agricultural share of Thailand's GDP per capita from 36.4% in 1960 to 8.3% in 2016 (World Bank 2017; Singhapreecha 2014), the surface dedicated to cereal production has nearly doubled from 6.5 to 10 million hectares, and the yield of the total cereal production has in the same years increased from 10.769 thousand tonnes to 30.420 thousand tonnes (FAOSTAT 2017). This development started in the 1960's with the Green Revolution (Nelles & Visetnoi 2015), which completely changed the agricultural practices in East Asia by introducing agrochemicals and technologic machinery, especially farm tractors, which has been rapidly adopted (Reyes et al. 2008). Thai government then promoted export-oriented cash crop monoculture practice. To increase the productivity, intensive use of agricultural machines and agrochemicals spread over the country. In 1980s the problems from intensive agriculture appeared: soil degradation, lower productivity, farmers' debt and health problems (Fujimoto and Matsuda 2006).

After the economic crisis in 1997 many people were forced to return to agricultural practices due to increasing unemployment rates in urban areas (Jitsanguan 2001). These events led King Bhumibol of Thailand to promote Sufficiency Economy (SE), which builds on three pillars: *Immunity (Phoom-Koom-Gun - ภูมิคุ้มกัน)*, *Efficiency Pra-Sit-Ti-Parb (ประสิทธิภาพ)*, and *Sufficiency: (Kwam-Por-Piang - ความพอเพียง)*. SE is an approach to people's economic practice, stressing the importance of a balanced economic development in society. Deriving from SE was a more comprehensive approach called New Theory Farming (NTF), which aimed at bringing food security to poor farmers (Niemmaneea et al. 2015), who are supposed to be completely self-sufficient by diversifying their crops. Farmers might then be able to increase their economic resilience towards risks and impacts of globalisation (Grossman & Faulder 2012). While governmental support for agricultural cooperatives has provided access to modern technologies and chemicals, a rise in personal loans has forced many Thai farmers into a debt cycle (Kaufman et al. 2014).

This report aims to document the underlying rationales of homegarden versus field cultivation practices in the village of Huai Phrom. To this end data was collected under four main themes that constitute the pillars of this report: the economic realities, the social structures in and around the

village, the natural environment, and the institutions influencing the use of agrochemicals in the village.

Overall research question

Why do people in Huai Phrom use agrochemicals in their fields but very few or no agrochemicals in their homegardens?

Specific research questions:

1. How do economic realities influence farmers' use of agrochemicals?
2. How has the recent history of agricultural development policies and associated incentives represented by the Green revolution in 1960s, Sufficiency Economy and New Theory Farming in the late 1990's influenced cultivation practices in Huai Phrom?
3. How can villagers' perception of differences in soil and water quality in fields and homegardens respectively, be related to agricultural development narratives or other forms of knowledge, and can such differences be biophysically and chemically verified?
4. How are the villagers' agricultural practices influenced by their perceptions of agrochemicals' influence on their health and what is the role of religious and government institutions/authorities in this respect?

The research theme was framed by the supervisors at first, and was the following:

*The costs and benefits of village households' low chemical-input agricultural and associated livelihood practices.* Surprisingly this low chemical-input agriculture did not turn out to be the reality so the whole project had to change in order to adapt to the reality of the village, see methodology reflections.

## 2. Methodology

This section will be divided into the different methods that have been applied to this project to collect data. It will also contain an explanation of why the methods have been relevant to this project and how they have been conducted at the fieldsite. The collected data will further be triangulated in order to examine the results from the applied methods (see Appendix).

### 2.1.1 Focus group interview

The focus group interview was conducted on the 7th of March with four elderly women. The purpose of the interview was to get an overview of the history of the village from their first-hand experience from living in the village. The goal was to create a discussion among the interviewees on what had changed in the village in the last 60 years, with a special focus on possible changes in the agricultural practice and general timeline of HP.

### 2.1.2 Visual method/grand tour

Anthropologist Kirsten Hastrup argues that the written word at times can be insufficient when attempting to portray the complexity of a given field site (Hastrup, 2010). It was therefore decided to film in certain locations of HP with the purpose of observing and capturing different elements such as the sounds of gunshots by the military in the nearby forest and the Buddha statue on the hillside. These aspects were all relevant for the contextualisation of the village. The method was used as a part of a Grand Tour method where the purpose was to capture the differences between the agricultural practice in the homegarden and in the field.

### 2.1.3 Participant observation

Participant observation is used to obtain a better understanding of the internal structures in a society by being part of their life and daily activities, ceremonial and interactions that help to learn the explicit and implicit aspects of their daily routines and culture (DeWalt & DeWalt 2011). As the topic of this project is agricultural practices, the purpose of this particular



Picture 2.1.1 Wafa Bartawi using a hand-tractor

participant observation was to uncover some of the ways the farmers in the village practice agriculture, which in this case was done by handling a hand-tractor (see picture 2.1.1

#### **2.1.4 Participatory Rural Appraisal (PRA)**

Participatory Rural Appraisal (PRA), was carried out the 10<sup>th</sup> of March to triangulate data from questionnaires, semi structured interviews and the focus group interview. However, the main purpose for this exercise was to clarify three aspects: villager's perspective and view on current farming system, the villagers' perspective on the ideal farming system, and the necessities needed to achieve the optimal farming system. These three different aspects were separated in three exercises. See appendix for elaboration.



*Picture 2.2.2: PRA session where villagers were asked to express their opinion by raise of hands.*

#### **2.1.5 Questionnaires (1+2)**

Two sets of questionnaires of 30 randomly selected respondents each have been conducted in this research. The pilot questionnaire was prepared by the Thai students and extra questions were added by the Danish students, see Appendix. The pilot questionnaire was conducted on the 3<sup>rd</sup> of March to get an overview of the main factors (Babbie 2002) that influence the agricultural practice in the village. The second questionnaire was based on the pilot questionnaire, but with more elaborative questions on the use of fertilisers and the household economy regarding agriculture and homegardens, as well as perspectives on family relations. It was conducted on the 6<sup>th</sup> and 7<sup>th</sup> day of the fieldwork which meant that more data had already been obtained from some of the other methods, which made it possible to better fit the questionnaire to the research questions.

### **2.1.6 Semi-structured interviews**

Semi-structured interviews (SSI) were conducted nine times with different informants during the field course, who all provided relevant data to the research. An interview guide was prepared for each of the interviews, and adjusted to each interviewee, except one SSI with an official at the sub-district office which was conducted spontaneously. The informants were picked as key informants and included officials who possess expert knowledge about the village and government policies.

### **2.1.7 Soil sampling**

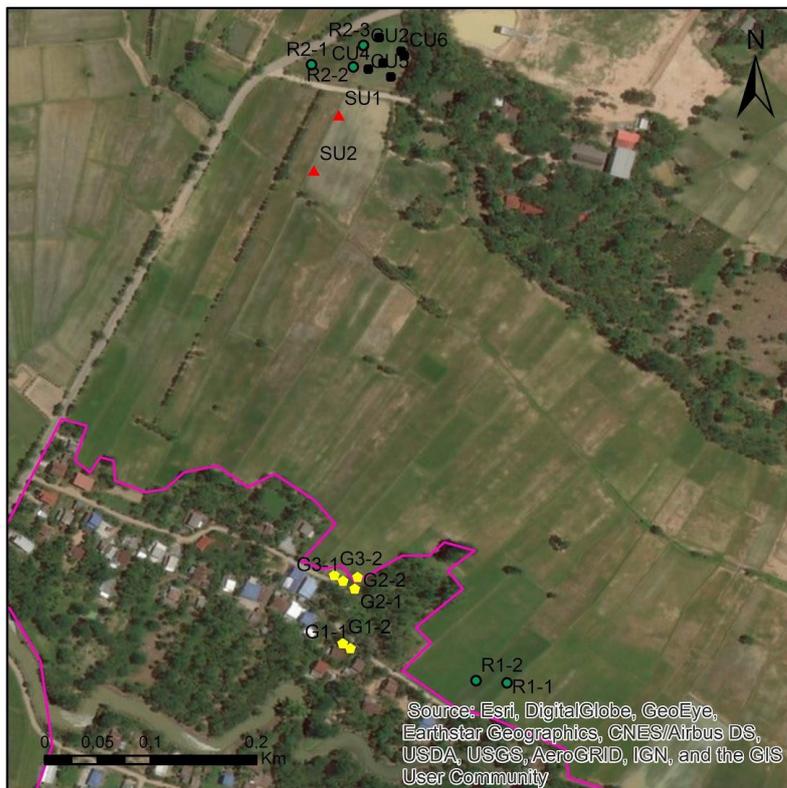
Soil sampling was conducted using a soil auger. The samples were taken in a depth of 15 cm and 50 cm to study both topsoil and subsoil conditions. They were taken in soils with different land use within the village. The purpose of the soil sampling was to compare the pH and nutrient content (nitrogen, phosphorus and potassium)

- 10 samples were extracted from the two rice fields,
- 12 samples from a cucumber field,
- 4 samples from a sugarcane field,
- 8 samples from a farmer who practice NTF,
- 12 samples from 4 homegardens.

### 2.1.8 Water analysis

In field analyses of four different water samples were performed on the morning of the 5th of March. The samples for the analyses were collected from three different water bodies, all being part of Taphrom River. Two of them were taken from Ba E Tan Reservoir, which is located upstream the village. The third and fourth samples were obtained right before (upstream) and right after (downstream) the village (see fig 2.2.3). The purpose of the water analysis was to obtain an overview of the water quality and assessing whether there was or was not an influence of the village agricultural activities on it. Several parameters were measured: Total Dissolved Solids (TDS), pH, temperature, dissolved oxygen (DO), salinity, conductivity, and concentration of nitrates and phosphates.

Soil samples location



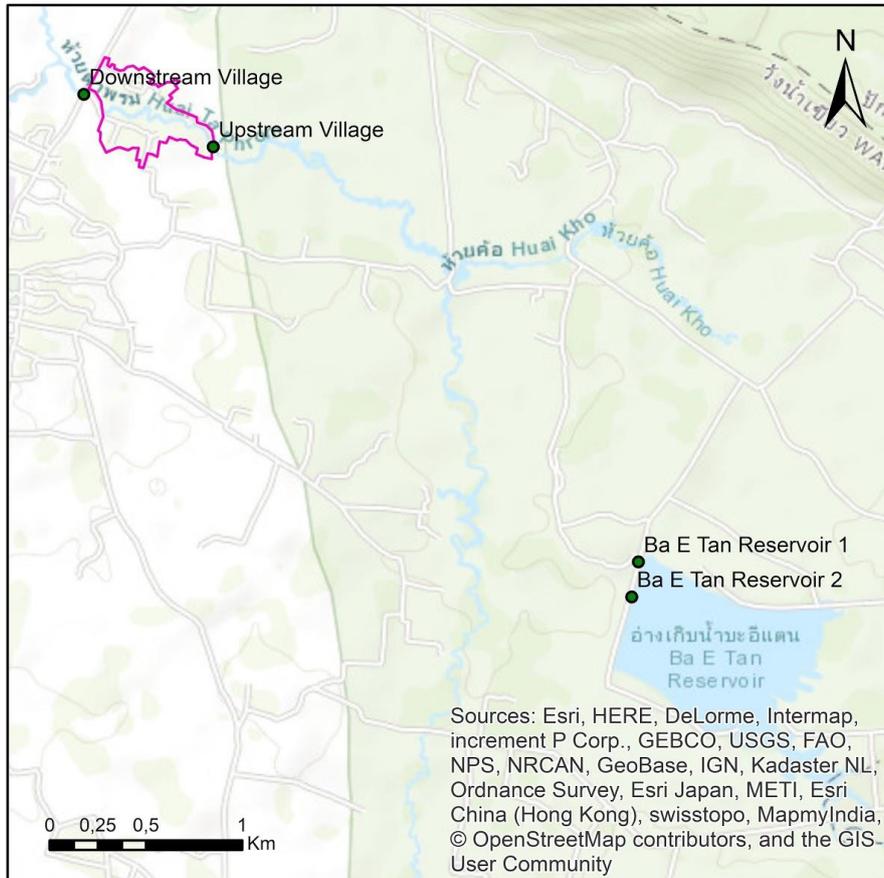
**Legend**

- Cucumber field
- ▲ Sugar cane field
- Homegardens
- Rice fields
- Huai Phrom households and gardens

Author:  
Miguel Ramírez López

Map 2.1.8 (1): Map showing the locations of soil samples.

## Water analysis location



### Legend

- Water Analysis
- Huai Phrom households and gardens

Author:  
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Map 2.1.8(2): Map showing locations of water sampling.

## 2.2 Methodology reflections/ discussion

This section will focus on the reflections and challenges that relate to the preparation and execution of the different methods in the field. The reflections and discussions are based on the subjective experience of the members of the group while doing interviews, PRA, grand tour, collecting soil samples and analysing water.

Language barriers made the process of questionnaire data collection and SSI time consuming because the respondents would engage in longer conversation with the interpreters before answering the questions. Another reflection is that it was necessary to go and ask all the questions, as most of the respondents were illiterate. This resulted in that the pilot questionnaires were conducted similar to semi-structured interviews (SSI), which provided important additional information that was useful in the development of the second questionnaire and further research. It is therefore difficult to determine whether relevant information have been lost in translation, or if the local culture of conversation simply requires that the interpreter does not ask a question directly but tries to go about it by asking non-direct questions. Full transcription of the nine interviews were carried out, which provided with a deeper understanding of the villagers' reality.

The first questionnaire was accepted and conducted as a part of cooperating with the Thai students, by getting to know their point of view. It quickly became apparent that the Thai students research diverged from ours, as their research objective was how to implement NTF, thus showing how their cultural background differs from the Danish group of students. A lot of time was also spent on preparing the second questionnaire, which in the end left less time for other methods.

A spontaneous focus group interview took place while the group of students visited a farmer with the intention of doing a SSI. The topics for a focus group interview had been discussed in the group, but no specific interview guide was prepared when the opportunity to conduct a focus group interview appeared. The interview was therefore conducted loosely and with an opportunity to form the questions as the interview went on. This resulted in the possibility that more information could have been obtained if the interview guide had been prepared beforehand, but in this case, it worked well because the overall topic was agreed upon before going to the field.

A different method to collect data was by using the camera to film certain situations. The camera was for example very relevant when illustrating the heated situation that occurred during a village meeting where the village fund was discussed.

The visual method was used in combination with a grand tour where the purpose is a show-and tell about the agricultural practice of a farmer in the village whilst telling about crops and agricultural practice (Spradley 1979).

To triangulate the other methods, a PRA session was conducted with 14 participants. It became clear during the exercise that not all 14 people were participating by delivering inputs equally. Male participants were leading the conversation to a higher degree than the female participants. In this situation it would have been beneficial to divide the groups into a male and a female group so that they would not be affected by the other genders opinions, but the participants expressed being tired after the first 3 PRA exercises so it was decided to stop the session. PRA proved to be a good method to confirm many of the indications obtained through other methods.

It was possible throughout the fieldwork to do participant observation which were conducted at least two times. The villagers were helpful and patient in the teaching of how to use the hand-tractor and picking fruit and kept helping and encouraging the process, while it also created a stronger bond between the group of students and the villagers.

The soil and water analyses had various limitations to both methods. For both it was not possible to measure the agrochemical content, which could have proved to be valuable data for this report. It can be further discussed whether the location and number of samples was representative for the whole area, but the access to the center of the fields was denied due to the possible damage of crops, why the soil samples was collected on the obrders of the field (border effect). Although it could have benefited the results, it was decided not to go deep into the field, in order to maintain a good relationship with the villagers.

The challenge with the soil analysis in Thailand was that the chemicals used for the soil analysis were not labelled with what they actually were, which made it hard to identify the actual process of the analysis. The second soil analysis performed in the laboratory in Copenhagen showed more precise results than the results from the first analysis, so in that way it was valuable to perform the second analysis in Denmark.

### 3. Theoretical Framework

This project has been framed by the idea that the agricultural practice in the village of Huai Phrom (HP) is influenced by several factors, each belonging to the 4 overarching themes: political, economic, biophysical and social. Beforehand there were indication that different governmental policies have influenced the way that farmers in the village manage their land, which is why political ecology fits the theoretical framework for this project.

The term political ecology was first described in 1972, although the research in this field has been ongoing before it was used as an official term (Robbins 2011). Robbins (2011) presents various definitions of political ecology from different scholars although two definitions that represent a common thought of how political ecology relates to this project:

1. “To understand the complex relations between nature and society through a careful analysis of what one might call the forms of access and control over resources and their implications for environmental health and sustainable livelihoods” (Watts 2000, p. 257).
2. “Identified the political circumstances that forced people into activities which caused environmental degradation in the absence of alternative possibilities... involved the query and reframing of accepted environmental narratives, particularly those directed via international environment and development discourses” (Stott & Sullivan 2000, p. 4).

Political ecology is consequently an analysis of that operates on different scales, from global politics and economic trends down to national and regional policy making and local scale when the farmer decides to use agrochemicals or not (Robbins 2011). Political ecology is a mix between social and political science (‘political’) and natural science (‘ecology’). This indicates that political ecology is an interdisciplinary field of research that uses various social and natural science methods to analyse the influence that politics have on the environment and vice versa (Neumann 2005; Robbins 2011). Political ecology therefore fit this project very well, as the purpose is to uncover some of the main factors that influence the agricultural practice in the village of Huai Phrom.

This report uses the form and theory of James C. Scott and his comparative between non-state societies, anarchism and political science. Primarily his book *Seeing Like a State*. Where James C. Scott sets out to describe historical, ideological and political aspects behind - often failed - state incentives to engineer societies and their natural environments. Through systematic inspection of different empirical examples throughout history, his authorship appears to fall into this report's theoretical framework of political ecology with ease (Scott 1998).

## 4. Field Site

### 4.1. Geographical Location

The field work took place in Huai Phrom Village, located in Udom Sap sub-district, a part of Wang Nam Khiao District in the Nakhon Ratchasima Province (see maps in Appendix).

As shown in map 1, a considerable part of the subdistrict is part of Thap Lan National Park, and so is Huai Phrom village in its eastern part.

According to the National Park Act of 1961, people are not allowed to either reside or establish livelihoods in national parks. Despite this fact, most of the area of Huai Phrom that is inside Thap Lan National Park is under active human influence as it is used for agricultural purposes. There seems to be

Huai Phrom village area



#### Legend

- Huai Phrom: Houses and gardens
- Udom Sap villages' boundaries
- Thap Lan National Park

Author:

Miguel Ramírez López

Map 4.1 (1) Huai Phrom village and the influence of Thap Lan National Park

some confusion and overlapping within the land classification system, or, at least, some incoherence in the actual use of land. Despite of this, the research has taken a different

focus, as the situation when first visiting the village seemed so complex and diverse that it would not be possible to be entirely covered in this project.

Land tenure rights do not seem to be an issue in Huai Phrom, as 72% of the respondents in the pilot questionnaire responded that they hold *chanote* or Nor Sor See land titles (see figure 1.3.1), which “grants the holder of this document full rights over the land” (Siam Legal International 2018; thailandlawonline.com 2018).

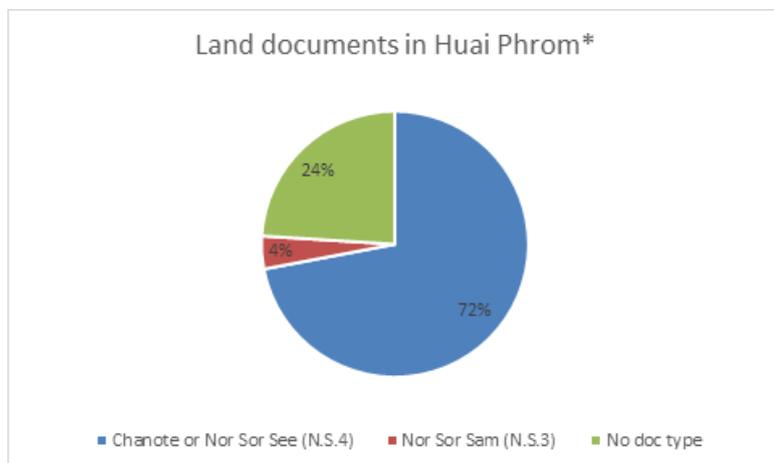


Figure 4.1(1) Land deed composition in Huai Phrom village

#### 4.2 Climate and soils

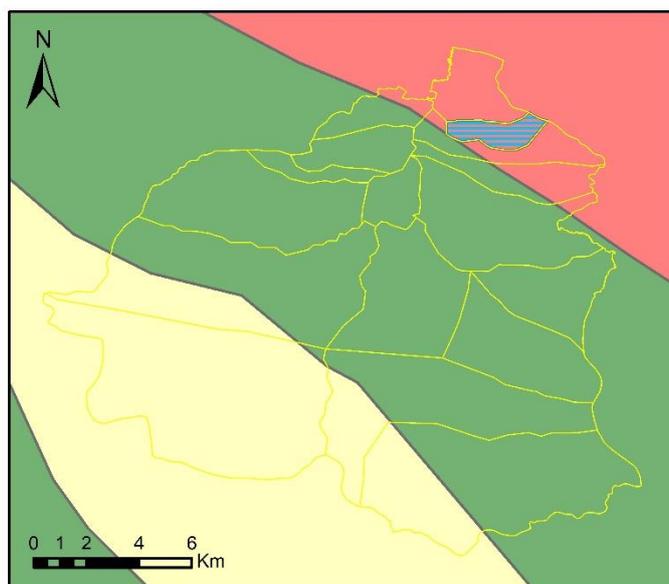
The climate in the area of study is *Aw – Tropical/savanna* according to the Köppen-Geiger climate classification. It has three seasons (rainy season, cold season and hot season) with a mean annual temperature of 28°C (National Park Office 2017).

The soil in Huai Phrom is a Podzolic soil, which is in most cases derived from quartz-rich sands and siliceous sandstones, and usually present poor conditions for agriculture.

#### 4.3 An agricultural village

Udom Sap Sub-district has a total population of 11,116 inhabitants, and an area of 160,625 rai (257 km<sup>2</sup>). Huai Phrom is one of 17 villages of the sub-district. This village is formed by 69 households, and has a total

#### Soils of Udom Sap Subdistrict



#### Legend

- Udom Sap Villages' boundaries
- Huai Phrom
- Steep Land, acid to intermediate rocks, mainly Red - Yellow Podzolic soils
- Red - Yellow Podzolic soils; mostly hilly, on materials from acid to intermediate rocks
- Gray Podzolic soils on old alluvium

Author:  
Miguel Ramírez López

#### Source:

Land Development Department, Kasetsart University, the Applied Scientific Research Corporation of Thailand and FAO, 1967.

Map 4.1(1): Soil classification in Udom Sap Subdistrict

population of 244 inhabitants (122 males and 122 females), with an area of 8,500 rai (13,6 km<sup>2</sup>) (Udom Sap sub-district statistics 2018).

The village has a well-developed infrastructural system with asphalted roads, tap water and electricity. A stream runs through the village which provides them with a source of water for irrigation. The neighbouring forest is principally used by the military as a training facility, which is again confusing in terms of land use, due to the closeness of this facility to a National Park (in case it is not actually inside the National Park boundaries).

The landscape at Huai Phrom Village is characterised by flat agricultural land, where paddy rice is the main crop (see picture 1.3.1) and all locals are smallholder farmers.



*Picture 4.1: Paddy rice field close to Huai Phrom village*

# 5. Results

## 5.1 Division in practice and purpose

As described in the end of the introduction, it was expected by the group that the people in Huai Phrom predominantly practice low chemical-input agriculture in Huai Phrom. The pilot questionnaire provided the base for all the further research, whose results will be presented and analysed in this section.

### 5.1.1 Indications of a dichotomy

With a fairly open framework, the pilot questionnaire showed strong indication that rice fields and homegarden were prominent categories (see figure 5.1.1.). Rice counted for 96% of the respondents. Both fruits and vegetables were grown in the homegarden which contradicted the design of the pilot questionnaire, where *fruits* and *homegrown vegetables/homegarden* were two different categories.

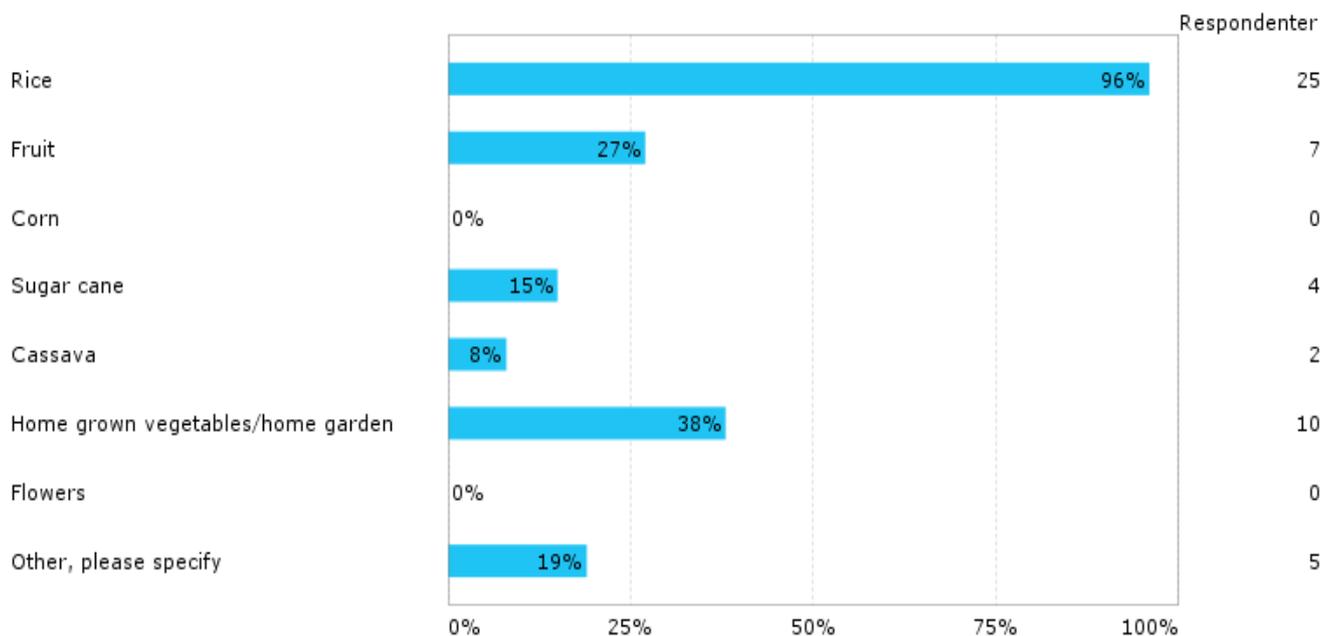


Figure 5.1.1 (1) Indications of a categorial divide in pilot questionnaire.

The produce mentioned in the category *other, please specify* were *cocoa, coconuts, mushrooms* and *onions*, which all belonged in the category *homegarden* according to the respondents. Early encounters with villagers suggested that there was a difference in agricultural practice in the

homegarden and rice field respectively. As the headman's assistant mentioned on the second day of the fieldwork:

*In Huai Phrom, all people have fields and homegardens. They do a lot to take care of their fields, they do not do much to take care of their homegardens.*

this suggest that Huai Phrom was characterised by what in this report will be coined as a *dichotomous* land-use (see figure 5.1.2.)

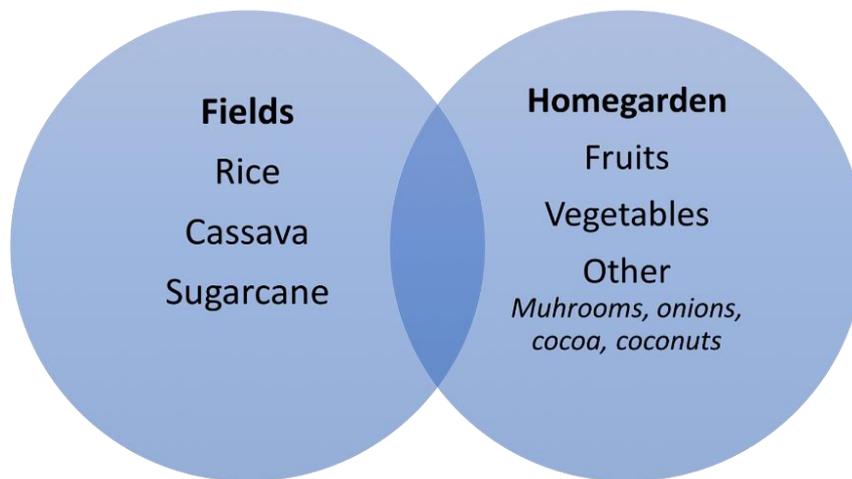


Figure 5.1.1(1) This report's interpretation of the dichotomous categorial divide between homegarden and field.

### 5.1.2 A dichotomy in practices

A second questionnaire that was based on the answers from the pilot questionnaire was created with the purpose of investigating the difference between the agricultural practice in the homegarden and field respectively. The data indicated different rationales behind the two types of agricultural practices.

#### **Different use of agrochemicals**

The average use of chemical fertiliser is displayed in figure (see figure 5.1.2.1). Rice fields nearly received the double amount of chemical fertiliser as compared to natural fertiliser. Villagers would often demonstrate a clear awareness of the extent of their chemical use, making an exact estimation of chemicals applied to their crops while the estimated amount of natural fertiliser was less clear

In opposition to the estimation of agrochemical use in the rice fields it was a challenge for respondents to estimate the amount of agrochemicals used in the homegarden. Most would answer *no use*, only if the homegarden had been infested with insects which happened rarely. This data was validated through grand-tours and participant observation in the homegardens; through these methods it became apparent that the villagers would refrain from applying agrochemicals in their homegardens, but rely on it only in their rice fields.

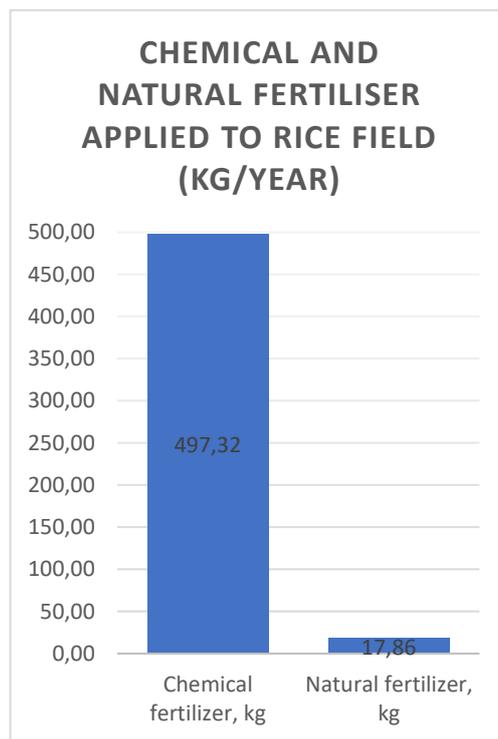


Figure 5.1.2.(1): Quantification of chemical fertiliser applied to rice field kg/year.

The results from the water analysis (see table 5.1.2.1) showed that the content of nitrates and phosphates in the Taphrom river both upstream and downstream the village, as well as the reservoir was low. Consequently, these results suggest that the use of different agrochemicals may not compromise the environmental quality of the river, in which there are no alarming eutrophication processes occurring. Accordingly, the villagers' perception on water sufficiency as a resource is in most cases, as 85% of the respondents in the pilot questionnaire considered that water sources are sufficient.

**Table 5.1.2.1: Water Analysis**

Date: 05 March 2018

Taphrom River

Sample number	Coordinates		Monitoring point	Time	TDS (ppm)	pH	T (°C)	DO (ppm)	Salinity (g/kg)	Conductivity (ms/cm)	NO3 (mg/L)	PO4 (mg/L)
	x	y										
1	102,022616°	14,534016°	Ba E Tan Reservoir	9:29	46,9	7,46	30,7	4,75	0,0	86,6	<2,5	<0,1
2	102,022301°	14,532366°	Ba E Tan Reservoir	10:00	46,2	7,53	30,2	0,0	0,0	86,6	<2,5	<0,1
3	102,002749°	14,553595°	Weir Upstream	10:30	84,7	7,15	31,2	5,0	0,1	156,4	<2,5	<0,1
4	101,99671°	14,556073°	Pond Downstream	10:55	103,3	6,75	33,1	1,8	0,1	189,9	<2,5	<0,1

Notes

3: Located close to the Headman's assistant rice field

4: Located close to the road, with people fishing there at that moment. High turbidity possibly caused by that. Much vegetation and algae, partially being removed by the villagers in the process.

### Differences in soil

In alignment with the preliminary assumptions about the soil quality, the analyses conducted in Thailand and subsequently in Copenhagen showed that a difference prevailed in soil composition between homegarden, ricefield and cucumber field (see table 5.1.2.2).

**Table 5.1.2.2: Soil Analysis**

		PH Thai	PH DK	N		Total N %	P	K	Organic	Total C
				Nitrate (No3-N)	Ammonium (NH4-N)					
Homegarden1	Top soil	7.5	7.87	VL	M	0.14	VH	H	L (1%)	1.41
	Subsoil	7.5	7.83	0	VL	0.08	VH	M	VL (0.5%)	0.55
Homegarden2	Top soil	6.0	7.10	VL	L	0.08	M	L	VL (0.5%)	0.53
	Subsoil	6.5	7.86	0	VL	0.06	M	L	VL (0.5%)	0.34
Homegarden3	Top soil	6.5	6.05	VL	L	0.08	M	L	VL (0.5%)	0.53
	Subsoil	6.0	5.73	VL	VL	*	L	L	VL (0.5%)	*
Rice 1	Top soil	6.0	6.48	VL	M	0.09	VL	M	L (1%)	0.68
	Subsoil	7.0	7.76	0	L	0.06	L	L	VL (0.5%)	0.34
Rice 2	Top soil	6.5	6.73	0	H	0.07	VL	M	VL (0.5%)	0.56

	Subsoil	6.5	7.92	0	VL	0.04	L	L	VL (0.5%)	0.26
Sugar	Top soil	5.5	6.56	0	L	0.06	VL	L	VL (0.5%)	0.4
	Subsoil	6.5	7.67	0	VL	0.04	VL	L	VL (0.5%)	0.21
Cucumber	Top soil	6.0	6.81	L	M	0.08	L	L	VL (0.5%)	0.63
	Subsoil	6.0	7.01	L	L	0.05	L	L	VL (0.5%)	0.32
NTF	Top soil	6.0	6.93	0	VL	0.07	M	M	L (1.5%)	0.5
	Subsoil	6.5	7.02	0	VL	0.08	L	L	L (1%)	0.41

\*missed sample

Concentration of phosphorus (P) and potassium (K) was found to be higher in the homegardens compared to the fields. With a difference of concentration in terms of depth of the soil, with higher and lower concentration in topsoil and subsoil respectively, one could argue that the difference derived from fallen leaves of trees in the homegarden, rich in aforementioned nutrients.

In addition, soil organic matter was very low in soil samples from the rice fields

### 5.1.3 Indications of dichotomous purposes

#### **Cash crops**

A central point was that 100% of the respondents in the questionnaire were farmers with 93,33% growing rice. 100% categorised their crops as cash crops with the primary purpose of selling it while data showed that the farmers would sell an average of 6300 kg of rice year. Quantitative data on where farmers sold their rice had an outcome of a variety of answers, with most of the respondents answering a rice mill in a nearby village (see figure 5.1.3.1). 23% answered *the Cooperative*, which is a community-based mechanism for farmers, located 24 km of HP according to the assistant of the headman and other villagers. Members of *the Cooperative* can take interest-free loans to buy chemical

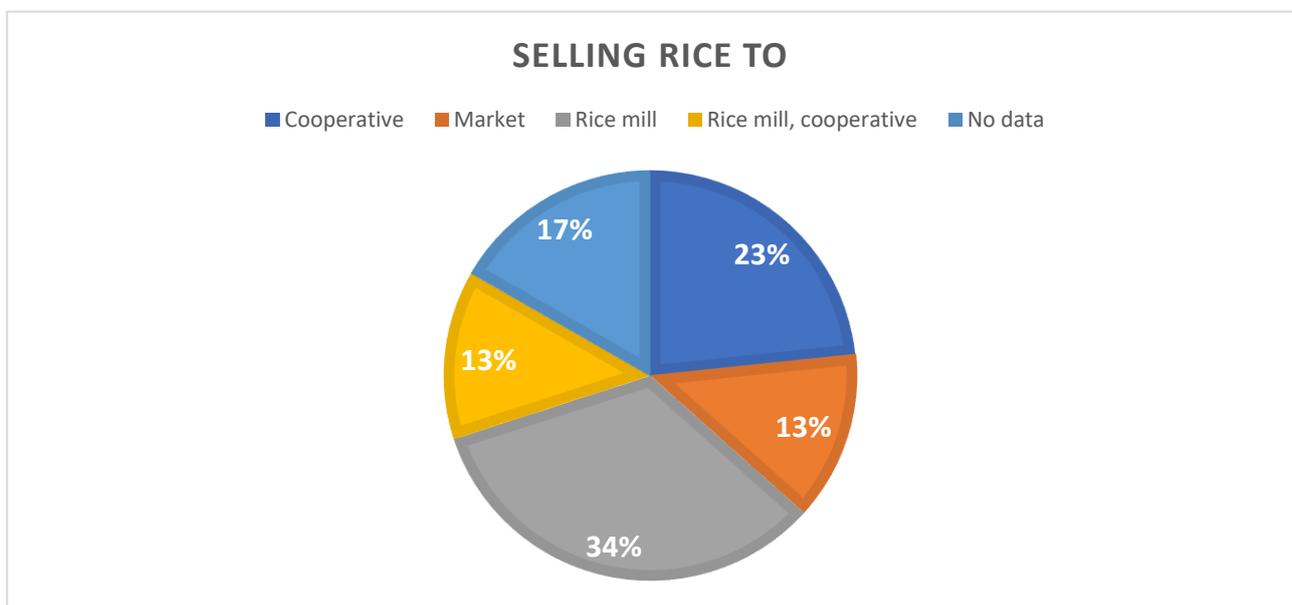
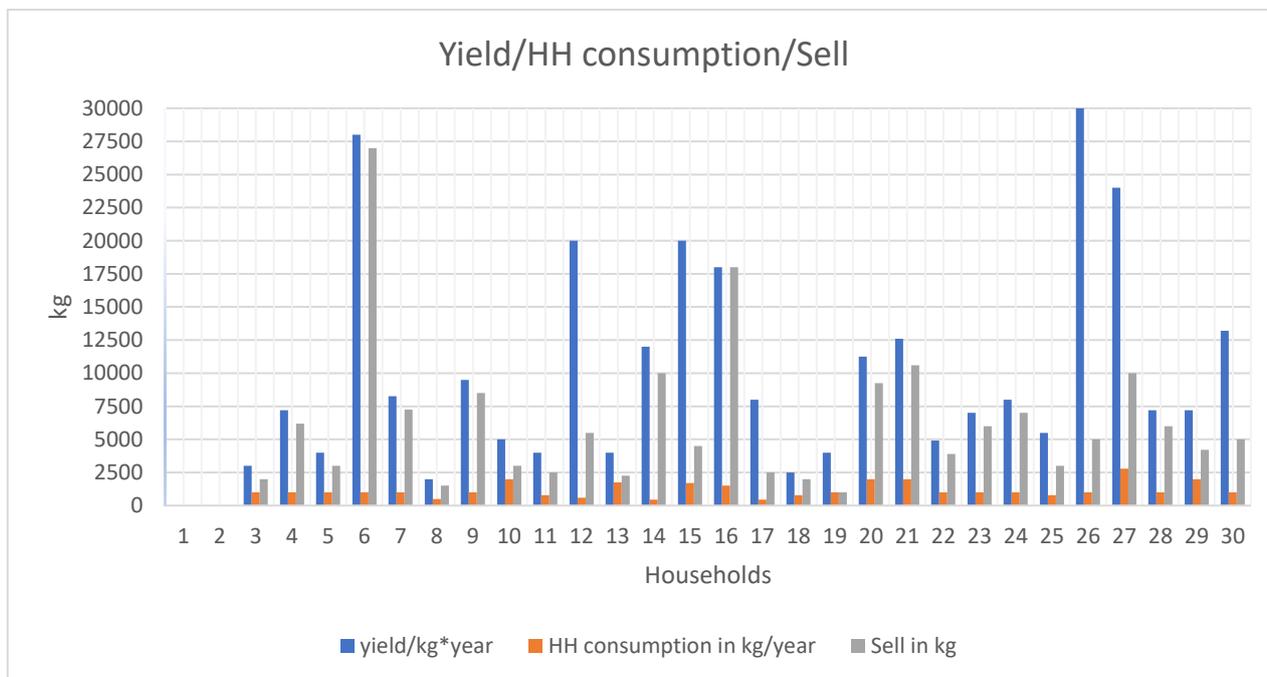


Figure 5.1.3.(1): The distribution of main source of selling crops amongst respondents in Huai Phrom.

fertiliser with a payment threshold of nine months being the only attachment. Members in return sell their rice to middle-men of *the Cooperative*, who then sell it to other companies or markets for a higher price. The rice cooperative is a way for small-scale farmers to unite in these cooperative and thus become able to compete with larger agribusinesses. Small-scale farmers were previously unable to do that because they did not have enough produce to compete on the bigger markets but by joining a cooperative they would have the combined power and thus the possibility to gain a higher price of the rice (Hoken 2018).

## Consumption of rice

Although data indicated that the primary purpose of growing rice was for selling, it simultaneously showed that farmers would also consume some of their own rice yield. In contrast to the precise estimates of quantity of rice for selling, it was difficult to get an exact estimation of the amount of rice they consume (see figure 5.1.3.2).



*Figure 5.1.3(2) The relation between yield, consumption and the amount sold*

*Figure 5.1.3.2*

Most of the rice for consumption is processed at the rice mill in the village which was built before the village started to sell of the rice, and the deal of being able to separate the seed from the husk for the price of the husk is still prevailing today as explained by the rice mill owner Anang. The husk would afterwards be sold back to the villagers as fodder for livestock. The owner continued to explain that the use of the rice mill has not changed which indicated that the consumption of rice in the village has not changed over the years

## Homegarden

In contrast to the rice field where the largest portion of rice was sold, data revealed that the main purpose of the homegarden was for household consumption. Out of 30 respondents, only 3 mentioned that they sold products from their homegarden, and they had difficulties estimating how much and how often. Some of the crops in the homegarden were harvested multiple times per year while other

bigger crops such as the mango trees would only be harvested once a year, but in a great amount. In case of surplus most of the respondents share it with their neighbours

The respondents did not count all the pieces of fruit. This lack of data on the exact produce shows that the respondents do not really know how much the total amount of food is from their homegardens. From an analytical point of view, it shows that the villagers are significantly more aware of the rice production because it is the main income for most of the respondents, while the homegarden did not produce anything of cash value and therefore did not need the same awareness as the production of rice for selling.

### **Inadequacies as indications**

This section has provided an overview of the categorical divide in dichotomous land-use which was identified early on in the field. Generally, quantifying the homegardens and fields in terms of agricultural practice and purpose proved to hold difference in difficulties of estimations. Whereas respondents seemed to possess a clear awareness and ability of estimating size of land, amount of chemicals, amount of yield and generated income from the rice fields etc., it appeared to be the opposite when villagers were asked to quantify their practice and purpose of homegardens.

In this report, the inadequacy of data presented in this section is interpreted analytically, assuming that the farmers needed an exact overview of economic input and output in their rice fields. This point will be elaborated throughout in the following section, which aims to highlight apparent and underlying rationales behind the difference in practice and purpose between homegarden and field.

## 5.2 Rationales of (non)-agrochemical use

The reader's attention will in this section be turned to the rationales behind the difference in the agricultural practice between the homegarden and rice field by first presenting two apparent rationales: *health* and *soil quality*. These lead to one underlying rationale, the villagers' *economic realities*, which are presented as a cross-cutting and consistent in our data, to be further elaborated throughout the report.

### 5.2.1 Chemicals, consumption and health

Throughout the qualitative data, one of the most apparent rationales behind the different use of chemicals in homegarden and field was the sociocultural concern of health. This discursive link between use of chemicals and health was prominent in all interviews. When posing the question of why the informant did not use chemicals for his or her homegarden, all mentioned that it was because they had to *consume* the produce themselves. Inquiring further into this, many farmers referred to experiencing the consequences of chemicals within the community:

*I've seen many villagers who had to go to the hospital because of consuming chemicals. I think chemicals are bad, so I do not consume them.* - Sanchai, farmer in Huai Phrom



Photo 5.2.1 (1): Tasting a rose-apple from an informant's homegarden being described as "good for your body"

Narratives on health were also noted during grand-tours and participant observation in the homegardens, when informants generously offered different produce to taste, often presenting it as *good for your body* or *healthy* (*Suk-Ka-Parb-De*, สุขภาพดี) due to their non-chemical qualities (see photo 5.2.1.1.)

### A paradox in perception and practice

The strong dissociation from consumption of chemicals seem to contradict the data presented in 5.2.1.1, which suggest that all farmers growing rice would consume it, despite its cultivation included chemicals. It contradicts with the awareness of the associated health risks by using agrochemicals which prevails in the qualitative data. In the focus group interview the rationale behind this paradox was because rice fields had a dual purpose, it was for both selling and consuming, correlating to what findings in the previous section - that rice fields ultimately served a dual purpose. According to the focus group, although they had to consume the rice themselves, it was elaborated that it was necessary to use chemicals in order to increase the yield and thereby generating an income, which was vital to their livelihoods; this point was correspondingly strongly accentuated in most single interviews. Thus, the economic purpose of the land appeared to have a higher priority than concerns of health risks, leading to the decision of using agrochemicals due to a reliance on a good yield, and reversely, refraining of using agrochemicals in the homegardens due to its sole purpose of generating produce for consumption.

This priority of income over perceived health was also represented in a ranking exercise during the PRA-session. Like many of the interviews suggested, a ranking exercise illustrated how concern of debt overruled the concern of health (see figure 5.2.1.(1)).



Figure 5.2.1 (1) : PRA ranking on "worst thing to happen for your farm", indicating debt being a bigger concern than health.

### 5.2.2 Perception of soil and environment

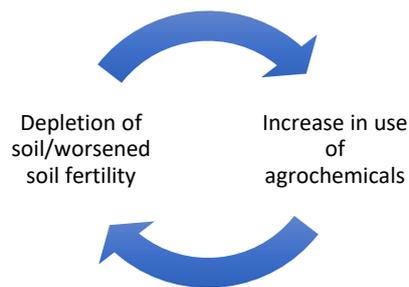
The villagers expressed a concern for the soil conditions, including an overall awareness on the effects that agrochemicals could have on the soil and natural environment. In alignment with the findings from the soil analyses in section 4.1.2, villagers would often present their idea of good soil quality in homegardens because it is chemical-free. Equally, it appeared when addressing the issue, informants expressed that soil was perceived as lacking nutrients. Like 61-year old Ba Khai said:

*Bad soil is because of two things. One, because you use chemicals. Another, because you only grow one type of plant always, always, always in this area, over one hundred years.*

Soil fertility, agrochemicals and its associated narratives thus seemed to stand out as a part of the natural environment and rationale behind the different agricultural practices in homegarden and field. However, despite an awareness of its bad effects, Ba Khai also used both agrochemicals and practiced monocropping in her field, thus exemplifying another paradox in perception and practice. This awareness seemed to be based on the fact that many of the informants were born and raised in the village, and had experienced a gradual depletion of the soil:

*The soil is not good anymore, so I have to use chemicals. In the past, there were not as many insects as today, today there are so many. So I have to use pesticides. -Anang*

Anang illustrates an awareness of the paradox in perception and practice of the effects that agrochemicals can have on soil quality and the historical shift in agricultural practices that followed the Green Revolution. In alignment with the narratives on health, Anang was compelled to use agrochemicals despite her perception of their negative effects on health, as she would explain she could not risk loss of yield due to her reliance on the income. This feeling of dependency on agrochemicals parallels with the qualitative data that indicated that the villagers will not give up agrochemicals because it is too much of a risk. By continuing to use agrochemicals a negative feedback loop is created as illustrated in figure 5.2.2.1.



*Figure 5.2.2(2) Negative feedback loop in many informants' description of being dependent on using agrochemicals due to soil depletion.*

RICE WITH NO CHEMICALS	RICE WITH NO CHEMICALS
RICE WITH NO CHEMICALS	RICE WITH NO CHEMICALS
FOREST	FRUIT TREES
HOMEGROWN VEGETABLES	TIMBER TREE
LIVESTOCK - Chicken, fish, duck	SUGARCANE WITH NO CHEMICALS

Similar to the perception of health, soil fertility seemed to be compromised with the economic rationale. This can also be seen in figure 5.2.2.2., which show the results from the PRA with the villagers. Here, one of the main characteristics of the *dream-farm* was that it is chemical free. These results show that the villagers are trapped in a situation where they have to keep using chemicals in their fields, even if they would like not to do it because of the health-risks.

Figure 5.2.2.2: Dream farm composition according to PRA results.

### 5.2.3 Economic realities

With the economic purpose of their agricultural practices being embedded in apparent rationales of concern of health and soil fertility, this subsection presents different elements of the villagers' economic realities. Thus, this section aims at conveying that these elements make up a mosaic which ultimately is the driver behind using agrochemicals, compromising with their concern of health and depletion of soil.

#### **Trapped in debt**

Debt was used to investigate the economic reality of the villagers. 19 out of 30 (63.33%) answered that they were indebted, with an average estimation of 60000 baht. This, however, may not represent the entirety, as one can assume the sensitivity of the subject may have caused some respondents to retain information.

To manage their debt, engagement with community-based micro-credit schemes were cardinal to the villagers. For instance, as described in section 5.1.3, the Cooperative was popular amongst villagers in Huai Phrom, possibly also due to debt; like the assistant of the headman said, *a lot of people use the Cooperative, so they can use the money for something else.*

The *Village Fund* was also a source of loan according to the data. Through this micro-credit scheme initiated by the government, villages are granted one million baht to help small-scale farmers to take loans, administered within the community. 74 % of the loans amongst the respondents were taken through here, whereas only 26% of the respondents took their loan in the bank. The importance of the Village Fund was equally emphasised through observation of a Village Fund meeting took place, and a heated argument amongst the villagers erupted due to disagreements on paying back their loans (see video in References).

**Importance of family**

In addition to engaging in community-based loan-sources, many of the villagers would also rely on additional sources of income. In the questionnaire, it was clear that, *Family* in this regard held noteworthy importance, figure 5.2.3.1 clearly implies that the family is a reliant source of income especially *children* as opposed to other family members.

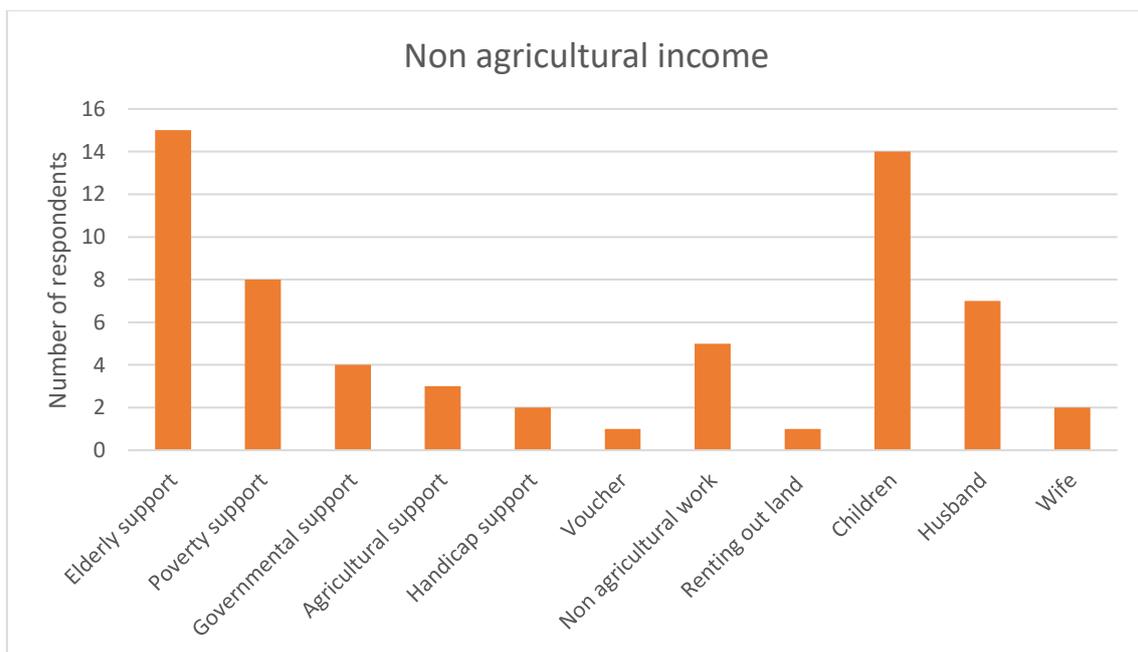


Figure 5.2.3.1.

Concurrently, results from the questionnaires showed that children’s university education was also a source of debt. Therefore, a part of the villagers’ economic reality was related to the wish of granting their children an education and migrate to bigger cities. Like the farmer Warat said:

*I have debt because my children are in university. My son is studying, and he uses a lot of money for studying. So it’s not enough for growing rice or do NTF.*

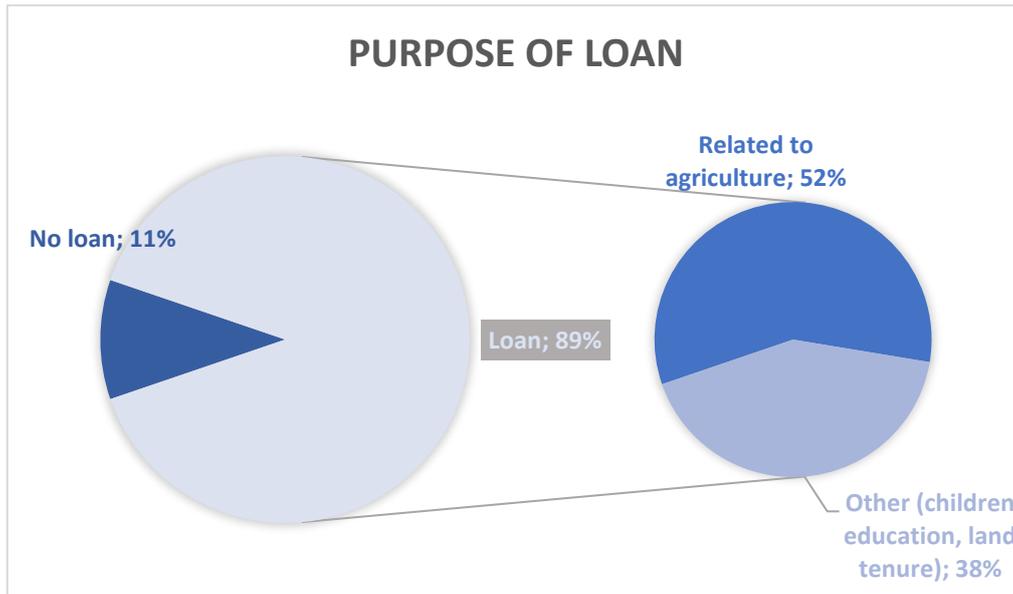


Figure 5.2.3.2.

As suggested by Warat, ability to do NTF was highly related to having a surplus of economic capital, which he was not in possession of due to his children's education, thus suggesting an asymmetry between the economic and ideological reality of the villagers. From here, the next section will dive into these ideological aspects of agriculture in the village of HP, with NTF and SE being central to the ideas on agricultural practices.

## 5.3 Ideological Realities

### 5.3.1 Institutional knowledge or local knowledge?

*In this village, there has always been three major different agricultural practices: Homegarden for vegetables, rice fields, and corn, cassava or sugarcane fields – Chanchai*

This quote by Chanchai illustrates an interesting paradox, which appeared in an early stage of the fieldwork: How most of the villagers seemed to subscribe to multiple coexisting narratives of the derivation on their knowledge of agriculture.

Firstly, self-sufficiency was often presented as a knowledge and practice accumulated within the community, being taught through action rather than theory. This *local knowledge* on self-sufficiency was pertaining to concrete agricultural practices, such as knowing when the plant would look *sick* (*Ton-Mai-Doo-Pen-Rok* - ต้นไม้ดูเป็นโรค) and having a seasonal awareness, such as knowing when to apply more water. To most villagers, local knowledge on self-sufficiency did not only signify practical agricultural knowledge, but was also associated with livelihoods. For instance, most would use the word *Sufficiency*, (*Kwam-Por-Piang*, ความพอเพียง), when explaining how their parents had taught them the importance of the homegarden in order to rely on own produce, shielding them from market dependency and fluctuations, referring to the aftershocks of the economic crisis in 1997 as their main source of reference.

However, some respondents' knowledge of sufficiency also appeared to stem from the concept of SE. Informants would also mention that the knowledge on sufficiency and the importance of homegarden had been presented through campaigns (see picture 5.3.1.1) village announcements over the speaker



Picture 5.3.1.1: The development of the SE model village project Huai Prom Village, Village No. 8, Udom Sap Subdistrict. The Development Office of Wang Nam Khiao District

(see video, references) or directly from the headman; from our questionnaire, 40% of the respondents mentioned that they had received governmental training from in the subdistrict (see figure 5.3.1.2).

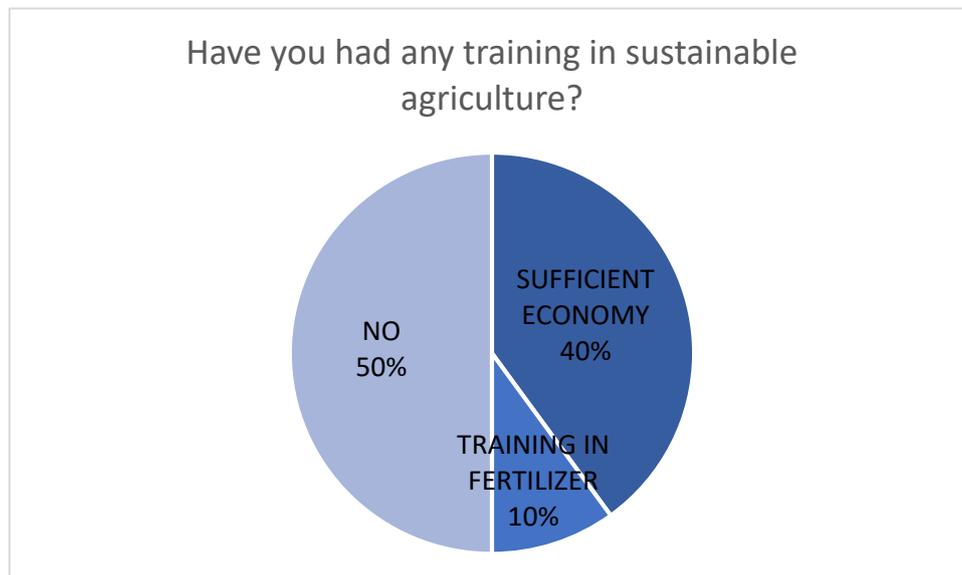


Figure 5.3.1.2

The rationale behind practicing *sufficiency* through subsistence agriculture in the homegarden, was thus rationalised having root in both SE, the *institutional knowledge*, and the knowledge of agriculture accumulated within the community, the *local knowledge*. With the fundamental distinction between the two that the local knowledge was taught by practice, and the institutional knowledge taught by theory, one could distinguish between two spheres, the *informal* and *formal knowledge*. This duality in narratives on acquired knowledge of agriculture often appeared within one interview-session with each informant, repeatedly culminating in their own realisations that their practice had remained the same after the Sufficiency Economy:

*I guess I didn't start doing anything different after the Sufficiency Economy, because I already did it, before it was even there. - Anang*

### 5.3.2 NTF - An ideological improbability

#### **NTF or SE?**

In contrast to SE, the majority of villagers in HP appeared to lack knowledge on the essence and meaning behind NTF, and most had not heard of it either. As described in introduction, NTF requires a certain amount of land with specific division in order to live up to the late King's idea on what it takes to be sufficient.

It often occurred that these two types of agricultural ideologies were confusing and understood as the same thing, which an aspect of the pilot questionnaire clearly shows (see figure 5.3.2.1); here, 7 out of 9 respondents answered *yes* to the question, *Have you practiced/do you practice NTF?*, strongly colliding with our subsequent finding, that only two households had converted.

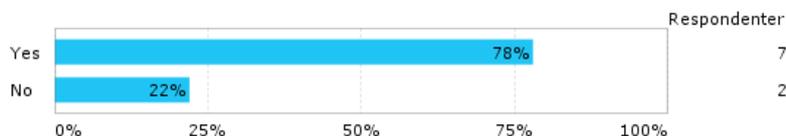


Figure 5.3.2.1

#### **Shortage**

As suggested by Warat in the previous section, ability to do *New Theory Farming* was highly related to having a surplus of economic capital, which his social obligations had. Warat was one of the few people in the village who had received training and acquired knowledge on NTF, leading to a strong desire to convert, due to the good things he was told about the life it could possibly lead to. These ideological elements seemed to prevail with all the informants that had heard of NTF, but most of them implied that this type of farming was unaccessible and unattainable. For instance, the rice mill owner Anang, said that NTF was unlikely to be possible, because *people still want to use chemicals to get more yield, they still want more*.

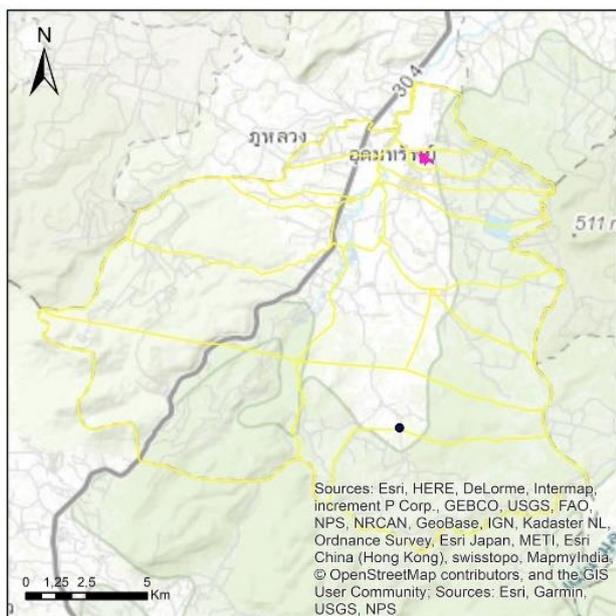
In alignment to what was highlighted in 5.3.3, Anang argued that to most villagers, generating an income was crucial in order to get by, letting ideological elements being second row. Similarly, NTF seemed to be equally difficult to Warad due to several factors other than just the lack of economic capital:

*It's not possible, because the soil is not good.*

Section 5.2.3, described the villagers’ general perception of the bad quality of the soil which is underscored by Warat’s quote that shows how his perception of soil fertility - a lack of *natural capital* - is the rationale behind being unable to convert to a chemical-free agricultural practice. This indicates how the biophysical environment is linked to the ability to follow an institutional incentive or ideological approach to agriculture. In correlation with Warat, Dusit was of the conviction that information on NTF was highly unattainable, due to lack of information and bureaucracy:

*When people want to know about New Theory Farming, they have to register and they can go with the headman to learn about New Theory Farming. But it’s very difficult to register.*

Location of Headman's New Theory Farming garden



**Legend**

- Headman's NTF homegarden
- Huai Phrom households and gardens
- Udom Sap villages' boundaries

Author:  
Miguel Ramírez López

Map 5.3.2.1.

Illustrated here shows how Dusit perceives lack of sociocultural capital being hindering converting. What he refers to is an offer provided by the subdistrict headman, who had a *model garden* in village approximately 11 km away from Huai Phrom (see map 5.3.2.1. Here villagers could learn about the principles and philosophy behind SE and NTF, while acquiring knowledge on how to take care of their produce and crops without using agrochemicals. The difficulty of getting a spot in the training and the far distance from the garden, made it unattainable according to Dusit. A visit to the garden was taken place in order to understand what the training entailed. During a grand-tour with the subdistrict headman’s daughter - who usually trained the villagers - she was asked to show the garden, like she would

show the villagers. In alignment with Warat, it quickly became apparent that being able to do NTF had more to do with the possession of land, an economic surplus and social surplus (spare time to receive training). This was accentuated when she explained about NTF the same way she would tell the villagers, stating that: *people usually come and just know by seeing*. Reversely, she emphasised

the division of land, water sources and the time it took to manage the land, with the requirement of investing more time in order to convert (see video, references).

### **Being the role-model**

Beside one household that was planning on doing NTF, Chanchai was the one out of two villagers in Huai Phrom who had converted land to meet the standards of NTF. With an inclination to understand the rationale behind his conversion, Chanchai quickly became a key informant. Having graduated from university, Chanchai was a former teacher and now retired, making him decide upon converting his land to NTF. In the light of Warat's and Dusit's perception of what was needed to convert, Chanchai seemed to be in possession of both time, knowledge and savings, which he explained made him able to practice NTF. Thus, Chanchai's possession of capitals seemed to correlate with what other farmers lack in order to convert.

As observed through a grand-tour method, Chanchai had aligned his agricultural practice to what the ideological components of NTF entailed: Having a certain type of flowers in the garden, having a pond for fish and frogs, using natural fertiliser, and growing various crops to sustain him; self-sufficiency had in a sense surpassed him, with even his toothpaste being made from his garden (see video, references). He furthermore seemed to pay stronger respect to the late King than other households, which was illustrated by how he would pray to him every night in order to generate a good yield (see video, references). Simultaneously, other ideological components of the King's NTF did not seem to apply to Chanchai's conversion. For instance, when asking him whether his life had changed in any way, he replied that nothing had really changed other than him becoming a role model (*Baab-Yang* - แบบอย่าง) for the other villagers.

## 5.4 Institutional presence in Huai Phrom

*In this section, the reader's attention is directed towards the rhetorical and discursive elements that were used by different government officials and local monks, in their engagement with villagers in Huai Phrom. By elevating from the villagers' perception of their own institutional realities, the purpose is to highlight that their institutional realities entail a complexity, as local government officials have a differentiating sense of ideological components.*

### 5.4.1 A sense of ideology

Alike the villagers' dual understanding of where their agricultural knowledge stem from, many officials seemed to share conflicting narratives on where the villagers had acquired knowledge on SE and NTF.

In engagement with two officials from the Agricultural Development Department in Udom Sap, the headman of the subdistrict and the headman of HP, it was explained that villagers would acquire knowledge on SE through village meetings and campaigns. As the headman said, *they just know it from the King*. However, exemplified in the following quote, a dual perception of acquired knowledge on farming appeared to prevail with all officials:

*They just need to have enough area to do New Theory Farming, because they already did Sufficiency Economy before it was invented. So it's because they don't have enough land.*

With the only factor preventing them from converting to NTF being lack of land, the officials claimed that the villagers of HP had integrated ideological components of SE prior to its invention. This must be seen in relation to sections 4.3.1 and 4.3.2.

Chanchai seemed to be the counterpart to an ADO. With a master's degree and many years of working in the Agricultural Development Office, the ADO had himself started practicing NTF in his own farm. Equally to Chanchai, who was counting on being reliant on his produce when retiring from his job. Although, in contrast to Chanchai the ADO did not seem to put much emphasis on fully practicing

NTF and still grew sugarcane for cash crops. However, the ideological awareness and their apparent effects seemed to have settled stronger than with Chanchai:

*Before I did New Theory Farming, I wanted a lot. I wanted everything. I wanted a new car, I wanted a new house. But now, I feel it is enough. It's sufficient. I am happier.*

Linking his state of mind and becoming less materialistic to his agricultural practice illustrates a strong ideological discourse that seems to be embedded within his perception of NTF. His view on immaterialism seems to connect to a general observation that many officials in the sub-district, subscribed to stronger ideological narratives of the effect that it had on one's mental state. These different components of the discursive link between psychological well-being and ideological approach to farming will be elaborated in the following subsection.

#### 5.4.2 A moral approach to agriculture

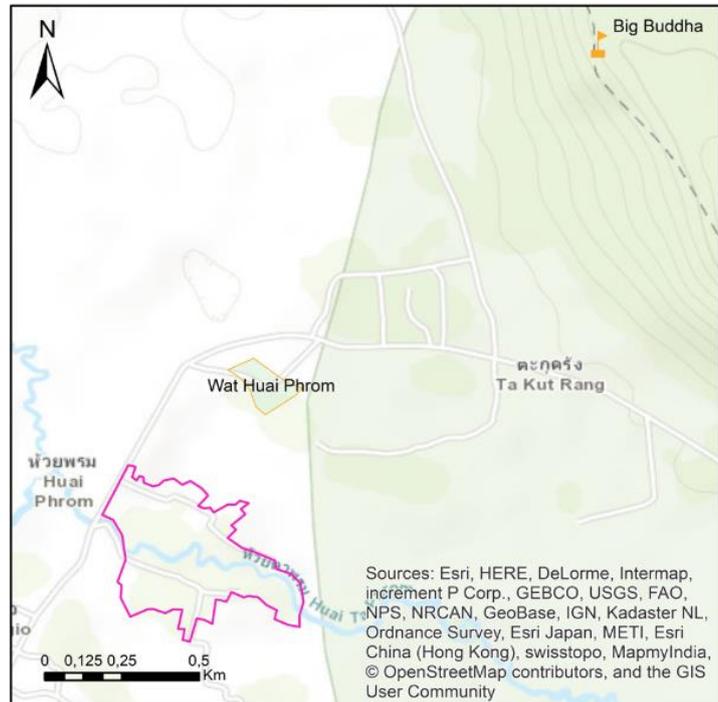
*The doctor is the monk. Like the doctor heals the people – the monks heals the people.*

This statement posed by the ADO shows the multifaceted functions of monks in Thailand, and the importance of religious institutions. For instance, it was explained how most of the farmers in the village would go to *Buddhas Footprints*, a site close by where Buddha had allegedly left his footprints in a rock, commonly used by farmers of the sub-district to pray for better yield (see video, references). When mentioning the temple of HP the link between religious institutions and agricultural practice in the village was pronounced. Like the ADO stated:

*Huai Phrom is located close to a temple, which is very important for the psychology of the villagers. When people get stressed or crazy, the temple helps people.*

## Buddhism in Huai Phrom

The three monks in HP temple explained during the SSI that the therapy was initiated in collaboration with the hospital in the subdistrict. The therapy program aimed at having the monks engaged with villagers in order to provide psychological therapy in their own village. The therapy could be doing domestic activities such as broom making, cooking or teaching about SE. Hence, the local monks of HP did not only serve as preachers of Buddhism, but undertook the task of communicating the link between the individual's state of mind, agricultural practice, and the King's ideological approach to agriculture which was articulated amongst the monks in the temple of HP, who led the therapy:



### Legend

-  Big Buddha
-  Huai Phrom Buddhist Temple
-  Huai Phrom households and gardens

Author:

Miguel Ramírez López

Map 5.4.2.1

*When you change from the monoculture to a mixed agriculture, you have become immune. When you practice this, you don't become affected by the drought, so you will have more income and be more sufficient and immune.*

Deploying the notion of Buddhist principles as necessary for the farmers' ecological resilience, the three elements of the monk's description seem to align with the key principles of SE presented in the introduction. Simultaneously, the monks connected ecological resilience with economic resilience, accentuating the importance of financial security for the individual's state of mind. The connection between mental illness and financial stability was further articulated by the monks:

*Anxiety, depression, schizophrenia – everything. Normally, people become sick because of genetics or economic problems.*

The monks stressed how market fluctuation could be the causation of mental instability, referring to the crisis in 1997 which had led to people becoming mentally unstable, consequently being unable to practice agriculture. The link between national economy and individual state was also highlighted by the ADO:

*The monks want people and society to get better. When they grow the plants, they can sell the vegetables and get the money. They will consider themselves worth while having value for society.*

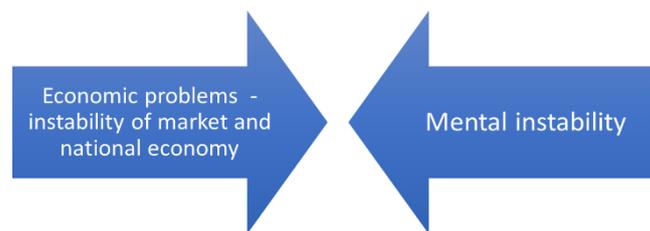


Figure 5.4.2.1.

In his adaption, the agricultural approach of SE has the ability to generate *worth* within the individual farmer, signifying its potential to provide economic worth to themselves and society. Hence, practicing therapy through SE constituted a sense of responsibility within the individual to contribute to the development of society. These discursive elements in meetings with both officials and monks, seemed to present a new rationale on the villagers' agricultural practice: The practice of subsistence farming had a dual purpose that transcends the individual farmer: relieving both the individual from economic stress, while contributing to society.

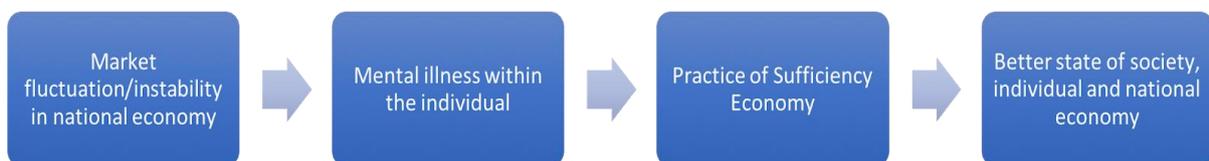


Figure 5.4.2.2.

### 5.4.3 The responsibility of having suitable soil

In relation to the link between mental health, agriculture and the villagers' responsibility of contributing to the national economy, *market dependency* and *national economy* became rather central points in the engagement with officials. It became apparent that soil quality, as a biophysical feature, proved to be a rationale behind people farming; as Agricultural Development Officials said:

*The land and the soil in Huai Phrom is suitable for rice, and also it's a culture for Thai people. It's important for Thai people and for Thailand, because Thailand exports a lot of rice. – AD1*

Linking soil composition to national export illustrates how the biophysical environment constitutes the individual's responsibility to do contribute to the market economy. This was also highly echoed by another Agricultural Development Official, who linked soil quality to national economy through tourism:

*If this area has good soil, it will affect a high income product, which affects the tourism of the product. Product has a connection with the tourism. If the tourism decrease it will affect people in this area.*

Elaborating on this statement, the ADO explained how good soil was linked to tourism; as a strong national economy would lead to increase of resorts and businesses in the area; with an increase of resorts and companies, the demand of the local products would be higher, ultimately improving the small-scale farmers' livelihoods (see figure 5.4.3.1.)



Figure 5.4.3.1

The prospect of promoting eco-tourism in the area was also emphasised by the headman of the subdistrict, who claimed that promoting Sufficiency Economy within Huai Phrom was with the prospect of having eco-tourism homestays for when tourists visit the national parks in Wang Nam

Khieo. Tourism being rationale behind the farmers' eco-conscious practice and self-sufficient homegarden was on the contrary never encountered in engagement with the villagers.

### **Efficiency and laziness**

*Efficiency (Pra-Sit-Ti-Parb- ประสิทธิภาพ)* was the term that all officials used to describe the essence of practicing Sufficiency Economy. Discourse on efficiency was also central to the headman of HP as he says that they have to grow cash crops to compete with other provinces on the market. He continues to state that there is a laziness present in HP, as only 10 household were inclined to engage in cooperatives which is described in the introduction. The villagers could strengthen their position on the market by joining a cooperative but as he says:

*Some of them are too lazy or they don't want to get busy so they don't want to join the cooperative.*

Being *lazy (Kee-Kiad - ใจเกียจ)* showed to hold a central part and fell into a discourse of efficiency amongst the officials. In connection to the two previous subsections, this section has aimed to highlight the rhetorical elements on HPs farmers amongst officials. Laziness as a distinct discursive element correlated with the farmer, Sanchai's interpretation of the village meeting announcements on practicing Sufficiency Economy:

*In the announcements, the headman always says, you have to be diligent, you have to work hard. Don't be lazy.*

## 6. Discussion

In order to understand the rationales and drivers behind the villagers' dichotomous agricultural practice, it appears relevant to understand what lies behind the institutional reality of the villagers in Huai Phrom. For this section, the theoretical framework will be applied to the analysis in section 4.

As a cardinal point in the dataset, an embedded awareness of the national crisis in 1997 was present during interviews with both villagers and officials. This is also prevailing in the literature where scholars such as Niemmaneea et al. (2015) describes how the Asian Economic Crisis in 1997 has had a threefold significance in accordance to impacts on the agricultural sector in Thailand. Firstly, it led to a general movement of capital and labour shifting to agriculture; secondly, this movement led to an intensification of environmental utilization, culminating in the deterioration of environment and farm resources; thirdly, agriculture had to be restructured, as promoting commercial agriculture without resource planning would not be sustainable (Niemmaneea et al. 2015). This third point seems particularly applicable to this report's empirical framework, which highlighted how many villagers had appropriated their agricultural practice to SE, which emerged during and after the economic crisis. In this regard, it becomes relevant to draw on the works of James Scott, who theorises that events such as war, economic collapse or revolution leads to the weakening of civil society and makes populace receptive to new dispensations (Scott 1998).

With this notion in relation to the data, the embedded alertness of a possible national economic crisis can be understood in relation to SE in HP. This implies that the practice of the dichotomous land use with multicropping in the homegarden and monocropping in the field must be understood as institutional knowledge. However, as presented in 4.2.2, the villagers of HP subscribed to a dual narrative, meaning that their knowledge of agriculture also derived local knowledge passed down through generations. This mirrors to Scott's term *metis*, which is defined as the deep and local knowledge, rooted within the community.

In regard to Scott's framework, the local *metis* in HP appeared to be clashing with a common conviction that it derived from the late King, a highly regarded figure and symbol of the national state. Thus, the result section appears to differ from Scott's notions on how standardised knowledge replaces the pre-existing local knowledge. Rather, in the case of SE in HP, the ideological approach

to farming appeared that local knowledge was rebranded as a new approach to doing agriculture. Furthermore, this doctrine was shaped in accordance to a Buddhist moral economy and promoted by eco-Buddhist movements, which constitutes the two biggest moral institutions in Thailand working together towards the same end: To convince Thai farmers to convert to SE (Rossi 2012).

This moral and nationalist sentiment was discursively found amongst officials in HP, not only through the highly regarded institution of the royal family, but also through the religious institution of Buddhism. As described in 4.1.3, a discursive link between mental state, agriculture and one's responsibility towards society was particularly prominent in encounters with the local monks and officials. Perceived as a gateway of curing the unstable minds, SE was considered by the officials a crucial component to make an individual feel like they are contributing to society. In a similar way, the monks of HP temple considered farmers as actors in a bigger scheme of sustaining or enhancing the national economy. This appears to correlate with studies conducted on farmers who adopted Buddhist eco-spiritual values. It was found that they enjoyed greater financial and health benefits from making the organic shift (Kaufman et al. 2014). In the light of Scott's central role in this discussion, SE diverges the author's focus on centralist, standardised bureaucratic policies that are often forced upon farmers in authoritarian states (Scott 1998). Rather, in the light of section 4.3 and 4.4, the villagers of HP were surrounded a discursive of SE through moral institutions.

As seen in section 4.4.3, the officials seemed to link a moral imperative to the biophysical environment. This was particularly manifested in their perception of HP's soil, described as highly fertile. This perception of good soil appears to conflict with existing literature, stating that the soil in North Eastern Thailand over the years has become less arable (Haefele et al. 2005; Buch-Hansen 2001). Further, it contradicts the results from the soil analyses, which showed that the soil was poor in nutrients, indicating that they were less aware of local environmental conditions. On the contrary, data as presented in 4.2.2 strongly suggested that the farmers were aware of the depleted soil, even demonstrating awareness of how their own agricultural practices were the cause behind it. Thus, the villagers' perception of their soil and biophysical environment aligned better with soil analyses and much written literature on how intensive agricultural practices are depletes the soil (Blanco & Lal 2010).

A similar paradox is found again between consumption of rice and awareness of associated health risks. This appeared to be due to an overall concern of the villagers' economic realities, where obligations, like paying for their children's education and cycles of debt appeared to overrule their concern of health and depletion of natural environment. This can also be seen in relation to the agricultural incentives that were implemented prior to Sufficiency Economy. For instance, the Green Revolution appears to comprise an example of how preexisting market-oriented policies are contrasting the ideological approach to Sufficiency Economy. In the case of HP, one could argue that villagers had become dependent on the market due to the state's high modernist ideology, making them rationalise a chemical use despite an overall awareness of and apprehension towards consuming it.

It is therefore relevant to argue how resilient the villagers are to economic, ecological and social shock. For the villagers in HP it seems they have exposed themselves towards economic shocks such as sudden drops in rice prices on the market that they depend on. They also find themselves in a situation where ecological "shocks" such as floods, droughts or even soil depletion, all represent a threat to them, as showed in the PRA session. A method to increase the resilience against such "shocks" is to convert monocropping agricultural practice to multi cropping like the homegarden (Lin 2011), which is in accordance with the results in section 4.1.2 where a difference in soil quality was present between homegarden and fields; the homegarden soil contained more soil organic matter than the fields. This could also be a reasoning behind why the farmers use agrochemicals in the fields while not using any in the homegarden.

### **High modernist ideology**

The asymmetry that seems to persist between the villagers and the officials' perception of the natural environment seems appropriate to conjoin with what Scott presents as a *high modernist ideology*. High modernism is defined as when states have confidence to technical or scientific progress, subscribing technical progress its maximization of utility by making society's inhabitants more efficient. These frameworks of technical and scientific methods are applied by the states' conviction of improving society, making its inhabitants more efficient (Scott 1998). This seems to correlate with an overall discourse prevailing in section 4.4.3, showing how an overall efficiency discourse seemed to be embedded in the officials' understanding of the villagers' natural environment's suitable soil,

as well as in the village headman's perception of their lack of engagement in Community Farming due to their laziness. Furthermore, this highlights a general point in Scott's book, showing how the high modernist, bureaucratic state is often out of touch with the locals' realities, ending up committing *hybris*. This term signifies how state actors control or simplify the locals' lives, often ending up experiencing the consequences of these simplifications. In the light of the result section and this section, one could argue that Hybris can be seen in terms of SE and NTF, as a skewing appears to persist in the feasibility of converting to NTF, which HP's only New Theory Farmer, Chanchai, exemplified: In order to have what in this report will be coined as *institutional capital*, it requires a surplus of economic, natural and social capital in the context of HP.

This report could then argue that the emerging free market and conflicting schemes and incentives on agriculture leaves the villagers in a position where dichotomisation of land becomes a necessity in order to live up to the vast body of discourses that surrounds their agricultural practice. The farmers have to be oriented towards both the national economy as well as their own economic reality; they have to regard their own health, as well as rely on chemical fertilisers in order to generate an income; they have to sustain themselves but also the education of their children.

In the light of this section, the reality of the farmers in Huai Phrom have been highlighted as being complex and intricate, involving many compromises, choices and arguably little agency for taking risk associated with their agricultural practice

## 7. Conclusion

This report has aimed to document and assess the underlying rationales of homegarden versus field cultivation practices in the village of Huai Phrom. Firstly the results revealed that the predominant type of land use in Huai Phrom consisted of cultivating a homegarden and a field differently. This has been coined as a dichotomous land-use, as the results showed that a dichotomy exists in accordance with the different pillars stated in the introduction. The dichotomy was firstly found in the general agricultural practice, with the different usage of agrochemicals being a central point. In terms of natural environment, a general difference in the soil quality was found between homegarden and field, although water did not seem to be affected by the use of agrochemicals in the field. Furthermore, the dichotomy persists within the difference in primary purpose being subsistence farming and cash crops in the homegarden and field respectively.

Results in the second part showed how apparent rationales of health concerns and depletion of natural environment prevailed in the dichotomous agricultural practice. The skewage between perceptions and use of agrochemicals established an underlying rationale behind the villagers' concerns of their economic realities, consisting of inherent circles of debt, environmental risks and along with social concerns such as paying for their children's education.

In the third part, the results conveyed a paradox equally existing in the villagers' perception of acquired knowledge on agriculture. It appears that villagers of Huai Phrom subscribe to dual narratives on their knowledge on agriculture, being perceived as both institutional and local knowledge. Ideas such as New Theory Farming are not perceived feasible, as they entail a relief of reliance of economy.

In the fourth part of the results, a focus on local government officials and monks from Huai Phrom temple manifested how a general skewage is founded in the moral aspects of practicing a certain type of agriculture. The general characteristic of the embedded discourses between officials appears to be rooted in the idea of the small-scale farmers taking part in a larger agenda, ultimately contributing to the national economy.

In a triad between contextualisation, a theory of political ecological framework and the empirical framework in the report, the data was highlighted as consisting of skewings and paradoxes. The data was elevated using the theoretical framework to being understood as a skewing between the state and the locals, particularly in regards to natural environment and soil quality. Furthermore, the discussion shed light on how the dichotomous agricultural practice is embedded in moral paradigms; nationalism and Buddhism, elevating the dichotomous agricultural practice into a higher agenda. The discussion thus highlighted how the villagers of Huai Phrom seem to be living within a discursive reality that complicates their agricultural practices, enforcing them to orient themselves in regard to a concern over state of society and self. This can be seen in regard to chemical-use and historical and new policymaking, respectively the Green Revolution's promotion of agrochemicals and New Theory Farming detention of the same.

The rationales behind the dichotomous land-use of Huai Phrom can thus be understood an intricate web of contradictory forces, narratives and discourses on what makes a certain type of agriculture meaningful. In Huai Phrom, rationales on dichotomous agricultural consists of an interplay between dependency on market forces, state incentivised policy-making and ideology, creating an institutional wilderness in which the small-scale farmers must find their way.

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# 8. Appendix

## 8.1: Synopsis

### 1.1 Context and background

Thailand is one of the biggest economies of Southeast Asia, and has experienced a rapid annual average growth of 7.5% in GDP from 1960-1990 (World Bank, 2017). A particular turning point for the national economic development happened in 1997, when Thailand's domestic currency, Thai Baht, collapsed, and inflation happened due to lack of foreign currency. As a result, many foreign investors withdrew, employment rates in urban areas dropped drastically, GDP growth declined to 5%, which kickstarted what came to be known as the Asian Financial Crisis in Southeast Asia (World Bank, 2017). During the economic crisis, the agricultural sector experienced a surge in export expansion, partially due to the baht depreciation and growth in export value. Particularly crops and fisheries were key in boosting the country's export in this period, and the agricultural sector provided job opportunities for many newly unemployed in the urban areas. Although farmers generally were affected by failures in the banking system and higher interest rates, many small-scale farmers experienced job security during the economic recession (Singhapreecha 2014).

Thus, the agricultural sector has often been referred to as the "backbone of the economy", in spite of the general decrease in the agricultural share of Thailand's GDP per capita from 36,4% in 1960 - 8,3% in 2016 (World Bank 2017; Singhapreecha 2014). As per 2014, agricultural products makes up 9% of the total export sector of the national economy (World Bank 2017).

Since the 1960's, various governmental policies has been oriented towards a development of the agricultural sector in Thailand. This development has been spatially uneven, leading to a mosaic picture of the current agricultural practices in Thailand, which include subsistence farming, extensive and intensive agriculture, forestry, shifting cultivation and contract farming (Amewaka 2010; Delang 2002; Conway & Barbier 1990; Thapinta & Hudak 2000).

An increase in the use of chemical fertilizers and pesticides was part of this modernisation of the agricultural sector carried out by the government, but it eventually led to pollution, drainage of watersheds and degraded soils. However, many farmers were affected by higher prices of fertilizer, making many farmers indebted and dependent on market prices within agriculture (Emi 2015). The incentive to use chemical fertilizers and pesticides to increase yields from agricultural production systems derived from the Green Revolution, which emerged as a strategy in the 1960's to cope with increasing food instability and food scarcity in developing countries (Nelles & Visetnoi 2015). Issues related to increase of chemicals in the agriculture sector. Government reformed agricultural policies towards a more sustainable agricultural practice that is less dependent on chemical fertilizers and pesticides (Amekawa 2010). Policy making and incentives by the government is also partially driven by external pressure from international organizations. For instance, Thailand has increased efforts in improving food security and reducing use of chemical fertilizers in collaboration with the Food and Agriculture Organisation, which operates under the United Nations.

External pressure and international discourse also led to several initiatives in terms of sustainable agriculture well before the economic crisis in 1997. For instance, sustainability within agriculture was a central aspect in the government's Seventh National Social and Economic Development Plan, which ran from 1992-1996. Synchronously with the eruption of the economic crisis and the constitution in 1997, the government's Eighth National Social and Economic Development Plan became groundbreaking, as it aimed to convert at least 20% of arable land to sustainable agriculture. Around the same time, King Bhumibol promoted a new way of economic thinking and practice due to concern economic instability; this came to be known as *The Philosophy of Sufficiency Economy*. This paradigm built on three pillars: *moderation*, *reasonableness* and *risk*

*management*, hence promoting integration of self-restraint approach to people's economic practice and discursively stressed the importance of a balanced economic development in society.

The philosophy also promoted a new approach to farming called *New Theory Farming*, which sought to integrate the essential three pillars of The Philosophy of Sufficiency Economy within agricultural practice and particularly based on three principles that applied to all small-scale farmers: Firstly, self-sufficiency was encouraged, meaning farmers should be capable of producing enough food for their own families; secondly, farmers should acknowledge the importance of the local community in terms of farming; thirdly, water should be available all year, even in the dry season. It was argued that with an integration of these pillars, farmers could shield themselves from risks and impacts of globalization through self-sufficiency, hence avoiding losing their jobs when an economic crisis would erupt (Amekawa 2010; Amekawa 2013).

In the following years, many governmental policies were implemented, which seemed to underlie the king's discourse on economic balance, while also driven by international influence. In the early 2000's, the majority of governments in ASEAN (Association of SouthEast Asian Nations) developed and implemented so-called *Good Agricultural Practices* (GAP). The primary goal of the programme is to improve consumer food safety and quality assurance and the secondary aim is to support small-scale farmers' participation in the mainstream markets, motivating farmers to comply with the programme due to commercial benefits (Wannamolee 2008). In 2004, Thailand's Ministry of Agricultural Cooperative implemented GAP-programme, adding the abbreviation Q for 'quality'. The Q-GAP involves a third-party certification system, where certified products are labeled with the GAP-logo, Q. Certification and recertification happens every two years when official GAP-inspectors on a provincial level inspect the farms and take samples of crops that are tested for pesticide residue. (Amekawa 2013). In spite of the fact that the programme aims to provide individual growers and farmers with training and advisory services, it has been reported by researchers that many farmers in Thailand lack fundamental understanding about the programme, whereas others do not consider the commercial benefits sufficient (Amekawa 2013; Getz and Scheck 2006).

Market influence and policy making related to the agricultural sector has also affected many small-scale farmers in regards to land tenure and rights to land. Conflicts over land and large land acquisition became a prominent issue in Thailand in the late 1980's, where a large number of conflicts over forested areas between the state and locals emerged (Chiengkul 2012). Large scale land acquisition by both domestic and foreign agribusinesses has continued to increase in recent years with little intervention by the government (Chiengkul 2012). M P. Chiengkul states that the government of Thailand is highly influenced by large agro-businesses that wish to gain monopoly control over the seed market in Thailand, and they therefore promote certain parts of the Green Revolution that focus on mono-cropping with the use of chemical fertilizers and pesticides, arguing that the national economy will benefit from these investments done by large agro-businesses (Chiengkul 2012). As a consequence of the Green Revolution, many small-scale farmers have lost parts of their income from forestry activities. Furthermore, many small-scale farmers find themselves in a debt circle due to high chemical prices and low income from agricultural products, while the yield decline due to prolonged use of chemicals, often resulting in the farmer being forced to sell land to pay debts. Moreover, many farmers have become economically and socially vulnerable position when choosing to do contract farming as most contract conditions are only beneficial to the contractor (Chiengkul 2012).

## **1.2. Study case: Huai Phrom village in Northeastern Thailand**

Huai Phrom is a small village (coordinates 14°33'N 102°0'E) located in the Nakhon Ratchasima Province in Northeastern Thailand. It is situated at 187 meters above sea level with an annual precipitation of 1072 mm per year in the whole region (Climatemps 2017). The mean annual temperature is 26.7°C in the coldest months in the dry season in December and January, and with a temperature peak of 29.3°C in May where the wet season starts (Climate-data Undat.). (see appendix for climate graph; Climatemps 2017). Roughly 20% of the population in Nakhon Ratchasima is categorised as poor according to the World Bank Data and a socioeconomic survey completed in 2005 (Jitsuchon & Richter 2007). The village of Huai Phrom is located around 55 km south of the provincial capital of Nakhon Ratchasima, in a rural area on the brink of what seems to be a forested area. According to the headman of the village, this forest also functions as a

military training facility The village consists of 60 households with a headcount of 240. According to the headman the village has a low chemical input agricultural practice.

This can be related to the previous section, where particularly market influence, governmental policy making and discourse on agricultural practice was highlighted as central to both recent and historical agricultural practice in Thailand.

Rationales, changes and drivers behind agricultural practice in the village is presumably also influenced by socio-cultural factors. For instance, research has shown that migration from rural to urban areas by young adults in Thailand has increased in the last 30 years, and is often explained by the younger generations' wishes to pursue other careers than that of agriculture (Knodel & Saengtienchai 2007). This can be streamlined with information provided by the headman of Huai Phrom, who suggested that many families have concern over their children migrating to urban areas.

The introduction has provided a context for which agricultural policies, including economic and agricultural development schemes might influence the low chemical input agricultural practice in Huai Phrom. Other factors such as the biophysical environment and the presence of the military in the nearby forest and how they might also have an influence on the agricultural practice is stated in the section below.

## **2. Objectives and research question**

The overall purpose of this research is to assess the rationales and drivers of the low chemical-input agriculture practices in the village of Huai Phrom. In order to do this, it is necessary to know what factors influence the agricultural practice and land use in the village, and how these relate to each other. The research therefore aims to shed light on how historical and economic development and governmental policies may influence the villagers in terms of livelihood and agency with regard to the different socio-cultural and biophysical features in the village. This area of interest has led us to formulate the following research question:

### **2.1 Research question**

- *What are the rationales and drivers behind the land use that is practiced in Huai Phrom?*

### **2.2 Working questions**

*How did historical and economic development influence Huai Phrom, and how does this influence affect their land use?*

1. *To what extent do governmental policies regulations and programmes influence the land use in Huai Phrom?*
2. *What biophysical features influence the villagers' land use? How?*
3. *What socio-cultural/perceptual factors influence the villagers' land use?*

## **3. Methodology**

The general approach of our methodology aims at interdisciplinarity and applying different perspectives and strategies and triangulation of different data (see app. 3.1). This section aims to describe the various methods seem to be relevant and applicable. Further description of methods can be found in Appendix 3.

### **3.1 Grand tour**

A general tour around the area with potential informants could be particularly useful for us in the early stage of our fieldwork, as it gives a general idea of the area and natural environment while introducing us to the informants' subjective perception of the field. Furthermore, unstructured questions can be posed to the informant throughout, which aids the ethnographic description (Spradley 1979). A tour with a specific

objective in mind could be useful in the later stages of the fieldwork, when a particular thematic interest or prominent biophysical and socio-cultural features have been identified (see app. 3.2)

### **3.2 Questionnaires**

Questionnaires can provide fundamental data on the demographics of the village, such as gender, age and household composition. Moreover, it can provide data on assets, income levels, sources of income and different types of agricultural practices etc., thus letting us investigate how different variables may or may not correlate (McLeod 2008). In the early stages of the fieldwork, questionnaires will be useful in order to identify thematic aspects, particularly in terms of biophysical features and socio-cultural factors that appear central to the villagers and their agricultural practice (see app. 3.3, app. 5)

### **3.3 Semi-structured interviews:**

Semi-structured interviews will be particularly beneficial when attempting to grasp the different socio-cultural factors that influence the villagers' perception of land-use and contextual circumstances. This method appears applicable to most informants in this field of research, but particularly farmers, the headman of the village and members of the households will be key. This open-ended interview form allows the interviewee to open up and may be a relevant method in terms of investigating villagers' perception of different governmental policies, given that they are open for discussing it (see app. 3.4).

### **3.4 Participant observation**

Participant observation will allow a deeper understanding of the villagers' perception and realities of informants and people in the village (Spradley 1980). When partaking in agricultural practices, daily activities in the household and events in the community, we will be able to uncover important data which cannot be obtained through conversation, but rather through observation (see app. 3.5)

### **3.5 Focus groups:**

Focus groups are useful as they allow us to make combinations in terms of gender, age/generation or in regard to other thematic interests such as beliefs, opinions or income level. Bringing people together in order to discuss certain can generate gather data on different or similar perceptions or embedded narratives (Liamputtong, 2011). Furthermore, this method allows observation of group dynamics and power relations, thus identifying possible conflicts within the community (see app. 3.6).

### **3.6 Participatory Rural Appraisal (PRA)**

PRA approaches can apply to many different aspects of this particular research, and many activities can relate to uncovering different biophysical and socio-cultural features as well as important contextual factors. For instance, it appears relevant to have a timeline made by villagers, where they collectively discuss and mark important events and changes; this will provide us with data on how historical and economic development is perceived and may consequently have influenced the villagers' land use and agricultural practice. Mapping exercises can be useful in order to highlight villagers' idea of land ownership, network and relations within the community, as well as perception of the natural environment. Ranking exercises could be relevant to uncover time management, priorities, etc. (see app.3.7).

### **3.7 Soil sampling**

Soil sampling is a method which can be used to compare the nutrients, biophysical properties and compositions in soils (FAO 2006). This method will be useful as it not only gives us an understanding of the natural conditions, but it will also allow us to triangulate with other methods such as the PRA and questionnaires, as it will make us able to distinguish between perception of soils and our own findings, thus combining biophysical features with the socio-cultural and perceptual (see app. 4).

### **3.8 Forest assessment**

In case the nearby forest and the military's presence proves to have importance to the local community, forest assessment could be necessary in order to understand forestry and whether it has (had) significant impact on the past, present and future of the village or impacted the villagers' livelihood. Forest assessment could

therefore be useful in order to obtain data on development, changes or progress in the forest and forestry by quantifying forest resources and addressing the benefits from forests to the people living in the village.

### 3.9 Mapping

All possible data, including aerial and satellite photographs, topographic maps, base maps, legislative boundary maps, etc. have been obtained in order to know as much as possible foregoing to the field work site. Studying existing maps and areal data have been helpful to create a visual image of the village and field site. Creating a perimeter around the village using GPS would help us to limit the field work area, which would be very important for further analysis.

## 4. Timetable

Activity/Day	Day 01, 02/03	Day 02, 03/03	Day 03, 04/03	Day 04, 05/03	Day 05, 06/03	Day 06, 07/03	Day 08, 09/03	Day 09, 10/03	Day 10, 11/03
Questionnaire		X	X	X					
Soil sampling		X	X	X	X	X	X	X	X
Grand tour	X								
Mapping	X								
PRA							X		
Forrest assessment			X						
Participant Observation				X	X	X			
Focus group								X	
Semi-structured interviews			X			X	X	X	X

## 8.2 Timetable in the field

FRIDAY 2ND MARCH		SATURDAY 3RD MARCH		SUNDAY 4TH MARCH	
Task	Responsible	Task	Responsible	Task	Responsible
First visit to the village. Meeting with the headman's assistant at his field	All	Soil sampling	Jeppe, Miguel, Wafa	Soil samples preparation	Miguel, Wafa
		Questionnaires (pilot)	Helene	Questionnaires (pilot)	Miguel, Wafa

MONDAY 5TH MARCH		TUESDAY 6TH MARCH		WEDNESDAY 7TH MARCH	
Task	Responsible	Task	Responsible	Task	Responsible
Water analysis	Jeppe, Miguel, Wafa	Interview with the Agricultural Development Officer	Miguel, Wafa	Interview to the monks	Helene, Ingrid, Jeppe, Miguel
Interview with the worker official at the Sub-district Office	Helene, Ingrid	Grand tour through their garden with the headman's daughter	Ingrid, Miguel	Questionnaires	Miguel
Questionnaires 2 (test)	Helene, Ingrid	Questionnaires 2	Helene	Focus group interview	Helene, Ingrid, Jeppe
				SSI with HCI farmer	Helene, Ingrid, Jeppe
				SSI with NTF farmer	Helene, Jeppe
				soil analysis	Wafa

THURSDAY 8TH MARCH		FRIDAY 9TH MARCH		SATURDAY 10TH MARCH	
Task	Responsible	Task	Responsible	Task	Responsible
Questionnaires	Helene, Miguel	Participant observation, grand tour and interview with headman	Wafa, Ingrid	Community feedback	All
Interviews (farmer and rice mill)	Ingrid, Miguel, Wafa	PRA	All	GPS	Wafa, Miguel, Helene, Jeppe
				Photos and video	Ingrid

## 8.2 - Pilot questionnaire

### Questionnaire for farmers

**Project Name:** Factors of Decision Making and Success level on New Theory Farming Practices by Farmers in Huai Phrom Village Udom Sap Sub-district Wang Nam Khiao District Nakhon Ratchasima Province

**Note:** The questionnaire has 2 sections as follow

- Sections 1
1. General information of farmers
  2. Characteristic of land and agricultural pattern interview
  3. Economics interview
  4. The acknowledgement of new theory farming information and participation with agricultural institute

Section 2

1. Idea level on new theory farming separate principle belong to royal thought.

2. Cooperative level in community group for other takes

action.

3. Cooperative level for funding or sponsorship to help business and quality of life.

**Suggestion:** Please tick symbol  in front of message and fill message in the blanks that are provided in each questions

**Section 1** Factor of decision making in new theory farming of farmers in Huai Phrom village

Name of interviewee.....Phone number.....

Address.....Village.....Sub district.....

District .....Province.....Zipcode.....

Are you household head? Yes No (Identify).....

Have you a main occupation farmer? Yes No(Identify).....

Have you made new theory farming? Yes When did you start (Year)?.....  
No (Answer question especially section 1)

**1. Basic information of farmers and household**

1.1 Gender(1)Male(2) Female

1.2 Age.....Year

1.3 Education(1) Uneducated (5) Bachelor  
(2) Primary school (6) Upper Bachelor  
(3) high school(7) other .....  
(4) Vocational school

1.4 Marital status

(1) Single (2) Married  
(3) Widow (4) Divorced

1.5Number of children.....Person(s)

1.6Member of family.....Person(s)

1.7Number of labor in family.....Person(s)

1.8 How many people in your household work in agriculture? ..... Person(s)

1.9 Do you ever hire extra labour force?Yes No

1.9.1 If yes, how many? ..... Person(s)

**2. Information of land characteristic and agricultural pattern**

2.1Characteristic of agricultural land

(1) Own the land.....Rai

If yes, what type of land document? .....

(2) Renting the land .....Rai

(3) Other .....

2.2 Size of farm holdings.....Rai  
 separate into

2.2.1 How many rai for crop .....Rai

- (1) Rice.....Rai
- (2) Fruits .....Rai
- (3) Sugarcane.....Rai
- (4) Cassava.....Rai
- (5) Home-grown vegetable.....Rai
- (6) Flower .....Rai
- (7) the other (specify ).....

2.2.2 How many rai for livestock.....Rai

- (1) Poultry .....Unit
- (2) Pigs.....Unit
- (3) Dairy cattle.....Unit
- (4) Beef cattle.....Unit
- (5) other (Specify).....

2.2.3 How many rai for raise aquatic animals .....Rai

- (1) Raise fishes.....Unit
- (2) Frog.....Unit
- (3) The other (Specify).....

2.2.4 How many times pr. year do you harvest your rice field?..... times pr. year

2.2.5 How many of these goods do you have in your household?

	No. of units owned
Car/truck	

Tractor	
Motorcycle	
TV	
Stove for cooking (gas or electric only)	
Refrigerator/freezer	
Savings in cash/ bank	Baht
Jewelry	
Other	

2.4 Sufficiency of water resources in agriculture

2.4.1 Water sources in agriculture

- (1) River (2) Ground water (3) Irrigation  
 (4) Pond for water storage (5) The other (Specify).....

2.4.2 Sufficiency of water resources



(1) Not sufficient (2) Sufficiency

2.5 Public utility

(1) Road (2) Electricity (3) Tap water

2.6 How do take care of the produces /soil improvement in agricultural area

2.6.1 Chemical fertilizer use

(1) usually .....Time/month

(2) Some time.....Time/month

(3) Never.....Time/month

2.6.2 Pesticide /Herbicide use

(1) Usually.....Time/month

(2) Sometime.....Time/month

(3) Never.....Time/month

2.5.3 Manure fertilizer use

(1) Usually .....Time/month

(2) Some time.....Time/month

(3) Never.....Time/month

2.6.4 Enzyme ionic plasma use

(1) Usually.....Time/month

(2) Some time.....Time/month

(3) Never.....Time/month

**3. Basic information of economic**

3.1 Net income from agriculture.....Bath/Year

3.1.1 Income from cropping

(1) Rice.....Bath/Year, Products.....Kg./Rai

- (2)Fruits .....Bath/Year, Products .....Kg./Rai
- (3) Field crop.....Bath/Year, Products .....Kg./Rai
- (4) Home-growth vegetable.....Bath/Year, Products.....Kg./Rai
- (5) Flower.....Bath/YearProducts.....Kg./Rai
- (6) Other (Specify).....

3.1.2 Income from livestock

- (1) Poultry.....Bath/Year, Products..... Unit/Year
- (2)Pigs.....Bath/Year, Products.....Unit/Year
- (3) Dairy cattle.....Bath/Year, Products.....Unit/Year
- (4) Beef cattle .....Bath/Year Products.....Unit/Year
- (5) Other (Specify).....

3.1.2 Income from fishery

- (1) Fishes.....Bath/Year Products.....Kg./Year
- (2)Frog.....Bath/YearProducts.....Kg./Year
- (3) Other (Specify).....

3.2 In your family have a person's non-agriculture or not ?

- (1) No have
- (2) Have(Specify).....

3.3 Net income outside agriculture.....Bath/Year

3.4 Income Sufficiency for living expenses in the last year

- (1) Not sufficient
- (2) Sufficient
- (3) Sufficient and money saving

3.5 Indebtedness(1) No debt(2) Debt

3.6 Loan source

- (1) Bank for Agriculture and Agricultural Cooperatives
- (2) Agricultural Land Reform Office
- (3) Cooperativecommunity
- (4)other (Specify).....

**8.4Second questionnaire big table**





### **Historical/economic**

1. How long have you lived in this village?
2. What has changed, and what hasn't?

*Describe the difference, and how it was back then in terms of resources and availability? (e.g. water, assets, chemicals, fertilizers, land tenure etc.)*

### **Chemical use and farming**

1. Where do you use chemicals (e.g. certain important crops/produce, homegarden, field)?
  - i. Describe why there is a usage or non-usage in the homegarden/field?
2. When did you start using them?
3. Where do you buy them?
4. Describe the chemicals you use and how they work

### **Engagement in training and agricultural programmes**

1. Have you received help with your agricultural practice?
  - a. If yes, by whom and when?
  - b. What type?
2. How did they train/guide you?
3. What did they tell you about agricultural practices?
4. Do you receive any info on agricultural practices, chemicals and land-use from governments, organizations, etc.?

### **New theory farming and Sufficiency Economy**

1. Do you practice New Theory Farming or Sufficiency Economy? Why?
2. When did you start practicing it, and for how long have you done it?
3. If yes, has it changed your farming practice?

- a. Has it changed anything else in your life?
4. Can you describe the idea of new theory farming/sufficient economy?

### **Income dependency**

1. Can you describe how the process is for selling your crops/produce?  
(Which crops do you sell?)
  - a. Where do you go?
  - b. Who do you sell it to?
  - c. How and why did you start selling it there?
2. Are any subsidies/economic risk management mechanisms important for your income (e.g. government support, insurance)

### **Interview guide: Monks at Huai Phrom temple**

#### **Background of the temple and monks**

1. Can you tell about the temple?
  - Does the temple have a particular focus?
  - Can you describe the tasks and work the monks do in the temple?
2. Do the monks do farming or have a garden?
  - What type?
  - Do you use chemical or fertilizers or is it organic?

### **New theory farming**

1. Does Buddhism relate to farming and agriculture? How?
2. What do you consider a good farming practice? Why?
3. Tell about the Philosophy of Sufficiency Economy and New Theory Farming
  - Can you describe the principles of New Theory Farming/Sufficiency Economy?
  - What does New Theory Farming/Sufficiency Economy do for the farmers in the villages?

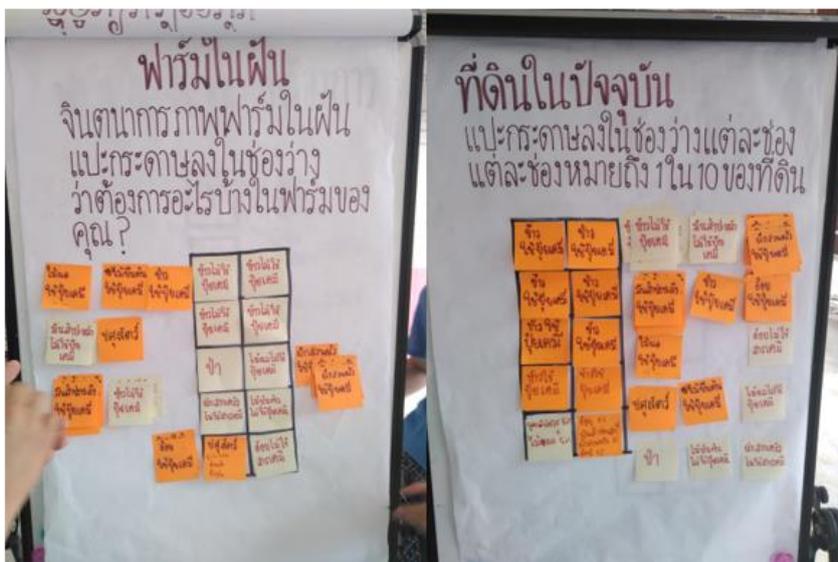
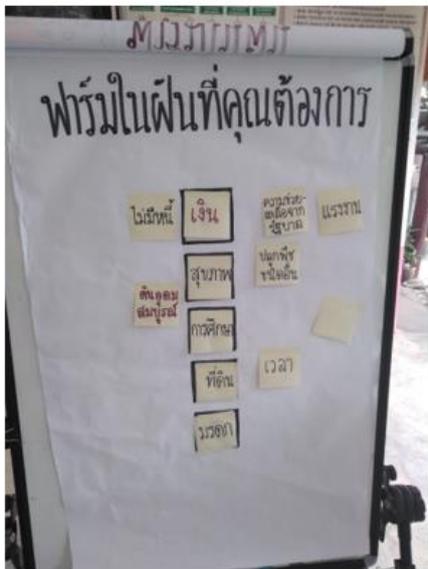
### **Huai Phrom**

1. How are you engaging/have you engaged with farmers in Huai Phrom?
  - If yes, can you describe the type of farmers you have engaged with?
  - How did you train/help them?
  - Why did you start/(why did you stop?)
2. Can you describe Huai Phrom and its villagers?
  - What characterizes Huai Phrom?
  - What makes it different from other villages?

## 8.6 PRA

The first exercise consisted on asking the present 14 villagers to design the average farming system of a household in the village. They were provided with post-its representing various types of crops and other elements/land uses such as livestock or forest. They could also come up with another option in case we didn't have it written down. The post-its representing crops had a different colour depending if chemicals were applied or not. The villagers were only allowed to agree upon the 10 most important post-its, and put them on an imaginary field on a poster (see picture).

The next exercise was to imagine and decide amongst the participants on a "dreamt farm composition". The result is displayed in picture and shows that there are great differences between the average farming system and the "ideal farming system". These differences will be presented and discussed in sections 4 and 5. The last exercise required the 14 participants to discuss and rank the 5 most important necessities that is required for them to change the current system to the "ideal farming system". In addition, we also made them rank the 5 most unwanted factors in their farm, as well as the 5 most unwanted factors on themselves .



Your recent farm.

Stick Post-it in the blank.

Each blank represents 10% of your farm.

80% = Rice with chemical fertilizer.

5% = Eucalyptus

5% = Fruits

5% = Sugarcane

3% = Home-grown vegetable

1% = Cassava

1% = Animals.

5 most unwanted things in your farm.

1. Debt
2. Unhealthy
3. Uneducated
4. Not enough land.
5. No heritage.

5 most unwanted factors in your farm.

1. Drought
2. Flooding
3. Disease
4. Low yield
5. Soil degradation

The things that you want  
in your dream farm.

1. Money
2. Healthy
3. Good Education
4. Land
5. Heritage

Your dream farm

1. Imagine about your dream farm. Stick Post-it in the blanks which represent the thing that you want in your dream farm.

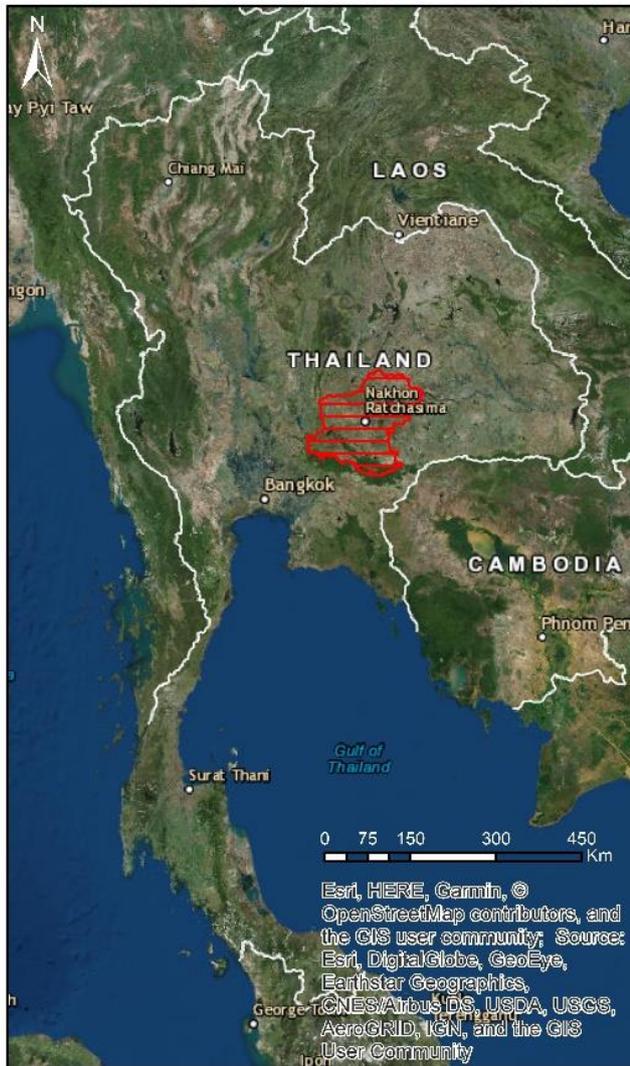
rice with no chemicals	rice with no chemicals
rice with no chemicals	rice with no chemicals
Forest	Fruit Tree (no chemical fertilizer)
Home-grown vegetable with no chem	Timber tree
Animals - Chicken - Duck - Fish	- Sugarcane (No chemical fertilizer)

## 8.7 Revised data matrix

Overall research question	Specific research questions	Variables to investigate	Data required	Methods and tools
<p><b>What are the rationales behind the dichotomous agricultural practice between the homegarden and field in the village of Hual Phrom (HP)?</b></p>	<p><b>INSTITUTIONAL</b></p> <p>How has the recent history of agricultural development policies and associated incentives influenced cultivation practices in Hual Phrom?</p>	<p>Green Revolution (1960s)</p> <p>Sufficiency Economy and New Theory Farming (late 1990s)</p>	<p>Factual data on these government policies and regulations.</p> <p>Quantitative and qualitative data from villagers on the influence of these governmental policies on their land use.</p>	<p>Questionnaire</p> <p>PRA</p> <p>Interviews</p> <p>Focus group</p> <p>Literature research</p> <p>Grand tour</p>
	<p><b>BIOPHYSICAL ENVIRONMENT</b></p> <p>How can villagers' perception of differences in soil and water quality in fields and home gardens, respectively be related to agricultural development narratives or other forms of knowledge, and can such differences be biophysically and chemically verified?</p>	<p>Soil (field vs. homegarden)</p> <p>Water: Taphrom river and Ban E Tan Reservoir</p>	<p>Quantitative and observable data on the water body at Taphrom river and Ban E Tan Reservoir.</p> <p>Quantitative data observable data on the soil of the different crops/homegardens.</p>	<p>Questionnaire</p> <p>PRA</p> <p>Interviews</p> <p>Literature research</p> <p>Soil sampling and analysis</p> <p>Water in-field analysis</p> <p>Participant observation (going with locals to the field, helping them farming, etc)</p>
	<p><b>ECONOMIC</b></p> <p>How do economic realities influence farmers' use of agro-chemicals?</p>	<p>Economic crisis</p> <p>Neoliberalism and economic reforms in Thailand</p> <p>Socioeconomic factors/Income level</p> <p>Cost benefit on purchasing chemicals</p>	<p>Quantitative data on income level.</p> <p>Qualitative data on how the economic fluctuation have influenced land use in the village.</p>	<p>Questionnaire</p> <p>PRA</p> <p>Interviews</p> <p>Literature research</p> <p>Focus group</p>
	<p><b>SOCIAL STRUCTURES</b></p> <p>How are the villagers' agricultural practices influenced by their perceptions of agro-chemicals' influence on their health and what is the role of religious and government institutions/authorities in this respect?</p>	<p>Buddhism</p> <p>Organization/hierarchy/ power relations on a local scale (within the community)</p> <p>Interaction between the officials and monks with the villagers</p>	<p>Qualitative data on perceptions by villagers of governmental and religious presence and influence on land use in the village.</p>	<p>Questionnaire</p> <p>PRA</p> <p>Interviews</p> <p>Literature research</p> <p>Focus group</p>

## 8.8 Extra maps

Location of Nakhon Ratchasima province



### Legend

 Nakhon Ratchasima Province

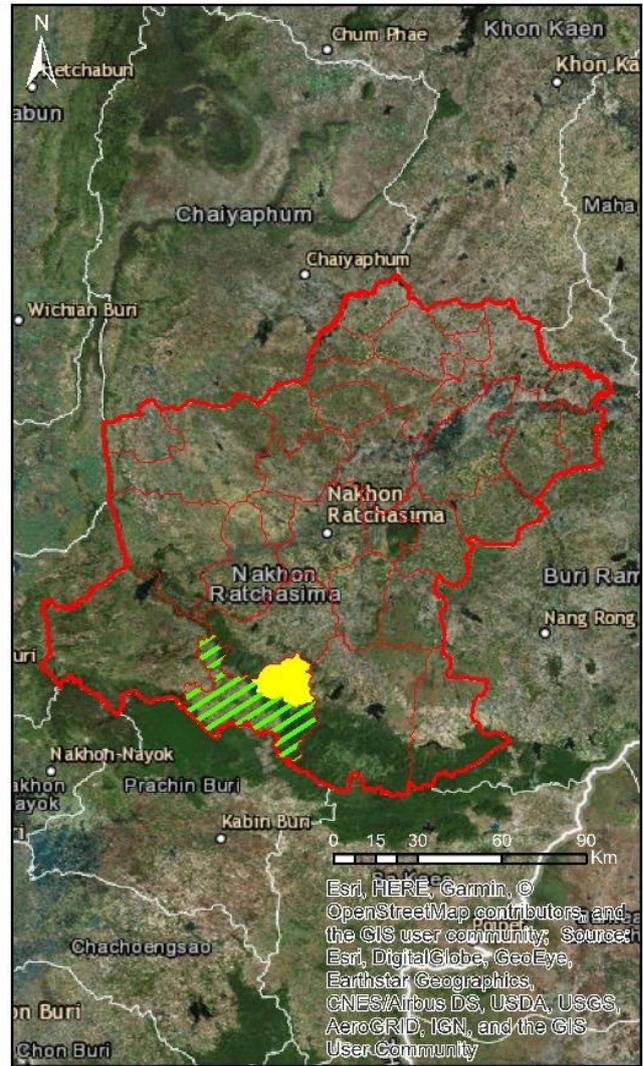
Shapefile Source:

GISTA (Geo-Informatics and Space Technology Development Agency), 2017

Author:

Miguel Ramírez López

Location of Udom Sap Subdistrict



### Legend

 Nakhon Ratchasima province

 Districts inside NR province

 Wang Nam Khieo district

 Udom Sap subdistrict

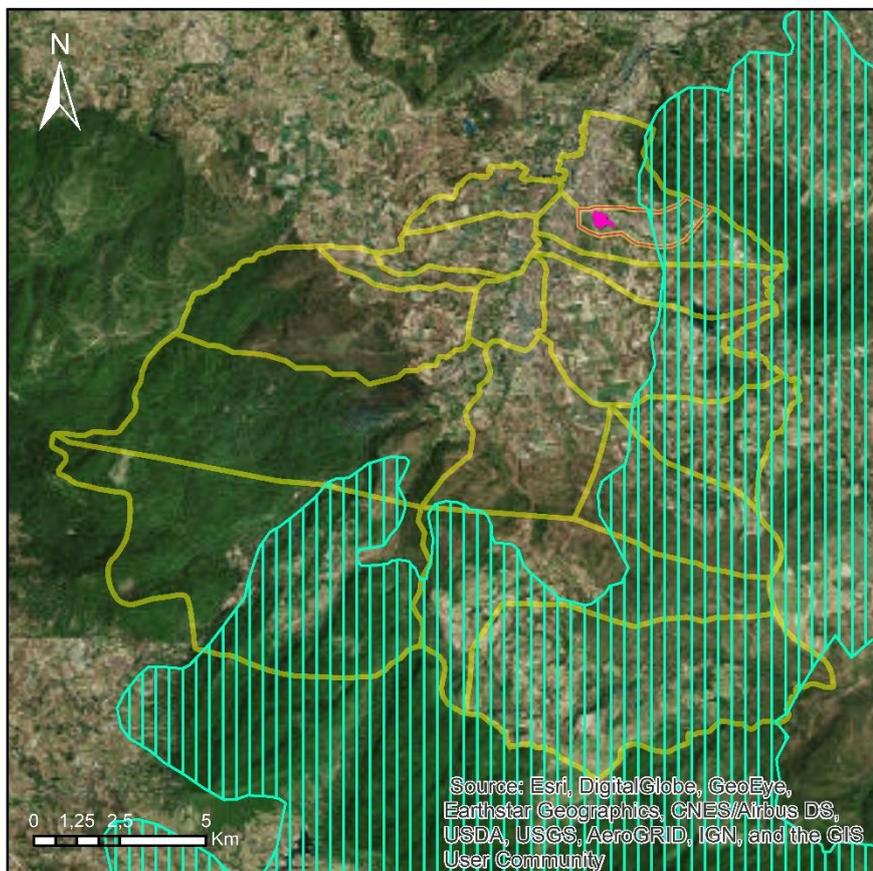
Author:

Miguel Ramírez López

Shapefile Source:

GISTA (Geo-Informatics and Space Technology Development Agency), 2017

## Location of Huai Phrom village



Author:  
Miguel Ramírez López

### Legend

-  Huai Phrom households and gardens
-  Thap Lan National Park
-  Huai Phrom administrative area
-  Udom Sap villages' boundaries