TRANSFORMATION OF UPLAND ECONOMY: STATE CONSERVATION REGIME AND MULTIPLE STRATEGIES AMONG SMALL-SCALE HMONG RUBBER PLANTERS IN CHIANG RAI PROVINCE

AUTSADAWUT MONGKOLKAEW

MASTER OF ARTS

IN SOCIAL SCIENCE

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A THESIS SUBMITTED TO CHIANG MAI UNIVERSITY IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN SOCIAL SCIENCE

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THIS THESIS HAS BEEN APPROVED TO BE A PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF ARTS
IN SOCIAL SCIENCE

Examination Committee:

..... Chairman
(Lect. Dr. Wasana La-orngplew)

..... Member
(Assoc. Prof. Dr. Pinkaew Laungaramsri)

..... Member
(Asst. Prof. Dr. Aranya Siriphon)

Advisory Committee:

..... Advisor
(Assoc. Prof. Dr. Pinkaew Laungaramsri)

..... Co-advisor
(Asst. Prof. Dr. Aranya Siriphon)

7 November 2016

To

Upland people

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Author	Mr. Autsadawut Mongkolkaew	
Degree	Master of Arts (Social Science)	
Advisory Committee	Assoc. Prof. Dr. Pinkaew Laungaramsri	Advisor
	Asst. Prof. Dr. Aranya Siriphon	Co-advisor

ABSTRACT

The adoption of rubber as a commercial crop in the upland reserved forest area by the upland people, the Hmong in particularly, was not only influenced by the rubber market expansion, but also by multiple levels of pressures from the state policies. These policies included the "upland development", promotion of legal marketed cash crops to eradicate opium cultivation and to reduce swidden cultivation, and implementation of intensive conservation to prevent the smog problem. Those policies became important in stimulating conditions for the Hmong's shift to rubber cultivation in the upland area - becoming a new pattern of cultivation supporting household economic security.

This thesis focuses on different strategies of the Hmong to adopt rubber in response to multiple levels of pressures in the upland area. The field of study is the Sengmeng village (Rath Pak Dee – Pra Cha Pak Dee), which is located in mountainous area and on the Thailand – Laos PDR border in Chiang Rai province. The thesis identifies the different strategies of rubber adoption by different groups of household. It reflects the household's endeavors for household survival, which emerged from the overlapping of the state borderland security management, economic zone of reserved forest area, and forest conservation policy.

According to the findings of this study, an economic focus was only a part of household's expectation from rubber cultivation. There are different roles of rubber cultivation explained by the Hmong farm owners who are cultivating in upland areas. These include inheritance transfer to next generation, continuing cultivation in separate agricultural land and forest land, and capital accumulation. At the household economic level, rubber is viewed as a new household livelihood, which includes rubber product value and support from other household members as well as government. At the level of conservation, rubber became a strategy to reduce the smog problem from cultivation processes. However, the role of rubber is not the same in every household. It depends on different household access to capital to adapt to the new cash crop cultivation. In the case of high income and middle income household financial support was gained through remittance from household members who work outside the village. Low income households adopted rubber more slowly through learning from others, then they adopted their land with lower cost investment.

The thesis emphasizes that the Hmong existence in the upland area is not to oppose the state policies, in contrast they are trying to adapt to the state policies. Rubber cultivation adoption also shows the Hmong's endeavors to benefit from new policies on long term cash crops cultivation.

หัวข้อวิทยานิพนธ์	การเปลี่ยนรูปแบบเศรษฐกิจบนพื้นที่สูง: ระบอบการอนุรักษ์ของรัฐและยุทธศาสตร์ที่หลากหลาย ในกลุ่มผู้ปลูกยางพาราย่อยชาวม้งในจังหวัดเชียงราย
ผู้เขียน	นายอัษฎาวุธ มงคลแก้ว
ปริญญา	ศิลปศาสตรมหาบัณฑิต (สังคมศาสตร์)
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บทคัดย่อ

การรับเอาการปลูกยางพาราของคนม้งบนพื้นที่สูงที่อยู่ในพื้นที่เขตป่าสงวนไม่ได้เกิดจากอิทธิพลของการขยายตัวของตลาดเพียงอย่างเดียว หากแต่ยังเกิดจากความกดดันจากการเข้ามาของนโยบายด้าน “การพัฒนาพื้นที่สูง” การส่งเสริมการเพาะปลูกทางการเกษตรเพื่อลดการทำไร่เลื่อนลอย การอนุรักษ์สิ่งแวดล้อมผ่านการสร้างเงื่อนไขให้การเพาะปลูกแบบถางและเผาให้กลายเป็นแห่งผลิตปัญหาหมอกควันในพื้นที่สูง เงื่อนไขต่าง ๆ เหล่านี้ได้กระตุ้นให้คนม้งเลือกวิถีการเพาะปลูกรูปแบบใหม่ในการเป็นทางเลือกในการสร้างความมั่นคงทางเศรษฐกิจของครัวเรือน

งานศึกษาฉบับนี้ได้ศึกษาลักษณะการรับยางพาราเข้ามาเป็นส่วนหนึ่งของการผลิตในพื้นที่สูงของครัวเรือนคนม้งในหมู่บ้านเช่งเม้ง (ราษฎร์ภักดี-ประชาภักดี) ในพื้นที่อำเภอเทิง จังหวัดเชียงราย ซึ่งตั้งอยู่ในเขตดอยยาว-ผาหม่น งานศึกษาฉบับนี้เน้นยุทธวิธีในการรับยางพาราที่แตกต่างกันของกลุ่มคนม้งแต่ละกลุ่ม ที่มุ่งเน้นรับยางพาราเข้ามาสะท้อนต่อความกดดันต่าง ๆ ที่เกิดขึ้นอันเป็นผลมาจากการซ้อนทับในการจัดการของพื้นที่ทั้งการเฝ้าระวังชายแดน การเป็นพื้นที่ป่าเศรษฐกิจ และการเข้ามาของการเป็นพื้นที่อนุรักษ์

จากการศึกษาพบว่าบทบาทของยางพาราในฐานะที่ได้รับการประเมินในฐานะทางเศรษฐกิจของครัวเรือนนั้นเป็นเพียงส่วนหนึ่งเท่านั้น หากแต่ยางพารายังถูกใช้ในบทบาทที่หลากหลายโดยมี

เป้าหมายเพื่อตอบสนองต่อความกดดันต่อความมั่นคงในการดำรงชีพของคนม้งอยู่ เป็นต้นว่า บทบาทในการเป็นความหวังใหม่ที่จะเป็นช่องทางในการโอนมรดกไปสู่ลูกหลานในรุ่นถัดไป บทบาทในการแสดงให้เห็นการทำกินที่ต่อเนื่องอันเป็นการจำแนกระหว่าพื้นที่ทำกินของชาวบ้านกับพื้นที่ป่าของรัฐ บทบาทในการเป็นช่องทางในการสะสมทุน การเป็นใช้เป็นส่วนหนึ่งในการเพิ่มมูลค่าให้กับที่ดิน รวมถึงบทบาทในการเป็นเครื่องมือที่จะได้รับการสนับสนุนผ่านการเพาะปลูกจากรัฐ ดังกรณีของการประกันราคาที่มีในกรณีข้าวโพด และบทบาทในการอธิบายรูปแบบการเพาะปลูกเพื่อลดปัญหาหมอกควัน อันเป็นแนวทางที่สอดคล้องกับระบบการอนุรักษ์ของรัฐ อย่างไรก็ตามบทบาทที่หลากหลายของยางพาราดังกล่าวไม่ได้เกิดขึ้นทุกบทบาทกับทุกครัวเรือน หากแต่ขึ้นอยู่กับทุนทีแต่ละครัวเรือนมีอยู่และปรับใช้ให้เป็นส่วนหนึ่งของกระบวนการเพาะปลูกยางพารา ซึ่งครัวเรือนต่าง ๆ เหล่านี้มียุทธวิธีที่หลากหลาย เช่น กลุ่มคนที่มีรายได้สูงและรายได้ปานกลางมักมีการรับเอามาปลูกโดยการเป็นเครื่องมือที่จะทำให้ญาติสนับสนุนเงินลงทุน การเป็นปลูกร่วมกับไม้ให้ผล แต่ก็ไม่ได้ตัดไม้ให้ผลทิ้งก่อนที่จะปลูกยางพาราแต่อย่างใด เพียงแต่จะรอผลผลิตให้ออกมาก่อน ยุทธวิธีการทยอยปลูก ในขณะที่ครัวเรือนที่มีรายได้น้อยจะใช้วิธีการรับยางพาราทีหลังโดยการเรียนรู้การลดต้นทุนจากกลุ่มคนที่ปลูกมาก่อนหน้านี้แล้ว ค่อยนำมาปรับใช้ เช่น การเพาะต้นกล้าพันธุ์ยางด้วยตัวเอง เป็นต้น

งานศึกษาฉบับนี้ได้ชี้ให้เห็นว่าในการดำรงชีพในพื้นที่สูงนั้นกลุ่มคนบนพื้นที่สูงไม่ได้ดำรงชีพที่ขัดกับนโยบายของรัฐแต่อย่างใด การรับเอายางพาราเข้ามาได้ทำให้เห็นว่ากลุ่มคนบนพื้นที่สูงพยายามอย่างยิ่งที่จะปรับตัวให้ทันกับนโยบายใหม่ ๆ ของรัฐ แม้ว่านโยบายดังกล่าวจะมีผลต่อความเสี่ยงเกี่ยวกับความมั่นคงของเศรษฐกิจครัวเรือนมากก็ตาม หากแต่นโยบายรัฐเองที่พยายามกดดันพื้นที่สูงในลักษณะที่หลากหลายและซ้อนทับจึงทำให้ชาวบ้านจำเป็นต้องปรับตัวให้สอดคล้องกับนโยบายที่เปลี่ยนแปลงไป

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CHAPTER 1

Introduction

1.1 Background

The expansion of rubber plantations in the upland area cannot simply be explained from an economics point of view because of the complex historical context in the area. The upland area, as the state borderland, has a complex political history including border usage and function, the concerns of ethnic minorities and the ownership and management of resources. Whilst an analysis of the importance of rubber cultivation could focus on economics, it is critical to include a more complex set of contexts that reflect the role of rubber in social relationships among upland people as well as relationships with the state authorities. Thus, it is important to understand the different strategies of ethnic minorities, living in a sensitive zone, and how they adapted to a new cash crop in response to different pressures they were facing.

Rubber plantation was adopted in the Hmong community of Doi Yao – Pha Mon in 1990 as a pilot project. It was introduced with other fruit trees such as mango, longan, and lychee, initially as a demonstration crop. One of the main objectives in introducing rubber was to prevent the encroachment of the forest. Rubber was considered a perennial crop which was expected to contribute to green landscape within 10 years (Parinya 2001: 35, 61-63). The vision was to activate the markets by the expansion of fruit trees, but not rubber product, in the village in that period of time; however, fruit trees did not produce sufficiently even after a decades of cultivation. There was more investment needed into alternative technologies to cultivate fruit trees in upland areas, especially to ensure water in the dry season (Prasit 2011: 34). These challenges affected the quality and quantity of fruit production that make farmers dissatisfied with productivity. The farmers who cultivated rubber decided not to continue with fruit trees commercially as it did not secure household economies. However, the trees were left to grow naturally and contributed to the green landscape of the village.

The first decade arrival of rubber plantation in the area, it was not interested to expand to household as an economic cash crop. Since 2003, rubber was reconsidered for adoption in the village cultivation patterns due to the "One Million Rai Rubber Plantation Project" campaign which was launched by the government. Rubber cultivation was supported by government policy and programmes, providing financial support as well as opportunities to access state schemes and opportunities in the future. Hmong rubber farmers did face challenges in upland not least the competition for land as the rubber boom attracted investors who wanted to possess large areas of land to cultivate rubber in upland area. This obviously impacted on land price and labour arrangements in the area. Furthermore, the introduction of rubber plantation stimulated conflict on land access between the state agencies of forest protection and the Hmong who cultivated in the upland area.

The transition of the Hmong's cultivation in upland area cannot simply be explained only through an economic lens. Rather, rubber plantation in Doi Yoa – Pha Mon mountainous area developed through complex conditions including the Cold War era and the conflict with the Communists, the promoting of commercialized cash crops since 1990s, and the intensive push towards conservation enclosure since 1970s. **Communist era** 1960-80s; the Hmong were involved in the Communist fighting along the border between the Thai state and were supporters of communism, partly due to facing difficulties from state policy and local bureaucracy in 1950s. The Hmong were living in an area which had been intensively controlled by the army to prevent the spread of Communism called "Red Zone". Circumstances forced the Hmong to take sides between the Thai state and the Communists, resulting in a separation between the Hmong who supported the Communists and those that supported the Thai state. The choice of side impacted on land possession: after the end of the fighting in 1982 the Hmong who supported the Thai state were entitled to agricultural land in the lowland area. Land was not offered to the Hmong who were Communist supporters. Among Hmong leaders who were involved with the Communist army (A *Sahai*, or comrade) during the fighting, there were some leaders were promoted acupuncture as an alternative form of medicine. In order to train and practice acupuncture, these Hmong leaders were required to go to China at least one year to practice during the 1970s – early 1980s. These groups of leaders were influential in establishing the village at the

end of the conflict. In 1982 Hmong households, who decided to surrender to the Thai government, were given an allocated 15 Rai of land. Many households living in the upland area have concerns about land possession and ownership, especially transferring ownership to next generation after the introduction of intensively regulating forest land policies. **Commercialized of cash crops since 1990s**; after the end of the Communist fighting, "development policies" during the period of the National Economic and Social Development Plan phase 6th (1987 – 1991) were implemented in the upland areas. The state attempted to promote economic development into rural areas, which included the former Communist conflict areas (the red zone) such as the Doi Yoa – Pha Mon mountainous area. Rubber was introduced to upland as a pilot project in this period of time. However, it had not interested to upland people because of limited of local rubber market. Maize was one of the first sanctioned cash crops in the area, coupled with the introduction of market mechanisms such as retailers, regulated by the district agriculture officers. After some years, the price of maize production was guaranteed by the state – to counter the falling price of the product. Different cash crops, such as cabbages, ginger and fruit trees were later introduced into the area, although not with state support. The adoption of mono-cultivation cash crops necessitated the need for the Hmong to introduce chemical fertilizers to enhance growth. **Conservation era;** the upland area was re-zoned as a national reserved forest since the 1970s. This coincided with the end of the fighting between the Communists and the Thai army, and heralded the end of the army's management as the borderland state security area: however, the borderland forest areas were still unofficially coordinate by the army. During 1990 to early-2000s, there have development project under monitored by the development unit army. The highland agriculture promoting center was established in this period. The center has implemented perennial plants for upland people. Moreover, there was a trend of fruit trees cultivation such as mango, longan, and lychee as a part of household cash crops cultivation. The world vision organization, a NGO organization, has conducted the project with improving poverty of Hmong households. These development projects have arrived with major aim on increasing green landscape together with household economic improvement (Parinya 2001: 35). However, the fruit trees has not provided satisfy achievement for household economy because of quantity of products and its price. The Hmong, thus, have kept cultivate seasonal cash crops with

burning process of farm preparation in household economic activities. Until, rising of "smog problem crisis" has occurred hardly. Slash-and-burn pattern of cultivation has been accused as a main cause of the problem. Since 2000, the Doi Yao – Pha Mon mountainous area has implemented a smog control policy, which impacts profoundly upon upland household cultivation because of the reliance on slash-and-burn patterns of cultivation.

The Department of Forestry established the Watershed Management Unit, Forest Fire Control Division, and the Office of Phu Chi Fa Park in in order to ensure the forest conservation and to address the problem of forest fires and smog. These state agencies set up at a local level and closely implemented and monitored policies regulating upland cultivation patterns. The impact of close monitoring however, increased the pressures on upland communities involved in cultivation. In 2001, Hmong leaders from 16 Hmong villages founded the "Doi Yao – Pha Mon Farmer Network"[1] which was established in order to facilitate learnings between farmers and to increase the bargaining power negotiating opportunities for Hmong farmers. Leadership in the network included those who were involved in the cold war conflict and those who had been engaged in alternative medicine and who had opportunities to learn in Chinese medicine in China. The main goal of the network was to negotiate around the conflict of land management between the state agencies and upland farmers.

From 2003 onwards, the Hmong in some villages accepted rubber as a new plant, and a rubber boom ensued after the government launched the policy of "One Million Rai Rubber Plantation Project". An allocation of 300,000 Rai was earmarked for rubber plantation in northern of Thailand (Aranya 2011: 29). Slash-and-burn pattern of cultivation were responsible for air pollution; a key player responsible for monitoring and implementing strategies to improve air quality were the state agencies who moved into the village. Another key factor in shifting to rubber was the fluctuating maize prices which resulted in household insecurity as farmers ran at a loss during some seasons. Maize also required greater investment in chemical seeds, fertilizer and labour. Rubber was expected to reduce these pressures.

However, there were other concerns prior to the adoption of rubber plantation: the Hmong villagers were very focused on the unstable access to the cultivated lands

[1] More detail in the chapter 2

given that their houses and their cultivated land were situated in the reserved forests. They demarcated some plots of land for rubber cultivation. Despite these concerns family members who had worked in the Deep South of Thailand came back to work on the rubber farms. This experience meant that they were no longer unskilled rubber farm laborers and were able to command a bigger wage due to their acquired skills in rubber cultivation and tapping.

It is interesting to note how the adoption of rubber pattern cultivation by the Hmong in upland areas has changed power relations between the Hmong and other actors playing a role in upland areas. Some of the new generation of Hmong learned to tap rubber from the rubber farms in the South; this took place after the Hmong who were communist supporters learned about rubber cultivation from China and Laos PDR. Faced with the new state's policy in rubber promotion, the Hmong were more prepared and had extensive experience in the diversity of cultivation, environmental conservation, natural resource management. The arrival of rubber cultivation to upland area relates to cash crop cultivation, which is friendly to the environment, has the potential to reduce poverty in the rural areas as well as supporting the national economic growth.

These changes and the ensuing challenges and pressures resulted in the introduction of rubber farms that spread up into the upland areas, for example in Seng Meng Village, situated in the upland areas in Thailand-Laos border. Due to these challenges some of villagers adopted rubber as their new cash crop cultivation in the mid-2000's as a new household economy. Analyzed from an economic perspective, rubber planting is viewed as risky: villages may not benefit due to the fact of the insecurity of land endowment and unstable labor sources given that there are mostly old people who take care the rubber farms. Despite this, rubber farming has been seen as a business opportunity since the arrival of China's rubber market; however, these opportunities are more for investors who have rubber plantation on a large scale rather than the Hmong's small rubber farms.

1.2 Statement of the research problem and justification

During each period changing state policies have resulted in constructed meaning in upland areas. At one time the upland had been constructed as a sensitive area to

national security during the communist war period. Then it was labeled as an area at risk of drug trafficking in the period of opium eradication even though the state had allowed upland people to cultivate opium. Further policies announced the area as reserved forest in the era of conservation. These constructed meanings show that redefining the purpose of the land has always affected upland agricultural production in each period.

From an academic point of view, upland studies, which may be considered as "structural" perspective in relationships between the state and upland people, have classified two aspects "antagonistic relations" and "victim of developments". The first aspect, popular in the late 1970s to early 1990s, explains the agricultural change at a macro level with "shifting cultivation" patterns. The main argument of researchers focused on the discourse of deforestation as a result of upland agricultural production, which is relevant to improve the upland ecosystem (Kunstadter 1978; Granstaff 1980; Pinkaew 1996). It had emerged out of the conflict of land management in upland areas (Anan 1998). Another aspect of upland studies emphasized the changing of upland economy that the Hmong tried to adapt upland cultivation to be more in line with the state development ideas (Waranoot and Dearden 2002). New types and means of cultivation were learnt from other communities such as lowland communities and markets. However, with adaptation came unintended consequences, such as more chemical input in agriculture, intensive land use, capital intensive agriculture and the reliance on market systems (Pornparinya 1999). In this way, upland cultivation can be regarded as a victim of the state development project. However, such research omits the voice of the upland people who feel differently about their agency in decision making under structure determination.

In the last two decades, the concept of "livelihood" has been introduced to study developing countries to explain transformation of agrarian and peasant studies (Pinkaew 2011). Livelihood concepts allow an understanding of the adaptation of farmers within multiple conditions not only on farms, but also off-farms and non-farm activities that would be considered to be farmer livelihoods. In other words, farmer adaptation emerged in "multiple trajectory" depend on their experience and knowledge.

An interesting perspective of this theory includes Rigg's (2005) work *"Poverty and livelihoods after full-time farming: A South-East Asian view"* which shows farmer's

adaptation in multiple ways that do not fit with particular "structures". This article shows six types of faming style of South East Asian farmers consisting of 1) Subsistent which tend to support in the household and village 2) Semi-subsistence that combine subsistent and exchange in the market 3) Pluriactive (post peasant) that combine subsistence, exchange in market, non-farm activities and migrant workers. 4) Professional in the cultivation of a particular crop 5) Pluriactive (post productive, neopeasant) that agriculture is only one part of livelihood activities and 6) Remnant smallholder which is a group of peasants that farm the land with low productivity. My assumption is, in the case of Thailand, this theory explains the lowland rather than explaining the upland phenomena because there are more pressures from the state to the upland people. Even though upland people, in terms of cultivation, have been professional farmers since the opium era, the state pushed them get rid of opium. Thus any changes in the farming were not based on rights and choices of the upland people. There was not only one pressure in the upland area that the Hmong were faced with, but at least three pressures throughout time which has affected upland areas.

Thus, both upland studies, which are show "structural" perspectives and livelihood studies, which pay more attention to "agency" perspective, have lacked understanding on shifting relation between upland people and the state. However, the paradox of development has been an opportunity for them to create household security.

In the last decade, the upland has changed to the commercial agricultural cash crop rubber, which is long-term plant. On the one hand, it shows intensive changes in the upland area because it requires long-term investment that farmers have to consider the risks to their livelihoods during the first seven years. On the other hand, the pressures of rezoned land as conservation land makes the Hmong feel insecure that the state will ask for the forest land back, including the Hmong's agricultural land.

Even though the Hmong in Doi Yao – Pha Mon have adopted multiple ways to adapt ensure their livelihood, they mostly still kept commercial agriculture as their main household income.

Rubber creates opportunities to get more income in the future for upland people such as the Hmong, especially as it is an economical product of the world industrial market in the large industrial countries. Thus, to link global market and local production such as in the case of upland rubber cultivation, different levels of social mechanisms

are needed to facilitate production and access to markets. In the case of upland rubber cultivation, there are many social mechanisms that play a role in the area. Some actors have not directly been involved in the conflict such as the state and the Hmong, but they play a role as middlemen for example, the local administrative office leader. It is important not to view upland people as homogeneous because they differ on many aspects, such as household economy background, social position, kinship, that provide different opportunities to access chances to improve their livelihood. These differences also support different levels of relationships that would be contested with other people. Multiple groups of people in upland area show diverse of pressure that exploited the Hmong people in upland area, thus Rigg's explanation does not apply totally in this case.

My preliminary goal is to understand shifting relationship in transforming upland economy and to question whether it is "possible to understand shifting relationships in constructing meaning in upland area through the Hmong's adopting of rubber cultivation?" On the one hand, the context of rubber cultivation is associated with some contribution such as the national economy, the support for green landscapes for environment and tourism, reducing the burning in the cultivation process, providing high income for farmers as well as providing opportunity to be involved with public space of the Hmong. On the other hand, rubber also provides an economical risk for them because it required long-term investment and a long waiting time to get benefits. Furthermore, the rubber price was not stable because of its dependence on the world rubber market. Rubber requires intensive labor with special skills, and the Hmong have faced with labor shortages in some seasons.

This study aims to; firstly, examine the changing relationships between the Hmong and other actors in the context of the Hmong's rubber adoption in upland areas. Rubber cultivation reflects the changing state policies over the last three decades. The state policies on upland development issues does not provide a clear direction to support upland cultivation systems, especially in the issue of agricultural activities that they do not support knowledge on protecting production risks as well as market economy. Secondly, instead of approaching upland studies as a dichotomous relationship between the state and an ethnic minority, this study will consider rubber as a tool to balance the relationship between the Hmong and the state. Moreover, this study avoids considering ethnic people as victims of development or passive actors, but instead will focus

attention on the Hmong as creative actors who actively participate in upland areas. The study argues that the Hmong's rubber adoption was as a result of adapting to state policies in order to address the negative pressure from the state over the last three decades. Moreover, rubber plays other significant roles in the lives of the Hmong such as maintaining the household economy, reorganizing community structures.

Rubber is not only an economical product, but also reflects on social relationship change among different households of the Hmong in upland area, and relationships among the Hmong and the state authorities. Rubber cultivation takes time to show profits. Importantly, it changed upland landscape in land management contrasting with the state's expectation on environmental conservation as a part of the forest, and allowing rubber plantations in the area. It is important to consider rubber as an opportunity of the Hmong in bargaining to engage with the state's development policies.

1.3 Research questions

1.3.1 How has the upland landscape and upland economy in Seng Meng village changed over the past three decades from the cold war period to the conservation era? How have those changes been reflected in shifting relationships between the state and Hmong?

1.3.2 Within the context of the conservation enclosures how have different groups of Hmong adopted to rubber as the strategic cash crop in respond to multi-level pressures from a natural conservation paradigm, local economy and household economic securities?

1.3.3 What are different roles of rubber cultivation in household economy and livelihood security, especially in comparison to other cash crops?

1.4 Research objectives

1.4.1 To understand changes over time in upland crop production taking into account the complex context, engagement with lowland people as well as the dynamic relationship with the state.

1.4.2 To explore the diverse experiences of adaptation and/or engaging with new kinds of cash crops amongst different groups of Hmong, highlighting the different perspectives of economic adaptation under complex situations.

1.4.3 To understand social relations through different patterns of cultivation in household economy and livelihood security that is a result of upland cultivation changes.

1.5 Literature Review

1.5.1 Review of Theories and concepts

Rubber has been planted by ethnic people such as the Hmong, as a result of agriculture changes in upland areas. Compared with lowland farmers, the Hmong have had greater pressures and conditions to deal with that have impacted on their decision to plant rubber. Thus, rubber, in this study, acts as a vehicle to understand a complex set of conditions and the decision making processes of the Hmong. This literature review will firstly focus on the discussions of the shifting concept and meanings of upland as a relational space to better understand upland changes. It will explore the political economy of rubber will providing an understanding on the shifting meaning of cash crops and the different roles that they play depending on different viewpoints. The last concept is livelihood strategies focusing on how the Hmong use rubber production in their livelihood strategy to balance their livelihood insecurity.

1) Upland as Relational Space

The appearance of rubber farms in the upland areas can be attributed to the transformation of the uplands since the early 2000s. The explanation of the upland as conservation forest, by the state, was challenged by other policies when rubber farming was adopted into the areas. It is important to understand the changing nature of "upland", and how it has occurred many times in history. The variations each time related to changes in the governance of people in upland areas, leading to the concept of "relational space" that expands on the fact that relations within the particular context can be changed.

The meaning of upland in Thailand is defined by central government and classifies people based on topology. However, this meaning does not necessarily indicate a geographical position, but more on the different purposes to use and manage the upland.

The meaning of upland areas refers to the upland development projects that occur in areas with a height of 700 meters or more. There are in total 5.45 million hectares (36 million Rai) of upland in Thailand. In order to optimally use the land in a way that it economically benefits people, the upland is better suited to some cold-weather plants that should be "developed" rather than left unattended. There are about thirteen groups of upland people, usually called hill tribe people and there are about 1,125,525 hill tribe people who live in the upland areas[2]. The traditional cultivation patterns of upland people have led to hill tribe people being labeled as natural resources destroyers and unproductive producers. In order to circumvent this, the development project was designed with the purpose of increasing the income of hill people by encouraging them to in engage with cold-weather plants, reducing the cost of cold-weather products importation and filing the demand of domestic consumption.

The Highland Research and Development Institute (HRDI) defined, in their strategic plan 2007 – 2011, a slightly different understanding of upland areas stating that they covered 10 million hectares (67.22 million Rai), with upland areas being everything above 700 meters' sea level. However, HRDI's explanation about people who live in the upland areas is similar to other meanings in that it does acknowledge continually shifting cultivation, opening up the forest for upland agriculture. Upland areas are inhabited by poor people, who use chemicals in their agricultural cultivation. The hill tribes are also faced with new problems, such as youth with social problems, drug trafficking, HIV and AIDS, the migration of people to the big cities and the lack of labor (Highland Research and Development Institute, Online)

Another factor that influences the meaning and usage of upland area is evident in the forest land law; that is a slope of land not less than 30 percent has to be included as reserved forest. This has impacted on increasing of reserved forest land in the three last decades (Vandergeest and Rigg 2012: 29, 305). However, most of the forest areas are cultivation areas and this has affected 5-8 million people (Neef 2001: 13). The main

[2] Department of Social Development and welfare classifies upland groups of people in 13 groups consisting of; Karen, Hmong, Chinese Yunanese, Mien (Yao), Lisu, Lahu, Akha, Lawa, Khmu, Taungthu (Pa-o) Kachin, and Dara-ang. The biggest group is the Karen with more than 438,000 people. The Hmong is the second biggest upland group of people. There are 153,000 Hmong people in upland area within 253 villages, 19287 households. They settle in 12 provinces in Thailand consisting of Mea Hong Son, Chiang Mai, Chiang Rai, Pha Yao, Phare, Nan, Lampang, Tak, Loei, Sukhothai, and Phetchabun, which mostly in mountainous areas, Northern of Thailand (Ministry of Social Development and Human Security, 2015).

effect from forest conservation is a limitation of land for agricultural usage for upland people. There has been overpopulation of the areas, which is not only from normal population growth, but also from political circumstances. There is a growing trend for many of the upland people to try and sustain their livelihoods by migrating to work outside upland areas.

In terms of upland changes, there are many scholars who have different theories on how and why the evolution happened. In this study, disciplines such as anthropology and geography will be discussed to explore and understand the change. Li (1999), in her work "*Transforming the Indonesian Uplands: Marginality, Power and Production*", indicated that the upland itself does not differ from other places, but in its given meaning by outside actors it is seen to be different from other areas through knowledge, power and production. Li shows that the upland is of great economic and political value and interest to powerful people from outside.

The upland areas, and the people that live there, are not seen as victims of development, but rather they are involved in "creative engagement" as part of their desire to engage with and adapt to modernity, for example, engaging with and using modern production. They apply mechanisms such local elites or brokers and clan to be a part of production. Li notes that others/outsiders may view the upland as low production areas. However, this area has produced a lot of commercial agricultural products, and as such upland areas would be interesting areas to invest in.

As Li explains, the meaning of upland is a productive resource that many actors try to get involved in and access to in order to benefit. Compared to the situation in Northern Thailand, the upland has been seen as backward and has produced some security risks for the state, needing the state to respond, for example, the state controls the Hmong in upland areas with three policies in order to legitimately extract natural resources in the upland areas. It is interesting to question whether the introduction of a new cash crop such as rubber cultivation, plays a role as a new tool for controlling people in upland area. And if so, and the rubber cultivation pattern is used as a tool, then, is it possible that the Hmong could apply this new tool to change their relationship with the state?

In order to analyze this, I apply the concept of "relational space" to explore the phenomena of upland change. "Relational space" is conceived as a space to be

contingent and active, as something that is produced or constructed by people through social relations and practices. This concept is opposite to "absolute space", which is understood as natural, given, essential, and measurable, and as such, it is constitutive of relation (Kitchin 2009: 268). The meaning of "relational space" in my study is defined by David Harvey and Doreen Massey, who show that within a particular "place" space will emerge when social relation between people and "things" happen. For example, upland is just a place, but when the Hmong get in and the state tries to manage the upland for its benefit, then social relation between the state and the Hmong will be revealed. As Harvey (1996) pointed out the "generated space" can occur through "interaction" and "interrelation". Thus, relational space, in this sense, is how particular spatial configuration is generated. In addition, the relational meaning of space is both a consensual and contested process. "Consensual" refers to relationships and is, usually made out of an agreement between two or more entities. "Contested space" refers to the construction of a set of negative relationships that may involve both "exclusion" of some entities as well as the forcible enrolment of others. Massey (1993) explained that place is reduced to demarcation, for example, the drawing of a line around a place. Space shows power relations that relate to a particular place. There are many sets of relations, and they depend upon the one who controls power to give meaning to the space, and the challenge is how to struggle over the space. Massey (2005: 101) showed that under neoliberal globalization, local places are not simply always the "victim" of the global because they also defend the global. Thus, relational space in Massey's work consisted of "constructing and contesting meaning".

Both Harvey and Massey propose that "relational space" is a relationship that appears within interaction and interrelation over the "things". It can be seen within a conflictual relationship. Moreover, it is not fixed in one place, but it can be linked to other places. This relational space can be consensual and contested if the relation is unbalanced and unequal.

Similar to Li, Barney (2009) applied the concept of relational space to the human geography discipline. He elucidated more points from Li, in his Laos' relational resource frontier field site, and showed that the relationship in the upland areas has been changed many times in history. Each time, the state tried to control the agricultural practices of the people. The last change allowed international organizations to become

involved in this situation. Li and Barney's explanations on relationships in upland areas showed a flexible meaning of upland and what it should be; normally the state as a powerful actor always gives the meaning according to its perspective. The meaning is thus changed to benefit to the state. Thus, the meaning of upland can be changed as "relational space".

After reviewing the concept of "relational space" and related literature on this concept such as Li and Barney's works, I agree that the meaning of upland can be changed, and the changes depend on "conditions" that take place in different times. How then can rubber play a role as a new tool that changed the relationship in upland areas? I will employ the idea of Jonathan Rigg and Peter Vandergeest (2012), in "*Revisiting Rural Places: Pathways to Poverty and Prosperity in Southeast Asia*", in which they describe revisiting field sites in many places in Southeast Asia to consider trends of changes. Rigg and Vandergeest proposed some interesting points. To them the meaning of rural upland has not only been limited to village's territory, but they also include migration between the village and outside of the village's territory. Thus, the village survival would not be only relying on its resources management but would include the contribution of other resources from outside the village. In addition, Rigg (2005) showed that after the state tried to promote the development projects, production consequently became intensive cultivation due to the limitation of land. However, since the population has increased the effect has been to "plural activities".

Both Barney and Rigg showed that patterns of cultivation can be a tool of state control, as was the case in the upland areas, with the new promoted cultivation used by the state to govern upland people. The Seng Meng Village faced three waves of change that the state declared in different policies focusing on the upland area. This state intervention demonstrated that the upland areas are very important to the state economically. Significantly, the upland people did not passively allow the state to determine the agenda. They also actively involve with upland definition by themselves with some tools such improve their production more effective that fit with the state perspective. A critical question, pointed out by Harvey, is whether the cultivation of rubber could be a tool of contesting space with the state. This question will be elucidated in the next section.

2) The Political Economy of Rubber

Jamaree (2006: 3) provides a historical background to the development of "political economy" theory, with its roots being in Adam Smith's *Wealth of Nations* published in 1776, which influenced the development of capitalism during the industrial revolution in the 18th century. David Ricado's *Principle of Political Economy and Taxation* published in 1817 also supported control of the economy and politics by the bourgeoisie in English society. Smith defined "productive work" as consisting of three elements, productive "land" "labor" and "capital". The three elements of productive work were intended to provide an advantage to owners of land and capital, with the value of "rent" and "benefit" being counted as having economical value. Ricado was mainly in agreement with Smith, but he theorized that conflict among land owners potentially disadvantaged the bourgeoisie, for example, increasing agricultural production was of benefit to the landowner, but impact was the increasing price of products due to increased labor costs and this became a burden to the bourgeoisie. However, Karl Marx argued against the theories put forward by Smith and Ricado stating that the production process impacted more significantly on the workers and the process led to the exploitation of labor and that this provided surplus value for the powerful and the elite. Marx believed that the economic process termed the "Base structure" determined the "Superstructure" which referred to the belief system, religion, politics, law, family and so on (Jamaree 2006: 14). Max Weber and other scholars argued that there was a bidirectional relationship between the Superstructure and the Base structure and that the Superstructure also determined the Base structure, for example, religion determines the production regime of people (2006: 16). Another school of thought on the political economy was put forward by John Maynard Keynes in his book the *General Theory of Employment, Interest, and Money*, which was published in 1936. Keynes proposed that the state should encourage continuity under discontinuity of the market as a short-term intervention.

The discussion thus far has focused only on the macro level, which does not acknowledge factors that occur at a local level, such as such as individual circumstances. The work of Vincent Mosco elucidated the importance of the micro level. Mosco (2009: 23) showed that some of the discussions amongst scholars referred to abstract meaning, for example, Eatwell, Milgate and Newman (1987 cited in Mosco 2009: 22-23)

explained that “political economy is the science of wealth and deals with efforts made by man to supply wants and satisfy desires”. William’s (1977 cited in Mosco 2009: 22) explanation of social grounded theory stated that “before it becomes theory it refers to production, distribution, and exchange or totally refer to household management”.

Political economy in this study will consider the production input changes (land, capital [money], and labor) at the different levels of relationship in the upland area. The changing nature of relationships has evolved with changes in production in the upland areas, including rubber cultivation, as a new cash crop in upland areas.

Rubber is considered as a long-term cash crop, which is in line with new agricultural crop patterns. It is not an indigenous crop of upland areas. Rubber plays a role as an industrial crop that supports the global market. In this regard, it is important to examine rubber cultivation understanding the political economy of cash crops.

In comparison, rubber was also imported, from the Amazon basin to the Malaya peninsula by the English during the colonial era. Pinkaew (2008) pointed out that rubber as a cash crop supported colonial capitalism through at least three elements; firstly, they accumulated large tracts of land to plant a mono-crop cultivation. Secondly, it needed intensive labor forces; and, thirdly it associated between the state and the capitalists to force labor and also monopolize the market.

The expansion of rubber plantations through capitalism was different from the colonial era. Pinkaew (2008) proposed that the new wave of rubber production with China’s economic growth. Thus, historically rubber has played an important role as a tool for the European countries to benefit from colonized countries. Secondly, it came with neo-liberalisms that required a free market without the state regulation, but it also needed the state’s strong support. Lastly, it glorified the role of rubber as a support of economic growth that has been seen to reduce poverty, but there are other unrevealed effects such as destroying the local ecological diversity.

Products of rubber plantation in Pinkaew (2008), Yos and Aranya (2013) played a critical role in the political economy as a tool of powerful people or actors to govern powerless people. Marx’s theory of the “power structure” can be used to examine how rubber became a tool of powerful people to oppress less powerful people.

Karl Marx’s explanation of the “base and superstructure model” described the structure of power in society. The “superstructure” referred to political, social and

cultural institutes and idealism, whereas, the "base" referred to the mode of production which related to benefit sharing among groups of people. Marx believed that rich and power people tended to maintain their advantages in their society by exploiting others who were less powerful. According to Marx, people who were powerful could organize the "superstructure" such as the law, political, cultural, belief and so on. The powerful or rich people were supported by the exploitation of the poor or powerless people. According to Marxism, a capitalistic economy system worked on unequal and exploitative relationships between powerful people such as land owners, and less powerful people such as workers. Using Marx's theories, sugar or rubber played a role as a tool of powerful people to control powerless people by introducing new patterns of cultivation and exploiting their "labor surplus".

The various studies noted above highlight the following facts: the production of rubber requires intensive labor; rubber trees are not indigenous species in Thailand and that rubber products are exported to industrial countries. Referring to Marx's "power structure", rubber production has been invested in by powerful actors, which mean that investors have control over land, labor and capital in their rubber investment.

The Hmong's rubber cultivation differs from the abovementioned studies because they invested in rubber using their own labor, land and financial capital. It was adopted despite forest land management pressures, in which land was intensively controlled by the state agencies of forest conservation, and monitored by the army. These state agencies offices were located in the village; and as such had a huge influence on the decision making around patterns of cultivation by the Hmong people. Rubber production varies from Hmong's other previous crops because it could not be consumed or used without processing. Thus, it is clear that in the case of rubber cultivation, the Hmong were controlled by superstructures such as economic and political institute.

The Hmong community, as an ethnic group, has a long history of conflict with the state around the issue of land management. This has resulted in the Hmong implementing different ways to ensure their household livelihoods and for ways to improve their relationships with the state. Rubber is one such strategy to balance the relationship between the Hmong, as upland ethnic people who are in many ways viewed

as powerless, and the state, seen as powerful actors who try to govern the Hmong in many ways.

This study analyzed the significance of rubber as a new strategy for the Hmong. Sturgeon (2010) studied the adoption of rubber by ethnic minorities, the Akha and Dai, in Xishuangbanna. Ethnic people implicitly negotiated with the state as economical producers since by applying the "regime of value" that is used to govern ethnic people. They experienced "low value" production and low quality of life; for example, low education, were unhealthy and had unstable income and livelihoods. They nonetheless, pushed themselves to be of "higher value" after gaining access to more capital under the state's rigid governance. They adapted rubber farming as a tool to dispose of their "low quality" then successfully invested in rubber in Laos with their relatives. In this way they managed to get greater benefits compared to the state's rubber plantation scheme.

In a similar way, Diana (2006, 2007) studied rubber cultivation in Laos and found that both the Akha and Dai were "victims" of the cold war having relative on either side of the border. However, ethnic people had kept up relationships with family in both countries in order to benefit from economical exchange. They believed that living on both sides was better because they could learn technical knowledge from their Chinese relatives. The ethnic people were pressured again after the Chinese investors who came to invest in larger tracts of land, which resulted in villagers losing their land through the rubber farms being leased and leases eventually expiring. Previously land was either rented or sold. The villagers then asked their relatives in China to borrow money from a Chinese bank to invest in rubber farming as a small farm in order to circumvent the state pressuring them to sell the land to big investors. Both Sturgeon and Diana believed implicitly that in political economy terms applying rubber farms supported ethnic people increase their household income as well as afford a higher quality of life. Moreover, rubber allows ethnic people to challenge the state's territory by developing cross-border networks.

The Hmong rubber plantations in Thailand were introduced in a different way from the Akha and Dai or Tai Lue on the China and Laos border. In China and Laos, the state introduced rubber into the areas, but in Thailand the ethnic people accepted it themselves. The shift in cultivation patterns came during the rubber boom which was influenced by the "One Million Rai of Rubber Plantation Project", supported by the

government. The project allowed young rubber seeds traders to emerge in the area as well as other players in the supply chain such as rubber product buyers, chemical fertilizer and hormone shops. Moreover, the local administrative office and NGOs also offered financial support to buy young rubber seeds for farmers at half price as a way of improving well-being and household security. Support from different organizations allowed the Hmong have greater access rubber plantation. This situation of rubber plantation access demonstrated that the Hmong tried to engage with the state policy of rubber after their learnings from China. Even though the Hmong were uncertain with regards to the market economy, they viewed rubber as a political plant, which would result in certain benefits from its cultivation. In this regard, it was possible for the Hmong to accept rubber as part of a development project that was organized by the state. This acceptance shows the adaptation of the Hmong, operating under many pressures to the state's upland control. Through balancing the relationships between the Hmong and the state they were able to increase their household security in the upland area.

In the case of the Hmong, rubber cultivation assisted in addressing both historical and temporary challenges and economical pressures. It was used as a tool to react to the state and others to change the negative images from the Hmong as unproductive cultivators and environmental destroyers. Studies on the impact of rubber cultivation show that rubber may have different meanings including economic and political. Economically, at a macro level, rubber was interpreted as new cash crop supporting the global market. Politically, rubber is interpreted as a product of powerful actors or countries, the production of which takes advantages from people or countries with less power. In contrast, at a micro level rubber can be a symbolic tool for people perceived of as weak and powerless to counter the exploitation by powerful people, such as the study of Sturgeon in ethnic's rubber cultivation in Xishuangbanna demonstrates. In this regard, the political economy consisting of land, labor and capital (money), associated with unequal power relation, would be interpreted as multiple meaning of rubber cultivation. In the case of the Hmong in Northern Thailand, there are transnational networks between the Hmong in Thailand and neighboring countries that support this view.

3) Livelihood Strategies

Initial theorists on livelihoods, Robert Chambers and Gordon Conway referred only to two aspects; security and income. However, some scholars have expanded livelihoods to address to sustainability, highlighting new criteria that are needed to achieve environmental and sustainable development and to how poor people have to face vulnerability, risk and poverty. Chambers defines "vulnerability" as a level of risk, disaster, stress and effect to food security (Chambers, 1998 cited in Pinkaew 2011: 74). There are three elements under vulnerability: firstly, trends such as population, resources, secondly shocks such as disease, disaster, illness of people, livestock, products, war, and finally seasonality, such as changing prices on agricultural products. Rakodi (1999 cited in Pinkaew 2011: 75) proposed that vulnerability was associated with insecurity, sensibility to livability when faced with a changing environment, unexpected scourge and so on which linked to life insecurity. It may be concluded that the dynamic of vulnerability in upland livelihoods has respectively taken place with connecting time. Rigg (2006) argued that to study agrarian change one should consider non-farm and off-farm activities more than just focusing on farming. He proposed that changes were needed at a policy level to support rural people as agrarian entrepreneurs rather than peasants. Upland people such as the Hmong were less likely to make decisions than low land people because they are strictly governed by the state agencies. They rely on land for cultivation in order to maintain livelihood strategy.

"Livelihood strategies" refers to a set of activities and alternative forms that are combined with each other. People may apply these forms to achieve their purposes of having a viable livelihood. The strategies emerge as a process that consists of many methods, which respond to different needs in the context of time, topology and economical level. Thus, livelihood strategies are both predicable planning and alternative methods to adapt with unexpected situations. Moser (1998 in Rakodi 1993 cited in Pinkaew 2011) examines livelihoods as asset management with examples of selected alternatives for the poor including investment to underpin security to existing resources and capitals, or create other choices for new capitals; substitution such as compensation for the reduction of natural capital that is effected by physical capitals, compensating to reducing of direct labor by remittance; disposal to compensate for insufficient resources or more investment such as sale of livestock, land or other assets;

and finally sacrifice when the poor are faced with a life crisis, such as asking children to leave school because of a lack of household labor. However, asset management may not be effective and depends on the poor to select for themselves what strategies to use.

The dynamics of the upland landscape and economical change have affected the Hmong's agricultural production since the cold war period. Factors that encouraged the Hmong to turn to commercial crops included the fact that opium was considered as an illegal crop and that the enactment of the Forest Reserve Act was declared. After changing to other commercial crops, they faced challenges such as reducing of the product price, intensive land and water use and having the image of a natural resource destroyer, all of which impacted in household economy (Prasit 2011: 31-43). Furthermore, the Hmong started to migrate from neighboring countries to refugee camps on Thai side to escape from the conflict in the cold war. They migrated to the United State of America as refugees. Due to the states conditions some of them could not move countries, but they were forced to move from refugee camps to other villages nearby the border, mostly in upland areas that became populated. However, there were some advantages for upland people, for example, becoming a Thai citizen, being part of the states upland development and becoming recipients' infrastructure into upland areas such as electricity, main roads, health care units, schools (Renard 2001). This allowed the Hmong to get opportunities in multiple economic activities such as intensive cultivation in commercial cash crops, engaging with activities for tourism and working in the cities or other places.

Rubber cultivation is different to Hmong's previous cash crop cultivation, such as opium, maize, ginger, cabbage and upland rice fields that enabled the Hmong to easily hire unskilled labor from other ethnic groups. Rubber farming requires more skilled labor, which means that all Hmong and neighboring ethnic groups may not be easily employed. Some processes require years of experience, including looking after the rubber trees and more specifically in the process of tapping as this procedure if done incorrectly may allow diseases to damage the rubber tree. Thus, access to skilled labor and the labor arrangement is important in changing to new commercialized cash crop in the Hmong village.

In relation to labor arrangements, Anan (1989), in his study on rice farmers in Northern Thailand, found conflict over the deployment and control of labor. He

identified conflict among the rice farm owners. The conflict took place after the state changed the land title system to individual ownership. This study demonstrated limited use of land since the state policy on land title was changed to individual holding. This change of ownership influenced the emergence of commercialized land as well as the cultivation of cash crops that required far more investment.

Given that individuals could not afford the financial implications of farming, nor could they access labor, they had to borrow money from retailers in the town. Many people then lost the land after they were unable to pay their creditors. They were forced to work on the rice farms and there was a conflict in the labor arrangements between household or exchange labor and wage labor. On the one hand, the exchange labor in the household did not have enough labor to work in wet rice cultivation three times a year. Each individual had to work alone with intensive economical cultivation. On the other hand, transforming to wage labor was problematic especially if they lacked the financial means to hire more labors. The villagers had to seek labor by adapting to the new situation. There were multiple forms of labor management such as landowners' shares of half to two-thirds, cash premiums and so on. The farmers would select the most appropriate form depending upon the social relationships among landowners and labors.

Hart (1989) noted that in order to understood agrarian change after the emergence of capitalism, it was critical to pay attention to "rural differentiation". Rural differentiation was not classified by income alone, but also by "production relation" as well as by "labor relations". Relationships were an important element in rural production because they related to opportunities of access to the factors of production. Capitalism led to the emergence of new actors, who were involve with rural production, such as the state agencies, local elites, brokers and so on, that were referred to as "hesitant capitalists". Labor relations often took place without signing a contact and emerged with "built-in mechanisms" of labor management. This was part of a process to exclude others in accessing resources by applying market mechanisms.

Anan and Hart's studies showed the role of market mechanisms, as an element of commercialization, which created vulnerability to household economy. They employed the concept of differentiation to indicate different groups of people who were involved with commercialization.

Rigg (2005) argued that after the state tried to promote development projects, there was intensive cultivation on limited land. Furthermore, the increase of the population had led to "plural activities", in which people needed to look for other forms of income generation. Relying solely on agricultural activities was not sufficient. It became the strategy of rural people to survive in new situation. Their livelihoods took another trajectory with people working both on and off farms, and changing between farms many times. The consequence of this was that upland people not only relied on land farming, but many households tried to apply alternative economic activities to secure their livelihood.

In the case of the Hmong's rubber cultivation, as a new commercialized cash crop, livelihood vulnerability was evident due to pressure from state policies from cold war politics, natural conservation and the commercialized of cash crop, especially rubber, that played a role in the political economy mentioned above. In addition, an effect of the cold war was that it not only changed the natural demographics, but also caused displacement and over population. Furthermore, environmental trends also added a new pressure. These factors not only influenced and limited land cultivation in upland areas, but also changed forms of production. Rubber cultivation encouraged household members to engage with different roles including economic, politic and cultural circumstances.

I agree with Rigg in that people in the rural areas not only relied on agricultural activity, but they also created alternative economic activities to sustain their livelihood. However, I also would like to disagree with Rigg that in the case of the Hmong's rubber cultivation the limitation of agricultural land has not related to a "squeeze" because people have worked in non-agricultural activities or have not "de-linked" from the land. Instead, the Hmong have adapted to the new role and have required the young generation to come back from other places to invest in rubber cultivation. To understand clearly the dynamics of production in upland changes, I would like to employ the concept of livelihood strategies to explain to this change.

Within this study, I agree with Eder (1999) with his "generation later" that community members have not exactly become labor. He compares two generations including parent generation and new generation. Multiple occupational activities are a crucial variation and they result in the community members not being engaged with

full-time laborer. It is important to understand the decision making processes of each farmer and how they respond to the different pressures which are emerging.

1.5.2 Review of related studies

Rubber emerged as an important cash crop during the colonial era and again within the neo-liberal agenda. Rubber plays an important role both economically and politically. This study focuses on rubber cultivation as political economy that relates to the use of land, labor, and capital change in upland areas. Rubber is considered as a symbolic cash crop that balances relationships between powerful actors and those who are less powerful. There have been many studies conducted on rubber plantations in the last decade. This literature review highlighted studies that indicated the role of rubber in particular areas and focused on the effect of rubber plantations, rubber as ethnic adaptation and the role of rubber production in the household economy.

1) Effect of rubber plantation

These studies demonstrated the influence of rubber plantations on people lives. Some interesting studies indicated that the ecosystems as well as livelihoods of people were affected. Recently, Yos and Aranya (2013: 252) showed the effects of rubber plantation in Southeast Asia using a cultural ecology approach to study the rubber plantation in Southeast Asia. Key findings included the rubber plantation effects on the community's economy and adaptation, with some villages risking losing their land for cultivation, because of the complex land management that comes with rubber. Secondly, rubber cultivation has affected the ecosystem and diversity of local food. The local people used to make a living with natural food, which was found in the forest. Given that the rubber plantation requires a clean forest the diverse food source was lost. Finally, rubber cultivation has also affected social and cultural aspects and has necessitated adaptation strategies due to changing their lifestyles on the rubber farm. People had limited time to associate with each other. Moreover, the rubber plantation encroached on cultural areas that people relied on as common property but have become private property owned by the rubber farmers and this has resulted in conflict among groups of people. Pinkaew (2008: 306) showed the expansion of the frontier capital through

rubber plantations that related to losing land and excluding people to only be labors on their land.

This group of studies indicated that the influence of the state as a superstructure affected people. It showed that before the coming of rubber plantations, the state had neglected people, especially those who are upland dwellers. But, after the state showed interest in these areas as resources, then people were considered human resources such as labor for the state's advantage.

However, these studies focus more on a structural perspective with capital mechanisms, and pay less attention to the farmer perspectives, especially in terms of social relationships in practice. The studies show that the state tried to invest in large-scale rubber plantations. In the case of the Hmong in Doi Yao – Doi Pha Mon, local people decided to cultivate small-scaled rubber farms by themselves. They divided some plots of land for rubber trees, with the rest of the land being for other kinds of plants. Thus, it is necessary to examine Hmong's rubber cultivation from a different perspective.

2) Hmong adaptation to rubber cultivation

This section shows how ethnic people have changed their farming methods through the adoption of rubber. As pointed out above, Sturgeon (2010) and Diana (2006, 2007) studied the same ethnic groups from two sides of the border land between China and Laos. Sturgeon studied both the Akha and Dai ethnic groups in Xishuangbanna. Even though the central government viewed ethnic people as backward and inferior, both groups, especially the Akha, understood that in order to improve their lives, they needed to learn from their past experiences of less than successful cultivation. Through their learning process they understood the challenges such as the high cost of labor management, the mixing of plants on the plantation and the savings they could make on living cost through transborder trade. They also understood that, despite the state's negative view of them, it was to their advantage to obtain state subsidies. Diana (2006, 2007) who studied the Akha and Dai on the Laos side, noted that the two groups had maintained family relationships on both sides of the border for economic purposes and had learned the technical know-how from their Chinese relatives who, themselves had adapted to planting rubber as a new cash crop on small-

scale plantations so that they could exchange with small-scale Chinese traders. This experience taught them about trading with the Chinese even though they had encountered problems with the Laos government who viewed them as backward and unproductive cultivators. By challenging the state territory, they, however, weakened the relationship they had with their relatives in China. Each group embodied different types of capital, which they use to their advantage on the rubber plantation and in their dealings with the state.

These studies showed the meaning of rubber that the ethnic people adopted through productive agricultural cultivation. The ethnic people in the area had been considered as awkward and poor people. However, adopting of rubber cultivation supported their household economy to increase their economic opportunity. Moreover, rubber maintained their relationship with their relatives across the state's border.

These studies show ethnic relationships only at a single level. However, in the case of the Hmong in Doi Yao – Doi Pha Mon, it is difficult to deduce that all of them have the same reason for making decisions to cultivate rubber. Moreover, the Hmong community has social hierarchies since they associate with the decentralization of Thailand administrative regime. They also have different opportunities for financial access. Rubber is long-term plant with high budget support requirement. Thus, further explanation of the Hmong case is necessary.

3) Rubber as household economy

Aranya (2011) and Phoukeo (2011) indicated that small scale rubber farmers in northern Thailand and Laos faced many challenges including the fluctuating global rubber prices as well as government policies, such as shifting cultivation and eradicating opium production that were implemented to try to reduce poverty. After receiving profits for the rubber tapped, small-scale rubber planters were able to afford more household facilities such new electronic machines, pick-up trucks, new houses and so on.

Phrek and Nittaya (2011) asserted that not all farmers could afford rubber plantations and that it depended largely on the capital those farmers had accumulated. Farmers who had more finances and land had more opportunities to access support from financial institutes. If they did not have enough labor they had the opportunity to hire when they need. Though this is consistent with the neo-liberal free market agenda,

Phrek and Nittaya found that normally the state would play an important role in the market, however, in this case, the state left the small-scale farmers to face challenges on their own.

In this regard, rubber cultivation was as a result of following the state's expectations in upland areas. The history of the upland agricultural context highlights emerging conflict between the state and upland people who applied shifting cultivation within forest reserve areas. In contrast, as noted previously, rubber is long-term cultivation that requires intensive labor to manage the farm. In these studies, the people considered rubber as alternative roles for both household economy and to maintain the social population.

Songchai (2013) drew much from Rigg's works and, in his study on small-scale rubber farming in Northeastern Thailand, he found that: (a) rubber farming encourages non farmers to start working on farms; (b) the planting of rubber reduces diversity of planting because the farmer cannot plant other crops on the same land with rubber; (c) rubber planting creates more challenges with regard to labor management than other crops such as rice since it requires more labor to support growing and harvesting; (d) the younger generation do not aspire to working in agriculture though they have transitioned from peasants to plantation worker.

The results of this study showed that rubber emphasized the changing rural population. It linked the new generation back to agriculture. The effect of this change is an increase in the population of rural areas.

There are many studies on the different scales and sizes of rubber plantations. The previous rubber studies mostly focus on economic change. There are few studies that capture the practices and experiences of ethnic groups who embark on new livelihood strategies such as rubber planting. In this regard, I focused on rubber as a motivating factor. The meaning of rubber in economic terms can be considered as a new household economy or connecting transnational relationship cash crop that some relatives, who live in different countries, may join in the investment with people who live in particular area. Another meaning may be considered from a production perspective because it shows the effectiveness of resource management as the state expect to see high productive of cultivation in upland area, not just to cultivate for subsistent cultivation. Moreover, rubber was responsible for bringing labor and finance

to rural areas impacting on development. However, these studies do not show the environmental perspective linked to rubber cultivation in upland areas that is facing the Hmong.

1.6 Conceptual Framework

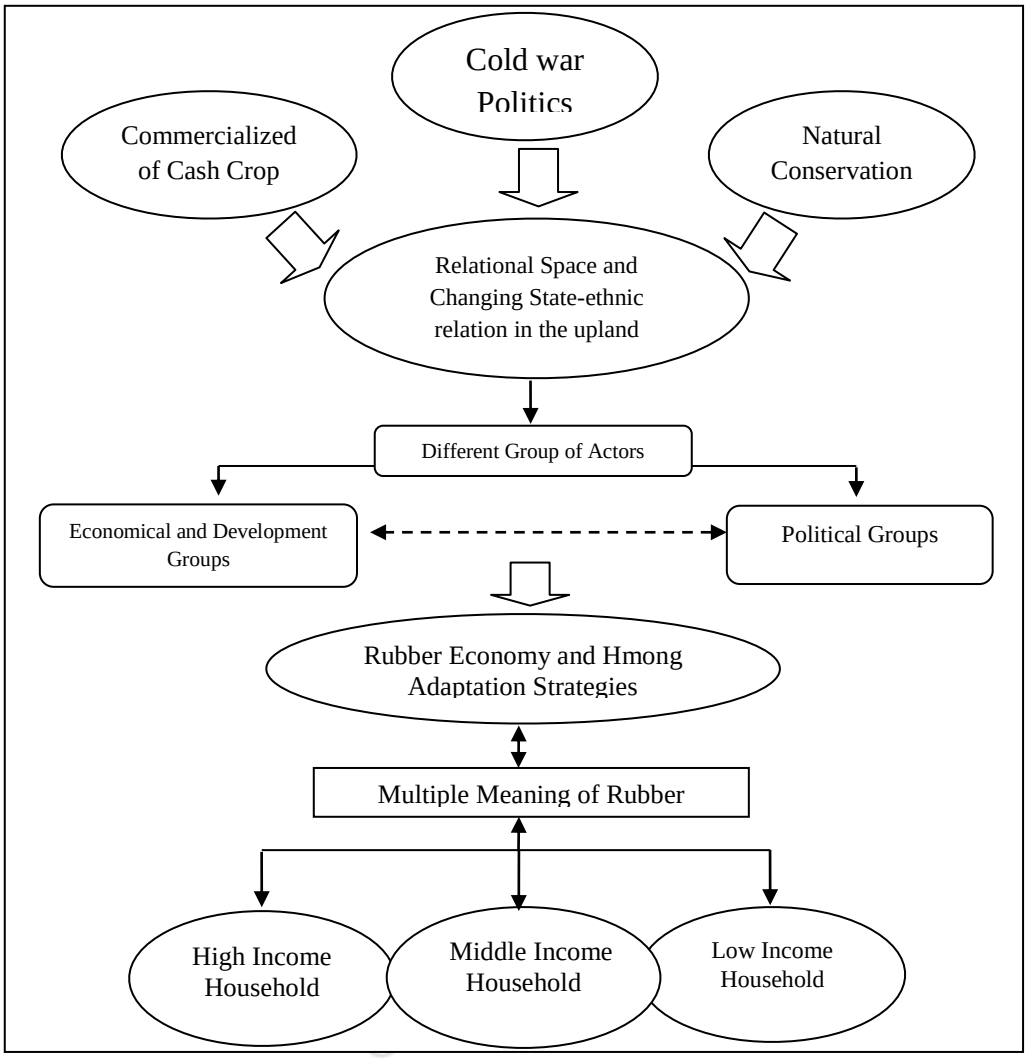

Figure 1.1: Diagram Conceptual Frame work

Li (1999) who applied the concept of relational space in her study in upland Indonesia revealed that the State, when affected, could be proactive at changing and implementing transformative policies. In this study I examine transformation in upland Thailand where ethnic groups are faced with a new cash crop economy such as rubber farming and have to adapt to this new situation.

The upland areas of northern Thailand have been experienced such as the politics of the cold war; practicing natural conservation, and then the commercialization of cash crops. During the period of conservation, the state represented the Hmong as "forest destroyers" and "air polluters". They represented the Hmong as anti-ecological.

My study assumed that "relational spaces" can be changed and, thus, ethnic people such as the Hmong change their relationships with the state so that they are able to access more opportunities in the same way as other Thai citizens. However, they are familiar and skillful with upland agriculture since their ancestors, some of whom are still living, still maintain their livelihood in the mountains. Moreover, during the last two decades the state established the local administrative office that refers to decentralization of the state power to local area. The Hmong also have opportunities to be involved with local policy and development in their area. Rubber is one of outside cash crops that related to the changed state policy.

The planting of rubber has become the new trend in agricultural cash crops for the Hmong in upland areas. Even though the planting of rubber is not new and has enjoyed a long history in the political economy since the colonial era, it once again is playing an important role in the neoliberal era. This study focuses on rubber cultivation as a preferred strategy of different groups of the Hmong to manage and balance their relationship with the state agencies such as forest authority, the army, agricultural officers, the Rubber Fund of Thailand as well as the local administrative office and other actors such as NGOs who work in upland development project. I consider the way that the Hmong construct multiple meanings of rubber to react to different groups of actors: these meaning show different perspectives of rubber such as economic, environmental, social relationship perspective and so on.

1.7 Research methodology

1.7.1 Research site

My research took place in the Hmong village of "*Seng Meng*" which is the old name of the "*Raath Pak Dee*" village. In 2002 the state announced the project of the "One Million Baht a village Fund" investing in village's micro credit for household

investment. Thus, the village was separated into two villages, with the other part being called "*Pra Chaa Pak Dee*". However, this study uses the name "*Seng Meng*" village as the group to study because they have the same history and did not separate.

The village is located in between *Yao* and *Pha Mon* mountains in Thoeng district, Chiang Rai province, close to the Thailand and Laos border. This village is the last village from the main road for tourists who want to climb up to *Phu Chi Fa*, a famous mountain cliff. The mountain cliff was opened for tourists by the military two decades ago after fighting with the communists ceased. The villagers themselves have classified three categories of village membership: firstly, the pioneers who first arrived in the village; secondly, the refugees who could not move to a third country and were settled by the state in this village after the cold war period and thirdly, the new comers who migrated from the Laos side in the last decade. The village is a Hmong village, which has an increasing number of members who have adopted rubber as a livelihood strategy. In the past, this village was identified by the state as a "red area" or a "special awareness area for communism". It was also identified as a forest preserved area, or polluted environmental area. For these reasons the village became the location for many government agency offices such as the military office, royal development project areas, agricultural promoting office, NGOs working areas, and so on.

There are 80 out of a total of 415 households, in Seng Meng village, who adopted rubber, covering 1,634 *Rai* (248 hectares). The households mostly cultivated by one after another pattern of rubber adoption. It was not adopted in only one time. In 2010, the first group of rubber had been tapped, from 244 Rai of rubber plantation land that was planted during 2003 – 2005. Other farmers who planted later had to wait longer for the trees to become viable.

1.7.2 Unit of analysis

This study focused on "village" as a unit of analysis in order to understand rubber farmers' strategies of rubber adoption. There are two main threads: firstly, understanding village through agrarian change in the situation in upland area, including relationships between actors and secondly, multiple strategies for economic securities.

Firstly, the **relationship between actors** focusing on Hmong farmers who planted rubber and their relationship between government agencies, NGOs, the Hmong

farmer networks and so on. Relationships were analyzed in the context of rubber adoption to understand the social interaction between different actors. This research reflects on the social interaction between the state and the Hmong based in the upland area.

Secondly, the **multiple strategic economic securities** of the Hmong through the use of rubber farming and other means were interpreted in different ways. Rubber plays different roles depending upon the planters and how they respond to diverse contexts. To better understand the multiple strategies, I selected the Hmong, who were rubber farmers as my key informants. Each key informant was a decision maker in the household.

I categorized farmers by considering two aspects; firstly, the rubber farmers who have more financial opportunities and therefore have a higher income and those with middle income. Secondly, I separated those key informants to three groups relying on political position (leaders or village member). I conducted 12 in-depth interviews as per the table below.

Table 1.1: Key informants

Income Political position	High Income	Middle Income	Low Income	Total
Unofficial leader	2	1	1	4
Official leader	-	2	-	2
Village member	2	2	2	6
Total	4	5	3	12

The twelve key informants included two key informants in each category. Responses from the two key informants in each category were compared acknowledging their different perspectives on rubber cultivation.

1.7.3 Level of analysis

This study focused mainly at the household level, to differentiate each household and explore the reasons that they decided to plant rubber. Addressing both the household level and the community level reflected on relationships between the Hmong and the state. Thus, this study analyzed the subject at two levels.

Firstly, I attempted to understand the history in the *Seng Meng* village to clarify the changing of the production in the household level after they experienced pressures and vulnerabilities in each era. At the community level it was also important to analyze changes in the social relationships amongst community members to maintain the production system in each household. The changing in both household and community levels reflects national policies in the development project that required ethnic people to be involved.

Secondly, I attempted to understand the evolution of Hmong farmers' thinking within each era of the state conservation and development. This level analyzed through ethnographic fieldwork everyday life interactions as well as communication in the production space to understand livelihood strategies. Practices in livelihood strategies were embedded by the thinking method and respond to power relations. Thus, this study interprets everyday life in production activities to understand changing in thinking.

1.7.4 Data collection

There is much discussion on the role of researcher in community research, especially in the cultural research. Chayan (1999: 60-63) raised a debate on the old research style, for example, that research only focused on documented research and the researcher only designed questionnaire to fulfill the his or her questions and expected answers. Indeed, researchers should focus on listening and observing informants rather than only focusing on information that answers research question. This process will help researchers to know a whole process not only the information researchers need to answer the research question. The root of this debate has been shown by Anan (2003: 3) that much research has been trapped within a dichotomy of studies such as more focusing on city and rural, state and community and so on. This problem leads to the permanent view of "the other", even though "the other" was powerless to design their

livelihood. In the context of upland studies in Thailand, Anan (2001: 124-126) described that it is necessary to explain the upland studies in the dimension of complexity of rights. It means that upland could not only consider as "essential" rights, but constructed rights. It means that upland people probably negotiate, bargain, or cooperate to live in the upland area even though the upland is monitored by reserved forest zone which is under forest law. The researchers who are concerned with this point of study have been called "constructionists"

Using this paradigm would show that upland people tried to construct a new social space in order to balance power relationship with other actors. They tried to take their space and participate with other civil societies without exploiting others or being exploited as a marginalized group of people. To address this issue, I studied the case of rubber cultivation from upland people's perspectives to understand more about the social relationships of Hmong people and other actors.

Research design: This study examines the changing relationships involved with livelihood security. I focused my research on the learning process of the Hmong from their experience in their relationships with other people and changing processes. I studied both in locations in the village border and out of the village because of possible cross-learning.

Researcher status: To get in-depth data, I agree with Visut (2003) that a researcher should be open about their position as researcher and the informant can be "research collaborator" who can discuss with the researcher to correct information.

Questionnaire survey: The questionnaire enabled the collection of qualitative and quantitative data of rubber farmers in terms of social classes and different opportunities to get into capital support from diverse ways. It was administered on 80 Hmong rubber planters who planted rubber at different time periods. It was designed with "open ended", "close ended" and "scale response" to clarify the opinion of the farmers who were representative of a large number of villager's land and properties access under variety of pressures. I collected secondary data using national annual surveys such as the Basic Need Survey that the government organized.

Participant observation: To explore livelihoods of the Hmong in rubber cultivation, the study selected 12 rubber farmers who actively have engaged with rubber even though they have different economic and social status (see Table 1). Thus, the

research provides social relational information on the interaction of the Hmong, or the Hmong and others (the Hmong network, NGOs, state agencies, traders, lowland people, and so on.)

In-depth interview: Key informant interviews were conducted after I did the survey and the participant observation. The in-depth interviews were an opportunity to check out and verify the findings this far. The key interviews were with 12 rubber farmers. The questions were set in a way to elicit flexible answer within the form of "open-ended questions". Mostly of these questions focused on their experiences and their opinions.

Documented research: Bailey (1994 cited in Mogalakwe 2006: 221)) showed that this type of data collection refers to the analysis of documents that contain information about the phenomenon we wish to study. There are two types of documents consisting of "primary documents", which refer to eye-witness accounts produced by people who experienced, and "secondary documents" produced by people who were not present at the scene but who received eye-witness accounts to compile the documents. In term of sources of documents, they may be available in the library, in the offices of officials, newspapers and store rooms. Thus, in my study I collected this type of data from the Hmong leaders, the Administrative office, the State agencies offices, NGOs, and others that have access to both primary and secondary documents.

1.8 Thesis structure

The study is organized into six chapters. Chapter one provides an introduction to the thesis. It provides a background to the research, statement of problem, research questions, and research objectives as well as a literature review on concepts and conceptual framework and related studies on rubber.

Three concepts on rubber cultivation are used in this study; relational space, political economy of rubber, and livelihood strategies. Relational space is employed to explore the situation of upland change through different ways of upland management by central government and implemented by the local state authorities. Moreover, the situation of rubber cultivation in upland Doi Yao – Pha Mon is examined through the concept of political economy of rubber in order to understand different ways of that rubber was adopted by different groups of people in response to multiple pressures of

upland living. The last concept is livelihood strategies, which is employed to explain different roles of Hmong rubber plantation adoption in upland area.

Chapter 2 provides a history and current situation of the Seng Meng village. The chapter provides an overview of upland cultivation through the history and current situation in Seng Meng village. The chapter contains the historical context of the upland under the government's regulation, which relates to the relationship among the state and the Hmong in the upland area. The Seng Meng village, which is located in Doi Yoa – Pha Mon mountainous area, was important during the Cold war period to understand the political atmosphere over three decades.

Chapter 3 highlights the push towards conservation enclosures and the rise of the rubber boom. It explores the concept of the upland through applying the "relational space" approach. The chapter focuses on the state's expectation on the adoption of conservation policy in the upland area, alienating upland people from their land and their pattern of cultivation. The overlap between the state power in conservation and the state security in the borderland is discussed, revealing some conditions of allowing upland people to cultivation in upland area. Finally, the chapter explores the adoption of rubber as part of upland frontier conservation.

Chapter 4 tackles the impact of rubber cultivation in the transformation of the upland economy. The classification of different groups of Hmong who adopted rubber in upland area is analyzed through the concept of "political economy of rubber plantation". Data collection indicates the Hmong's rubber adoption was in response to different challenges in upland living; rubber not only contributed to the household economy but also to social relationships among different actors, who have played an important role in the development and growth of upland areas over the last three decades.

Chapter 5 focuses on rubber cultivation as a livelihood strategy. This chapter indicates different roles of rubber as a response to multiple pressures in upland livelihoods. The chapter contains three main sections; firstly, risk, vulnerability and the benefit of rubber cultivation are presented to highlight the challenges of rubber cultivation and the endeavors of different groups of Hmong to ensure livelihood security in the upland area. Secondly, the roles of rubber in addressing the pressure on livelihood security especially under the intensive regulations by the state authorities are

discussed. Finally, rubber as a response to the transformation of the upland economy including production, labor, and investments in household economic security under a green economy policy is presented.

Chapter 6, the final chapter concludes the thesis' argument and shows that the adaption of rubber as a strategic cash crop fulfilled multiple purposes at different levels; for example, household economic security, building the local economy and adding to the conservation paradigm. It reflects changing and evolving relationships between the state and the Hmong. In addition, it demonstrates how different groups of Hmong adopted rubber cultivation and adapted to a new pattern and condition of cultivation in upland area, and the different roles of rubber within the household.

CHAPTER 2

Seng Meng village: history and current situation

This chapter provides an overview of upland cultivation through the history and current situation in the Seng Meng village. The main purpose of the chapter is to explore the different understanding on upland studies, comparing the village with previous studies that focused on the Hmong development, especially given that such studies demonstrated the relationship between the Hmong and the state as antagonists. Conflict was cited as an issue particularly in relationship to resource management with the belief that the Hmong damaged the forests for cultivation in order to meet market demand hence they were accused of destroying forests under the state forest regulation. Previously the Hmong's cultivation practices were linked to economic livelihoods, but they did not acknowledge the complex relationship between the state and the Hmong. This research analyses the Hmong's cultivation patterns and practices through a more layered and complex lens that reflects the reality of the upland and household security pressures.

There are three main parts in this chapter: firstly, Upland and the Thai state, which shows overview of upland since the Cold war period to understand the political atmosphere over three decades. Secondly, Historical context of Doi Yoa – Pha Mon mountainous area; it shows the area was engaged with political activities. Finally, the chapter provides a picture of Seng Meng village activities in commercialized cash crops as an overview of agriculture change in upland cultivation of different kind of crops.

2.1 Hmong, upland and the state's control

The Hmong are an ethnic group who mostly live in mountainous areas along the borders of south western China, northern Thailand, Myanmar, Laos PDR. and Vietnam. Scholars of the Hmong believe that the Hmong are, according to records, originally from China. They migrated from China due to the politics on natural resources management both with central government and local government (Prasit 2011: 6).

Their migration patterns from China differed – and the migrants took different routes to different countries. The Hmong in Thailand moved mostly from China through Myanmar and Laos, then on to mountainous area in Northern of Thailand more than four hundred years ago. The Hmong population in Thailand is approximately 153,955 (Prasit Ibid: 12) and is the second large ethnic group in Thailand after the Karen (Kwanchewan et al 2003: 15). The Hmong successfully adapted to different situations such as the politics of resources management, and conflict with other groups (Renard 1994), the adoption of new cultivation technologies under state control (Latt 2015), the promotion of traditional culture to forest management (Apai 2003; Songwit 2004). These phenomena show the Hmong adapting to the state policy through changing relations with the state in order to secure livelihoods in upland area.

The studies of upland change are always portrayed only from an economic perspective. It explains upland people's cultivation change only in relation with the trends in economic growth. However, there are many limitations in just viewing this from the economic stand point. In fact, the upland changed because of the state's regulation (Chalita 2015) which other scholars call "territorialization" (Vandergeest and Peluso 1995). It shows the complexity of the states' structural power, in trying to regulate power of local people become marginalized actors. It was reflected though upland in the border of Thailand close to Mekong River in Chiang Rai province.

One hundred years ago the upland area had not been much of a focus by the state. Upland was not regarded as suitable for travel or settling. It was regarded as a village for lowland people, for example the Doi Yao – Pha Mon mountainous area before the 1850s. However, it was a hamlet for the Mien people[1], who used a shifting pattern of cultivation. The Hmong had instead cultivated the same plot of land continuously after the Mien left. Both groups of the uplands people cultivated opium until the state authorities, or "*Kon Luang*", intervened under the sovereignty of Siam[2] (Urai 2015). During the 1850s the Hmong in Doi Yoa – Pha Mon was under control of the Chiang Khong governor under the Nan Joa state. The state was trying to "control the

[1] The name of the village in this study also has been told that is named as the former Mien headman of the kin groups. They lived in this area, then the Hmong have situated after the Mien leaving. The name of the village, had been changed to "Rathpakdee", which is a Thai dialect after the end of the Cold War. However, the Old name also keeps with unofficially call.

[2] The old name of Thailand.

people" rather than "control the place". States, such as the Nan Jao state, allowed people to control the area; these leaders called "the Phaya" protected people, their opium and teak products. The Hmong also had their own "Phaya" to protect and played the role of the tax collector (Urai 2015).

In 1893 there was an emerging conflict in the border area between Siam and a French colony on the right side of Mekong River. The French were victorious but lost sovereignty in the Siam state. The Siam state began to set up borders to divide their sovereign land and state land. In the mid1890s, the Siam state initiatively reformed their bureaucratic offices. They implemented the policy of municipals in the whole country. The impact of the policy reduced the "Phaya's" power, but increased the center power. It distributed through policy, law and bureaucracy staffs.

In 1932 the Siam changed the governing regime from an absolute monarchy to a democratic central state, which saw the introduction and implementation of central law of opium tax. Even through, it did not matter how much opium was produced the Hmong upland people had to share the payment of taxes to the state authorities and as Mr.Wanchai, the former village headman said *"all households asked to share household products service of the authorities visiting, even though those products had been collected for a whole year for household consumption".* According to the situation, it shows that the state was beginning to pay attention to "place control" rather than "people control" as in the previous era. Moreover, the state power now came from central government instead of burghs as in previous periods. In 1955 to 1970, there was emergence of a political movement in different parts of the country. Upland and upland people also became involved in the spheres of political conflict. The state tried to control the political conflict both in limiting the number of people as well as areas, where there was of political conflict by deploying an army to fight and prevent the Communists. However, the Doi Yoa – Pha Mon area had a thick forest which, made it difficult and prevented the expansion of the Communist influence. During the period from 1971 to 1990, there were efforts to heavily subjugate Communism. The Thai government tried to protect subjugation. The upland area Doi Yao – Pha Mon was also the highest Communist prevention zone organized by the Division of 3rd Army Area and supported by the Rayal Thai Army. This area was designated as a "Red Zone". The upland political situation showed the complexity of "people control" together with

"place control" through the condition of politics on borderland areas. In 1982, King Bhumibol Adulyadej, Queen Sirikit, Princess Maha Chakri Sirindhorn and Princess Soamsawali went to the Phaya Phipak village, which is one of Hmong villages in Doi Yao – Pha Mon close to the Seng Meng village. The Hmong people, who were granted citizenship at the end of the Cold War, showed their respect to the Thai royal family, demonstrating their efforts to integrate into Thai society. Becoming a Thai citizen provided more opportunity to access resources, land in particular, with legitimate rights for living in upland area. The king Bhumibol Adulyadej in his speech highlighted the importance of upland people living in harmony with the forest;

> *"Be careful, when campaigning for forest trees growing on people's cultivated areas. Even though it is located in disallowed zones. ……. It could push people to encroach in new areas of forest. The forest yield three resources: wood, firewood, and fruit. The benefits include wood for building, firewood, fruits for consumption, and contributing to watershed."*
>
> (Thairath Newspaper, 1st March 1981; Cited in Prasit 2011: 33-34)
>
> Translated by the author

The welcoming of royal family shows the Hmong effort to revere royalty as other Thai citizens: Thai culture is to respect "nationality, religion, and royalty". Also at that time there were development projects in the area, organized by the army, under the support of the royal project. The Royal Thai Army was mandated to manage border security by provide 15 Rai of lands for some of the households that surrendered to the Thai government after joining the Communist fighting. Thus, the forest land was not only focused on conservation. The army, then, implemented development projects in the area, although the area was under controlled by the Department of Forestry.[3] This

[3] The Royal Thai Army was allowed to control the watershed of Doi Yao – Pha Mon in some the part which is close to the Phu Chi Fa from the Department of Forestry during 1985 – 1993. Villagers had also recognized that the area is under control of the army. Even now, people recognize that the army had returned land rights control to the Department of Forestry, but they still situate the office in the village to

situation allowed the Hmong access to new cash crops such as fruit trees which led to the Hmong employing new cash crop for a "green landscape" (IUCN 2012:20). A mutually beneficial relationship between the Hmong and the army developed: the villagers needed the army to mediate with the forest authorities on their behalf, and the army also needed upland people to participate in the protection of the borderland area. Because of upland people, the army had legitimacy in forest land management. The shift to replacement plants projects also showed cooperation of the Hmong under the army control.

At the end of Communist fighting in 1982, the Thai government implemented two main policies: opium replacement and the forest conservation policy. The thrust to opium replacement, actually, began in the 1970s – the discourse being that opium was destroying national security. This was which supported by the United Nations, who cooperated with partner governments such as the United States of America, the Netherlands, Germany, Australia, Japan Norway, Sweden, Canada, and New Zealand. The project was organized by the Royal Project with 21 projects in Northern Thailand.

The opium eradication project in the upland area was one of the projects that showed the state's "place control", or control of geographical areas. It affected upland cultivation that was required to follow the state policy as well as respond to the markets.

From 1985, the state tried to intensify the control on the upland by implementing environmental policies. It implemented a policy of increasing the amount of forest land up to 40 percent of overall of land in the country. There are seven categories of forest lands contributing to the goal. Moreover, the state produced the "environmental discourse" which stimulated a social concern on the restoration of degraded forest in upland area.

The opium replacement project has succeeded. However, projects to address other environmental problems, including the smog problem in the area have been less successful. This affects not only upland people but also lowland people. In 1995 upland cultivation practices were identified by environmentalists as contributing greatly to air-pollution after the emergence of smog problem affecting lowland people. This resulted in encouragement to adopt a new pattern of cultivation.

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implement development project in the area. The Hmong also request for army to mediation when they face with the state agencies of forestry. (Interview soldier in the army unit office in February 21st 2014)

The situation of the upland showed the state policy on upland control and regulation. It does not only control people or labour, but also "place" requiring people to follow the rules of the state.

The next section explains how the state implemented its power in the Doi Yao – Pha Mon mountainouse area. It reflects on the complexity of state power on place control as well as people control applied by the state authorities, particularity the army. Moreover, power and control was implemented through environmental issues of upland cultivation that encouraged upland people to change to a new pattern of cultivation preventing health and environment risk from upland cultivation.

2.2 Complex of the state's mechanisms in the Doi Yao – Pha Mon mountainous area

During the cold war period, there was conflict along the Thailand-Laos PDR border that occurred during 1960 – 80s, especially in upland areas where the Hmong were living. The Hmong were divided in their support of the conflict, with some Hmong supporting the communists and others supporting the Thai government. Before becoming involved with the communists, the Hmong had conflict with the Thai government around the issue of pioneering forest land for cultivation as well as the Hmong being exploited in their everyday life. This led to Hmong support for the Communist party from early 1960s. At that time, opium was the main crop cultivated by the Hmong, even though it had been illegal since 1957. The hill tribe people influenced politics along the border that enabled the Hmong to keep opium in line with shifting cultivation patterns for a few years after becoming the illegal crop as Aranya (2001: 79) refers to opium crop in this period as "political business". The State, however, tried to compromise this situation by give amnesty to the communist members who surrendered, and the state then allowed them to live and farm in the forest areas even though it was reserved forest with the declaration of the Prime Minister Orders in 1980 and 1982[4] which aim to change army force to political force (Niwat 2004: 89).

[4] The Prime Minister's Orders had been signed by General Prem Tinasulanonda, who was prime minister. The order number of 66/23 declared in 1980 , and 65/25 declared in 1982. These orders changed from army force to political force that allowed communists in the forest participate in the national development. They became "*Phu Ruam Pattana Chaat Thai*", or the Thai Nation Development Cooperators. The prime minister promised to economical support to the communist who surrendered with agricultural land, tools, or finance. The Thai state supported the *Phu Ruam Pattana Chaat Thai* in two

The Hmong cultivation slowly changed to growing cash crops after the government had launched the policy of opium eradication, which was supported by international organizations such as the United Nations. However, to this day, the Hmong are still labeled as opium users, with a focus being on their use of opium as a recreational drug (Aranya 2001). The Hmong had used opium as a medicine within their culture since the state health care system had not covered the upland people with access to health facilities (Chotchuang 2002: 117). In an attempt to replace opium cultivation with more acceptable crops, such as peaches, kidney beans, cabbages, coffee and flowers organized by the Division of 3rd Army Area, Royal Thai Army, the Royal Project set up a development project in the early 1990s. Moreover, growing the fruit market also included cultivating mangos, longan and lychees. These fruit trees had been adopted to coincide with the opium eradication project of the Office of the Narcotics Control Broad with financial supported by The Ministry of Posts and Telecommunications of Japan, monitored by the United Nation ((Renard 2001; Parinya 2001). The project was implemented between 1990 – 1994. The Hmong reacted to the state's development scheme by adopting and promoting more "acceptable" crops to their farms and demonstrating that they changed the crops they were cultivating. In fact, they introduced a diversity of crops in their lands.

Rubber was also a new crop that was introduced and supported by the Japan government. Rubber came to the Doi Yao – Pha Mon mountainous area in 1991. It was introduced by a scholar from Bangkok through a pilot farm. It had arrived with the aim of reducing of deforestation and providing alternative crops and work in upland area (Parinya 2001: 61). The pilot rubber plantation was in Rak Paen Din village[5] (five kilometers from the Seng Meng village). It had been cultivated, in the first place, in 20 Rai in upland Doi Yao – Pha Mon area, and proved to be a successful product. The pilot rubber plantation in Rak Paen Din village was located close to the road and the villagers

periods consisting of the first in 2002, and the last in 2009. Some of them got agricultural land 5 – 18 *Rai* (1 ha = 6.6 *Rai*) or got 125,000 THB (source http://rungnapah.wix.com/isoc04#!untitled/cyuc).

[5] The "Rak Paen Din", or "Ban Rai Song" in the local name was settled by the state as the "Self-Defense Border village" since the end of the Communist fighting in the Cold War. This type of village refers to the state allocated village for local people who got an effect of political conflict between the state and enemy outside the country in the border area. The state set up this type of village in the borderlands since 1977. There are five villages in the Doi Yao – Pha Mon mountainous area, which have been established in 1987 – 1993 (Urai, 2015:66).

could pass through the district township, resulting in them observing the pilot rubber plantation for over twenty years. The lifting of restrictions heralded the arrival of a new period of rubber plantation with expansion to different type of lands.

Upland cultivation had been changed again since unproductive of the development project. Field cash crops such as cabbage, maize, and ginger were encouraged by lowland traders as upland cash crops after the cutting down some of fruit tree such as mango and lychee in early 2000. These kinds of cash crops require intensive labor both in the planting and the harvesting seasons and also require intensive chemical fertilizers. Moreover, in order to plant such crops, the Hmong had to clear the land for new crops by burning. The Hmong have succeeded in cultivating and profiting from the field crops rather than the promoted opium replacement crops.

Along with transition of upland cultivation, another context of the Doi Yao – Pha Mon area is intensively forest conservation monitoring control. The Doi Yao – Pha Mon has faced challenges of the forest conservation regime, which has been implemented since 1960. There was an enactment of laws including the Wildlife Conservation Act of 1960, the National Park Act of 1961, and the Forest Reserve Act of 1964 (Chayan 2005: 159). It affected upland people having limited access to forest land that they needed to continue their traditional cultivation (Anan and Mingsan 1995: 104). Then, the government began the eco-tourism plan that included cultural eco-tourism in 1976. However, it was only a few ethnic groups who benefitted from this project (Choosit 2004). The main effect of this policy to upland people was agriculture production because shifting cultivation or any traditional pattern cultivations close with "slash-and-burn" was not allowed because it destroyed the forest as well as created air pollution that affected air quality and disrupted tourism. However, during the 1990s there was a popular trend introduced of a "community forest" management concept that many organizations tried to adopt as a negotiating tool to access the forest (Surin 2011). The community forest required stakeholders to cooperate and organize the forest, not only the forest department, on behalf of the state agency. The forest could be used for local living in the same time as measures for forest protection were employed. So far, it seems to play a role as natural conservation symbol of private companies, administrative offices, as well as some organizations outside the community rather than providing an opportunity to use natural resources, because it has no support from the state's law to allow local community manages among them.

Hmong people, in the area, practiced shifting cultivation before involving with the Communist fighting in 1957. Opium was the main crop to support Thai traders. At that time, the lands for shifting cultivation were pioneered by upland dwelling people. When seeking for new lands to cultivate opium, the existing lands were maintained by their household labors. However, they survived with hunting, gathering wild products, growing vegetable such as Chinese cabbage and rice, and daily raising pigs and chickens in household.

During the period of 1957 – 1982, the area was both affected by the labeling as a "Red-Zone" and the Forest Land Law to reserve forest in 1972. Land access of the Hmong was limited and reduced. They had to rely on field crops cultivation such as rice and vegetables and raising small-castle for household consumption (Gedded 1976; Cooper 1984). However, they were limited to deal with lowland traders after the communist war occurred. Hmong people were not comfortable to cultivate during this period. In 1982 the Hmong who joined the communist movement had surrendered to be "*Phu Ruam Pattana Chat Thai*", the Thai Nation Development Cooperators (Chotchuang 2002) They got, firstly, promise from the government to subsidy with small lands, and finally with some budget to support their household with the cabinet resolution the issue on 28th December 2010. However, some Hmong required land for cultivation rather than money.

Upland land management was mostly controlled by the government. It showed that the state authority took a crucial role in upland land management under the government project. As villager portrayed area as.

> *The villager area, at present, is located lower than prior Hmong village location selection in the past. It was a thick forest that contained a lot of mosquitos, a cause of Malaria. It was not easy to access medicine as there is no doctor or hospital nearby. So, there was no house in the zone until the army set up an army troop, then allow us live here after the end of the fighting in the Cold War.*
>
> Mr. Wanchai Jaroonsakulwong, 65,
> Former village headman
> Interviewed April 2, 2014

From Mr. Wanchai's interview it shows that the villagers viewed the management of the upland only benefiting the state and excluding villagers in the use of the land. At the same time, *Phu Chi Fa*, the high cliff, became a tourist attraction in 1991 by the army (Chiang Rai Provincial Office of Tourism and Sport, online), thus it was needed more green landscape in this area for tourism.

In 1992, the army allowed the establishment of the Doi Pha Mon Highland Agricultural Extension Center, which was supported by the royal project, and monitored by the 3rd Army Area. The center promoted cool season plants for upland Doi Yao – Pha Mon. This was of interest to some households, mostly those who had larger plots of land. They adopted rubber together with fruit trees as multiple crops cultivation. However, these varieties of plants need more high-technology than seasonal plants such as chemical fertilizer, pesticide, bringing up water, especially during dry season (Prasit 2011: 34). Hmong villagers, however, could not sufficiently access such requirements. Products, thus, were not satisfactory for Hmong farmers because the low quantity of the products. Fruit products, thus, were not interested to in the middlemen buyers who came to the mountain to buy. The fruit trees farmers had to take the products themselves in the district town. According to adaption of multiple cropping, some plots of land had been left for rotation: this group of Hmong still had other plots of land to cultivate seasonal cash crops such as maize, upland rice and cabbage. Since the 2000s, farmers had intensively invested in maize crops because of its support to circulating money in the household economy, while fruit trees required longer cultivation and did not yield as much income. Some fruit trees were damaged by storms, and were not replacement, and the Hmong decide to cultivate maize instead.

Cultivating maize, they employed unskilled labor from other ethnic groups such as Khmu and Hmong from Laos PDR side. The traders then came back to the area to get greater access to products. The Hmong turned the soil to create more compost by burning weeds and dead plants. However, the state agencies blamed for them causing air pollution which covered the lowland and the city. Moreover, the lowland people also saw the Hmong as people as using a lot of chemicals to increase their production. In this period, some Hmong sought for other household economic opportunities by becoming tappers in rubber plantations in the deep south of Thailand, even though they knew that the area had major political conflicts.

Different state agencies formed a group of conservation agents; the Forest Fire Control, the Watershed Management Unit, Phu Chi Fa Park Office, the Forest Protection 12th Unit. There have been conflicts in land management with upland people for three decades. Other role players in the area, focusing more on development included the Royal Family Projects, Land Formatting Unit, the Highland Agriculture Promoting Center. Moreover, there was another group of organizations focused on rural development such as Local Administrative Office, World Vision (NGO). These organizations have intensively taken on the role as financial support for rural development since 2000. New crops are introduced in the village as alternative cash crops which supported from these organizations. However, movement of upland people was still intensively monitored by the army.

2.3 Changing of cultivation under the state's monitoring in the Seng Meng village

Influences of the central state have intensively emerged since the end of fighting between the Communist troops and the Thai army in the Cold War period. Change in cultivation patterns has taken place in different times in the village after the Cold War supported by the government. There four major periods in cultivation changes in the village consisting of 1) Implementation of the state security power and forest management mechanisms. It reflected the first era of the state power and control on cultivation particularity in opium eradication, 2) The beginning of the army development project after the end of the Cold war indicates arrival marketization of annual cash crops that were promoted by the state authorities, 3) An arriving of perennial cash crops as household economic product. It was expected to solve damaging of forest in upland area, and 4) Pollution from cultivation; a different monitoring tools on land use management

2.3.1 Before 1980: implementation of the state security power and forest management

According to the Hmong village setting location indicated the involvement of the state power of in setting up villages after the end of the Cold War period. He explains that the Hmong always setup their houses on the highest levels of the mountains in order to reduce the risk of any health hazards. A group of upland people

who lived in a nearby area were the Mien[6]. The Hmong who lived in the village come from different villages surrounding the area from around 5 to ten kilometers away.

Hmong cultivation in this era was still mainly opium cultivation, even though it was reduced by the opium eradication campaign which reduced production. However, the marketing product from upland area was only opium because there was the possibility of using horse transportation in mountainous areas. They also cultivated other upland cash crops, but these were mainly for household consumption or animal feeding in household activities, rather than produce for markets because of the limitation of transport. Slash-and-burn was still a major pattern of cultivation.

During 1950s the situation along the border was a tense due to fighting between the Communist and the Thai state. The state authorities regularly checked on the upland people's villages along the border.

> *The bureaucrats told us that they came to visit, but it made villagers uncomfortable because the village headman would gather food material such as pigs, chickens and, rice from each households who cooked for them. We also have to prepare these materials as a gift for them to take away after visiting us. Moreover, we had to provide them with our horses and controllers for transport to next village*
>
> Mr. Wanchai Jaroonsakulwong, 65
> Former village headman
> Interviewed April 2, 2014

These visits and the expectation of gifts impacted on impoverished households who were expected to give resources such as livestock and rice from their household food source and resources that were used for prayer ceremonies such as paying respect to their ancestors.

In 1956 the Thai government launched a project to survey the forest area in Thailand and this was supported by the Food and Agriculture Organization of the United Nation (FAO.). It highlighted the existence of degraded forest (Renard 2001). The state, then, enacted different forest related laws from the 1960s. The Doi Yao – Pha

[6] The name of the Village also named from the Head of the Mien people

Mon Mountain was located under the Department of Forestry since 1972 after it was declared a part of the reserved forests. Although the Hmong had lived and cultivated the forest before the announcement of the law, as noted above, the Doi Yao – Pha Mon had been managed as a national security area by the army to prevent conflicts between the Thai army and the communist army. The army, then, allowed the Hmong to settle as well as possess some forest land for household agricultural purposes.

In 1961 the Thai government announced a four-year plan to centralize national economic growth called the 1st National Economics and Social Development Plan (1961 – 1965). Resources in different areas across Thailand, including in the frontier, were reserved for the nations need. Emergence of the plan affected the reserved forest area for conservation and influenced land access, particularly in the upland which reserved as a forest zone.

As a result of the state's forest management, the reserved forest began to overlap with peoples' agricultural land. It created challenges with the relationship between the state and upland people. Finally, some of upland people decided to confront and challenge the state power by joining the Communist party 1968 marked the beginning of heavy fighting between the Communist army and the Thai army. The Hmong from different villages escaped to Laos PDR and set up a temporally hamlet about ten kilometers from the Thailand border. Mr. Visuth explained his experience

> *We moved to Laos borderland and living there for ten years, the Laos government did not push us out because they also fought among themselves.*
>
> Mr. Visuth Banpotwanarak, 67
> Former village headman
> Interviewed February 24, 2014

Although the Hmong lived on the Laos PDR side of the border, they returned to Thailand for seasonal cultivation. This was partly because, as Mr. Visuth mentioned in his interview, the land in the temporary camp in Laos was very rocky and not suitable for cultivation.

Members of the communist party of Thailand (PCT.) arrived in the area and pursued the Hmong to join the party and become active members. However, some of

the Hmong joined the Thai army, as Mr. Wanchai said *"many of the Hmong villagers were afraid of the Thai government power".* Villagers who become Communist party members and joined the army, travelled to Laos and China. Young Hmong volunteers were trained to protect themselves from the government abuse. Training in the Communist army did stop at skills in fighting, but also included medical skills. Some Hmong young leader also took an opportunity to practice medical skill which required travelling to China, particularly Yunnan province, to attend the medical courses. During the training, young medical students had an opportunity to observe rubber plantation in Yunnan. Young leaders found rubber plantation could be possible crop for Hmong people in upland area.

The Thai economy became stagnant as a result the Cold War and the fighting on the borderland with a noted increase in unemployment. In an effort to kick start the economy the Thai government launched the 3rd National Economic and Social Development Plan (1972-1976), which focused on dispersing and expanding economic and social services. The plan included *Khrongkan Jasroop Teedin*, or land formation project which was target on 100,000 Rai (15,152 ha), and an extensive road construction project to rural areas of 7,500 kilometers of new roads. The five-year plan had some successes but the planning committee found that there was a serious reduction of forest areas.

The twenty-year border war was costly, and the 4th plan (1977 - 1981) looked at strategies to empower the army to have a more rapid solution. In 1977, the Thai army set up check points in the area to control the situation; the check point Doi Yao – Pha Mon was located in the school and still exists. The intensification of an army presence was coupled with road construction into the area. However, the increased army presence did little to curtail the fighting between the Communist army and the Thai army, which continued until 1980.

The phenomena indicated that cultivation was focused on household economic rotation rather than expectations for financial gain. Even though, opium was a main product to market, it was limited to a small area because of the state policies on opium eradication.

2.3.2 1980 – 1990: The beginning of the army development project after the end of the Cold war

Fighting ceased in 1980 with a compromise from the Thai government after the extensive war and conflicts against the Communist ideal. The government announced two important Prime Minister Orders that supported a cease fire; no. 66/2523, which appeared in 1980, and no. 65/2525 appeared in 1982. The main point of the prime minister orders was to allow people who had been involved with the Communist party to surrender, with land incentives and government subsidies offered to those who surrendered and who did not have land for cultivation.

After the long war against the Communist era and the investment in the 4th National Economics and Social Plan (1977 - 1981), the Thai government had spent a lot of the national budget on national security. The government borrowed funds amounting to THB 20,000 million from other friendship countries such as the United State of America, England, and Japan in order to empower, protect and administer national securities[7].

In the 5th plan (1982 - 1986), the government had tried to solve the Communist conflict in the area. The strategy was applying a combination of economic and national security developments within 9 target areas, including ones relevant for this research namely the Doi Yao - Pha Mon (Ngao-Ngao watershed) in Chiangrai province.

In 1982 as result of the plan, the army allowed the Hmong who were involved with the Communist party to settle in Doi Yao – Pha Mon, after their surrendering to the Thai government. The village had been set up in the area around the army troops. The army also supported them with infrastructures such as a road, school, and later on with the electrification of the area. The army was later mandated by government to control the area including forests until 1990. The Hmong who lived in the village were allowed access to cultivating lands.

The Hmong who had been involved with Communist party and lived nearby the area, were allowed to settle in the village and selected their own village headman. Other

[7] See more information in the National Economics and Social Plan Phase 5th (1982 – 1989) at part 7 Economics and National Security.

Hmong people gradually came to settle by agreement of village headman as well as the head of the kinship system – both who constituted a village committee later on.

> *There were only forty households in the first year. It became two hundred households in the next year. We have four hundred and fifteen households in Seng Meng village (Village no.10 and 25 of the sub-district) now. People who came later, in the first few years because they followed their relatives. All of them lived in neighboring villages.*
>
> Mr. Jur Khai Santisakulwong, 51
> Head of village's rubber plantation group
> Interviewed April 2, 2014

Hmong people who moved to setup in the village had previously cultivated in the village zone before leaving to join the Communist party and therefore had experience of the land and of farming.

> *The biggest group of household is the Yang family from Phaya Pipak village. They had cultivated here before the Communist/Thai conflict.*
>
> Mr. Jur Khai Santisakulwong, 51
> Head of village's rubber plantation group
> Interviewed April 2, 2014

Before the emergence of the fighting along the border, the Hmong's access to land was not limited to individual land rights. Some households cultivated land and left the land for long fallow, other people, then, could access the land for cultivation. *"It did not have any mark that the land belongs to whom. Everyone could cultivate any land"* Mr. Prateep Banpotwanarak, 56-year-old, a rubber farmer said.

Since the surrender of the Communist party members to the Thai government ending the Cold War in 1982, they had been allowed to cultivate maize and upland rice, which were familiar cash crops during a few years after surrender. The local agricultural product buyers were able to buy from villagers after the emergence of a new road. They cultivated maize and upland rice as to have multiple purposes in household

consumption as well as for animal fodder. The army played an important role in connecting the local market to the Hmong and their products in this period, responding to the plan of local economic expand in the national security zone under the 5th National Economics and Social Plan (1982 - 1986). According to the plan, engaging and developing the local economic became a strategy to sustain national security in border areas.

The Hmong focused on maize cultivation, with a competitive price per kilogram of 1.50 to 2.00 Baht. They mostly cultivated a traditional variety of maize. The maize boom, during this period, positively affected the expansion of agricultural land. Traditional methods included a slash-and-burn pattern of cultivation using the same land with the family members being the main labor in cultivation. The major aim of the family was to expand agriculture land by cultivate in long-term pattern of cultivation.

However, the situation changed after the village set up, the Hmong who preempted cultivating land continued their cultivation, but others who came later sought other land in the forest. As it had been under army control, villagers, thus, cleared the forest for agricultural land without regulations/permission from the forestry department staffs. After 1990, as a result of the state involvement in land management, the common right and law on land management under the long cultivation and very long fallow was changed. Even though cultivation needed a fallow period of a few years after long cultivation, the Hmong fallowed with their own pattern by dividing land in different plots, and cultivate in some plot and fallow in other plots.

In 1986 cabbages[8] were introduced to the village. The Hmong farmers accepted the cultivation of cabbage as it used less land than maize cultivation. Groups of cabbage traders were not local people, but outside traders that came from the Southern parts of Thailand, and some of them were "*Sa Hai*", that is Communist member friends. They had promoted cabbage cultivation in different Hmong communities, such as in Doi Yao – Pha Mon, Khek Noi in Phetchaboon province, Chiang Mai province. Cultivation of cabbages could be achieved in 3 – 4 cycles a year as cabbages only need ninety to one hundred days from cultivation to harvest. Since 1992 the Thai government accepted the UN's agenda in "Rio summit"[9]. The government applied the principle to practice as

[8] Interview the senior officer of the highland agriculture promoting center

[9] Rio Decraration: The United Nations Conference on Environment and Development (UNCED), also known as the Earth Summit. It came up since environmental pollution had become the critical issue in the

they tried to control the expansion of Swidden cultivation in the upland area. Doi Yao-Pha Mon also had been included to the policy, thus, maize plantation and other annual cash crops cultivation such as cabbage, ginger and so on were discouraged by the army in this area.

> *"I was pressured to find other kinds of crops for villagers to replace maize and cabbage which covered the mountain".*
>
> Office of Upland Agricultural Promoting Center staff
> Interviewed on, February 2, 2014

Seasonal cash crops such as maize, cabbage ginger and upland rice which had been planted more than ten months in a year were accused of causing environmental problems. In the same year, the Highland Agriculture Promoting Center was established to promote upland suitable crops for sustainable livelihood. As a result of expanding seasonal cash crops such as maize, cabbage, and ginger, it had the effect of considerably reducing the forest area. The army, which played a role as a development agency tried to find a way to solve this problem. The Hmong during the period was accused as the main cause of damaging forest by Swidden cultivation. The highland agricultural center mostly promoted long-term cash crops such as lychee, plum, and longan, and some flowers such as rose, lily as well as coffee and tea which can grow in the forest. Even though, the highland agriculture promoting center claimed that the Seng Meng were not included in target area, some cash crops were also adopted by villagers.

Villagers adapted themselves to market long term fruit trees plantation such as lychee and longan plantation. There were twenty lychee and longan farmers in the village. The change in cultivation patterns related to the campaign of "provincial products" to promote tourism program as well as stimulating consumption. However, the scheme was not a success and did not provide profitable crops for the market. The

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UN conference in Rio. The main point of the conference required developed countries to show concern and take response for their pollution. The results of conference focused on a master plan on environment regulation under the framework of the "pollution producer is payer". The idea of financing involvement in environment campaign has been applied in each country albeit within different contexts, promoting environmental concern through pushing for a "Green Economy in the Context of Sustainable Development and Poverty Eradication"

Hmong who cultivated these fruit trees received uneven prices for their products and faced unstable productivity because of environmental risks.

The state introduced middle agriculture product buyers to buy products from villagers. However, slash-and-burn continued to expand cultivation areas the Hmong were allowed to possess. Villagers changed their strategies of land management by adapting to the land limitation to rotate their crops. According to the villagers, it was important to note that land access and market access were the most important issues in upland cultivation. It supported their expectation to live in peace in the area.

2.3.3 1990 – 2000: The intensive marketing of products

Since the early 1990s up until now, the Hmong have been faced with regulations implemented by forestry staff, which is now active in the region. The army did not only respond to Communist prevention in the area, but also became development coordinators for upland people. An emerging tension for villagers was in relation to the use of timber use for housing in the village, especially when the army had changed their role to conflict mediator on forest land and timber use among the Hmong villagers.

> *We have some conflict of timber use for our house maintainance, and a new group of people who did not have a house. The army tried to compomized the situation by limit a number of timber for housing each year per household by permission from village headman.*
>
> Mr. Visuth Banpotwanarak, 67,
> Former village headman and a rubber farmer
> Interviewed February 24, 2014

In 1991 under the 6th National Economic and Social Development Plan (1987 - 1991), the government followed the strategy of engaging in economic development together with national security forces especially in the former communist party as the "Red Zone" which become a historical tourism area with the purpose of increasing the tourism activity. The district officer, in that time, as well as the army agreed to promote the *Phu Chi Fa* as an attractive tourist destination. After promoting tourism in the area,

some parts of the reserved forest were reallocated as a National park"[10], which was a more intensively monitored forest zone, resulting in greater tensions around forest classification with the villagers. The tensions of living in a protected forest area encouraged the villagers to become more involved with the forest reserve by setting up a community forest zones, although they continued to do long cultivation in upland areas, and adopted a slash-and-burn pattern of cultivation. In 1994, the state specified agricultural buffer zones, which became "community forests". The villagers described their efforts to be actively involved with the state policy on forest reserve and tourism. A Hmong farmer network was set up to negotiate access to market mechanisms as well as cooperating with state agencies as well as the forest department officers (Prasit 2011: 36).

Due to the Hmong slash-and-burn pattern of cultivation, they were in conflict with another state policy on the smog and air pollution problem. Smog and air pollution has been a growing problem in northern Thailand since the late 1990s. Although more severe in the North, the smog issue has been recognized as a national problem and is of concern to the national parliament. The provincial governor of Chiang Rai also noted his concern and the announcement was applied in Doi Yao – Pha Mon in 1998 under the campaign of "the dangerous 100 days" to encourage people stop burning process. They have also adopted the government suggestions on non-burning process of land preparation.

In 1992, after the first group of Hmong people set up in the village, there were others groups of people who were also affected during the Cold War period. 25 households, who were not given refuge in the USA and who were impacted on by the closing of the refugee camp in Loei province moved to the village. Some of this group had relatives in the USA, and these relatives supported them in providing remittances that enabled them to secure their household. The remittances were also used to invest in land that was bought in the village taking advantage of low prices from the first group of settlers who had enough land for cultivation.

In 1990 to 1992 there was a pilot project (initiated by academics) to introduce rubber cultivation in another village nearby the Seng Meng village. The cultivation experimentation was supported by the Japanese embassy under the upland development project. It took place at the same time as the "green cultivation project", which was an

[10] See more detail on forest classification in Chapter 3

agreement in the "Rio summit". Rubber was successfully grown in the upland area. However, it did not receive adequate support in marketing after the harvesting and thus rubber cultivation did not get any interest from the Hmong during the time. In time, the rubber experiment farm became a learning place of the Hmong who became interested in rubber cultivation during the last rubber boom.

According to upland burning practices, there emerged tensions between upland people and the state agencies. The army took an important role in mediation of the conflict. The tension had been preceded for a decade on land management and forest land use. In 2005, the "Doi Yao – Pha Mon Farmer Network" was established by Hmong leaders from 14 villages in the area.[11] The network has focused on land rights access in upland area as well as maintains Hmong culture with the main goal of stop-conflict between upland people and the state agencies.

The last group of villagers consisted of a further 25 households who arrived between 2002 and 2004. Members of this group are still stateless and do not have Thai identity cards, even though they have lived in Thailand since before the Cold War. In order to avoid the fighting, they did not register as Thai citizens. More recently they have tried to get Thai identity cards by registering with the district officers and are waiting for the process of national identity to be approved.

The last two groups of people who settled in the village have not had easy access to land for cultivation although it has been slightly easier for the second group of settlers, who have had access to remittance support from relatives abroad. Some families of them may have been able to access land by a tenancy system, or getting married to people from other households who have land for cultivation. This group of households, then, became main wage labour in the village which had high unemployment rates, while the rubber farmers decided to manage rubber plantation by themselves.

[11] In 2005, the network was first unofficially established with 7 objectives; follow up land rights in upland area, sustainability of upland land use, maintain community forest, implementation local economy, revive and develop attractive places and historical places, maintain Hmong traditional culture and develop the network. According to the objectives, they have tried to survey forest and agricultural land with 1:4000 scale of map instead of 1:25,000 used by the Department of Forestry that lead to conflict of overlapping between forest zone and villagers' cultivation area. The network also created a GIS data in the Hmong villages which surveyed by community themselves in order to show land marks with the state. In 2007, the network was registered as a "public interest organization" under the Community Organization Council Act B.E. 2551 and Political Development Council Act B.E. 2551. The network committees engaged with local NGOs working in land rights movement and ethnic group empowerment.

The selection of cash crops cultivation in the upland area in this period is an effect from the development project to eradicate opium. It shows that the Hmong recognition and acceptance of the government policy. Moreover, it demonstrates willingness to prevent conflict amongst the villagers and the state authority.

2.3.4 2000 – to the present: Development and Pollution

The Hmong villagers had been allowed to pioneer new land after settlement until the army set up the forest territory disallowing the clearing of any more land from 1987 onwards. The villagers searched for land in different mountainous areas, in order to cultivate four to five plots of land. The Hmong still kept "long cultivation and very long fallow" but it was limited to their lands, which was not the case before the war.

Similar to other upland areas, the villagers faced criticism from conservation campaigners due to their use of Swidden pattern of cultivation and the Hmong, who cultivated in the upland area, were represented as forest destroyers (Sunthorn 2008). Development projects, supported by foreign funds, were introduced into upland areas to solve the problem of opium cultivation and Swidden cultivation and to introduce more permanent plants. The development projects were expected to encourage people to reduce rotation patterns of cultivation that was seen as a cause of "slash-and-burn" cultivation preparation. As the villagers were reliant on support from the development projects they accepted some, but not all aspects of the project. The Hmong adapted to the conservation discourse by claiming that they were strong proponents of protecting the forest through reserving some part of the watershed to be "community forest". They set up rules for the village to save the forest, although they did allow village members to fell trees with the consensus of the village committees. Moreover, they also planted different trees, (such as orchid trees, which produced flowers in the winter season and was seen as beneficial for tourism), in line with the suggestion by the state to diversify. As noted above, the Hmong also rejected some part of the project. For example, they did not agree with the 100 days burning ban campaign. They organized a group of people who were anti the campaign, called the "Doi Yao-Pha Mon Farmer Network" to negotiate with the state. They attempted to negotiate with the state advocating that the campaign would negatively affect the soil quality and proposed an alternative time for the ban.

Before 2000, the Hmong's cultivation was based on annual cash crops even though they had tried to cultivate fruit trees with little success. In contrast, there was a constant demand for maize. However, the growing of maize was unsuitable for upland areas such as the Doi Yao – Pha Mon due to smog problems from the burning processes for soil preparation. For tourism and other reasons there was a move to control burning in the area. The paradox of upland management was that within the forest area, on the one hand some of the state agencies applying private property systems to manage the land whilst on the other hand other state agencies try to control their pattern of cultivation by apply conservation enclosure. Moreover, the Hmong preferred land reservation for close relatives rather than sharing access with people in the same clan. This situation contributed to new monoculture pattern of cultivation.

In 2002, the "*Khrongkan Jasroop Teedin*", or agricultural land formation, made land marks to divide agricultural land and forest land. The project was run by the Project of Development for National Frontier Unit, Land Administrative Office, and Ministry of Interior. It encouraged the Hmong cultivate long-term plantations. As mentioned in the previous section there was some conflict among villagers and the Forestry Department staff during the 1990s due to the cutting of timber for housing and encroaching on the forest land for agriculture. This gradually stimulated villagers to grow a long term cash crops. Land measurement and distribution was based on the marking out of boundaries, but did not include any land entitlement or documents. Although there were many ways access to land, people who had more opportunity to access land were mostly the pioneer group of Hmong who cultivated the land prior to the fighting in the cold war period. However, the land measurement and arriving of cash crops created more individually access to the land and the scheme no longer shared the agriculture land as common property among households in the village.

The land forming project under the Doi Yao – Pha Mon – Pha Ji Development Program for Frontier Security was to increase access to agricultural land of people, and prevent them from decreasing the forest area which was a result of pioneering new forest land. There were activities within the land formation project; land measurement and improve the landscape with the contour. The contour and a new measurement of land, on the one hand, encouraged villagers to cultivate in response to the state policies, however it also made difficult access for villagers who have no land for cultivation

because of its high price. Some villagers told me that "*We used to buy based on a plot of land, but we, now use "Rai" as a measurement of land."* Increasing prices of land has related to difficulty of land access, particularly the Hmong people who came later, even though, it has no any official land entitlement for land owner.

Access to land of the Hmong, before communist era, used "shifting cultivation" with unclear borders: people who had enough labour could cultivate. However, the land rights system had changed after the organization of then land system with inflexible borders. It could be transferred to next generation. Land rights, thus, mostly has been possessed by people who arrived as the first groups. The village, however, adopted other groups of Hmong people who came later, such as those who came with the closure of refugee camps and arrivals of people who lived along the borderland. It became difficult to possess agricultural land for household cultivation. Those who had difficulties to access to agricultural land had adopted "sharecropping" with the land owners under annual cash crops cultivations.

In later years, rubber emerged as a key feature in the village after the upland cultivation was seen as the major cause of the damaged forest, similar to late rubber expansion in other regions such as Isaan, or northern Thailand. The rubber plantations in Isaan begun in 1989 supported by the national loan from the Common wealth countries. The aim of the rubber promotion in Isaan was responding to the growing rubber market economy, although other explanations include the push for a green landscape. Rubber plantations became acceptable as a component of the green economy, successfully responding to green cultivation projects, called "Isaan Khew", - the greening of Northeastern Thailand which had been dry land before.

According to the villagers, rubber is a tool to show their participation in addressing environmental problems and reducing the smog problems that they have faced since settlement of the village.

2.4 Summary

Agricultural land use in the reserved forest is usually explained as the states' land. It explicitly excluded upland people who live in the forest area, even though they had lived in the area before it emerged out of a state power struggle.

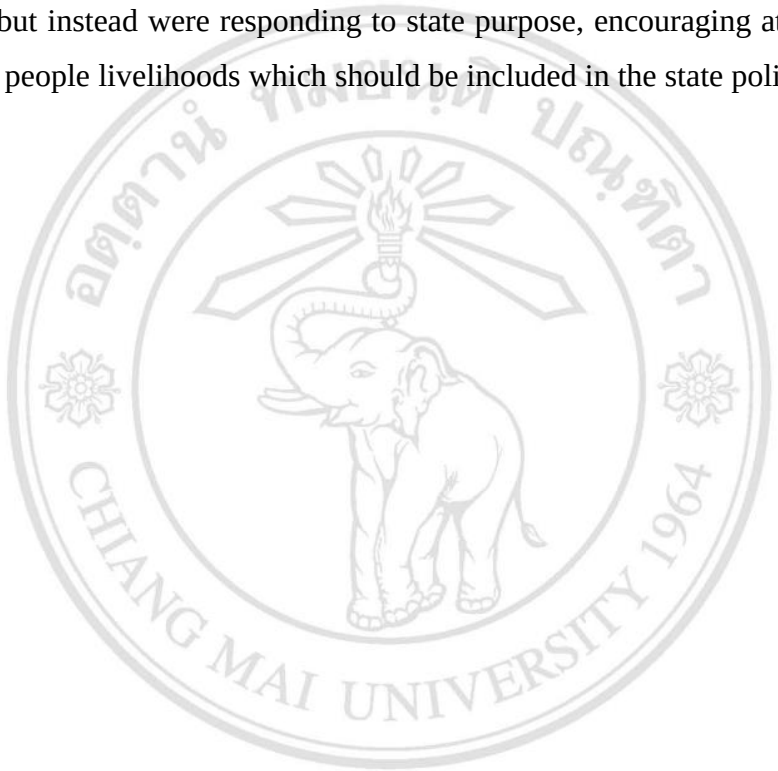
This chapter explored the historical contexts of upland agricultural change. The purpose of the chapter was to understand the situation changes in upland area at Ban Seng Meng, located in Doi Yao – Pha Mon Mountain, demonstrating that the Hmong agricultural economic activities responded to the national development of the Thai state. Seng Meng Village was developed in the forest area, after the Cold War period by the Hmong, with the permission of the state authority. The main reason for the village settlement was to support the reduction of tension in the Cold War conflict along the Thailand and Laos PDR borderlands. The village emerged with the purpose of enhancing national security in the boundary zone as well as for economic development in the area. The village, in the first few years, was a gathering Hmong people who lived or cultivated nearby the village. The army played an important role in village settlement for example, in the construction of infrastructure, allowing people to access to agricultural lands and to open up more land in the forest. They then, stopped allowing Hmong people pioneering for agricultural lands after the implementation of intensive conservation control by Department of Forestry.

There were different groups of Hmong that settled in the village as result of the refugee camp closing, and another group came afterwards, although they were not Thai citizens, who had been living along the border for thirty years to avoid conflict from the Cold War. The arrival of new groups of Hmong people affected agricultural land management since it was no longer possible to open up the forest because it was a conservation area.

Hmong cultivation responded to market demands after the Cold War. It has been stimulated by different state policies on upland development projects. The Hmong also tried to respond both to economic and conservation realities, although there were often contradictions in responding to both, for example, to fulfill economic growth they cultivated maize even though it had a negative impact on the environment. For conservation purpose, they determined a community forest in the village. Moreover, they also accepted the process of state research on no-burning agriculture activities to solve environmental problems.

The Hmong adoption to a new pattern of cultivation in Seng Meng village is an example of adaptation to multiple pressures in the “long cultivation and very long fallow” pattern of cultivation in upland areas. The Hmong have explained their different

pattern of cultivation as a strategic response to political, environmental and household economic security pressures. However, it does not mean that all of them have been successful in the responding on pressures. Many of them would have other pressures that they had not had equal access to resources in upland areas because some of them arrived the village in different times. This adaption, at the very least shows that the adoption of economic cash crops is also in response to the state's purposes which indicated that the Hmong were not antagonistic towards the state's, or victims of development, but instead were responding to state purpose, encouraging attention to be paid to upland people livelihoods which should be included in the state policy as well.



CHAPTER 3

Conservation Enclosure and the Rise of the Rubber Boom

After three decades, the conflict with the Communists finished, but there emerged tensions among the Hmong and the state over upland resources management which was monitored by the army. The army, moreover, took on different roles such as monitoring, ruling, meditating conflict among forest upland people and Forest Department and Hmong people. It indicated complex relationships around the Hmong's pattern of cultivation.

This chapter explores the concept of the upland through applying the relational space approach (Barney 2009). It portrays the upland context, which is considered as "empty space" from the state point of view, as a space to support economic growth policy. Even though, there had been cultivation by upland people cultivation for a long time, for many years their contributions did not count in the state's economy. Upland people, thus, had to change their pattern of cultivation to better fit into to the state policies. Moreover, the state also developed the upland by applying processes of "imagining" and "producing" in the state policy of pollution prevention such as forest fire control and smog problem.

The information in this chapter, is divided into four main parts; firstly, the making of a relational conservation upland with a focus on the state's expectation on the adoption of conservation policy in the upland area, alienating upland people from their land and their pattern of cultivation. Secondly, the overlap between the state power in conservation and the state security in the borderland is discussed, revealing some conditions of allowing upland people to cultivation in upland area. Thirdly, the adaption of rubber plantation in the process of imagining and producing to upland frontier conservation is analyzed and the role of rubber plantation as part of the conservation campaign, at exclusion of traditional patterns of cultivation is presented. Lastly, Rubber plantation would consider as conservation re-arrangement. Rubber plantation is implemented as a tool to control pollution in upland area.

3.1 The making of relational conservation upland

Since the 1950s, with the introduction of government policy to preserve 40% of forest area reservations, the state has applied different strategies to protect the forest areas, particularly, the making of forest zones, which includes upland area. As the Hmong cultivated with burning for land preparation, they were portrayed as pollution producers, even though they have traditional land cultivation land management such as zoning of lands in different parts; cultivation zone, forest zone, rotation zone, and manage of burning processes; fire control by wind direction, limit of dates for implement of burning. However, these Hmong practices were not seen by the state as valid processes of pollution management. This impacted on the Hmong's pattern of cultivation, even though Hmong tried to respond to the state conservation such as setting up community forests which became a symbol of upland forest management, it did not change the negative label of forest destroyer. The Hmong have been encouraged to change their cultivation patterns to fit with environment conservation, given that traditional cultivation is excluded from the state conservational pattern of cultivation. The situation demonstrated the roles of the state in response to environment management, and the different tools that have been applied to control upland people cultivation in the development era. Forest conservation policy was also intensively applied in the area. Therefore, the complex situation shows an overlap of upland management between forest protection policy and the state's border security policy which has allowed the Hmong cultivation in the area. To add to this complexity, upland people's pattern of cultivation has been a concern as an environment problem contributing to smog problem.

3.1.1 Enclosure through priority setting for forest boundaries as a conservation zone (1960-70s)

There are seven different categories of forest in Thailand.[1] The most important kinds of forests, which most affected people's activities, are the categories of "national

[1] The method of forest classification has been adopted from developed countries such as the United of America (Wiki pedia). Seven categories of forest consist of: (1) National park (*Utthayan haeng Chaat*) which emerged after enacted of the National Park Act 1961 (2504). It has to be in line with principle of universal national park such as cover at least 10 square kilometers of total areas as well as contain of attractive landscapes. (2) Reserved forest (*Paa Sa-nguan haeng Chaat*). There are some different main

parks" and "reserved forest": the purpose of these categorizations was to contribute to the national aim of 40% of land forest in whole country[2]. At the time of this research, there were 148 national parks and 1,221 reserved forests covering 171,585.65 square kilometers or 33.44% of land in Thailand[3].

Conservation policies on natural resources have been implemented in the Doi Yao – Pha Mon areas since the early 1970s. The Mae Ing Fang Kwau and Mae Ngao forest, which includes Ban Seng Meng, was enacted to reserved forest in 1972. It covers 537.21 square kilometers. The Num Ngao Fang Sai Forest was enacted in 1979 and covers 160.98 square kilometers (Forestry Department 2010: 31-32)[4]. The boundaries have been somewhat fluid. Some parts of the village are close to the edge of the Phu Chi Fa forest park, which was enacted in 1998 and also included some parts from the Mae Ing Fang Kwau Forest. Parts of the Num Ngao Fang Sai Forest were included in the Phu Sang National Park in 1999[5]. Since 2010, the state authorities who are responsible for forest protection in Phu Chi Fah Park, have tried to promote national parks. This has been of concern to villagers, who worried that their community forest would be included in the national park, and restrict their access to agricultural lands. This shift was not only happening in the Doi Yao – Doi Pha Mon areas but also in many forest areas in northern Thailand that have been rezoned as national park area under strict regulations.

The state was quick to realize that engaging local people to participate in conservation would make more forests more sustainable and this involved upland

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points between "national park" and "reserved forest" in Thailand forest law such as a reserved forest is allowed some part for agriculture, economic activities or housing for some people. Moreover, it can be withdrawn to private property with in "land law" after deciding to be "degraded forest" in its law status, but a national park is not allowed for people with advantage from any activities. (3) Forest park (*Wana-Utthayan haeng Chaat*). This category of forest refers to some attractive place in a reserved forest which is developed from the authorities to be traveling place. It is also similar to national park that is not allowed people to do any economic activities except for tourism. (4) Wildlife Sanctuary (*Khet Anurak Phun Sat -paa*) (5) Non-hunting area (*Khet Ham-la Sat Paa*) (6) Nature Education Center (*Soon Shuksa Thammachaat*) and (7) Arboretum (*Suan Rhuk Kha Chaat*). These categories of forest areas is established for special purposes of the government.

[2] Under Thailand forest policies, forest land is preserved within 40 % of land in the country. It has two main purposes with in forest land consist of; 1) 25% of land with forest is a conservation purpose for education and leisure of people, and 2) 15 % of land with forest is a forest for economic which includes forest for timber and other economic advantages. (Source: www.forest.go.th)

[3] The information at the end of 2008, Statistics Data of Forestry 2010: 25 (Thai)

[4] Forestry Department (2010) Statistics Data 2010. www. Forest.go.th

[5] Enacted in the Thai government gazette, Volume 117 Part 98A Page1 B.E. 2543 http://dl.parliament.go.th/handle/lirt/34444?show=full

people with the protection of forest trees. Thus, the state ran the community forest campaign which encouraged people to grow more forest trees to increase forest.

Community forest; in 1994, the villagers had struggled under forest conservation enclosure and set up a community forest area. They applied the concept of community forests, which are regulated and used by villagers, with expectations in response to forest conservation. However, over the last ten years, the forest control authorities have increased the intensity of forest control from "reserved forest" to "national park" to support their role of forest management.

> *Our office would move out because of restructuring of ministry structure. However, it'd be possible to continue running the campaign if the forest is changed its law status to be national park*"
>
> Forest Fire Control Division staff
> Interviewed on March 3, 2014

Villagers have experienced great concern about their livelihoods with the forest areas becoming a part of national forests, including their community forests and the effect that it has on the size and access to agricultural land. Villagers believed that they would not be allowed to cultivate the land, as well as use forest resources such as forest timber, or food materials.

Participating in the growing more forest trees campaign: Since 1992 the campaign of forest tree growing is implemented each year and is organized by forest and environmental state agencies such as Department of Forestry, the Watershed Management Unit, Office of National Park, Office of Forest Fire Control and other state agencies which play a role as co-partners. The orchid tree is an indigenous tree. The orchid tree is a symbol of the Phu Chi Fa zone, which is promoted in the tourism programme during the orchid tree festival (*Ngan Dok Siew Baan*), organized during the second week of January each year, inviting tourists to Phu Chi Fa after the New Year festival. The villagers are required to participate in this programme to grow the tree along the road and some part of their cultivation land.

We are nurturing orchid trees and other trees to spread out in villages for special days. We expect them taking care of trees but I also know that they don't take care much, that is why we have to promote them to grow them every year.

Forest Fire Control Division staff
Interview on February 3, 2014

Villagers have, however, critiqued the way that the state authorities manage the forest and involve the Hmong to engage with the growing forest trees campaign. As the village headman told me *"we have our community forest with more varieties of trees than the forest that is taken care by the state authorities. We never plant trees; we just let the forest develop naturally"*. This critique shows that villagers believe that the best way to increase the forest is just let it develop organically. It does not need any management.

Even though villagers have tried to accept the state's method of conservation in upland, there is sometimes conflict as the new strategies cannot always support their livelihoods. Thus, they just plant orchid trees but are not committed to it. These processes show the state agencies of forest did not recognize the multiple processes of cultivations contribute to the state conservation regime.

Understanding the upland as a relational space provides more alternative views on the changing relationships between stakeholders. In this perspective, upland is a dynamic space that is constituted by many actors, not only people who live in upland areas, but also other powerful actors who look for other benefits from the uplands.

According to one person interviewed, who was from the army, the Hmong patterns of cultivation were far more destructive than other ethnic minority cultivation practices.

According to my experience in different army units, and different mountain zones, I could say that the Hmong pattern of cultivation is the most destructive of forests when compared with other upland ethnic groups.

Colonel in the 31 Ranger Regiment Task Force,
Chiang Rai province army camp
Interview May 19, 2013

From the perspective of the state, upland landscape refers only to the trees and vegetation, but alternative forest management is neglected, especially the upland people's way of forest management. Moreover, the state authorities tried to quantify the forest rather than attempting to understand the multiple patterns of upland cultivation. There was a large degree of blame placed on the Hmong's cultivation, even when the Hmong tried to manage the forest in accordance with the state policies, such as separating the forest area and farm lands.

Barney (2009) explains about forest area in a frontier which is cultivated by local people, but managed by the state as "empty space". It refers to the place that is cultivated by ethnic group of people, but it is not recognized as economic productivity by the state. Compared to the case of the conservation in the Doi Yao – Pha Mon mountainous area the conservations run by the upland people has not been recognized as part of the state's conservation. The Doi Yao-Pha Mon mountainous area, is related to the state's counting of size and amount of "green trees" rather than trying to understand different of pattern of cultivation in mountainous area. The quantification of the forest land provided an opportunity for the adoption of green cover plantation which contributed to the forest protection campaign.

3.1.2 Enclosure as a means of controlling pollution (1990s till present)

Since the early 1990s, the state has monitored and tried to control pollution in the Doi Yao – Pha Mon area, at the same time as promoting tourism in the area. In 1991, the Phu Chi Fha, a high cliff in the Doi Yao – Pha Mon close to the village, was promoted as a place of natural beauty. It was believed that the area would attract many tourists, especially if forest fires and the smog problem were controlled.

The control of forest fires and the resulting smog problem and poor air quality has been a growing concern since the 1990s. Burning takes place in many areas in ASEAN countries and has become serious regional issue.

Although burning is part of traditional cultivation strategies it has resulted in the destruction of large parts of the forest over the last three decades. In northern Thailand, Achara (2012) found that forest fires have been a main problem for the state authorities' forest management since the era of forest concession for Western countries in 1950s, due to its effect on timber in the forest plantation. Moreover, the emergence of the

environmental conservation trend that took place during the 1980s, promoted by the Food and Agriculture Organization of the United Nations (FAO), the International Union for Conservation of Nature and Natural Resources (IUCN) and the World Wide Fund for Nature (WWF.) with the spotlight on burning as an enemy of the forest and wildlife.

Since 1980, after the cold war period, and during the development era, forest fires became the main cause of the transnational pollution problem in northern and southern ASEAN countries. Southern ASEAN countries such as Indonesia, Malaysia, Brunai, Singapore and Thailand were faced with seasonal smog problems. The same situation existed in some mountainous areas in mainland of Southeast Asia and Southern part of China. Due to these problems, there has been regional advocacy that has resulted in regional environment regulation.

In 1992, the state started to intensively survey the phenomenon of forest fires as well as adopting a new technology to monitor the annual fires.[6] Named HOTSPOT[7] the technology is a most effective means of fire control of upland people cultivation because it shows information not only in the upland, but also links to information in the online system. Thus, forest fires are controlled by different authorities, and this has resulted in difficulties in sustainable household livelihoods for the villagers. The HOTSPOT has been adopted together by other ASEAN countries to prevent, monitor, and mitigate haze pollution under the ASEAN agreement on trans-boundary pollution.

The arrival of HOTSPOT in Doi Yao – Pha Mon, has had a positive effect on reducing forest fires. However, it has led to a new problem of agriculture in upland area because this technology does not allow people to practice burning processes that are

[6] Development of technology on the state's forest fire control have change in three era consist; 1992 – 1998 by survey of fire statistic with air plane, 1999 – 2002 adoption of satellite map, 2003 – present adopting HOTSPOT. According to my interview to the local Forest Fire Control's staffs, they told me that the HOTSPOT immediately shows when it have an heat area, then we have to go to the point to control the fire in time. An importance of a more intensively forest fire control is reducing of damaged forest from fire each year. Al through, it have more amount of forest fire and damaged forest such as in 1998, 2004 and 2007, but in an overall is continuously reduce (Source: http://www.dnp.go.th/forestfire).

[7] Hotspots are defined as image pixels whose brightness temperatures exceed a pre-defined threshold value. The NOAA satellites carry a thermal detector that measures the average surface temperature of each square kilometre in a strip below the satellites. This temperature information is transmitted to a ground receiving station, and the computer's ground station will then view a thermal image of the area scanned by the satellites. All the sampled 1 km^2 areas with temperatures above the threshold value are selected. The location of each area is then plotted to produce a 'hotspot map'. 'False' fires contaminated by solar reflectance from clouds or water are eliminated. Some part of a definition of a Hotspots which issued by ASEAN (Source: www.haze.asean.org).

part of their traditional cultivation. The Hotpot is a computerized programme, that links with a satellite; it is capable of picking up any fire, however small, in a large area. The HOTSPOT is intensively applied during the "100 dangerous days" campaign: it has affected the pattern of cultivation of the upland area. As reported by upland people

> *We have to burn in land preparing process, otherwise seeds would not grow*.
>
> Mr. Thaweesak Yodmaneebanpot, 55,
> a Sub-district headman
> Interviewed on March 7, 2014

The duration of land preparation for upland cultivation is two months during January to March, prior to the rainy season. The state forest fire control authority runs a short training course for villagers to participate in forest fire protection. HOTSPOT technology is also demonstrated to the villagers. Thus, the workshops are not only to train villagers to participate in the programme, but are also a warning to villagers themselves to stop burning practices as part of their cultivation.

> *The state called us to attend the work-shop of fire control organized by the local fire control division.*
>
> Mr. Visuth Banpotwanarak, 67
> , Former Village headman
> Interviewed on March 7, 2014

The application of the new technology for forest fire control has affected the pattern of cultivation in upland area. Maize, upland rice, and other annual cash crops, which necessitate the clearing of the land by burning processes for land preparation, are banned and villagers are required to cultivate plants that do not need land preparation that is dependent on burning. Villagers did not surrender to the no-burning campaign, but they have adapted their cultivation to make smaller fires, and make a fire buffer zone before the date of burning.

We need to burn in the process of land preparation before rainy season. The seeds will not grow if we do not apply burning process. However, we are trying to reduce burning process. It had been a big burning, in the past, without our control, but not now. Right now, there are many of rubber plantation surround our farm, so we have to save it from fire.

Mr. Thaweesak Yodmaneebanpot
, Sub-district headman
Interviewed on February 2, 2014

According to the villagers interviewed, they have shown their efforts in responding to the state policy on conservation regimes, even though the policy has added pressures to their upland cultivation. Since the end of communist fighting, upland Doi Yao – Pha Mon has been intensively monitored by the state authorities. I would argue that "empty space" could be applied to upland pattern of cultivation to control the means of production of upland people. Slash-and-burn process became unwanted practices in upland because of the high levels of smoke resulting in smog and poor air quality. The state authorities introduced a new pattern of cultivation that did not require burning and as a result the non-burning became a new way of enclosure of upland cultivation.

Since 1991, the government announced the village as a place of natural beauty and historical and cultural significance, especially to attract tourists (Urai 2015). Smog pollution was one of the main causes of tourists not visiting the area (Bussaba et al 2006). The plan to reduce the smog problem was implemented by different local organizations include the local administrative office. Thus, a new pattern of cultivation introduced by the state authorities impacted negatively on household security in the upland area as it paid more attention to the state benefits on the environmental as well as the tourism programme.

Cultivation in upland was explained as "degraded forest", which needed to be protected and restored with support from upland people. The state considered that villagers' management was not sufficient to increase the forest areas. Thus, the state

tried to find different ways to encourage people to contribute to forest restoration with the state mechanisms and programs. Forest fire control pattern is also regulated by the state. Since the mid of 1990s, the Hmong have faced growing attempts to control air pollution making. The traditional fire control on land preparation in upland area is not recognized as forest fire protection, but deforestation. The Hmong cultivation practices are not accepted as conservation support, even when they include traditional patterns of cultivation that are mindful of and implemented as pollution management.

The Doi Pha Mon Highland Agricultural Extension Center found that upland villagers adapted to economic cash crops from the time they were allowed to cultivate in the area after the end of the Communist era. The Hmong had expanded a large size of land for maize and cabbage cultivation, which supported their household economy. Because of cash crops land expansion, the staff of the Highland Agricultural Extension Office was cautioned by the army, which had taken responsibility as the coordinating organization, to promote green cover plants, solve the deforestation problem and become a green zone in upland area. The green cover campaign became an enclosure of other patterns of cultivations that particularly excluded traditional cultivation.

The situation shows the state monitored upland areas and upland patterns of cultivation participation of upland people. The pattern of conservation was applied to monitor upland people's "means of production" together with monitoring the "forest area". Living in upland areas, the Hmong asserted that burning processes for annual cash crops cultivation was needed in order to increase the soil nutrients and get rid of plant diseases and some insects in the soil. Since the state has run the campaign of non-burning for cultivation, the Hmong have had to consider adopting perennial crops. The Hmong get difficult to follow traditional pattern of cultivate with burning process because burning is limited.

3.2 Conservation and overlap with "the state security"

The state purpose of protecting forest land in upland areas was not easy to achieve given that the forest land was critical in borderland security, during the fighting among the state and the Communist Party in the Cold War period in the Doi Yao – Pha Mon mountainous area. The area became a buffer zone from the Communists fighting on the borders. Development programs were introduced into the upland areas with

purpose of preventing upland people to return to the Communist party. Access to agricultural land was given to the Hmong pioneers who moved to the village in the first few years after the end of the war. Thus, they were an integral part of the state's dual purpose for, and monitoring of the area, playing a role in the security issues and the designation of the forest as a conservation zone. Urai (2015: 58) found that the Hmong who lived on the borderland interfaced with development projects that employed the state's discourse on the prevention of terrorism, drug trafficking, and forest destroyer.

The 3rd Army Area, responsible for northern Thailand, took on the main role in the border security against attacks from the Communists, and set up a unit close to the village. Between 1980 and 1982 the Hmong leaders, who had been members of the Communist Party, surrendered to the government in the area. The government, then, announced an official cease fire. However, the army still played a role in monitoring in the area to prevent the return of the Communists. This monitoring role ended in 1994, and the responsibility returned to the Administrative Department, Ministry of Interior. Since 1990 the army unit in the village had adopted a role of community development contributing to the government policy on the National Economic and Social Development Plan No.6th (1987 – 1991). Thus, after the introduction of the 6th plan the role of the army unit in the borderland was changed to focus on the community and economic concerns.

Research for this thesis clearly demonstrated that the army still has an important role in the borderland, evolving from border protection during the Communist conflict, to promoting the community economy, and solving land conflict issues between other local state authorities and upland people. During the late 1980s the village was announced as a "Voluntary Development and Self-Defense Village"[8]. This also involved input by the Royal family and the Queen introduced a development project, adopted by the army to support community economic development by encouraging the production of ethnic specific items, such Hmong cross stitch embroider as well as focusing on education development activities.

8 The campaign of Voluntary Development and Self-Defense Village was first established in 1978 in the border between Thailand – Cambodia. The main purpose is preventing from invasion of the Communist which probably come to Thailand pass through neighboring countries. The army and the border patrol police play important roles in supporting to the village. The villagers will get support from the government in different empowerment villager capacities such as economic, culture, psychological support, technologies and environment to prepare for borderland protection. There are 27 villages in Thoeng district, Chiang Rai province. The Seng Meng village (Rath Pakdee and Pracha Pakdee) also a part of these group of village up until now.

In 1992, the Doi Pha Mon Highland Agricultural Extension Center was set up, and monitored by the army. The role of the Centre was to promote a new pattern of agriculture in the highland areas (land that higher than 1,000 meters from sea level). Some new types of plants were introduced in the area such as coffee, plums, and other fruit trees which were seen as more environmentally friendly. In 1990s there were other the state conservation authorities established as local offices in the area, which were also monitored by the army such as the Watershed Management Unit, Office of Forest Fire Control Division and the Forest Park Office. A key function of the state authorities was to get the upland people to participate in forest conservation, and the same time as ensuring they were able to contribute to the household economy.

The Hmong's traditional cultivation in upland area of a "long fallow and very long cultivation" pattern was viewed as a low productivity and an ineffective pattern of cultivation. In contrast, farmers in the area were expected to adapt to the "market" and to adopt annual cash crops which responded to the national economy rather than local livelihood securities. These include maize plantations as well as cabbage, green beans, and ginger that stimulated the market and were needed each year.

Seng Meng (Rath Pak Dee and Pra Cha Pak Dee) village is one village in Tabtao sub-district. There are 25 villages in the district, including 8 wet land villages and 17 upland villages. In seasonal production of 2012-13, the village is the top village of the sub-district which grows three kinds of plants consisting; maize, rubber plantation, and longan.

Table 3.1: Planting patterns in Seng Meng Village 2012-13

Plants	Amount of land use in the village (Rai)	Total land use for cultivation in the district (Rai)	Percentage of land use for cultivation in the district (per cent)
Maize	3,624	6,250	57.99
Rubber	1,634	5,590	29.26
Longan	139	5,280	2.63
Total	5,397	-	-

Source: Office of Agricultural, Thoeng district

According to the table above, the Seng Meng village became a commercial cash crops area, growing maize, longan fruit, and rubber plantation which resulted in the village being the top producer of commercial crops at a sub district level.

Other upland villages in the district also adopted such plants as their local economy, as the uplands were targeted areas for agricultural products and trading in the commercialized crops era. For this reason, it is a contradiction to call the upland "low productivity areas", in contrast they became attractive zones for local traders to invest in as agriculture areas responding to growing markets (Phutipong 2013).

Since 1982, the end of the fighting during the cold-war period in the Doi Yao – Pha Mon area, the Hmong's cultivation had been affected by upland and state's security frontier policy. There were two main eras of cultivation that were changed by the policy implementation in the upland areas;

The End of Opium and the Rise of Maize plantation; During the period 1960 – 1980 opium cultivation was categorized as a risk to national frontier security as the product was always found in the border areas with neighboring countries. Opium was referred to as a product of the enemy during the Cold War period. It was banned for both growth and use in Thailand. Even though it was not directly included in the effects of conservation enclosure, it was the first type of plant that the state had tried to control in people's cultivation patterns in upland areas.

> *The cultivation of Opium used to be allowed on the mountaims. In the past, some of our village member also used to move to another mountain to cultivate. They stopped after the government had enacted the law controlling of opium in Thailand.*
>
> Mr. Visuth Banpotwanarak, 67,
> Former village headman
> Interviewed on, February 2, 2014

The opium eradication campaign in Thailand was supported by international organizations; specifically, in the Doi Yao – Pha Mon area, by the Japanese embassy through the United Nation project (Renard, 2001). Many opium eradication campaigns

had been run in the upland areas promoting opium replacement. Such programmes arrived at the same time as the expansion of local roads to the reserved forest. As a result of the campaign, the village had been given permission from the army to cultivate maize as well as other cash crops to supplement the income from Opium. It was also believed that changes in cultivation patterns would reduce the conflict situation along the border by adopting market mechanisms.

Maize and other annual cash crops became a main cause of environmental problems; after 1992 the Thai government accepted the United Nations agenda in Rio. The government tried to control the expansion of Swidden cultivation in the upland area. Doi Yao-Pha Mon were also included in this campaign, thus, maize plantation and other annual cash crop cultivation such as cabbage, ginger and so on were discouraged by the army in this area. Seasonal cash crops such as maize, cabbage ginger and upland rice which were planted more than ten months a year were identified as a cause of environmental problems

> *I was under pressure to find other kinds of crops for villagers to replace maize and cabbage which covered over the mountain".*
>
> Office of Upland Agricultural Promoting Center staff
> Interviewed on, February 2, 2014

Appling of long term plantation; since 1992 long term trees such as plums had been introduced in the area by the upland agricultural promoting center: furthermore, longan, lychee and mango had been introduced by a local market broker. However, many villagers were skeptical at first because of concerns about the products and the unknown fruit market. It was only a few village leaders who were initially interested in the introduction of fruit trees. The first batch of crops had been sold to the market after six years with an acceptable price. This led some villagers to follow suit grow more fruit trees such as lychee and longan trees. Prasit (2011: 34-43) showed that fruit trees, particularly lychee had arrived in the upland are during the state project on opium eradication to replace opium cultivation. However, fruit trees, such lychee, were not without controversy – and required changes in management due to the need for

chemical fertilizers, pesticides, and new technologies, as well as a lawnmower, and a vehicle to carry fruit products. Moreover, the villagers who were lychee farmers were also faced with taxation when the state authority set up turnpike tolls, asking the Hmong who carried agricultural products to pay. However, the Hmong in upland negotiated that they would officially pay if they were provided with land titles or other official documents.

A result of the intensive monitoring by the state, was the implementation of different mechanisms in conservation campaigns such as settling of forest boundaries, addressing the smog problem and setting of unused forest. These process and mechanisms made the Hmong as upland people to experience living in a "squeeze" situation (Li 2012: 198-200). Even though the Hmong cultivated in the economic zone of reserved forest, the upland economy could not guarantee household security.

Since the state intensively adopted the conservation campaign in the 1990s, it affected the Hmong cultivation due to the exclusion of upland people from upland resource management. Hmong traditional patterns of cultivation were considered as unproductive and not contributing to conservation and environment concerns. The slash-and-burn patterns of cultivation became "empty" – that is not contributing to conservation in the state's ideals. I would argue that the way the state attempted to exclude the Hmong traditional patterns of cultivation was allowing different of the state conservation mechanisms to monitor and regulate the upland cultivation. The villagers were encouraged to accept different means of conservations from different the local state authorities.

3.3 Rubber plantation with "imagining" and "producing" conservation

The rapid expansion of rubber plantation in Thailand mirrored the growing of the world rubber market economy. However, it is difficult to simply explain that the Hmong rubber plantation adoption was an effect from a growing rubber market and rubber price. Focusing on the effect of mainstream economic dimensions does not clearly show the conflict situation in upland areas and resource management. In reality, the Hmong were faced with different pressures in maintaining traditional patterns of cultivation since the arrival of the development project which encouraged them to leave traditional pattern of cultivation. Moreover, the state authorities played an important role in encouraging the Hmong to adopt new patterns to support the state's concerns, for

example national productivity and economy, as well as participating in forest and environment conservation.

This section will highlight the processes of enclosure through slash-and-burn cultivation exclusion, and imagine to other ways of cultivation the state economy, which is considered as a tool in response to green cultivation. Moreover, a new way of cultivation is promoted as environment friendly in different ways by the state. This process, thus, could be considered as "producing conservation". It is possible to focus through rubber plantation as a new pattern in the imagining and producing to conservation enclosure in upland area.

3.3.1 Rubber plantation as the state's "imagining" to "green"

According to the Hmong's pattern of cultivation in upland areas, they continued to cultivate using the slash-and-burn pattern of cultivation. The slash-and-burn pattern of cultivation was identified as a major cause of smog problem polluting not only the burning area, but also drifting to a much wider area; such methods are obviously not part of a "green economy".

Kustadter et al (1978)[9] highlighted multiple pattern of cultivation for upland livelihoods, which depended upon different kind of plants. The commercialization of crops was an important factor in changing the pattern of cultivation in upland areas (Cramb et al 2009). Studies of upland transformation mostly portray the effect of the state's development mechanism after the 2nd World War but it had also emerged from the conflict over resource management among the state and ethnic minorities groups due to unproductive cultivation which did not contribute to the national economic growth, nor reduce poverty, as well as the effect to the environment, especially the damaging of the forest.

Before 1982, villagers in the Seng Meng village had cultivated in the pattern of "the long cultivation and very long fallow", which involved leaving free land during the fallow. However, they changed the pattern of cultivation during the cold war period.

[9] Even through, the Hmong practice slash-and-burn pattern of cultivation. In fact, there are many patterns of cultivation in uplands such as 1) short cultivation – short fallow 2) short cultivation – long fallow 3) long cultivation – very long fallow, or abandonment 4) permanent field tree crops (Kunstadter, 1978:10). However, it does not mean that all groups of ethnic people applying the same pattern of cultivation (Fox et all (2009:309), Ziegler et al (2010:846)).

Seasonal cash crops plantation needed the burning process to prepare the land for cultivation. The local agriculture product traders were allowed to buy the Hmong's products, was mainly maize, after access to the village was made easier with the road construction project. Emergence of the "burning problem" in 1992, led to an increase in the number of "degraded forests" and resulted in the establishment of the Forest Fire Control Division at Phu Chi Fa office. There was growing cultivation for the maize market during that time to support national production.

We grew maize mostly for feeding our animals, but after the arrival of lowland traders we mostly sold it to them.

Mr. Visuth Banpotwanarak, 67,
former village headman
Interviewed on, February 2, 2014

From this point, the upland cultivation was changed through cooperate between state agencies and market mechanisms including local traders with non-contract relationships. Burning became a consequence of these relations. However, the arrival of the Forest Fire Control Division, and the acceptance of the international development program showed the state's effort to controlling forest fires and the degraded forest. The green economy had been introduced at this time with fruit trees plantation. However, it was difficult to adopt fruit trees for upland areas because of instability, including productivity levels affected by plant diseases, insects, and unpredictable weather conditions that damage fruit trees, and the unstable prices of the product. Farmers, thus, did not pay attention to their fruit trees.

I would not replace the same fruit trees again after its damaged, just leave it. I will cut down and change that zone of land for seasonal cash crops.

Mr. Somchai Sae-Yang, 37,
Village's representative of
the Tambon Administrative Office, and rubber farmer
Interviewed on, February 2, 2014

Since 1997, the burning ban (burning control) campaign has been intensively implemented in Doi Yao – Pha Mon Mountain after the announcement by the governor from the provincial office of the "100 dangerous days" campaign to reduce the smog problem and assist the damaged forest area. The campaign ran for one hundred days (in 2014 from 27th January – 30th April), to coincide with the duration of upland people's agricultural land preparation, which meant that they illegally continued their burning and preparing processes, so they could plant before the rainy season. There were two main reasons to implement the burning process, to control agricultural pests such as insect and weeds, and to increase natural fertilizer. However, the Hmong tried to compromise with the Forest Fire Control staffs by limiting the number of burning days per week. In the same year, the Hmong set up the Doi Yao – Pha Mon Farmers Network[10] to find different way of resolving the cultivating pressure. Swidden cultivation in upland area has been recognized as slash-and-burn in a negative light, but upland people themselves tried to explain that it is a part of rotate cultivation which supports their household economy.

Doi Yao – Pha Mon mountain had been labeled "*Phu Khao Hua Loan*", removal mountain which is damaged forest because upland farmers cultivating intensively seasonal cash crops for more than 3 decades. The adoption of the rubber plantation was explained as supporting a "green landscape" against the degraded forest. It has been recognized by the state agencies that play a role as forest regulators in the area. However, the rubber boom has increased long fallow cultivation in order to reduce the burning process.

Since the establishment of the Forest Fire Control station in Doi Yao – Pha Mon in 1999, the staff have created different ways to control the fire such as growing forest trees, educating upland people about forest fire control and setting up controls to ensure

[10] The Doi Yao – Pha Mon agricultural Farmer Network was founded in 2005 by Hmong 14 Hmong leaders from 14 villages in the area. Mr. Taweesak Yodmaneebunpot, who is the *Kamnan* or Sub-district headman, was the secretary of the network (during research conduct period in 2014 - 2015). Mr. Taweesak played a role as land rights policy advocator. He works both in local and national levels with his consultant Mr. Daeng, who was experienced in Chinese acupunctural medicine in China duringthe Communist period. The network has 7 objectives; follow up land rights in upland area, sustainability of upland land use, maintain community forest, implementation local economy, revive and develop attractive places and historical places, maintain Hmong traditional culture and develop the network. According to the objectives, they have tried to survey forest and agricultural land with 1:4000 scale map instead of 1:25000 (which was an unclear map resulting in conflict between upland people who close to forest areas which control by the Forest Department). Moreover, the network also creates a GIS data in the Hmong villages. They cooperate with other people and NGOs network to promote officially community land settlement.

of non-fire areas. However, the fire and smog problem in the area persists. The state found that engaging upland people to become involved with forest fire control should be coupled with allowing the cultivation of long term plants in farm lands. This strategy meant that the Hmong took care of their trees, but also in controlling fires before the area widened each year.

> *Rubber also impacts on villagers involve in saving the forest, I think. I do agree if they decide to grow more rubber plantation.*
>
> Forest Fire Control Division staff,
> Interviewed on Interviewed on March 5, 2014

It was obvious that the state authorities were also advantaged by the Hmong's adoption of rubber plantation through a reduction of the smog problem as well as by the contribution to a green landscape.

> *We were encouraged by the army that we should advise more suitable plants for upland farmers. Now, we found that rubber plantation could be acceptable plant for green area, and farmers also benefit.*
>
> Office of upland agricultural promotion center staff,
> Interviewed on August 16, 2014

Rubber cultivation was a key part of upland development land use, and was applied to identify agricultural land and forest land. In the 1990s the state authority tried to identify clearly between forest land and agricultural land to prevent encroachment on the forest from farmers planting seasonal cash crops. Rubber plantations supported the Hmong living in the area.

> *Rubber plantation would help the Hmong getting more income. They would not sell their land as before.*
>
> Upland land management staff,
> Interviewed on March 25, 2014

It was clear that there was a thought through strategy on the part of the state authorities to adapt to the rubber boom. Hmong who cultivated rubber supported the vision of the state and were part of the objective. This adopting of rubber by the Hmong and the facilitation of that by the state demonstrated a relationship in flux that was conflictual but that was beginning to balance out. It is evident in the case of rubber boom in upland area, that the Hmong's response to rubber cultivation was based on the state different organs objectives that in turn implicitly supported the legitimacy of the Hmong's cultivation in forest area.

The rubber boom became a part of enclosure of traditional cultivation for those who did not have enough money to invest. The land for traditional cultivation, which needed to employ slash and burn methods, was reduced with the expansion of rubber plantations. One of the villager's interviewed, Mr. Somchai, who decided to change his crop to rubber cultivation, said that he had to change because other farms surrounding his farm became rubber plantation. If he kept to traditional cultivation with burning, it would damage the rubber tree of neighboring farms. Rubber plantation, in this sense, became an enclose practice of cultivation.

Thus, changing one pattern of cultivation had a knock on effect and shows the complex relationship between the state and the Hmong in upland area. The Hmong's cultivation was not only linked to market and livelihood responses, but also contributed to state policies on conservation. The Hmong are not only uplanders, but they are also expected to be farmers and contribute to conservation.

3.3.2 Rubber plantation as a "producing" of conservation

Rubber cultivation had first taken a role in contributing to the environment in the "*Khrongkaan Isan Khiao*", Green Isan project[11], which was managed and organized by the army in the period of General Chavalit Yongchaiyudh, a Commander-in-Chief. The aim of the project had been to change drought-hit areas to an irrigable area in the northeast of Thailand. Irrigation systems had been set up to support agricultural

11 first launched on July 4, 1987. Isaan region referred to north eastern Thailand. The project took an important role in innovated of irrigation system as well as cultivating land improvement in Northeastern of Thailand during 1987 – 1990. Rubber plantation was also introduced in this period with the project of expansion of rubber plantation. It became included in the Green Isaan project.

transition, which was in turn expected to solve poverty and deforestation. Rubber and eucalyptus plantation were positioned as part of the green project, and were introduced by local people. This highlights economic sanction by the army through policies of solving poverty in rural areas as well as implementing the land use revolution policy. The vision of the project was producing food for the world. Ravivan illustrated the expansion of army power to include an economic dimension (Ravivan 1989: 106-7).

It is important to note that the *Isarn Khiao* project was taking place in the same period as the expansion of rubber plantation project which was run by the Rubber Authority of Thailand. It was expected to contribute to the growing rubber boom and provide Thailand with a market share of the world rubber economy. The Thai government had taken substantial loans from the World Bank (US$251.3 million) and the Commonwealth Development Corporation (CDC) (GBP 28.4 million) during 1977 to 1990. The rubber plantation was expected to expand into five million Rai of land. The quota of rubber plantation, in the first campaign, had go to farmers who possessed their own land or possessed the land with land entitlement. However, in late 1980s, the government expanded the campaign to other groups of farmers who possessed different type of land titles in the campaign of "Expanding rubber plantation to New Farms".[12]

Farmers who were interested in adopting rubber needed to own their land, which was not more than 15 Rai. Beginning in 1989, the government expanded the criteria for eligible rubber farmers, to include other kind of land possession. This began the rubber plantation expansion in northern Thailand during the 1990s. As mentioned above, rubber came to Doi Yao – Pha Mon mountainous area in 1991 through a pilot farm, with the aim of reducing of deforestation (Parinya 2001: 61).

The smog problem had been a major problem between the Seng Meng villagers and the army since the mid-1990s. This was heightened particularly before the rainy season when villagers prepared for new crop cultivation and carried out their slash-and-

[12] In the website of the Thai Rubber Authority show information that the government shows that the Thai government took on loan from the World Bank, and the Commonwealth Development Corporation (CDC) for rubber plantation expanding project during 1977 – 1990 in three times with the purpose of 5 million Rail of rubber plantation. It mostly was planted in the southern and eastern of Thailand. The government succeeded in rubber production with 115 KG./Rai of land. It could be say that it becomes to a suitable varieties of rubber tree in Thailand environment condition. The government, thus, had continued the expansion of rubber plantation project with a suitable variety of rubber tree to the northern region in the project of "Isarn Khiao" officially on July 20, 1989. The army cooperated with the Thai Rubber Authority to promote the program to the northeastern region in 156,250 Rai of rubber plantation in five years (1989 - 1993). Source: http://www.rubber.co.th/ewt_news.php?nid=1558

burn practices. This was in comparison with other villages that adopted perennial crops such as fruit trees, as well as rubber plantation in the Rak Paen Din village, who did not need to burn in order to ensure the viability of their long-term plants. The arrival of the Forest Fire Control Division at Phu Chi Fa office increased the pressure on the villagers to address the environment concerns, especially since all households had mostly annual crash crops with slash-and-burn practices for land preparation. Given that traditional patterns of cultivation could not contribute positively to forest fires and smog control in upland area, it became imperative for the Hmong to consider perennial crops to solve these pressures and to ensure some household economic benefits. This was a compromising way to balance conservation pressure and economic gain and led to rubber plantations becoming a part of upland cultivation.

3.4 Conservation re-arrangement: the state's strategy with rubber boom

For three decades the implementation of the state's tools for conservation, such as forest expanding by growing of forest trees, and stop-burning policy could not be adopted by upland farmers in the village because of condition of burning in upland cultivation. The smog problem was due to the intensive production of seasonal cash crops, maize cultivation in particular, which was needed to produce enough products to support market demand. The situation led to the Hmong continuing to cultivate using burning processes without a satisfactory solution from the state. Different tools of the state's conservation were not a solution for farmers. There were a number of studies recommending that the state needed participation from community to achieve sustainable conservation. Strategies suggested included community empowerment both socio-economic and decision making on forest conservation (Brown 2000). Rubber cultivation was seen as different from the state's other tools for conservation to prevent the smog problem. Hmong upland farmers "selected" rubber plantation in part to contribute to burning control in upland cultivation with the aim to change their image as smog producer. The state agencies, which had offices in the village, also agreed with reducing of preventing from forest fire - the main cause of the smog problem in the upland area.

Rubber plantations bring green landscape to upland cultivation areas because rubber trees are perennial, and as such it arrived without opposition from the state

officers in the area. Rubber adoption, in this sense, related to the reduction of forest fire in the area because farmers didn't allow fire close to rubber trees, and it was harmonizing with the state agency aims to control forest fire and smog problem. Therefore, rubber becomes a new cash crop under "conservation re-arrangement" of the state because of its benefit to forest fires which were a cause of pollution concerns.

Rubber as a community strategic crop; rubber was adopted by the community through their own decision making. The Doi Yao – Pha Mon Farmer Network agreed that rubber would be a choice for household cultivation after facing conservation pressures, especially forest fire and smog problem, exacerbated by with modern technologies monitoring traditional pattern of cultivation such as control by satellite HOTSPOT. Rubber became a replacement cash crop contributing to the state's pollution control. Through rubber plantations, the state could allow community to monitor upland fires from agriculture activities among themselves. Some agriculture lands were surrounded by rubber plantations, and the owner was required to prevent damaging rubber trees in neighboring farms by preparing fire buffer zone. The situation showed the community strategy to the prevention of forest fires, which contributed to the state's expectation to stop burning in mountainous areas.

Secondly, the remaining role of upland control by the state; the army supported farmer adopting rubber cultivation instead of maize cultivation. Reducing the number of fires as well as smog is index for achieving the aim of organization. Since the emergence of upland rubber plantation, it also reduced the role of the state agencies in the area. However, the army, and the Forest Fire Control have become trainers in forest fire prevention. They trained villagers to stop burning, and coaching on safe burning through small fires and preventing of fire expansion.

In short, the situation shows that the arrival of rubber plantations was in part in response to conservation pressure management. Rubber plantation was adopted as community crops, considered by the community, especially, 14 Hmong leaders from 14 villages, known as the Farmer Network, who influenced the decision making of others. Thus, rubber plantations also benefited the state offices, that rubber plantation could contribute to their aim of reducing of fire. It has become "rearrangement conservation control".

3.5 Summary

Rubber cultivation is a critical tool in conservation pressure between upland people and the state agencies under control of army. The tension was evident for three decades because of the Hmong pattern of cultivation in slash-and-burn.

This chapter has examined upland changes in last three decades, from the end of the war between the Thai army and the Communist army in the Cold War period to the conservation and commercialized of cash crops. The relational approach was included to explore the situation in the upland area to consider the Hmong's pattern of cultivation change and at the same time understand the implications of the state policies on upland issue.

Since the end of the war in 1982, conservation became a more pressing issue with different strategies to address the challenges being employed. These included establishing different categories of forest, encouraging upland people to engage with forest expansion and allowing upland people to cultivate in the forest area. Forest conservation was complex and required flexibility in upland management.

However, the adoption of a relational space approach indicated the importance of the social relationships - with the state authorities as powerful actors and the Hmong as an ethnic minority who lived in mountainous areas. The state authorities took on a role to manage upland area with a conservation bias, but allowed the cultivation of rubber, an alien species, that could not be consumed or used directly in household livelihood, instead of traditional cultivation that people ensured the production of food or useful products. This tactic demonstrated the link between conservation and its implicit support for growing market mechanisms (Barney 2009).

The Hmong's upland rubber plantation adoption was not guaranteed success because of historical politics in the area under the monitoring of the army. The conflict over land use in the reserved forest was ongoing. The returning forest campaign clearly showed the role of army in the area in monitoring upland people's cultivation patterns. Even at the end of cold war the influence of the army was still intensive.

In time, the army changed its role from fighting to promoting upland economy. Upland villages were classified into different types to link with development policies and this allowed villagers to use agricultural land in different ways. The market-driven mechanism also brought changes to the villages such as the use of chemical products and relying on seeds form outside the area. The army has encouraged upland people to

adopt other means of production to solve the problem of environment and smog. But, this strategy led to the implicit enclosure the Hmong to get rid of traditional cultivation for household use and processing their agricultural products.

The arrival of a new plant made upland people rely on the plantation system, while the slash-and-burn mean of production, as well as long fallow and very long cultivation system also could not be recognized as acceptable pattern of cultivation for government, as they were directly seen to destroy the forest.

These phenomena reflect an effort on the part of the state to consider the Hmong's means of production as an aspect of "empty space on conservation". The state enclosure through the process of "imagining" the Hmong's slash-and-burn pattern of cultivation was a forest destroyer, and producing rubber plantation as a green cultivation instead of slash-and-burn.

CHAPTER 4

The Impact of Rubber Plantation in the Transformation of Upland Economy

The number of rubber plantations increased rapidly during 2003 – 2010 in response to a growing global and national market. Focusing on rubber plantation in upland cultivation did not mean that small-scale farmers could decide for themselves household cultivation change. In fact, there were different actors involved: such a hypothesis omits other main actors including the forest authorities, army, development agencies, all of whom, have played an important role in the development and growth of upland areas over the last three decades. Social relationships between these players and the Hmong have played a crucial role. Chapter 3 highlighted the various pressures that faced the Hmong including issues around the forest and land for cultivation as well as household economic security for those living in the forest area. This chapter will examine in greater detail how different groups of Hmong have adopted to rubber plantations in response to different challenges living in the upland area. The different case studies show that Hmong rubber farmers have tried to improve under the control of the state that had power over resource management. Moreover, rubber cultivation could ask for support from family member that allow them access to finance as well as management of other kinds of family production.

The chapter will be divided into three main parts; firstly, I will show the diversity of rubber plantations amongst groups of Hmong which are differentiated by their economic position and will analyze different levels of access of upland means of production. Secondly, the chapter will explain how these different groups of Hmong adopted rubber in response to challenges in upland cultivation. Thirdly, the chapter will discuss the challenges of rubber plantations through the different responses in upland land use.

4.1 Differentiation groups of Hmong in rubber plantation

The Hmong's rubber adoption was in many cases due to the complex issues surrounding household capacities and being faced with a growing household economic insecurity. It was important that to address the household security that the household should have a financial plan, land and labour as well as identifying other sources of income to address their economic security before deciding to adopt rubber plantation.

The different size of land devoted to rubber plantations in each household showed the household capacity to access a new pattern of cultivation; this can be categorized into households with different land size and different ways of accessing the benefits of rubber cultivation. This section highlights the different groups of Hmong who adopted rubber cultivation and the social relationships among those different groups in upland areas.

4.1.1 Land, income, household labour: means of rubber production

Access to sufficient land, household income and labour are basic resources needed for households to engage in rubber cultivation. This research uncovered the different ways of access to land, income and labour amongst the Hmong, underscoring the diverse social relationships among different groups of people. How the Hmong adopted rubber plantation and cultivation depended on the access to the combination of factors that are listed above.

Access to land in upland area of the Hmong, was "semi-private" in that each household would demonstrate where their plot of cultivation land was, demarcating its borders. Even though the agriculture area is zoned as reserved forest, each household has private agriculture land without land title. However, other households could access such land when allowed by the land owner with sharecropping payment for the owner. There are two ways households accessed land; pioneer claim or the state allocation.

Firstly, pioneer of land; 70 percent of households in the village accessed agriculture land by pioneer claims until early-1980s. The army also allowed the Hmong to possess agriculture land supporting the policy of "self-defense villages" that is to prevent the return of the Communist movement. Each household accessed land in this period dependent on the capacity of household cultivation. Thus, households mostly,

possessed a large plot of land. 25% of Hmong household arrived in the village during 1992 – 93 after closing of the refugee camp in Leoi province in 1991. Some of them who could not move to the USA, moved into the village. They needed land for cultivation, and employed different ways of access including getting married to members of other households who had land, asking relatives for land or cash to buy land and dividing some plots of land to cultivate in different seasons, or buying the land from relatives or other household who had excess land. Changes of land possession were amongst households in the village, not outside investors. They exchanged a plot of land without dividing it into any scales of measurement such Rai, a Thailand measurement system. Land was sold to relatives at a cheaper rate. The other 5 percent of households moved to the village since 2003. Mostly, they lived along the border between Thailand and Laos PDR., then move to the village. They, thus, have no Thai citizen card, which relates to no rights to leave the area nor to possess the land for cultivation. They became wage labour in the village.

Secondly, the allocated land; there are thirty households which have accessed allocated land in the campaign of Voluntary Development and Self-Defense Village. The households which have registered since the end of the Communist fighting period were eligible to access this type of land. The land which was allocated is higher than the village, close to the Phu Chi Fa high cliff. It was mostly devoted for seasonal cash crops such as maize and cabbage, but not rubber plantation. Some parts of land were allowed zoned as residential and some parts were improved to be a small resort supporting tourism opportunities. Therefore, the group pioneer households, which possess large sizes of lands, have more opportunity to designate land usage including land for rubber cultivation.

Rubber cultivation was adopted in households that had sufficient land for household consumption, and the cultivation of household seasonal cash crops for circulating finance in the households. Some households managed land through cultivation investments, which not only included seasonal crops but also longer term crops with the hope of greater benefit and returns.

It is important to understand that although rubber plantation can be lucrative, there is an estimated eight years waiting period until it is possible to start the tapping process: this meant that the land would not be viable to cultivate annual cash crops

beginning from the 4th year of rubber trees and that there is no income from the rubber plantation until the tapping commences. It is thus necessary for households to have access to other income generating activities or to receive some financial support from others. According to the field data collection, the study found that the Hmong who adopt rubber plantation had different income sources. Table 4.1 categorizes three levels of income high, middle and low income and divides the farmers interviewed into one of the groups.

Table 4.1: Different levels of income of the Hmong households

Level of Income	Ratio of income/ year [1] (THB)	Income Average (THB)	Number of households	Percentage
High income	More than 160,000	224,113	26	32.50
Middle income	80,001 – 160,000	98,363	38	47.50
Low income	35,000 – 80,000	57,359	16	20.00
Total			**80**	**100**

Source: Field survey, 2014

Overall, the household income of the Hmong who adopted rubber plantations was close to THB 10,000 a month, demonstrating the need for reserved financial capital for those who plan to adopt rubber plantation. There is a smaller number of households that survived on less than THB 80,000 per annum.

Considering the sources of household incomes, table 4.2, shows that all households rely on income from farming. The high income households demonstrated more opportunities to increase economic household security by means other than farming. There is a high percentage of income from wage earning labour in all the income groups given that in 2014 many of the household did not cultivate themselves in the summer season. This enabled household members from the various households to travel to find permanent jobs mostly in the industrial zones such as in Ayuthaya,

[1] These income are calculated by estimation from a number of household investment and productivity per land size in each household.

Rayong, and Lampun province. A few households allowed its members working as a rubber tapper in the southern of Thailand. Some household labourers remained however to work in the village and ensure land preparation before cultivating in the rainy season.

Table 4.2: Income sources in household in the Seng Meng village in 2014

Level of income	Sources of income (percent of 80 households)					
	On farm		Off-farm			
	cultivation	Small-scale Livestock* (chickens, pigs)	Official staff	Small retailer	Wage labour**	Others ***
High (26)	26	38.46 % (10)	11.53 % (3)	26.92 % (7)	69.23 % (18)	100 %
Middle (38)	38	31.57 % (12)	5.26 % (2)	26.31 % (10)	76.31 % (29)	100 %
Low (16)	16	37.5 % (6)	0	12.50 % (2)	100 % (16)	100 %
Total (80)	**80**	**(28)**	**(5)**	**(19)**	**78.75 (63)**	

Remarks: * This small livestock is for sale. ** It is included working as rubber tapper in the Southern of Thailand ***Different kinds of household income such as embroider which is a women's work. The products mostly are summited to the Queen Development project. Moreover, there are some forest products such as collecting grass to make a brooms.

Source: Field survey, 2014

According to my observations during the field work and the interviews, villagers in the low income group and some of the middle income group mostly selected to work as a labour for wages in the village. They attempted to find employment in the area, for example to work as a daily worker with the rich households assisting with land preparation, or to work with the local state authority such as a Forest Fire Control Division in the local office to control forest fires in the area for THB 200 a day. However, the latter category of work was only available during the 100-day campaign which is a no-burning period. Such employment is not stable nor does it lead to a permanent job. The low income group was reluctant to work away from home as they

have commitments to work on their farms as well, in order to prepare their own land for cultivation.

Household income from upland cultivation mainly came from a variety of plants including maize, cabbage, ginger and rubber. Most households also cultivated upland rice, but this was kept mainly for household consumption. Table 4.3 shows land possession of the different household groups in the village and their crop selection.

Table 4.3: Different groups of households' land possession and selection of crops in 2014

Land access (Rai)	Total of Households		Rubber Plantation		Upland Rice		Maize		Cabbage		Ginger	
	Amount of Households	%	Amount of Household	%	Amount of Household	%	Amount of Household	%	Amount of Household	%	Amount of Household	%
≥ 50 *	53	12.78	35	66.03	53	100	53	100	10	18.86	3	5.66
31 – 49 *	55	13.25	27	33.75	55	100	48	87.27	6	10.90	2	3.63
16 – 30 **	83	20.00	18	22.50	83	100	73	87.95	7	8.43	8	9.63
1-15 ***	199	47.95	-	-	199	100	190	95.48	17	8.45	3	1.50
Landless ****	25	6.02	-	-	25	100	20	80.00	-	-	-	-
Total	415	100	80	19.27	415	100	384	92.52	40	9.63	16	3.85

Remark: 1) Some households have many plots of land. They could divide different plots of land for different varieties of plants. 2) There are many of households cultivate with using relatives' land. Seasonal cash crops are cultivated in two – three times a year. Each household needs to leave the land for its recover.

Sources: *,** = field survey, 2014; *,**,*** = Surveyed by the National of Agricultural Farmer Council, 2014; **** = Village's Health Care Volunteer Interviewing survey, 2014

The table shows different land use in each group of households, which are divided in different size of lands. There are 5 groups in the table consisting of very large land size - more than 50 Rai, a large land size group who possess 31 – 49 Rai, medium land size 16 – 30 Rai, a small land size 1- 15 Rai, and landless group. The table is classified from information of 415 households in the village. The information shows that there are 3 groups of household that access at least 16 Rai of lands for rubber cultivation. Maize and upland rice are major crops in the village. Cabbage and ginger are adopted in small number of households because it has limit time of fresh product which fast transportation is needed. Thus only some land close to the road is selected to

cultivate these kinds of seasonal plants. Moreover, both cabbage and ginger needs intensive investment with water, pesticide more than other plants. So, there are not many households that selected these crops as the main household cash crop.

Rubber plantation farmers are households which have agricultural land more than 16 Rai (2.42 ha). It can be seen that villagers who adopted rubber plantation were possessing cultivation land of more than 16 Rai. Although there were 191 households who had more than 16 Rai only 80 households (19.27%) adopted rubber as their upland cultivation. Rubber plantation farmers also devoted the land for other seasonal cash corps, especially upland rice for household consumption, and maize for selling to market. Land holding, in this case, showed decision making on cultivation patterns in upland area. Rice and maize are staple crops that were cultivated by most households for their own consumption. For that, households which possess land lower than 15 Rai till landless household would cultivate only seasonal cash crops as well as secure household economy with wage labour in weed clearing services, chemical fertilizer feeding, pesticide spraying, for example.

Household incomes also impact on decision making to adopt rubber plantations. The table 4.4 shows how household incomes, land possession, and rubber plantation adoption are related. Households which possess large plots of lands would take the opportunity to adopt rubber plantation more than other. However, they do not decide to devote the whole of lands for rubber plantation, leave some plots of lands for other seasonal cash crops.

Table 4.4: Comparison between household income and land management for rubber plantation

Level of incomes (households)	Land access (Rai)	Land access in average (Rai)	Rubber plantation (Rai)	Amount of household
High income (26)	> 50 (1480)	57	> 30	7
			11 – 30	16
			< 10	3
Middle income (38)	31 – 49 (1380)	36.3	> 10	20
			6 – 10	12
			< 5	6
Low income (16)	16 - 30 (300)	18.75	> 3	8
			< 3	8
Total 80 (households out of 415 households)	**3160**			**80**

Remarks: 1) The table information is gained from 80 rubber plantation adopter household out of 415 households in the village 2) There are complex situation of land access because some households could access the land by cultivate in relatives' land in some seasons.

Source: Field survey, 2014

Table 4.4 shows that the size of the rubber plantation is also related to household income and land possession. It was noted that none of households devoted all their land to rubber cultivation. The low income group in general, devoted only a small portion of land. Overall, households cultivated between 11 – 30 Rai for rubber in 36 households included in the middle and high income groups. There are between 800 – 2500 rubber trees[2] in each household's rubber plantation. Comparing household income and land possession, the data shows that rubber plantation is adopted in relation to higher income and greater land access.

[2] The villagers planted 80 rubber trees per Rai on average. They cultivated with the principle of 6 x 3 meters between the rows of rubber trees. However, some of rich households designed to grow rubber as 7 x 4 meters. resulting in 70 – 75 trees per Rai. The way that farmers grow rubber trees with farther pattern, it would get bigger trees than closer pattern. The more the big tree, rubber tapper could divide tapping sign in 3 parts, not only 2 parts as a small rubber tree. The rubber farmer have knowledge that each part will spend 7 years tap. If they have 3 part they would tap in 21 years.

According to the amount of rubber adoption, there were more opportunities for the higher income households to adopt rubber plantation more than amongst the other two groups. The village area is 5,397 Rai, of which 1, 634 Rai - 30.27 percent of land is devoted for rubber plantation, from 80 households.

In term of household labour force, the high income households, which possess a large size of lands, spent low number of on-farm labour than the middle income group of households. But the high income has highest number of labour in off-farm labour as well as non-worker in their household. I would analyse as high income households leave some parts of land for other household cultivate, then get benefit as sharecopping pattern. They also get support from off-farm household labours who mostly work out of the village, as information in the table 4.5.

Table 4.5: Land possession in upland area in different groups of households

Income	Number of households*	Land Access / Rai (Average)	Number of household member /person (Average)		
			On farm labour	Off-farm labour	Non-worker (dependency)
High	26	57	3.75	2.18	5.5
Middle	38	36.5	4.87	1.15	5.35
Low	16	18.75	3.28	0.72	3.04
Total	**80**	**39.5**	**4.125**	**1.23**	**4.66**

Remarks: * The table information is gained from 80 rubber plantation adopter household

Source: Field survey, 2014

Table 4.5 shows that high income households have less on-farm labour than the middle income group, but have greater land to cultivate. However, high income households have off-farm labour more than another group. They also supported their families through remittances the low income group have more on-farm labour than other groups and less off-farm labour. The high income household share mitigated their livelihood risks by supporting the younger generation to access higher education enabling some of the younger generation to seek employment in the cities rather than

returning home to work on the farm. This impacted on higher usage of off-farm labour than other groups.

Higher income households have greater land but less labor, impacting on their choice of rubber cultivation to optimize their land and relying on relatives or lower income households to cultivate annual cash crops in some seasons. They allow landless people cultivate in their land, then get sharing products. The landless group, then, have no enough land for cultivation. Moreover, they are not allowed to travel out of the village zone because of unofficial citizenship. Thus, they have to find some lands for cultivation. The middle income households may also have a large rubber plantation, and may also ask their relatives in different villages to use their land for cultivation of seasonal cash crops such as upland rice and maize if they do not have enough land to cultivate seasonal cash crops in the village. The data demonstrates that the household labor arrangement was a critical part of the decision making process for the Hmong in the adoption of rubber plantations. (See Chapter 5 for a more detailed analysis of the Hmong's adoption of rubber plantation through the use of different capital including income, land and labor). The case of Seng Meng village showed that access to income and land is implied in the adoption of rubber plantations, coupled with access to labor.

4.1.2 Relationships with other groups

The adoption of rubber plantation by the Hmong in forest aresa highlights the relationships amongst rubber farmers and other groups of people coupled with the different means of investment and labour employment in rubber plantation. (See Table 4.5) The high income group had more opportunities to access resources than the other groups and hence was the first group in the village to make the decision to adopt rubber as a new pattern of cultivation. In different groups of Hmong who adopted rubber plantation, there are diverse actors involved in the plantation each having a unique role and relationship (Sayamon 2007).

I classified the groups of people as the high income group of Hmong, middle, poor, and landless group and analyzed the different relationships (See Table 4.5).

Table 4.6: Different social relationships amongst different groups of Hmong rubber farmers and other

Classes	Land	Finance	Labour	Sale of product
High income (A)	- Own a large size of land and rubber plantation - Allow C and D to cultivate in some seasons in some pots of land as well as in-between rows of young rubber trees	- Saving by productivity of other crops - Remittance from off-farm household labour - supporting from the local administrative office as an occupational supporting campaign.	-household labour - employ more from C and D pay as crop sharing	Sell to the rubber factory by oneself
Middle income (B)	- Mostly own a medium size of land and rubber plantation - Allow C and D to cultivate annual cash crops in-between the row of rubber trees - Use relative's land to in another village to cultivate a large size of maize cultivation	- Invest by saving money - Lend some money from "Kong Tun Ngern Laan", the village fund . - ask for support from the relative in abroad	- Using household labour - hire C and D as a daily wage labour	- Sell to the rubber factory by oneself
Low (C)	- Own small size of land - divide a small plot of land for	- divide some money from the benefit of annual cash crop to cultivate rubber	- Using household labour - hire D as a	- Sell to the rubber by oneself factory

Table 4.6 (Continued)

Classes	Land	Finance	Labour	Sale of product
Low (C)	rubber plantation - Ask A and B to use the land for cultivate annual cash crop	- Lend some money from "Kong Tun Ngern Laan", the village fund .	wage labour in the annual cash crops cultivation and harvest processes	
Poor (D)	- Ask A and B to use the land for cultivate annual cash crop	- Lend some money from "Kong Tun Ngern Laan", the village fund .	- Work in A, B and C farm as a wage labour	-

Source: Field survey, 2014

The table 4.6 demonstrates that the high income group manages the agricultural land with limited household labour to work on the slope land. Thus, they usually manage the situation through creating opportunities for the poor and landless people by allowing and engaging them to cultivate the land or some time work in the rubber plantation. Moreover, the rich and middle income groups, who began to cultivate rubber plantation from 2003, the first year of rubber plantation in the village, also have a connection with the "Farmer Network", which is a part of the Hmong leadership network in the area. It was set with the main purpose of seeking solutions in the land use conflict between the Hmong and the local state authority on forest control generally, and fire control specifically. Employing"strength in numbers strategy", the villagers who had more land were able to exert more bargaining power for upland agriculture control. The relationship between the rich, the Farmer Network, and the state authority enabled the Hmong to for negotiate for "green cultivation" in upland area.

In short, the groups of people who adopted rubber were considered as people who had enough capital to invest. However, despite expecting to achieve household economic security through the adoption of the rubber plantation they were faced with complex relationships that were sometimes conflictual. Rubber plantation, in this sense,

can be viewed as a response to different pressures by diverse groups of Hmong, as well as a response to ensure economic security as a goal. Not all farmers used the strategy, but instead demonstrated various responses to the different pressures.

4.2 From "*Doi Hua Lon*" to green economic zone: rubber plantation and reducing of pressures

"Doi Hua Lon" is a metaphor for deforestation in mountainous area: "Doi" which means mountain and "Hua Lon" which is similar to baldness describing a mountainous area that has been cleared for upland agriculture. The term was coined and used in general among non-upland people to identify the trends in upland cultivation in the three decades from 1982 after the end of the Communist conflict along the border. Slash-and-burn became the main mechanism to clear forest for agriculture resulting in the deforestation of Doi Hua Lon. Thus, the rubber plantation was adopted as a means of contributing to the green cover due to its woody understory regeneration (Yos and Aranya 2013). The green zone was adopted to improve the landscape but still have an economical purpose and become "green economy".

4.2.1 Reducing of the smog problem: rubber plantation with the role of green landscape

The adoption of rubber plantations as a forest fire buffer zone was the Hmong's strategic approach to the environmental issue through their long term plantation. It explicitly impacted on the reduction of forest fires in the area as demonstrated by the collected over time. The local state authorities realized reducing forest fires needed changes in the cultivation patterns of upland people.

The Hmong adapted their practices to the different state policies on upland control. There are two main policies which clearly govern upland people; forest conservation and upland development projects. The policies seemed to contradict each other because of how land use was described in the policies. Upland land, on the one hand, was reserved for forest, but in the same time it was encouraged to produce upland products in response to national economic growth. The Hmong tried to balance these purposes in different ways such as setting up of community forests, participation in growing forest trees, the cultivation of fruit trees and so on. These efforts could not

completely achieve what they set out to do because they did not balance contributing to conservation policies with household economic security. However, the reduction of smog occurred with the forest fire buffer zones around the rubber plantation every year. Moreover, the army also supported the upland landscape change for agriculture by setting up contour zones supporting upland agriculture.

Since the emergence of increasing forest fires and the pressure of smog in last two decades, the Hmong have sought different ways to compromise their burning process such as fruit tree cultivations, rubber cultivation. Rubber cultivation became a new long term cash crops which was adopted, in part, to support conservation issue.

Rubber farmers consistently make a buffer zone around their rubber farms through the clearing of grass in order to prevent fire damaging their rubber trees, at the same time preventing large forest fires. Burning small areas does not elicit much pressure from state authorities such the forest control division.

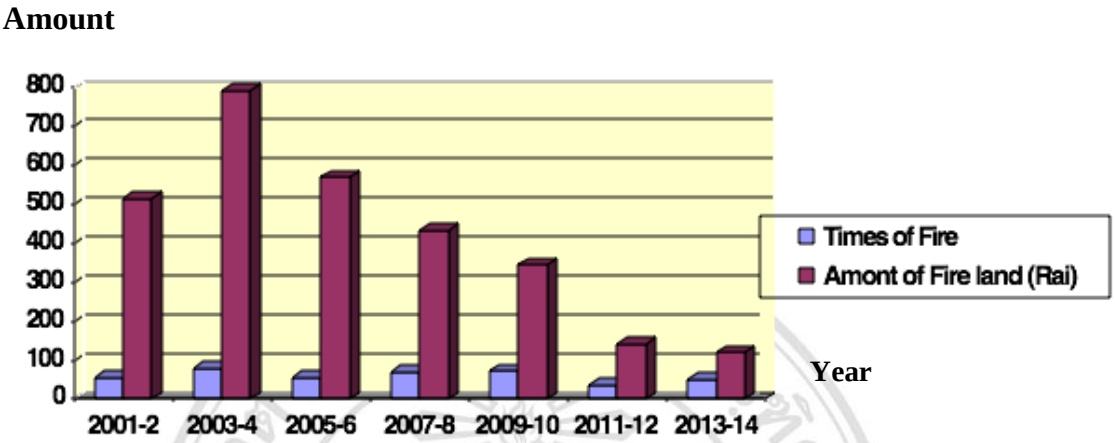
Farmers, whose land is surrounded by rubber plantation, want to burn for their land preparation for cultivation, they need to realize the potential damages of such practices to rubber trees.

> *It is totally different in the pattern of clearing land then and now. We burned without any controlling of fire in the past, but it couldn't now. There are people cultivating especially rubber plantations that operate under the rule of fines if anyone damages rubber trees.*
>
> Mr. Taweesak Yodmaneebanpot, 58
> Kamnan, the head of sub district,
> Interview February 20, 2014

Mr. Taweesak highlights the pattern of land clearing for cultivation and its impact on supporting the state role in forest fire control. It's necessary for rubber plantation owners to do a fire buffer zone every year to prevent losing rubber from fire damage. They make a line within 3 – 5 meters' width around their rubber farm by clearing grass.

Forest fire has significantly decreased after the arrival of the rubber boom in the area through the forest fire buffer zones. It has contributed more and more to the office

of Forest Fire Control division campaign each year. The emergence of rubber plantation in the village in 1,634 Rai of land contributes to reducing forest fire in the area.



Source: The Forest Fire Control Division, the Phu Chi Fa station office, 2014

Figure 4.1: Statistic of Forest Fire in the Forest Fire Control Division at Phu Chi Fa station in 2001 – 2014[3]

Figure 4.1 shows that forest fires increased in 2003-2004. Prior to the arrival of rubber plantations there were 792 Rai of forest land was damaged. During an interview one officer said that the high statistics were due to maize cultivation because that time there was only 10 famers who adopted rubber. However, the forest fire has been significantly reduced each year in tandem with the growing number of rubber farms.

During one of my field trips to the area, a workshop on reducing the smog problem in upland cultivation was organized by the Pollution Control Department, Ministry of Natural Resources and Environment. The organizers invited agriculture scholars from Chiang Mai University and Meajo University to run the workshop. Scholars suggested villagers adopt no-burn process in their cultivation such as no-burning maize cultivation with Napier grass (Elephant grass or Ugandan grass) cultivation for cattle. However, they did not explain about rubber plantation as a part of no-burn cultivation. I asked the village headman about why scholars did not suggest rubber as a new crop response to reducing forest fires and the smog problem. He said

[3] There are 187,500 Rai of forest lands are under controlled of the Forest Fire Forest Control at the Phu Chi Fah office.

that even though rubber was no-burn cultivation, the area its self is reserved forest, and the national rubber organization is not allowed to grow in forest zones, otherwise, it would create a conflict among the state agencies. His response is related to *Sor Kor Yor*, the Office of Rubber Replanting Aid Funds (ORRAF) officers' explanation that they are not allowed to officially support villagers' cultivation of rubber in the forest area. However, they also recognize the situation in the Seng Meng Village that villagers are interested in cultivation rubber. The staff, thus, supports them unofficially by teaching them how to cultivate, nurture, fertilize, and harvest. The office also supports staff to give advice on any processes of rubber production, depending on villager requirement. This shows the rubber plantation dilemma in upland area.

It is evident that the reduction of forest fires in the Doi Yoa – Pha Mon mountainous area has taken place at the same period of time as the arrival of rubber plantations. However, it does not mean that maize, upland rice, and other annual cash crops have been dramatically abandoned from household cultivation, as these crops are still a part of household cultivation.

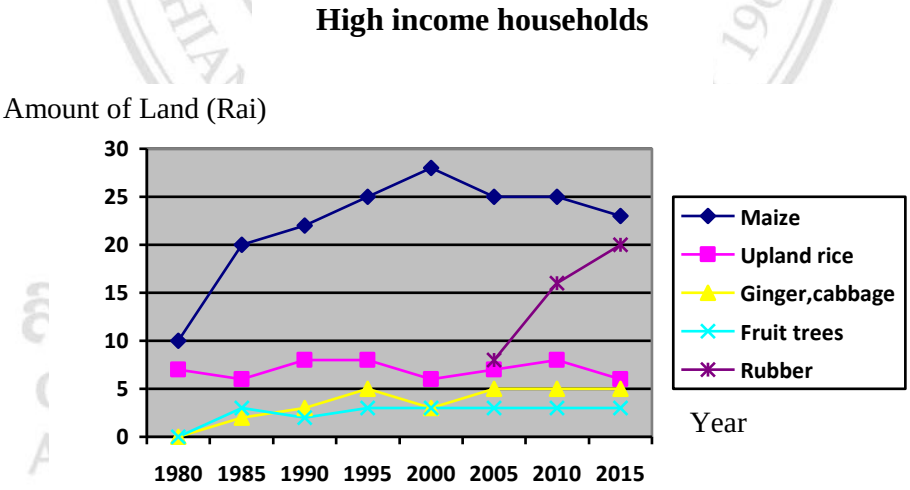
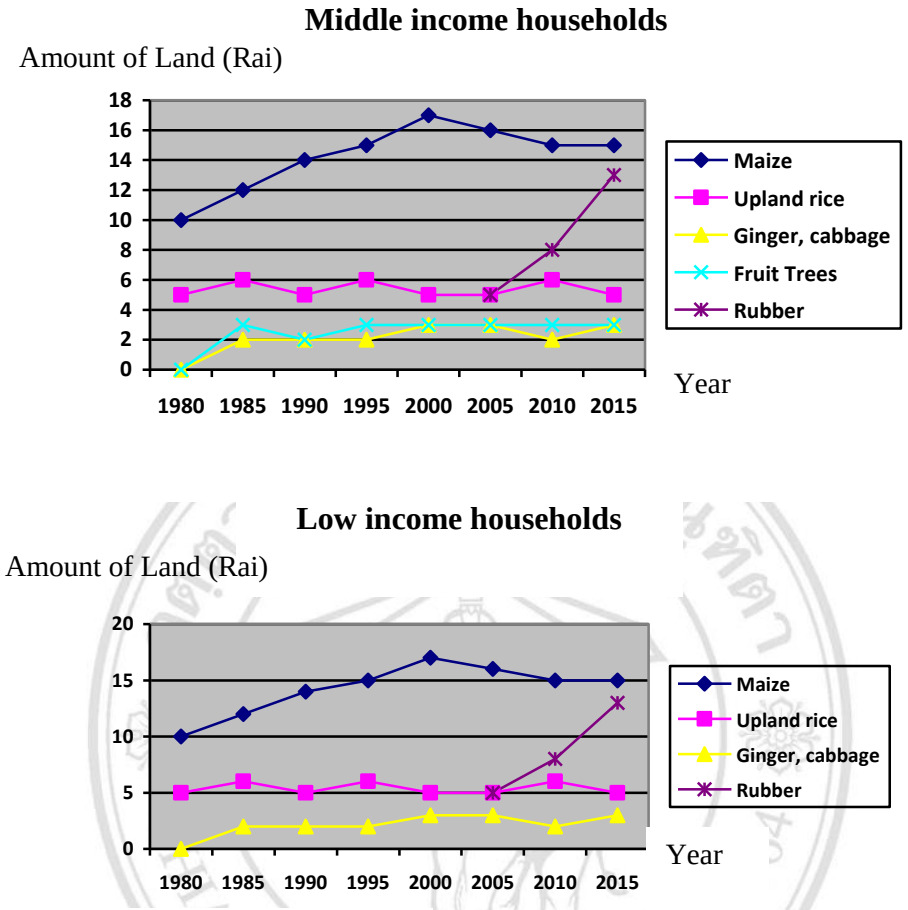


Figure 4.2: land devotion for different kinds of plant in different group of Households,



Source: field survey, 2014

Figure 4.2: land devotion for different kinds of plant in different group of Households, (continued)

According to the figure above, that rapidly growth of rubber plantation land use relates to reduce of forest fire in the area. In the case of high income household, rubber plantation was growing up from 8 Rai per household, in average, in 2003, to 16 Rai per household in 2006 – 2010, and up to 20 Rai per household in 2011 – 2015. While annual cash crops such as maize plantation was very tiny. Most of the high income group of households devotes more than 20 Rai of land for maize plantation since 1985. It was higher than 25 Rai of land per household during 1995 – 2010 before become lower since 2011. It shows that rubber plantation does not make much effect to other upland pattern of cultivation. They would combine different kinds of cash crops or in

the same land for cultivation. The situation is similar to the middle income and poor group of household that maize cultivation has still been the main household cultivation.

In fact, in the case of high income households had adopted fruit trees such as longan and lychee farm since early 1990s. However, these fruit trees were not productive enough to secure household economy as well as facing with low price in some productive year. They looked for other cash crops cultivate instead. Rubber trees were cultivated between the rows of fruit trees. Moreover, rubber was also cultivated in the same place with maize plantation during the first three years. Thus, it did not impact much on the amount of land use for maize plantation.

Middle and low income household also adopted rubber plantation with maize plantation. However, as with the high income group of households, they cultivated together with maize till the third or fourth year of rubber tree. This group also asked to use land for maize cultivation from their relatives, even those who lived in other villages. As they had enough labour in the household, thus, this group was able to invest more in maize cultivation at least once a year.

The situation shows that villagers try to adapt a new cash crop to relieve the tension of forest fires and the smog problem as well as facing with the state authorities on the forest and forest fire authorities by limit of forest fire zone in the area as well as protect fire to rubber trees. Rubber plantation shows attempt of the Hmong on agriculture management to prevent effect from forest fire. It is different from cultivate in mono-annual-cropping, which need to burn before cultivate a new crop. However, they would keep those annual cash crops in the same time.

4.2.2 Reduction of pressure on financial support in agriculture investment

Rubber plantation became a new area of development and a strategic tool which attracted interest from different players with financial means to invest in a long term plantation. Many actors took this opportunity to show their contribution to the state development projects. The emergence of rubber plantations, during the 2000s, was made possible through various means of financial support and investment mechanisms to enable farmers to adopt rubber cultivation. The nature of rubber cultivation necessitated money to invest in rubber growing, but also the provision of resources to

enable the household survival during the 7 – 8 years needed for the rubber trees to mature to a point that rubber tapping is viable.

An analysis of the rubber industry, demonstrates the important social relationships among the diverse actors who actively support cultivation. There are four main financial sources evident in the village that highlights the different social relationships.

A. support for occupational development: there are two main sources of financial support which do not require the return of funds: these fall into the category of career development plans supported by the Tambon (Sub district) Administrative Office (TAO), and career promoting fund supported by World Vision (a global NGO who are active in the area). These financial support mechanisms use similar methods in dispersing funds in village rubber plantation. They created the "rubber seedling share" campaign with the rubber farmers. Rubber farmers could pay a half price for rubber seeds, and rubber farmers who were involved in the project shared another half. The project was initiated by World Vision in the early years (2003-2005) through engagement with its upland career development programme. The TAO, then, continued the campaign as part of the village career development plan each year. The TAO could engage in village plan on the basis of proposals submitted by the village outlining career developments. The proposals were developed democratically and the villages were also expected to vote on the proposals. The TAO supported budgets to run the development plan based on the village plan. The support for rubber plantations became the priority of the plan in 2006 – 2008 of the village career development.

B. Credit; The village credit funds and the Bank for Agriculture and Agricultural Co-operatives (BAAC) are the two official credit organizations. The village credit fund was set up in 2004 as a policy requirement of government. The Village Credit Fund, known as "*Khong Tun Ngern Lan*" loaned THB one million to each village. The villager access to village loan was between THB 10,000 – 40,000 per households. The villager used this financial credit to plant annual cash crops during the waiting time for rubber tapping. The BAAC was the first official banking credit in the village. The bank served the forest area. Access to credit was potentially difficult without having collateral, such as land ownership as surety. However, the BAAO create an alternate strategy by allowing villagers to set up as groups, with at least 10

participants per career group, to pool their collective savings. A bank loan with two guarantors was then approved

C. Government subsidies during the Communist era; In 2009, during the high demand for rubber plantations in the village and other areas in Northern Thailand, financial support was offered to the former Communist members. This was known as "*Phu Raum Pattana Chat Thai*" and THB 225,000 was provided after extensive advocacy from the former Communist members. 14 former Communist members were granted the subsidy although almost all of the 14 already had enough land for cultivation as well as some having rubber farms. Many of them saved the subsidy whilst others expanded their rubber plantation. One informant said that he would not need to diversify and cultivate maize if he had 3,000 rubber trees (about 40 Rai of land). Therefore, he intended to use the subsidy to invest more in rubber plantation.

D. **Relatives support;** There were a few households who received financial support from their relatives who live abroad, namely those who had migrated during the Communist era to another country. Some households in the village had relatives living in Wisconsin, the USA and had been supported in land buying and rubber investment. Mr. Tong explained to me that his older sister moved to the USA. He had also wanted to migrate in 1994 but as he was the last son his parents did not want him due to his responsibility to take care of his father and mother. However, his sister supported him and sent some money to buy new land given that they could not pioneer the forest. They paid THB 1,000 Bath for a plot of land, but he was unclear as to the size of the land at that point. The sister continued to send money 3 times a year. In 2003, Mr. Tong decided to plan rubber with his sister's support in 40 Rai of lands. In 2 years. I met his sister during my field trip in April 2014, as she came to visit her mother and other relatives both in Thailand and Laos. She told me that Tong had informed her about the growing rubber market situation and that it was a good opportunity to invest for a long term plantation; one-time investment that could harvest up to twenty years.

Rubber plantations were viewed as a mechanism to improve household security. Financial support opportunities, at this time were not however confined to rubber plantation. The purpose of some financial support was to improve the quality of upland life more generally.

The framing of rubber was as a means of state development. It is difficult for upland rubber farmers to achieve rubber production without supports from different ways such as the state, the local government, financial providers, as well as relatives.

4.2.3 Reduction of pressure from unemployment: rubber plantation and a job opportunity

According to Anan (1989) there are different patterns of labour arrangements in rural areas, which point to the commercialization of cash crops production, such as sharecropping, and wage labour. These different kinds of labour arrangements were evident in Seng Meng village. The Hmong were seen as unskilled labour through their limited experience of only working on agricultural farms in the village. The arrival of rubber plantation, however, provided opportunities to gain more skills such as rubber tapping and enabled them to access jobs on other rubber farms. Increased skills enabled them to be more selective in their work choices and to earn more.

Working in rubber cultivation needed both skilled labour and unskilled labour at different stages of the process. In general work such as rubber growing, clearing grass, fertilizing did not require skilled labour. However, for rubber tapping required skilled labour with skilled and experienced workers.

Clearly tapping requires more skill than general labour, as it needs practice and skills in not damaging the rubber tree. Mr Lao Jia said that before he became an expert rubber tapper he had to undergo training in Tanto district, Yala province for ten years.

> *The rubber owner allowed me to practice with the old rubber trees, when I practiced to tap rubber in the first time. They know that it would not produce much product but they made sure that their rubber trees were not damaged by a beginner rubber tapper.*
>
> Mr. Lao Jia Sae-Yang, 57,
> a rubber farmer
> Interviewed on January 10, 2014

After ten years' experience in Tanto, Mr Lao Jia lost his son in a bomb blast during fighting in the Yala province in 2011. He returned home with some money and invested in rubber cultivation. He reported working with Mr. Wah Por as a rubber tapper with 50:50 product sharing benefit.

> *I will not go to the South, but working here with my family. There are some rubbers owners ask me to tap for them. They don't have experience on tapping rubber.*
>
> Mr. Lao Jia Sae-Yang,
> Interviewed on January 10, 2014

He has worked on the neighboring rubber famers for two years. He plans to work at the same farm for five years, then, he will move to another larger plantation to work for a longer period. He stated he was going to contact a rubber farmer in another village who he knows has about 100 Rai of land with 7,000 rubber trees. Due to his sought after expertise he believed he would not be jobless and wanted particularly to get the opportunity to work in the large rubber farm which was owned by the Taiwanese who have relatives in another village.

Other rubber farmers in the village, made the decision to tap themselves to get all the income from the rubber plantation. Mr. Tong told me that he and his wife had provided the labour for the entire cultivation process, including tapping to save money. He noted that his rubber plantation is not so large, so they were able to work it between them. Their strategy was to try and reduce all annual cash crops cultivation to save the need for a workforce. He said that he and his wife used to process rubber from "*Yang Khon*", raw rubber to "*Yang Pan*", rubber sheets but that although it could be sold at a higher price than the Yang Khon it took time and labour. Now, they have decided to have just tap and collect and sell it in a few weeks.

In summer 2015, I called Mr. Tong who told me that he was working in Rayong province in a steal industrial company. He was going to tap rubber in May, after the summer which is not suitable to tap rubber.

As a result of rubber plantation, the Hmong rubber owners spend most of their time on working in a year within on-farm job, which is in the village or nearby the village. Rubber tapper opens opportunity for the Hmong nearby the village. This phenomenon is related to the idea of the Land Management for Frontier Security Unit - a staff member mentioned that

> *Rubber plantation helps upland people have more job in the village. They would not go out seeking for a job.*
>
> The Land Management for Frontier Security Unit's staff,
> Interviewed August 15, 2014

This implicitly shows that one of the main purposes of upland formation was to improve the "degraded forest" to be an "economic forest" that would allow the Hmong people to benefit from economic growth, including supporting them to continued access to multiple jobs. Rubber plantation, thus, responded to the development of agricultural land in upland area through encouraging the Hmong people to spend more time in upland area.

This section shows how the Hmong adapt rubber plantation response to multiple pressures. In the case of the high income group, which mostly have more opportunity of access to agricultural land, has adopted rubber plantation in response to land use control such as reduce of smog problem in upland cultivation. In the case of middle income households, rubber plantation becomes a tool getting support from different sources such as financial, knowledge, skill practice from local government office, NGOs, as well as relatives. The low income group has expectations of rubber plantation as providing job opportunities in the village. Therefore, rubber plantation in the Doi Yoa – Doi Pha Mon mountainous area is an opportunity to response to pressures in upland management between different actors and different level of pressures such as household security, local economy, national policy on forest area and environment.

Next part is going to show different roles of the state agencies, the army in particular, to monitor agricultural economic activities of the Hmong. Environment concern is focused in the cultivating activities. Rubber plantation is also under the army

control of these organizations. The situation points out that upland become "relational space", even though upland people cultivate with reducing of burning process.

4.3 Remaining pressures and the army

The ambiguity of land use along the forest boundary, monitored by the army, is of concern to the upland villagers. In 2014, the government of National Council for Peace and Order (NCPO) announced Order No. 64/2557 and 66/2557 which proposed to prevent the subjugation and interception of deforestation in different zones by conducting and coordinating, as well monitoring, through the cooperation of different state agencies. The order affected the Hmong's cultivation, which prevented forest encroachment. Rubber plantation was highlighted by the army and the Forest Department for forest protection. Moreover, some rubber plantations were cut down in other villages[4] which made the Hmong rubber farmers concerned about protecting their rubber farms from the monitoring by the army.

In 2015, according to the NCPO's campaign to increase the forest area by cutting down rubber plantation, the Forest Department local office joined with the army and visited the Seng Meng village to check the forest boundary and villagers' cultivation land. The farmers also anticipated the visits of the army in the village since they received information of the army's intensive monitoring on rubber plantation in upland area

> *The army and the forest authority also came to check our rubber farms. They told us that according to satellite monitoring, it seems show that we encroached the reserved forest.*
>
> Mr. Visuth Banpotwanarak, 69,
> Former Village headman
> Interviewed on February 23, 2016

4 The army join together with the Forest Department run the campaign of "returning forest" by claim back some agriculture land at Sai Thong village in Por subdistrict, Viangkhan district, Chiang Rai province. The village is about 20 Kilometers far from the Seng Meng village. There were one 100 Rai of land in the process of consider by the authorities to return.

The army used sophisticated technology in forest monitoring, but without the participation of villagers. The villagers did not trust the technology as Mr. Visuth asserted that *"Finally, the army did not claim our rubber plantation because they also accepted that the satellite map is incorrect."*

This view indicated that the villagers knew about the forest boundary that they needed to claim from the army. Moreover, they also tried to convince the army to solve the tension of the land use by talking rather than focusing only on high technology.

In 2014, five rubber farmers close to the forest boundary had been invited to meet the army in the district office. The meeting had reflected to the situation of unclear forest boundaries in order to prevent cultivation of the forest area. This situation showed that the state authorities tried to control land use including the varieties of plants for cultivation. Since the arrival of rubber extended in to the upland area, the government was concerned to limit areas of cultivation. The announcement of the NCPO's order took place at the same time of the reducing of the rubber price in the market.

Rubber cultivation highlights different social relation to cash crops cultivation. Rubber farmers, on the one hand, supported the growth of the state economy through rubber products, but faced stringent monitoring of upland land by the state agencies, on the other hand. It would difficult to consider that the Hmong decided adopt rubber cultivation solely by themselves, but rather were under the influence of state policies.

Intensive monitoring of upland land was done by the army and the Forest department, a state mechanism in upland land use control. Upland people also adopted rubber plantation in response to these control measures initiated by the state. The relationship between the state actors and upland people showed that the more upland people tried to defend upland land use the more the state introduced more mechanisms to control.

Rubber plantation adoption by the Hmong in upland area was different from other cases because of the indirect role of the state in encouraging people to adopt market driven crops rather than directly encouraging upland people to adopt rubber plantation. This was to further environmental policy and enhance borderland security. Rubber became a response to those market and environment encouragements as well as contributing to local livelihoods in the borderland area. It showed that the Hmong had their own opportunities to adopt rubber plantations. In fact, rubber plantation arrived

within a historical context of upland land use for agriculture and the intensive monitoring of cultivation patterns along the borderland by the army. Because of this, "forest" became a space to exclude people out from accessing benefits from the state.

In the case of rubber plantations, the state applied two monitoring mechanisms; government subsidies exclusion and the redefinition of forest categorization. Firstly, government subsidies exclusion was explicit in the price of rubber plantations. The rubber plantations in the reserved forest areas, such as Seng Meng village, were not included in rubber price subsidies from the government after the reduction of the price of rubber products. In 2015 the government announced measures to support the rubber farmers by compensating the farmer with THB 1,250 Bath per Rai, with a ceiling of 15 Rai per household. However, the compensation was provided to the rubber farmers who cultivated in documented land. Thus, the Hmong in the village could not access to this policy with the government support on rubber plantation.

Secondly, the army, under the command of the National Council for Peace and Order (NCOP), was allowed to apply the campaign of "*Tuang Kuen Puen Paa*", that is, return the forest. The army reclaimed the forest and noted that rubber was not included in the definition of forest trees. The army and forest authorities sought for solutions. The claims of the Hmong on land rights were living and cultivating in the area before the announcement of the area to be reserved forest.

4.4 Summary

Rubber plantation is not expected to contribute only rubber product for a farmer, but is also expected to provide other opportunities of household economic security. The Hmong's rubber plantation, for example, is applied to support household economic security which is under the control of the state's resources management. Rubber plantation is used for get more opportunity access to resources.

Rubber plantation is adapting to be a part of preventing forest fires and smog campaign. It shows compromising relationships between the Hmong cultivation and the Forest Fire Control Division, Forest Department, as well as the army. The high income group of households benefits the most from this opportunity as they have access to larger land size. The state allowed the new army mechanism to control the forest area. The army group, under the government of National Council for Peace and Order

(NCPO), was allowed to monitor forest land use in the area. The orders under the NCPO were applied to protect the forest zone. The boundary between the forest and cultivation land was still unclear to the government point of view, but not for villagers as they divide the agriculture land and forest land. In the case of middle income households, they have applied rubber plantation as a tool access to financial, knowledge, and skill support from the local government, the rubber office, as well as NGOs. Most of those actors arrived in the upland area with the purpose to improve life of upland people. The Hmong adopts rubber as a strategic cash crop in response to a new source of income in the future. The low income group has also adopted rubber plantation to be a job opportunity for household members. Some household labourers would practice tapping rubber tree in their farm, then seeking for a job in another rubber plantation.

The next chapter will demonstrate different roles of rubber plantation adapted by the Hmong's cultivation in upland area, reflecting multiple cropping with rubber plantation in "relational space" area.

CHAPTER 5

Livelihoods Strategies on Rubber Cultivation

Small-scale upland rubber farmers adopted rubber cultivation with the main goal of securing their household economy. To achieve this goal, they implemented different strategies to access rubber plantations, including both an economic strategy as well as social strategies to address the various challenges faced by the household. This phenomenon shows the complexities of social relationships in different groups of households. There is, however, a lack of supporting data to understand small-scale rubber farmers as active rubber plantation actors. This chapter analyses the Hmong's adaptation to rubber cultivation to address the different pressures and challenges in household economic security. The Hmong did not accept rubber cultivation through simply adopting the crop, but through adapting local techniques and using different strategies to access capital through different relationships. This chapter considers the arrival of rubber cultivation as a cause of social relationship change, and highlights the adaptation of small-scale rubber farmers to rubber as a factor in the transformation of upland economy. Rubber plantation was expected to solve multiple pressures in upland area. It became a strategic cash crop in response to the state environment management as well as access resources management in upland agriculture production.

This chapter is divided into three sections 1) risk, vulnerabilities and opportunity for rubber plantation highlighting the challenges of rubber cultivation and the endeavors of different groups of Hmong to ensure livelihood security in the upland area. 2) The roles of rubber in addressing the pressure on livelihood security especially under intensive regulations by the state authorities. 3) Rubber plantation as a response to the transformation of the upland economy including production, labor, and investments in household economic security under a green economy policy.

5.1 Difficulty on rubber cultivation and solving with multiple cropping patterns

Rubber plantation adoption has created different challenges to rubber farmers such as ambiguity on state's support on price and subsidy, cost of production, rubber price mechanism. However, the Hmong selected rubber to include in household's cultivation within multiple cropping pattern of cultivation to manage different risks under different kinds of plants. This section will show how upland rubber plantation has been managed on different risks and vulnerabilities, and show how rubber has been included in multiple cropping.

This section is divided into two main points consisting of 1) Risks, vulnerabilities and opportunity for rubber plantation to understand difficult situations adopting rubber to upland area and 2) Rubber plantation management in multiple cropping pattern of cultivation, pointing to how the Hmong adopt rubber plantation to traditional pattern of cultivation.

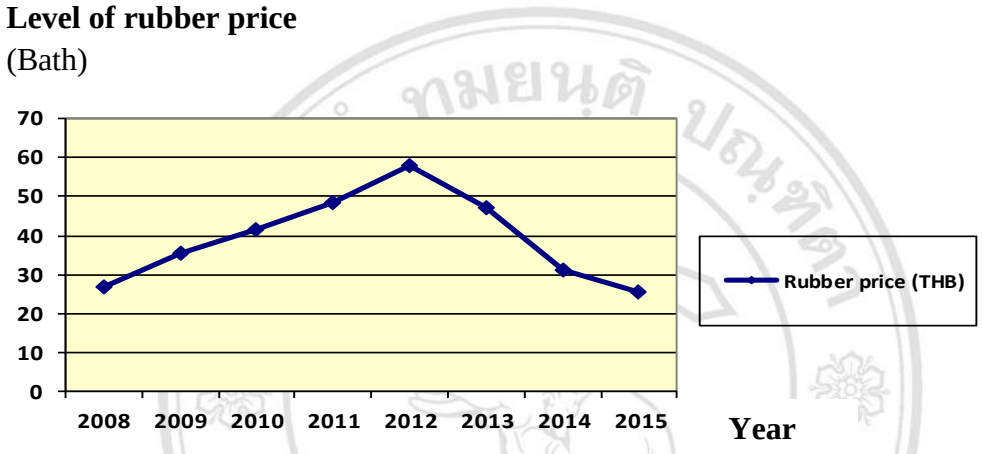
5.1.1 Risks, vulnerabilities and opportunity for rubber plantation

Upland cultivation patterns relied heavily on slash-and-burn techniques before the arrival of rubber cultivation. Upland farmers had to balance different means of production, for example controlling fires by carefully taking into account wind direction when burning, adopting rotation crops to balance the natural nutrition fertilizers to improve the soil, and the choice of seasonal cash crops (Songwit (2004), Prasit (2003)). Adopting a new means of production, such as permanent cash crops through rubber cultivation, was coupled with certain vulnerabilities and risks. Thus it was important not to be too hasty in adopting rubber but to introduce it in a more gradual way.

In the study village there was 80 households out of 415 households (20%) who adopted rubber as new cash crop., Some of the risks facing the Hmong rubber farmers in Seng Meng village included the price of rubber products, the complexities of rubber plantation management, the vulnerabilities on rubber cultivation, and ensuring that they still produced sufficient food for the household whilst growing rubber.

1) Price of rubber product

During the early 2000's prices of rubber increased in the global market[1]; this provided a strong motivation to the Hmong to adopt rubber plantation. The price reached its peak in 2012. However, the trends changed from 2013, and the price for plummeted (see the figure 5.1).



Source: field survey, 2014-5

Figure 5.1: Market related Rubber prices 2008 – 2015

According to the graph, the rubber price started rising in 2008, which was the first year of rubber tapping in the village. From an initial price of THB 30 in 2008 the price rose to THB 60[2]. Some household who started their rubber plantation in 2003 decided to tab rubber in 2008, with others following when they saw the increasing prices. The rubber planters decided to expand rubber farms in the year after. However, rubber famers were faced with a reduction in the price of rubber from mid 2012. The low price of rubber prompted the government, under the leadership of General Prayuth Chan-O-cha, to introduce a policy of subsidizing the rubber price THB 1,250 per Rai of rubber plantation, limited to 15 Rai per household. However, the owners of rubber

[1] It was influenced by the growing of expanding of rubber market in China. Rubber trees did grow during this period have not been tabbed during my data collection.

[2] This price of rubber product is a rubber cup lump per a Kilogram. There were a few rubber farmers in the village used to process rubber products from rubber cup lump to natural rubber sheet in order to get higher value of rubber product sale to market. However, they found that produce of rubber sheet is not easy. They have to spent double of time to make rubber sheet. Moreover, the rubber buyer would reduce the price when they found imperfect point in the rubber sheet.

plantations in the village did not benefit through this policy because they had not been counted as rubber farmers as a result of cultivating in reserved forest areas.

2) Complexity on rubber farm management

40 households in the village had experience in the cultivation of fruit trees, especially high income households who had larger plots of land; fruit trees added to the crops cultivated for household food security.

A) Long term land management

Rubber cultivation is different from the other cash crops Hmong were experienced in growing, and the same methods cannot be used, therefore, the Hmong selected suitable land for long term cultivation, and left other plots of land for rotation cash crops.

B) Difficult of environment management

To be successful in the cultivation of rubber, environmental control is needed, including weed clearing without burning and also the prevention of forest fires. Chemical fertilizers are also required to nourish the rubber trees.

C) Labour force and labour skill

Rubber cultivation needs more skilled labour than other upland cash crops grown in the village, and as such there is a shortage of skills making those with experience sought after and marketable. The planting process is less labour intensive, and some households reported only need only two to three laborers during this period. However, more labour, is required during the taping process.

3) Vulnerability of upland rubber plantations

Rubber farmers need to understand about upland environment and how it affects the rubber tree. The Hmong who adopted rubber cultivation, had to acquire specific knowledge on growing rubber including protecting rubber trees from extreme climate, diseases, forest fire, and ensuring the correct chemical usage.

A) Climate and drought

The dry season in northern Thailand effects rubber production as a low quantity of rubber is produced during the season. Mr. Loajia, who has more than ten-years experience in rubber tapping in southern of Thailand, asserted that rubber

plantations in the north produce less than in the south because of the weather variations. Whilst it is possible to tap rubber for nine months in the South, between May to January each year, in the study village he could only tap for four to five months, or even less in some months, such as 2015 when he could only tap for three months.

This was echoed by the district agriculture staff who also reflected about the situation of rubber cultivation in the upland area - that rubber cultivation is not suitable for the upland due to less rainfall on average, given that rubber trees require a lot of water to thrive. The impact is that the tree may not be flourish, and the small size of rubber tree affects the amount of liquid rubber available to tap.

B) Forest fire

There are many studies about the effects of fire and heat on rubber plantations and productivity (Sayan and Buncha, 2013). Fire is a main cause of damage to rubber trees in the Doi Yao – Pha Mon mountainous area, particularly in the village. Most households implement a pattern of cultivation that involves burning and this has the potential to spread to the rubber plantations. Part of the role of the Thailand Rubber Authority is the education of the farmers; the farmers are taught about the risks of fire to the rubber trees and productivity. The importance of preventing unexpected fires for example from neighboring farms who are burning their land after a long fallow is underscored. The adoption of rubber cultivation thus puts pressure on the rubber farmer as well as the neighboring farms who need to engage in the burning process to prepare their agriculture land. Mr. Wanchai, a former village headman, reported in his interview that he was requested to help his neighbor who burned farmland.

> *She ran to me crying. She said that some of my rubber trees were burned. She did not have money to pay me. However, I did not require her to pay me.*
>
> Mr. Wanchai Jaroonsakulwong, 65,
> a former village headman and a rubber farmer
> Interviewed on April 10, 2014

It is important that the farmers work together to ensure that the forest is protected, rubber trees are not damaged but that household livelihood are not affected.

C. Chemical use

There are different chemical products used by the Hmong in rubber plantations in upland area, to ensure the viability of their rubber products. Knowledge about chemical use is both from the Thailand Authority officials and cross learning from other farmers, this includes use of chemical fertilizer, applying latex stimulating hormones, mixing acid with latex and the use of herbicides. Even though farmers have experience in chemical products usage in agriculture they recognize the potential dangers to health. The use of chemicals also adds to the investment costs, however, the use of chemicals is critical to rubber production. The rubber plantation owners mostly hire unemployed villagers to administer the chemicals as they are aware of the dangers, particularly in spraying herbicides. The average daily wage is THB 400 – 500 THB per day for herbicide spraying work around the rubber plantation.

In the early days of tapping, the Hmong processed rubber sheet as a product of rubber plantation, due to higher returns (two to three times greater than a cup of lump rubber). However, in order to produce rubber sheets farmers need to invest in formic acid (Methanoic Acid), machines, and a skilled workforce. Rubber sheet production requires the mixing of rubber liquid, water and formic acid, waiting for the liquid to harden and then compressing it into a sheet. Rubber farmers produced rubber sheets during 2009 – 2010; they realized it was costly in terms of water resources and time and labour.

4) Village food security

Rubber cultivation requires intensive labour in some processes such as forest fire protection and tapping process, and owners do not have much free time to collect food and herbal plants from the forest. Instead they buy food and medicine from the market for household members.

2010 was the first year of rubber tapping in the village after 7 years cultivating the trees, and 10 households were able to tap. These households needed to buy meat and some vegetables from markets and small-retailers in the village, particularly during the rubber tapping season during May to January as most of household labourers have to work on the farms. Moreover, forest foods were also difficult to find.

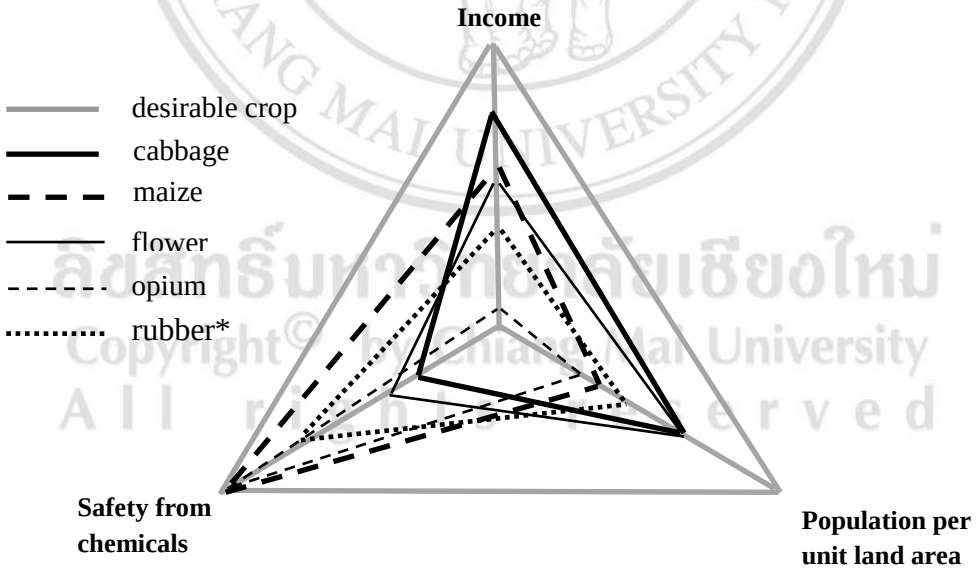
We could get some vegetable and herb from the forest, but not wildlife. Mostly, we have to buy food from local retails in the village.

Mr. Somchai Sae-Yang, 37,
a rubber farmer
Interviewed on March 15, 2014

It is clear that rubber stimulates villages to rely less on the forest for their livelihoods.

5) Opportunity for rubber plantation in household investment

Even though rubber cultivation is difficult to adopt because of the need for substantial capital investment, it can be lucrative as an alternative cash crop and contribute to the household income. Farmers minimize the risks of economic security through different varieties of cash crops adoption; rubber being a long term investment with other cash crops providing more immediate benefits and profits. The introduction of rubber cultivation in the area became a "new hope" for high income gains in the long term, adding value to agricultural land as indicate on the figure 5.2.



Source: adapt the diagram from Waranoot and Dearden

* The data on rubber plantation comes from field survey in 2014 by comparing incomes, chemical product cost, and agricultural area devotion for each cash crop.

Figure 5.2: Comparison on benefit of rubber plantation and other cash crop in Hmong cultivation in upland area

As depicted in the diagram, the cultivation of rubber is different in comparison to annual cash crops (especially maize) in a number of ways: profits / income from the crop, available land needed to cultivate and safety issues, especially the use of chemicals. **Chemical use**; rubber cultivation requires, and in fact relies upon use of chemical products. Some annual cash crops also require the use of chemicals but far less than rubber, such as cabbage and flowers cultivation. Comparison with other cash crops, maize requires little chemical use. As I mentioned above, almost of the rubber plantation owners hire other workers to spray chemical products, although low income households have less disposable income and generally do the labour themselves that they have to do every processes of rubber cultivation by themselves. **Productivity per land area**; Rubber plantations need smaller amount of financial capital than cabbage and flowers, but the return is lower. However, they the yield from rubber is more that more maize products. Although, the return from cabbages and flowers per land size is more than rubber and maize, there is a limited market and it is more difficult to negotiate a price. **Income**; Rubber is not a viable economic crop for a decade and may not be the best choice for household sustainability because of fluctuating rubber prices as shown in the table 5.1. Rubber farmers became very concerned when the rubber price was decreasing. During the price boom, before 2011, there were only 15 rubber farmers who had tapped their 244 Rai of rubber plantation, which had been cultivated during 2003–5. Of this group 11 famers were from high income households and 4 farmers from middle income households. During of high price of rubber, some the high income households decided to hire tappers to work on the rubber farm with 50:50 pattern of sharing the rubber product. The main reason to hire others was because the owner did not have skills on rubber tapping. Rubber farmers in the early tapping, thus, required external expertise. Tappers who gained experience from working in the South, or who learned from the rubber office were a sought after commodity in the village. However, since the downtrend of the rubber price began in 2013, rubber owners have tried to tap by using of household labour. It is clear that returns from rubber alone can only secure the household livelihood of households who have a large rubber plantation and who have tapped for at least a few years. Other households need to supplement their income with other agricultural products such as maize which grows in three months and can be

harvested and sold twice a year. The risks of rubber cultivation make it difficult to sustain the household. Rubber farmer households often have other opportunities for support. They reported different ways in accessing financial capital, for example, remittances from children who work outside the village, and support from the NGOs providing a 50% price reduce for small rubber trees from 2003 - 2006. The Hmong were also able to get support from relatives. Moreover, they also accessed physical capital, such as agriculture land, from the state as they were situated in the Upland Formation for Agriculture in Security Zone along the Borderland Unit which was regulated by the army. The Hmong were allowed to cultivate in upland area called *"Juss Roob Thee Din*.

Different kinds of capital are needed for and applied to rubber cultivation. The contours in the sloping land in the area were created to support agricultural production in the area, in order to contribute to the economy of the reserved forest area. They also had opportunities to learn and observe on a rubber plantation close to the village which was a pilot project for rubber cultivation since the 1990s. Human capital was also capacitated to work in upland rubber plantation, providing some income to different households. The labors learned about rubber cultivation and tried to hone their skills in tapping in order to get a job on other rubber plantations. Land for cultivation is another form of natural capital needed to adopt rubber plantation.

Rubber cultivation has the potential to provide household security, and played an important role in providing economic protection after households were faced with different challenges brought about by the intensively regulated reserved forest area by the state authorities. However, rubber is not just a product that provides some level of household economic security. The next section demonstrates how rubber cultivation supports the Hmong's household economic security and fulfills different roles and raises. Rubber is difficult to adopt however as it comes with its own different risks and vulnerabilities. To succeed in rubber cultivation a lot more than just financial capital support is needed. Therefore, it is mostly high-income households that invest in rubber and have access to the "green economy" launched by the state. Even though some middle income households, and yet fewer low-income households adopted rubber, they had to also negotiate and find other capital for example social capital, natural capital, physical capital.

5.1.2 Multiple cropping, step by step cultivation, and practice: rubber adoption in upland area

Rubber plantation adoption in upland area by the Hmong is included in multiple cropping (Harwood and Price 1976) pattern of cultivation to share risk and income to different varieties of plants (Aranya 2011) on household cultivation. Rubber plantation in upland has been cultivated together with other annual cash crops. I noticed that there was a tiny reduction of those annual cash crops because the Hmong found different ways to keep benefits from those annual crops.

According to the field survey with 12 rubber farmers I found that they combined rubber plantation with other cash crops such as maize, upland rice, lychee, and green beans.

Table 5.1: Proportion of household land use for different varieties of plants

Informants	Age	Household Members / Labor force	* Lands (Rai)	Varieties of Plants **						
				Long term plants (Rai of lands)			Annual cash crops (Rotation) (Rai of lands)			
				Rubber	Fruit trees (Longan / lychee)	Orange	Upland rice	Cabbage / ginger	Maize	Others
High Income										
Mr. Visuth	65	12 / 7	55	15	10	-	6	3	20	-
Mr. Wanchai	65	11 / 5	75	20	20	-	15	-	35	-
Mr. Wah Por	56	10 / 5	80	40	15	-	15	5	25	
Mr.Thanomjit	48	8 / 4	50	10	10	-	10	6	30	1 (rose)
Medium Income										
Mr. Tong	41	8 / 3	60	35	-	-	7	-	20	
Mr. Prateep	57	9 / 5	65	30	10	-	20	10	30	3 (bean)
Mr. Somchai	38	9 / 4	40	15	3	-	15	3	15	
Mr. Panchong	61	11 / 6	45	10	5	5	10	-	20	

Table 5.1: (Continued)

Informants	Age	Household Members / Labor force	* Lands (Rai)	Varieties of Plants **						
				Long term plants (Rai of lands)			Annual cash crops (Rotation) (Rai of lands)			
				Rubber	Fruit trees (Longan / lychee)	Orange	Upland rice	Cabbage / ginger	Maize	Others
Mr. Somboon	63	10 / 5	45	13	5	-	7	-	20	Plum
Low Income										
Mr. Jur Khai	56	12 / 6	35***	6	2	-	10	5	10	
Mr. Smith	29	6 / 3	30***	5	-	-	8	2	12	
Mr. Lao Jia	56	7 / 3	48***	15	-	-	6	3	8	

Remarks: * Access to cultivation land, but without document.

** Multiple crops pattern of cultivation in a single plot of land. The land, thus, could be count more than one time depend on how many kind of plants in the land. Moreover, some households are possible to cultivate in relatives' land (the 5th column), but it is not included in household's land possession (the 4th column). Thus, it would possible the number of land total and cultivation land is not equal in the same number.

*** Even though, this group could access lands in the size close to the middle income group, but this group always leave the land for its improvement in 2 – 3 years.

Source: field survey, 2014

According to table 5.1, different groups of Hmong each household decided to adopt rubber cultivation. There were 12 key informants categorized into 3 groups namely 4 households in high income group, 5 households middle income group, and 3 households in low income group. The 2nd column shows the age of rubber owners in the households.. A few informants came to the village as the second generation after the closing of the refugee camp in Loei province (Mr.Tong and Mr.Smith), while

The 3rd column shows the comparison of household members and household labour. As mention in chapter 4, the high income supported their household labour to go out to work as off-farm workers outside the village. There are 3 – 4 households who still work in the village (as the table 4.5, chapter 4). The middle income and low income households still keep household labour to work in the village rather than going out. However, some of them also work as "a day trip" outside the village in some season, then, comes back to household cultivation in cultivation season.

In term of land possession, the high income household possesses more land than other groups of households, which they intensively use for seasonal agriculture activities more than other groups. To the Hmong in the village, using of land for cultivation is a mark of land, which differentiate between forest land and agriculture land in order to negotiating with the state claim on forest management. Moreover, the information above shows different group of economic in household of Hmong rubber farmers. According to the key concept of capital in livelihoods approach, which consists of human capital, physical capital, social capital, natural capital, and financial capital, it could explain rubber plantation in the village in different groups of economic household.

First, **high income group**, some parts of land are left fallow after three years' cultivation as it needed burning to prepare for new crops. They managed this land by dividing it into smaller pieces of land, and using some parts for rubber plantation, that is, they adopted rubber plantation only in some part of their land and they devoted other parts for annual cash crops which were mostly maize cultivation, then cabbage. In the case of Mr. Wah Por he cultivated rubber trees into a longan farm. He was waiting to get benefits from both kinds of tree, or in case of selection he was also waiting to find out which crop was better to keep.

Second, **the medium income group** which is the biggest group of farmers who adopt rubber plantation, they devoted land for rubber plantation on average 35 percent of lands, and 65 percent is sharing different cash crops such as maize, cabbages, ginger, oranges, longan, lychee and roses. There are four of the five key informants in this group who cultivated in another village with their relative's land. Those cultivating maize and cabbage usually are renting the land and pay back in cash after selling the products – the amount of payment depends on a number of products, although it is negotiable.

Last, **the low income group** which adopted rubber latter than other groups. Their strategy was to apply social capital such as asking for knowledge from other experienced rubber farmers sharing techniques to save the cost of planting rubber. In terms of human capital, they applied household workforce cultivation process as well as trying to practice for rubber tapping with the rubber office. They devoted about 3 Rai of

land from 18 Rai (with amount in average) or 22 percent of land for rubber plantation as physical capital.

All three groups of households have shared multiple cropping pattern of cultivation as they have kept amount of land for cultivation annual crops in household cultivation with in first four years of rubber plantation which is enough space between rows of rubber trees.

Since 2012, there has been a reduction in the price of rubber. This was anticipated as the production increased in area. There were some rubber farmers who expanded rubber plantations, and some became new rubber farmers in this period as noted in table 5.2.

Table 5.2: Different timeline in rubber adoption

Years	Amount of Land (*Rai*)	Current state of Rubber Plantation	The government policies[3]
2003 – 2005	244	Tapped, during August to January	The project of rubber plantation promotion for increasing farmers' income and economic security in new areas phase 1 (2003-2006); target areas is 1,000,000 Rai
2006 – 2008	262	Going to tap in a few years	phase 2 (2007-2010); target areas is 1,000,000 Rai
2009 – 2011	797	In the process of protecting from fire and weedy. Not allowed to cultivate short term plants.	
2012 – 2014	331	regular weeding and maintenance needed. Mostly the Hmong rubber cultivator add some annual cash crops in between rows of rubber trees.	phase 3 (2011-2014); target areas is 800,000 Rai
Total	**1,634**		

Source: Adapt from Autsadawut, 2016

[3] More information in Daranee Jareonsuk. "Panyang" http://www.rubbercenter.org/files/rubber-tree.pdf

As highlighted in table 5.2, rubber plantations were increasingly being planted from 2003 – 2011 due in part to the high price of rubber in that time. From 2012 – 2014 also saw the adopting of rubber, but there were down trends of rubber plantation in the village. The table shows that the Hmong divided rubber plantation in different phases of planting and carefully balanced conditions needed for rubber adoption; including land possession, cost on production, and household labour management (Aranya 2011: 78). However, they also expected to see a higher price of rubber product as its was needed to support in China's rubber market. Mr. Jur Khai said that *"I might not tap if reducing of rubber price, but I will leave it to revive its self"*. This showed the Hmong do not only have rubber plantation as a household economic income, but they also have other choices for household's economic security. Thus, multiple cropping supports different risks of economic security rather than only mono-cropping.

In short, as mention above, the Hmong in Doi Yoa – Doi Pha Mon area have been faced with different difficulties living in the area. Not only as an ethnic minority, but also difficulties in household's economic security for example land titles possess, household's economic adaptation, environment pressure on cultivation. Thus, rubber plantation is adopted to be a part of household production. Rubber plantation has been selected in response to those pressures. The next section will show different roles of rubber plantation reflecting the actors who are taking action in the area.

5.2 Roles of rubber plantation under livelihood pressure on security

Rubber is explained as an agricultural product that supports the world's industrial production. Mainstream views of the rubber industry do not fully acknowledge the small-scale rubber owners, especially marginal groups such as the Hmong. There are a few studies about rubber cultivation adopted by minority people as small-scale rubber plantation; however, there is no research on the different roles of rubber and household economic security. The next section explores the different roles of rubber adopted by small-scale farmers.

5.2.1 Rubber plantation in household economic level

There are few studies on adaptation of small-scale of rubber owners about risk on rubber plantation. Yos and Aranya (2015) point out that to succeed in rubber, small-scale rubber farmers must also cultivate a variety of annual plants grown together with their rubber trees. Moreover, cultural norms and practices are an important strategy for success for rubber farmers such as getting support from relatives, sharing financial capital and using the vast social networks, especially during the first seven years when there is no return from the rubber trees. Pinkaew (2011: 157-158) indicates that there are different households employ different strategies, and this depends on for example, land access and household labour.

Even though the Hmong's rubber plantations are primarily for economic gain, they also need to pay attention to environment conservation issues in the borderland. Living in the conservation zone, the Hmong desire household economic security as well as land rights in the reserved forest area that will provide security for this generation and generations to come.

High-income household

High income households have access to larger pieces of land in the village, mainly because they had more opportunities to pioneer before the restrictive policies brought about changes in usage of the reserved forest. Farmers viewed the land as heritage for next generation, and thus invested in rubber secure property rights for the next generation. The adoption of rubber cultivation for this group, thus, focused on 1) investment for the next generation, and 2) presenting on Hmong's cultivation

1) Investment for the next generation

High-income households survive in part due to remittances from their children who are working out of the village, and such remittances are seen as further investment into the household's sustainability. Rubber farmers viewed their plantations as a long-term investment for their children who were working in urban areas due to greater employment opportunities. In high income households assign young labour, such as a new couple, to learn and tap rubber. Rubber farmers, who have children working far away from the village, recognized the limited opportunities for work in the village – and

that the low wages offered were subsistence wages and not saving. Children of middle income farmers were also found to be working in cities such as Ayuthaya, Rayong province as well as in Bangkok. Mr. Somboon is a medium income rubber farmer who allowed his child to work in Bangkok. He said that *"Children always said that there are no jobs, and no money in the village."* He acknowledged that it was difficult for his children to save money working in the village He said

> *There would be enough profit to take care of our family if we had 3000 rubber trees (40 Rai). That would provide us with enough money to live and to save and my child would not have to work in Bangkok.*
>
> Mr. Somboon Wattanatrakulwong, 54
> a rubber farmer
> Interviewed on August 15, 2014

Mr. Somboon's explanation demonstrates the long term expectation on rubber as opposed to other cash crops. The profit from, and investment in, the rubber plantation provides an alternative choice for their children who wish to return home. Rubber cultivation, in this sense, is not only to provide financial benefits, but is also an opportunity for rubber famers in reserved forest areas to provide for their children should they lose the opportunity to work in the larger cities or should they decide to come home. In this way rubber is expected to be a long-term investment for household economic security. Mr. Somboon pointed out that he plans to remain in the upland area, so that if his children fail in the city they could come back to the village and survive off the rubber plantation. Thus, long-term household security for multiple generations is a key decision to cultivate rubber.

2) Presenting on Hmong's cultivation

Pioneering households lived in the area prior to the cold war period and many fled the area during the conflict. Upon their return they were faced with new policies on forest classification and land usage and ownership. The state adopted aerial photograph

technology to classify forest and villager's agricultural land. The Hmong had a fallow pattern of cultivation, which needed to a few years to allow grass and small trees to grow to improve naturally soil. The Hmong asserted to the state authorities that they did not cultivate in forest areas, but that they used the areas they had used over time for household cultivation.

> *The state authorities always come to check the area. They had seen the forest map via aerial photographs. Despite that villagers fallow the cultivation land for a few years. It looks similar to a forest, but actually we are still cultivating in those land."*
>
> Mr. Visuth Banpottanarak, 69
> a former village headman
> Interviewed on February 21, 2016

Mr. Visuth highlighted that villagers presented their long term cultivation of certain land as rights to possess the agriculture land. Rubber trees become a long term cash crop that they adopted to supplement their household income.

> *Since we've adopted rubber plantation the state authority of forest fire control has not bothered us about forest fire control in our cultivation. Even though, we keep burning process, but it will be intensively controlled by the owner otherwise, it would burn another rubber plantation.*
>
> Mr. Visuth Banpottanarak, 69
> a former village headman
> Interviewed on February 21, 2016

Rubber cultivation and the strict regulations around burning reduced forest fires. Between 2014–16 there was a situation of removing rubber trees by government implementing the "*Tuang Khuen Phuen Paa*", project - returning of forest, and the elimination of rubber trees from small-scale farmers in upland areas around northern and northeastern of Thailand was carried out. The army played a key role in the project

as a forest regulator. Although the area under study was not affected by the project, the policy did heighten the Hmong's concerns on land possession in upland area. In 2016 the army also came to the area to check the forest zone in order to prevent the encroaching on forest lands by the villagers.

> *I was also one of the five households shown in the aerial photographs. We asserted that our land is not included in the forest zone as we have cultivated here since for generations. Eventually the army understood our position and they left. But I do not know if this is going to happen again.*
>
> Mr. Visuth Banpottanarak, 69
> a former village headman
> Interviewed on February 21, 2016

Rubber plantations, in this case, played a role as a tool to assert land rights, and the classification between the forest and villagers' cultivated, which can be traced from the previous generations.

Middle income household

The middle-income household group also invests in rubber plantation both in short term and long term benefit such as invest for saving in agriculture, and adding value in land economy

1) "Cultivate rubber is like saving money not in out of the bank": Rubber farmer's financial management in upland area

Rubber cultivation is supported by the government in upland areas and the Thai Rubber Authority play a crucial role in the promotion of rubber. Despite the fact that the office does not recognize upland rubber plantations, and they are not able to register as members with the state, farmers in the area do get some support, for example information on rubber cultivation and capacity building in skills needed to grow and tap rubber. Furthermore, there are different state agencies that are responsible for the

Hmong's livelihoods. Thus, the upland rubber cultivation plays a role as a saving investment supported by the state agencies.

Mr. Prateep plans to grow 2,000 rubber trees and noted *"It would make 80,000 to 120,000 THB a year once the costs have been deducted"*. He was expecting 8,000 to 10,000 THB a month, for at least 20 years. Mr. Prateep's strategy was initially to accumulate financial capital by saving in an interested bearing account, but he changed his form of saving from the bank to invest in rubber plantation as he mentioned that *"it is also like saving in our own land"*. Mr. Prateep, adopted 500 rubber trees in 2006, and cultivated a further 1,500 rubber trees in 2008. He said that the trees were bought with his own savings, and not through financial support from other family member or government support. Mr Prateep's experience shows that villager capital accumulation is adopted from financial accumulation to tree cultivation. Rubber trees are property accumulation for upland people.

Rubber production also enhances social networking as it there are long periods were the farmer has little to do and has spare time to maintain their social networks. Mr. Jurkhai, for example, spends a lot of time in maintaining his kin network. He shared his idea that *"I decided not tap rubber tree when the rubber price reduced but I would take this time to join the kin meeting and contribute to kinship activities".* Mr. Jurkhai is the vice head of his kin network in Thailand. He is expected to help the kin network members in Thailand solve problems and difficulties, as well as to set up a strong network. These responsibilities meant that he engages in annual cash crops cultivation. He said *"I could not go anywhere when I was growing cabbages and ginger because I had to work on the farm, otherwise I would lose the product, but with the rubber plantation it is different and I have more time."* Since he adopted rubber plantation he can go and leave his plantation and come to tap later. *"Actually, rubber trees recover and maintain themselves when we do not tap. Leaving the trees is also a way to slowdown the rubber tree getting blight".* Mr. Jurkhai was not concerned about the fluctuation of the rubber price. He planted only 500 rubber trees within 6 Rai of land size. He managed to focus on other annual cash crops such as maize, cabbage, and focus on other capital accumulation such as coordination of his kin network to maintain social capital. He also expects to get support from his kinship network when he is faced with a

difficult situation such as find high salaried jobs for his children, or getting new knowledge from the network.

Mr. Jurkhai's case, demonstrates that the Hmong farmers in upland areas possess rubber trees for multiple reasons including the fact that they do not have to rely solely on annual cash crops with rubber as contributing to long term income. For example, the drought in 2016 enabled rubber taping for only 3 months. Mr. Jurkhai had decided not to tap his rubber plantation, and left it to recover itself, but he decided to open a small-retail shop at his house instead. Rubber plantation, thus, is expected to be a long term investment which allows farmers time away from the agriculture land without concern that their crops will suffer.

2) adding value on land economy

There is an expectation that rubber provides both long term benefits and security, as well as short term benefits, evident in households that arrived in the village at the end of the Cold War. Mr. Tong, arrived in the village after the closing of the refugee camp at Baan Vinai in Leoi province in 1992, shifted to rubber cultivation in the first year that rubber was introduced to the area (2003). He viewed the plantation as financial security and noted he "*would sell the rubber plantation in ten years, if anyone offers enough money"*. According to his strategy for sustainability, he could sell the rubber plantation if someone was interested and offered him a fair price, but was waiting for his three children to finish their education first. He stated that he plans to move to the industrial zone in Lamphun province after the sale of the rubber plantation. He believes that working in factories is his opportunity to secure household income in the future. He plans to work in the factory and for his children to work in the same area. He will buy a land with land title, which he believes is more secure land possession than living in the village where he is unable to get land title. Selling the land with an agreed upon price and moving to land titled area is a common vision of late arrival households in the village. This group, mostly, has no close relatives in the village like the group of households who have lived in the village since it was established. This case demonstrates the potential short-term benefits through the exchange physical capital (land) to financial capital (cash).

Low income household

Low-income households engaged in rubber production as long term work through honing the skill of rubber tapping and looking for opportunities to work as a rubber tapper on other rubber farms.

Skilled rubber tappers are required in the rubber labor market especially in new rubber plantation areas. Mr. Lao Jia is a rubber tapping specialist, and has ten year-experience, together with his family members, tapping rubber in Yala province, Southern Thailand. Due to his skill and expertise he is in demand on rubber plantations both in and outside the village. People experienced in tapping are sought after, providing them with opportunities to work as a contract (undocumented) laborer on the large rubber plantation. Such opportunities can include up to a one-year contract on the larger rubber plantation. Mr. Lao Jia said that if he could get 2,500 rubber trees tapping he would not be required to search for work outside the area. This shows that rubber is an important commodity in the economy of the area, providing longer and more secure employment than other cash crops.

There is a certain social status attached to "*Kon Geed Yang*", or a rubber tapping worker, referring to a person who has acquired an annual contract near to home. The Hmong have taken the opportunities provided by rubber to secure their household economies. This may not mean that they work exclusively on their own farm or in fact even own their own farm, but "partner" with others through sharing their labor with other rubber plantations. The benefits of this arrangement include sharing the rubber product with the rubber plantation owner. This arrangement was not possible with other kinds of cash crops, and laborers were only receiving a daily wage.

> *I am going to ask the rubber plantation owner in the next village if I can tap for them. The plantation is backed by investment for my son-in-law who is Taiwanese. He has 2 500 rubber trees on his land.*
>
> Mr. Lao Jia, 54, a rubber farmer
> Interviewed April 10, 2014

This section highlights that not only access to land and labor effect decision making of the Hmong in regard to cultivating rubber, but financial capital and social capital, possessed in different ways by each household are also important. It is clear that households are able to adopt rubber as a crop in different ways, depending on their opportunities to access the various types of capital needed, including land, finance, and labor. These vary considerably depending on economic class, and also relates to the social relationship amongst households. The high-income household were much better able to adopt multiple cash crops in their farms, and to outside pressures such as burning regulations. The high-income households had bigger expectations of the long-term benefits of rubber, and planned to transfer household economic security to next generation. The middle-income household also viewed rubber as a strategy for household economic security - "saving through the trees" as well as adding economic value to the land. Low-income household benefited from rubber through the opportunities it provided for semi and skilled labor.

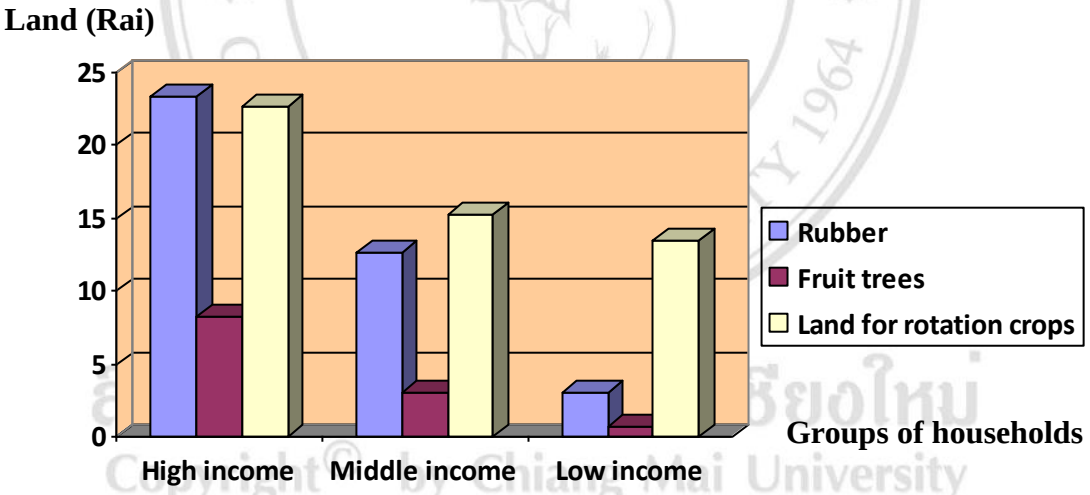
5.2.2 Role of rubber in the local economy

As noted, rubber as a commercial venture is relatively new in the village. Success in rubber cultivation relies on social relationships among various groups of Hmong who may possess capital needed such as land, labor, finance, market, and technology Rubber cultivation mostly requires investment in land and labor, but also relies on access to financial resources, a viable market and technology.

Rubber is a cash crop important for national economic growth, and its production is encouraged by the government to expand the area of cultivation. The introduction of rubber in the Doi Yoa – Doi Pha Mon mountainous area allowed the Hmong rubber farmers access to the state market mechanisms (Li 2014). The Hmong's endeavor to engage with market mechanism is also enabling access to opportunities for state support. They had had opportunity to access agriculture subsidies from the state in the case of low price of maize production. It encouraged them to continue even whilst working under the pressure of price control. Maize is not the only agricultural product

for which the state provides support when the price drops. Rubber is a new cash crop for which the state provides a subsidy.

This study found that Hmong rubber farmers from high-income households devoted land for rubber plantation more than other annual cash crops. Some rubber trees were designed to replace fruit trees by growing them between rows of fruit trees and waiting for the products of the fruit trees concurrently. They also divided some parts of agriculture land for annual cash crops, which was often larger than other groups of household even once that had earmarked land for rubber. The high-income household group had sufficient land for the cultivation of cash crops and rubber. However, they did face challenges with having sufficient labor in the household especially because their household members attempted to find off-farm works, and other was engaged in higher education. The situation was different for the medium and low-income household as they did not have enough land for crop rotation. They did, however, have enough household labor as shown in figure 5.3.



Source: field survey, 2014

Figure 5.3: Household's land uses average with different kinds of plants in 2014

The graph shows that only the high-income households group could cultivate perennial trees such as rubber plantation and fruit trees together as they had more than 30 Rai of land, and were able to cultivate rotation cash crops using more than 20 Rai of

land. The middle income and low income households divided their land – designating more for rubber plantation less for rotation crops. Even though they keep a part of their lands for annual cash crops such as maize and upland rice, they still had free time because they need to fallow for at least one year after three years of intensive cultivation. During this time households could rent land from relatives or save money to invest in relative's land and the whole cultivation process. Common terminology to explain this relationship is "cultivating costs" rather that rental. Mr. Jurkhai said that *"it depends on how much profit I get from the crop. Some seasons I pay after the sale the product, and some years I pay at the end of the year after harvesting another crop."* This demonstrates that social relationships are a critical element of capital support to ensure that rubber is viable.

Li (1999) noted that upland people struggled against the state regulations in their engagement with the market. Those upland people hire relatives as labor in different forms in order to secure a share in the market. The Hmong adapted to market conditions by using social relationships as a part of their agriculture production. The Hmong, thus, not only engaged the market by investing in financial capital, but also applied other forms of capital such as social capital, human capital and physical capital.

5.2.3 Rubber plantation role in conservation paradigm

Hmong rubber plantation owners are clear that the production of rubber is in line with the state's policy on the environment; that is green cultivation and a strategy to reduce the smog problem.

Integration with the "forest"; Rubber cultivation, from the Hmong farmer perspective, should be able to contribute to the forest and generate a "green" landscape in the upland area. Mr. Visuth, noting his feelings on the environmental issues of rubber said *"It made me feel cold when I get into the rubber farms"*. Achieving a diversity of forest plants as well as attracting wildlife is not easy through the Hmong cultivation in upland. However, diversity is achieved through the cultivation of the ecological landscape in comparison with other cash crops such as maize, upland rice, cabbage and ginger. These kinds of crops do fit into the green cultivation landscape and do not attract a diversity of insects in the plantation. However, rubber trees are different. *"I saw a nest of red ants on the rubber tree, it could allow other animal and forest plant*

come later on" Mr. Tong explained after his exploration on his rubber plantation. Rubber cultivation is different from previous cash crops that adopted slash-and-burn process, which cleared insect as well as weeds. Even though, in the opinion of the researcher, the Hmong's survival was not reliant on diversity of forest.

The ruling on burning processes supports the green cultivation in upland area. The Forest Fire Control Division staffs take an important role in the area. This initially caused intensive pressure on the Hmong's cultivation. The rubber farmers set rules in burning to prevent damage of rubber tree from fire; this included informing the village headman and the forest fire staff on specific burning times. This allowed staff to prevent uncontrollable fires, with farmers assisting by arranging their workers to control the fires.

The arrival of rubber has changed the pattern of cultivation in the village because of the emergence of new rules for rubber cultivation set to prevent the damage of rubber trees from burning process of land preparation. Even though, on the one hand the new rules contribute to the reduction of the smog problem, on the other hand it also creates a new pressure to farmers who have not adopted rubber and for whom it is necessary to continue with slash and burn farming. They have to burn more carefully to prevent any danger to their neighbor's rubber plantation. Mostly, they spend more time and labor to make a fire break that is 3 -5 meters wide by cutting the grass surrounding the farmland. There are heavy fines for fire makers who damage neighbor's rubber trees.

We set a payment structure which depends on the age of the rubber tree. Less than one year will pay 500 Bath / a tree

- One to three-year will pay 1,000 Bath / a tree

- Four to six-year will pay 2,000 Bath / a tree

- More than seven-year will pay 5,000 Bath / a tree

Even though the rubber tree does not die after it has been burned by fire. we cannot guarantee that it will produce rubber liquid.

Mr. Wanchai Banpotwanarak, 65
A former village headman,
Interviewed on April 10, 2014

This reflection from the village headman clearly explains the vulnerability of rubber trees from fire, with the payment for damaged rubber tree being a deterrent. The Hmong, through adapting to rubber cultivation as an income generating activity, contributed to fire forest control. However, there are upland people who could not access land due to insufficient capital to do so. The villagers in the village, therefore, have to live with other compromising situations. The emergence of rubber cultivation, therefore, has made it easier for state agencies get better control of forest fire. Mr. Smith used to be a worker at Forest Fire Control Division office during the "100 dangerous days" campaign to control forest fires during late January to the end of April. He received two hundred THB a day wages, and worked during two campaigns

> *They came to check for fires so often in the past. Since the introduction of rubber, they have monitored with less rigor and look for smoke and evidence of fires from the office.*
>
> Mr. Smith Pinbanpot, 29
> Village's health volunteer and rubber farmer
> Interviewed on February 6, 2014

The growing rubber cultivation as part of the strategy to reduce forest fires has meant that the office of Forest Fire Control has also reduced seasonal workers including Mr. Smith.

In short, this study shows that rubber plantations fulfill different role across multiple situations and multiple levels. Rubber is both a short term and long term of capital accumulation for the different economic levels of households. Rubber as a relatively new crop plays an important role in separating the village from the forest zone, although this has caused conflict with the staff of the Forest Department. The advent of rubber has enabled upland people to gain experience in tapping, a marketable skill that has employment potential as there are many rubber plantations close to the village that need skillful tappers, thus providing jobs close to the village. Rubber products also allow the Hmong access to the economy through the state support of agricultural business; there are still challenges in access but there is greater hope

amongst the Hmong for getting support from the government for other products such as maize. Finally, rubber is understood by the Hmong as “green cultivation” in response to environment concerns under the state authorities’ requirement to prevent damage of the forest from fire as well as reducing the smog problem. The opportunities that rubber cultivation has provided to transform the upland will be explained in the next section

5.3 Role of rubber in transition upland economy

It is clear that the Hmong faced challenges emerging from the process of forest re-classification, at the same time as becoming an economic zone in the upland area. Challenges exist for the older generation to transfer their property to next generation, which made the Hmong insecure around inheritance issues - an integral part of their culture. They struggled with the border situation in the upland area, even though some of Hmong people maintained their livelihoods they needed to access enough capital. Currently, there are many Hmong households who live without having secured capital but by holding land in the upland borderland zones.

Cultivation is a possible way to accumulate capitals to secure household economy. However, some Hmong have been living in the “forest” zone under intensive monitoring by state agencies for three decades, which has impacted on livelihood security. The Hmong in the upland area, thus, focused on financial capital accumulation with intensive cultivation with modern cash crops. This contrasted with the forest reservation concept that was highlighted in the state policy. The Hmong also tried to accumulate other capital to secure their livelihoods, even though it was difficult to access. Rubber cultivation was evidence of their efforts to achieve different capital responses to pressures and to securing their household economy. This study found that rubber cultivation became an opportunity to accumulate capital for livelihood security that differed from other annual cash crops and to focus on financial and land accumulation transferring to next generation which Li (1989) called creative engagement. This is achieved through:

Firstly, possessing property in upland borderland area; the rubber plantation becomes another long-term property, which is more than just the land, as it creates an alternative choice from land possession to tree possession. The elders had tried to access the land by claiming rights in relation to the Prime Minister Order no. 66/2523 and

56/2525 which enabled people to access to the lands as an effect of their following the government policy to stop the fighting during the Communist Era. However, they still have concerns for the next generation after facing new conditions of exclusion such as conservation and development. Even though they can cultivate in the area they have no documentation of land entitlement. Moreover, the state agencies in the area such as the Forest Fire Control Division, the Forestry Department, the Watershed Management Unit, and the Park local office are unofficially discussing changing from reserved forest to the nation park, which is more intensively monitored and controlled by these state agencies. The intensively monitored forest zone will be expanded and will affect the agricultural land of upland people. This may affect the size of land they have possessed and inherited from their parents before the Communist era. For this reason, they see the rubber plantation as their property in upland. *"At least it will be property transfer to our children"* is the sentiment that I heard from some rubber farmers when I observed the meeting of the Doi Yao – Pha Mon Farmer Network, in response to questions about the situation of tree possession in upland reserved forest area. However, according to the law, rubber trees are not included as a forest trees.

Rubber plantations became an issue of property rights - recognized by "farmer registration" even though rubber cultivation is not recognized from the Thailand Rubber Authority. However, the Hmong registered as farmers with the Office of Agricultural District, who provided the Hmong with information on agricultural activities in the upland area and monitored the agricultural product statistics for the annual report. The Hmong rubber farmer, however, expect agencies support. Although, they know that it is difficult to request for specific issues such as the state support during times of a low rubber price, at least they could access some subsidy in the case of disasters such as damaged rubber trees from drought, storm, and so on. They would get support from the government sometimes with different kind of plants in the farmland, for example if they plant more than one kinds of crop on the same land.

Mr. Smith reported that he had given information about his rubber plantation for each survey. He expected that his information would elicit some support from the state when his rubber crops were damaged, as was the case with maize when Hmong farmers were given a government subsidy.

When I was collecting data, I informed the village headman and the rubber group leader who played an important role in rubber plantation in the village. The village headman introduced me to members present at the village meeting. One of attendants asked me how I could support them in rubber cultivation. They asked me because they thought that I was government agricultural staff. This example shows how rubber farmers expect the state agencies to recognize and accept their upland rubber plantation and provide them with support. It could also refer to their expectation of rubber as not only upland cultivation, but also in claiming their rights over rubber trees. As noted by Suryanata (1999) there could emerge a shifting of rights from land to trees that are planted on the land.

According to discussions on rubber with rubber plantation owners in the village, I found that they expected to transfer their rubber plantation to their children as an inheritance – thus they referred to it as "*Plook Hai Look Laan*", or planting for children, reflecting the transfer of property from the elders who possessed the land to younger generation who will take on the role as household leader. Rubber plantations became new property that could be claimed for the inheritance rights differently from agricultural land, because the land is controlled by the state, but the rubber plantation is controlled by the owner.

However, the claim of rubber plantations as land possession was not easy the state's policy on the "Tuang *Khuen Phuen Paa*", or Returning Forest Area campaign, was introduced in some areas. The campaign was implemented by the Forestry Department and supported by army. Even though, the Doi Yao – Pha Mon mountainous area is not included in the campaign, they were concerned about state's policy.

Secondly, although the rubber plantation was accepted as a transferable property in the household and at the local economy level, it could not be confirmed at the structural level, through legal assurances for example. The Hmong also had concerns on living in the forest area, however, they tried to deal with the issue by engaging in national level advocacy. The market mechanism was selected as a way to get state support, with the rubber plantation an alternative choice of engagement with the state development program.

The Hmong access to market for maize cultivation was supported by the government. Maize cultivation allowed them access to a price guaranteed program due

to falling prices. It encouraged them to engage with state's market power in agriculture production. The emergence of the national rubber mechanisms such as the Thailand Rubber Authority led them to become interested in rubber, even though, they were not allowed to cultivate rubber in the reserved forest as a member of the organization, but at least they could access the national rubber price mechanism.

Considering market mechanisms Supakarn (2001, cited in Sayamon and Bandita, n.d.) found that there were different actors in the community of small-scale rubber farmers in Songkha province. Actors include traders, Chinese merchants, rubber plantation owners, small-scale plantation owners and wage workers. These groups relied on each other in a mutually beneficial way. It is similar to the case of maize price mechanism, which involved the state agencies in the roles of administration, conservation, agricultural promotion. Moreover, there was a role for investor and upland villagers (Puttipong 2013). The Hmong also received subsidies from the maize price guarantee program.

> *I got some money supported from the government to compensate the low price of maize product last year. They support 1.50 Bath per kilogram top-up market price at 3.20 Bath.*
>
> Mr. Smith Pinbanpot, 29
> a rubber farmer
> Interviewed on February 6, 2014

During my field visit in April 2014, the village headman and Mr. Smith were claiming maize price compensation on behalf of some maize farmers who did not get top-up money from the government. They were trying to contact the office of provincial of commerce and the maize mill to get money for farmers through agricultural product price mechanisms, thus, allowing the Hmong to take opportunities access to the state's subsidy.

This is different from other annual cash crops such as cabbage and ginger where the price fluctuation is based on market/consumption demand. They mostly sell those products to the middle-man. The products will sell to different markets that mostly go to Talad Thai, Thai market, in Bangkok. Farmers reflected to me on the market situation

that sometimes the market supply was greater than the demand, then the price would decrease the next day. Although, the price was very low they had to sell, otherwise the cabbage product would be putrefied, even though they did not cover the cost of labor. They, thus, decided to abandon the crop and many of them have decided not to plant cabbage and ginger for the past few years.

Emergence of market mechanisms with the state's monitoring was deemed as more trustworthy, and could contribute to household economic security in the future. The state's market mechanism, thus, was able to guarantee success and people were motivated to be involved with the state support in upland cultivation.

Rubber became a tool which upland farmers expected to encourage state support in different ways. Mr. Jur Khai told me that even though the Thailand Rubber Authority has not accepted the registration of their rubber plantation, they do support them with knowledge, suggestions on production and marketing, and respond to any problem related to rubber. Moreover, upland rubber famers asserted that even though they interface with the market directly without support or any compensate such land title area, they are assured that demand of rubber product will be increase more because of there are many products in everyday life made from natural rubber.

> *There are many products made from rubber. I think its demand will not decrease soon. Rubber price also will not get into a downward trend much.*
>
> Mr. Smith Pinbanpot, 29
> a rubber farmer
> Interviewed on February 6, 2014

Mr. Smith believed that was a given that the state will encourage the use of natural rubber to produce more products in industrial activities that could be increase the price of rubber product. Thus, the farmers could benefit from this situation. It shows that the state market, from the upland farmer perspective, is not flowing by itself, but relying on being stimulated by many mechanisms that does not allow the market lose balance.

A few months after my field visit, in May 2014, there was a movement against the low price of rubber price from the rubber plantation farmers in the southern part of

Thailand. They were bargaining with the government to increase the price by closing the roads to the south. Even though, the price issue was not solved immediately, the rubber farmer movement in the south raised an important issue and voiced concerns to effect decision making of the government. The rubber farmer's movement did not impact farmers in the south only, but rubber farmer in over all of country. It was difficult for the Hmong to organize a movement as their rubber farmland is in forest areas; their voice is not powerful enough in the rubber policy negotiations, when compared to with other parts of Thailand.

As noted previously rubber became a tool to access the state market mechanism that could secure their living in upland area by market access. The Hmong cultivation in the reserved forest in the upland frontier required support from state mechanisms to secure their access to market and to cost bargaining. This research highlights different ways people secure their livelihoods. Some households have different choices to access resources management in upland area (Rigg 2006). Rubber cultivation was adopted in response to pressures of economic security. However, the adoption of rubber relied on the possession of different capital in households. It embodied three different roles: the role of "a farmer" who contributes to the national economic growth, the role of "a worker" who is skilled at rubber tapping and employable, and "a villager" who live in the area of the national security in the borderland.

The arrival of rubber in the upland area showed the active engagement of the Hmong. It became a tool of opportunity to ensure household economic security through the management of different kinds of capital, such as social capital, financial capital, human capital and physical capital. The Hmong, in their adoption of a new cash crop, cannot be viewed simply as passive actors, or as a minority group of people who became victims of development. Many households adopted rubber as an opportunity in response to household economic security and national policies.

5.4 Summary

Rubber provided a new and modern method of cultivation in upland area in northern Thailand. It was usually explained as a new response to the expanding global market. However, the emergence of rubber plantations in upland Thailand was portrayed in different ways when it came to the case of ethnic minorities, for example,

the Hmong people. It involved complex social relationships amongst different actors who play important roles in upland areas. Rubber has different roles in the multi-level response to pressures to secure livelihoods for the Hmong living in upland area. The idea behind rubber adoption demonstrated the power of social capital, including kinship and network system that explain the different roles of "farmer" and "non-farmer". This study found that rubber cultivation had differed uses; 1), as an agriculture investment in upland area, including an investment for children if they lose opportunity to work as a wage labor in the urban areas; they could continue getting income from rubber plantation. 2) Sale of the rubber plantation; it could be sold for a mutually agreed upon price - the Hmong rubber farmer would sell, move to other place with complete land title and secure job for a household income. 3) Maintaining Hmong networks; adoption of rubber enabled farmers to have free time to participate in different networks such as the Upland farmer network as well as kinship network - such networks provided different types of support.

For farmers, rubber maximizes household income – not in a linear pattern, but household income emerges through different ways of capital accumulation. According to information gained in the research, there is a high expectation of increasing of household incomes. However, because of some conditions under living in reserved forest area, the Hmong are not achieving this aim through the financial profit of rubber alone, and they are trying to accumulate income through shifting of different capitals as well as social mechanisms such as a network, kinship system and so on. This strategy supports the process of "reducing cost of agriculture production" which was the main cause of losing the benefit of annual crops cultivation previously

Secondly, the benefits of having a rubber plantation for the famer is 1) Opportunities for sharing land access with relatives; allowing relatives to cultivate on the rubber plantation is another way of flexibly adopting rubber 2) Labor opportunity; some of Hmong became expert rubber tapper. They are able to offer tapping skills to find work at larger rubber plantations and this enabled them to access a job in their village or nearby their home. And 3) Being a part of "forest", the rubber farmers set rules of burning to prevented damage to rubber trees from fire which became a village rule to control fire. The Hmong adopted this strategy to bargain with the state agencies of forest fire control to enable them to cultivate in the forest area.

Rubber cultivation also created some social advantages to the marginalized Hmong, for resource access in the upland borderland. Even though rubber was, a symbol of state power on a macro economic growth, the Hmong did not completely surrender to the state power, but they adapted the power to their household economic security in different ways.

Finally, this thesis conceptualizes rubber as a strategy for transforming upland economy. The Hmong as marginalized people responded to multi-level pressures to their livelihoods living in upland area. These include; possessive property in upland borderland area, the Hmong rubber farmers are implicitly trying to make legitimate rights claims on tree plantation shifting from land possession. It is not possible to own and transfer the land because of laws in forest areas, but not rubber trees, which are not included as a forest tree. Their next generation could claim their rights for tapping. Moreover, there are different policies that promote the rights of those living in upland forest borderland. Even though it does not directly respond to rights of land title at the very least they could gain access to the rubber market mechanisms that would support them secure in the same price and market rights as the other people in titled land possession.

CHAPTER 6

Conclusion

The reasons for the Hmong to adopt rubber cultivation in the upland zone was based on a complex set of factors including the effect of intense regulations under the conservation regime, the role of the state security in borderland which was due to the conflict with the Communists over decades and the state's efforts to develop agriculture in the areas to support the market. The premise of this research is that the Hmong's adaptation to the state's policies on upland issues is not a case of the Hmong being a victim of development, but rather that they had agency.

In applying relational space theory, the use and meaning of the upland was dependent on shifting government policies over time. Exploring the advent of rubber plantations in Thailand highlights the different reasons for cultivation of the government and upland farmers. It implicitly shows the adaption of rubber plantation as a strategic cash crop response with multiple purposes at different levels; for example, household economic security, building the local economy and within the conservation paradigm. Rubber plantation is adopted in different ways by different groups of households relying on capitals of investment. The adoption of rubber cultivation, thus, showed different responses to the difficulties of living in the upland area.

This chapter provides a summary of the thesis; part one synthesizes the findings of the study, part two provides a theoretical discussion of the findings, and part three focuses on implementation and recommendations. The study contributes to understandings about changes of upland landscape over three decades. It reflects changing and evolving relationships between the state and the Hmong through different patterns of cultivation that the Hmong adopted from the state policies and practices. In addition, it demonstrates how different groups of Hmong adopted rubber cultivation and adapted to a new pattern and condition of cultivation in upland area, and the different roles of rubber plantation within the household.

The theoretical discussion of the findings examines the changing patterns of upland cultivation, arguing that the Hmong should not be simply viewed as victims of development or as passive actors in their choice of cultivation patterns. The chapter concludes with the assertion that the Hmong have rights to live in upland and sustain their own livelihoods.

6.1 Findings of the study

In Doi Yao – Pha Mon Mountainous area, rubber plantation is not explained as forest destroyer, but an environmental tool supporting the control of burning patterns of cultivation. It has contributed to reducing the slash-and-burn pattern of cultivation which is expressed as a main cause of smog problem in northern Thailand.

There are 3 main findings in this study; 1) Rubber plantation as community's adoption under the state's conservation re-arrangement. This shows the state's "conservation re-arrangement" and community engagement by rubber plantation adoption. 2) Different groups of Hmong adopting rubber as "strategic cash crop" indicates different strategies access to rubber cultivation in different pressures in households. 3) Rubber cultivation and the responses to tension in Hmong community adds to an understanding of the different roles of rubber adoption by the Hmong.

6.1.1 Cultivation under the state's conservation re-arrangement

The Hmong in Seng Meng village farmed perennial plants as cash crops together with annual cash crops for over twenty years. There were three issues that the Hmong living in the mountainous area needed to respond to: adapting to forest conservation policies as they were living in the reserved forest area; ensuring that the cultivation patterns responded to national economic growth and markets given that the area was considered a vital part of the economic zone; the fact that the area was critical in borderland security.

1) Arrival of conservation enclosure in upland area

Doi Yoa – Pha Mon mountainous zone had been a key area for the state since the conflict with the Communists during the 1960s. At the time of this research there were

three key government policies that highlighted the significance and complexity of the area: as an area critical to national border security, an economic agricultural zone and a conservation area. The significance of national border security in the Communist era was designated as a "Red Zone". It has been established as a buffer zone for national security since the cease-fire. The Hmong people in the village were organized as a "new" village, even though they claimed that settlement had occurred before the emergence of the fighting. Promoting commercial cash crops zone; prior to the cultivation of rubber, there were some commercialized cash crops grown such as maize, cabbage, ginger and fruit trees including longan and lychee. The government encouraged the villagers to engage in agriculture through policies such as an agriculture land in the forest land formation project, and assisted in ensuring a fixed and guaranteed price for maize. These cash crops were mostly to support the growing national economic market. Conservation area; the area was declared a reserved forest area with a focus on forest trees and natural resources. This re-zoning came along with the state's intensive awareness of protecting the forest trees from forest fires, which also resulted in the smog problem. The village was rezoned as forest area after the enactment of the Reserved Forest Act. The Hmong were committed to manage the village area in line with the policies by keeping out of the areas designated as community forest, participating in the save the forest campaigns and through changing patterns of cultivation to methods friendly to conservation. This included adopting fruit trees as well as rubber trees for no-burning cultivation that would result in a "green" landscape and the reduction of the smog problem.

In the conservation enclosure, upland people were faced with forest classification implementation, and upland cultivating pollution prevention as two main methods of enclosure. The state classifies forests into seven different categories. Of most significance to the upland people's life and livelihoods are the designation of national parks and reserved forests. The reserved forest is further categorized into three zones consisting of; conservation zone (C zone), agriculture zone (A zone), and economic zone (E zone). The Seng Meng village is categorized as Zone E. Even though villagers are allowed to live and cultivation in both the A zone and the E zone, they are encouraged to promote conservation through for example contributing to the community forest and supporting the state authorities in growing more forest trees.

Since the 1990's it has been important to redefine upland cultivation to address the growing pollution problems inherent in the previous patterns of cultivation. The Hmong, with their slash and burn strategies were viewed as destroyers of the environment, especially in the eyes of the people living in the low lands. In an effort to address the pollution issues the state authorities set up the Unit of Watershed Management and the Forest Protection Unit at Doi Yao – Pha Mon as well as the Forest Park Office, and the Division of Forest Fire Control Office. These state authorities have intensively taken up the challenge to regulate the villager's cultivation patterns to protect the forest and prevent pollution from upland cultivation. Moreover, these organizations are working in co-operations with the army who is taking a critical role in the upland area. It is clear that any cultivation in the mountainous area economic zone is governed by strict state authority regulation.

2) Difficulty of cultivation in upland under conservation enclosure

Within the state's multiple designation of the upland, there were attempts to promote different kinds of commercialized cash crops such as maize, ginger, cabbage and fruit trees. These cash crops have been expected to support the growth of the national economy, moving away from the traditional upland pattern of cultivation such slash-and-burn, which is considered to be a cause of forest degradation. It could be said that Hmong's traditional pattern of cultivation become an "empty space" in an aspect of conservation. The state established agriculture organizations to promote expected patterns of upland cultivation such as no-burning methods, promoting perennial cash crops and the introduction of new cash crops in response to the national economic growth (such as flowers cultivation instead of subsistent cultivation). However, these new cash crops are regulated by specific organizations and coordinated by the army, demonstrating the changing role of the military expanding from borderland state security protection to environment conservation and economic development.

3) Adopting of rubber plantation under complex situations of upland management

The introduction of rubber as a new crop with potential to positively impact on household security would not have been possible if the upland was zoned only as

reserved forest. However, the state stimulated rubber plantation as part of the conservation enclosure approach through promoting green cultivation, and seeing methods of production of rubber as environmentally beneficial. Rubber plantation, thus, is seen as essential to conservation and therefore the Hmong were allowed to cultivate rubber in the upland.

Cultivation in upland area with slash-and-burn patterns was highlighted as the main cause of destroying the forest area and contributing to environmental pollution. Thus the state was under pressure to promote ways of cultivation in the upland areas that did not rely on slash and burn methods. In the 1990s, rubber plantations were introduced into upland area in an attempt to support upland people cultivate in ways that also added to the protection of the forest, demonstrating a "green economy" and return of green landscapes to the northeast region of Thailand. Rubber plantations, in this sense, are part of conservation in the context of an upland green landscape. It is difficult to consider the expansion of rubber cultivation without considering rubber as part of economic growth in supporting the national economy. The expansion of rubber plantations in conservation efforts was concurrent with the state's development project to promote rubber economy as a critical element of national economic growth. The growth of the rubber industry in Thailand was supported by loans from the World Bank and the Commonwealth Development Corporation (CDC). Upon receipt of the loans the government identified different places to grow rubber with the goal of allocation five million Rai of lands. The northeastern and northern of Thailand was identified as having the correct condition for rubber cultivation – this bringing rubber cultivation to the Doi Yao – Pha Mon mountainous area.

"Imagining" and "producing" processes are two parts of explanation in the relational space concept that Barney (2009) used to explain upland relational resource ownership and usage, in this case the response to the government's goal of economic growth.

6.1.2 Different groups of Hmong and adopting of rubber as a strategic cash crop

The Hmong adopted rubber as a strategic cash crop in different ways based on their specific circumstances. This study classifies Hmong rubber farmers into three groups based on land access, household income, and household labour arrangements.

The three different groups of households can also be divided into high income, medium income and low income households. These groups all rely on rubber for household security but in different ways

1) Rubber adoption by the high income households

The high income group possesses large size of agriculture plots of lands due to greater opportunities to access to land prior to the conflict in 1960s. Since 1982 the government has officially allowed the Hmong to live and cultivate in the area. There were many households of Hmong who came from different places and settled as a village. The Hmong who lived in the area before, they were sanctioned by government have continued to cultivate. The high income households decided to adopt rubber in the first year of their arrival. They began slowly, planting only a small number of rubber trees in the first year. They expanded and established more rubber farm by changing from land for rotation crops to rubber trees over time. The high income household group possesses on average 52 Rai of agricultural land per farm. They designated 11 – 30 Rai for their rubber farm with the rest of the land used for rotation crops such as upland rice, maize, green beans, and cabbage. This group had experience with cultivating fruit trees, which are other perennial cash crops in upland area; however they were not a viable source of income due to unstable prices. Thus, they cultivated rubber trees between the rows of fruit trees so they could have different options and could select in the future which kinds of trees were most successful.

These farmers followed pattern of rubber cultivation suggested by the Rubber Authority of Thailand staff, and have focused on rubber varieties which included RRIM 600 and Songkha 251. The trees are planted in a row 6 meters apart, and the distance between each rubber tree is 3 meters (or 3 x 6 meters) ensuring that there are about 90 rubber trees per Rai.

Even though the rubber price reduced during 2015-16, this group decided to keep their rubber plantation as a part of household pattern of cultivation. They plan to wait for higher price, citing fluctuating prices of other crops such as those experienced with fruit trees. They decided not to cut down their rubber trees because they did not have sufficient household labour to cultivate rotation cash crops, which also require a long fallow and slash and burn methods. Also, cutting down the rubber trees would be

in contravention with state forest protection authority policies and could result in conflict. Rubber cultivation also allows farmers to present their cultivation, separating from forest area. Thus, the farmers are committed to keeping rubber trees even if they yield less income.

2) Rubber adoption by the medium income households

Some medium income household group also adopted rubber cultivation as soon as they arrived in the village, although some households waited because they wanted to observe and learn from others. The common strategies, to transition to rubber, was to initially plant and cultivate about two hundred to five hundred rubber trees, then increase the number of trees in line with the growing market. This group also accepted the knowledge of rubber cultivation from the Rubber Authority of Thailand.

The middle income households had on average 5 labourers per household and thirty Rai of agriculture land, which included ten Rai of rubber plantation and twenty Rai of rotation cash crops such as upland rice, maize and ginger. However, they did not have enough rotation land for cultivation in some seasons and they solved this problem by asking relatives mostly in neighboring villages to cultivate for them. The medium income households had sufficient ratio of household labour to rotation agriculture land after devoting some land for rubber plantation. During the decline of rubber price, they decided not to engage in the tapping process but rather leave their rubber trees as they were not getting sufficient returns on the tapping investment. However, they still cared for the rubber trees by clearing weeds to stop forest fires.

The reliance on their social network is the solution to the adoption of rubber plantation in situations of difficulty. Some household heads took on roles as international kinship network leaders to create more opportunities of support from relative abroad.

3) Rubber adoption by low income household

The low income household group was the last to engage in rubber cultivation, after the other groups had been engaged in rubber tapping for a few years. They decided to grow rubber after the success of the other group in rubber tapping and sale of rubber. This group of households has not completely embraced rubber cultivation because they

were not sure about rubber product in upland areas, as well being wary of the stability of the market. According to small rubber farmers, they also worried about transporting their products to sell to the rubber factory, which was over 50kms away from the village. They were also concerned about their right to possess rubber trees in the agriculture land within the reserved forest.

The low income group learnt how to cultivate rubber and manage each stage of the rubber plantation process from other groups which had cultivated rubber for years. They focused on learning how to grow and take care of rubber trees, cultivating other plants in the rubber plantation farm and tapping for rubber liquid. Learning from other groups encouraged them to adapt to rubber cultivation through reducing costs but following the pattern of cultivation suggested by the Rubber Authority of Thailand. One strategy to reduce costs involves mulching – which they do themselves - to ensure the young rubber trees are provided with sufficient nutrition. This shows that the household manage each process of production by using household labour thus reducing costs.

Low income household have on average 18.3 Rai of agriculture and devote 3 Rai or 16.40 percent to rubber trees, which equates to about 250 rubber trees per household. Rotation cash crops such as maize, upland rice are still the main source of production of the household. Household labour is less than in the other groups and there are 3 people on average in the household that are able to work – this however is sufficient for seasonal cultivation. If needed, the household may hire other labour to support seasonal or task based work such as the riskier tasks like working with chemicals or tasks which require hard labour including carrying. These households reported borrowing some money from the village fund to supplement income for both their rubber farming activities and household consumption.

In short, the three groups of Hmong rubber plantation farmers differentiated on the basis of household income and property, adopted rubber cultivation on different scales. The high income group, although having access to more land, reported challenges in land ownership especially within the reserved forest, and the difficulties of transferring their land to the next generation (as a way to ensure economic security and sustainability). Rubber cultivation was adopted as a result of changing policy on the rights of cultivation in upland forest areas. The medium income group of rubber farmers adopted rubber cultivation to ensure household sustainability as well as to accumulate

wealth, even though growing rubber effectively reduced the amount of land available for rotation for annual cash crops. This challenge was solved by asking relatives for support in providing opportunities to cultivate other land. The low income group of households was faced with the high cost of investing in annual cash crops and potential losses in some seasons due to the unstable price of products. They, thus, adopted rubber as a long term investment, with an initial large cash payout but potential long term benefits.

6.1.3 Rubber plantation and its responses to tension in Hmong community

The Hmong rubber farmers began rubber cultivation for many reasons outlined in this research. They also created different functions for rubber plantations in the area. This study classifies the roles of rubber plantation into three categories consisting of the role in household level, role in local economy level and role in conservation paradigm.

1) Role of rubber in household economics

As noted above the household income of the Hmong is directly related to how they farm rubber and the different household livelihood risks they face. Therefore, rubber plantation has differing dimensions of support to ensure household security.

A role of Land Rights in the reserved forest area

The challenge of the right to own land is mainly an issue for the high income families, in part because they possess large areas of land in the forest area. They have continually tried to cultivate in the agriculture land to prevent unclear boundaries between the forest zone and the village cultivation zone to mitigate challenges on land usage and ownership from the forest authorities supported by the army. They have implemented a long fallow pattern due to possessing a large piece of land coupled with limited labour in the household. This has allowed perennial tree to grow. This group reported conflict over land rights with the army who have claimed forest land based on evidence. They have gathered from satellite images of the forest area. Thus, rubber plantation could support them to show cultivation evidence that separated with natural forest area.

Rubber as a form of investment and saving

Faced with high investment in annual cash crops coupled with volatile markets the Hmong were vulnerable to not covering costs and increasing household livelihood risk. According to the experience of the Hmong only maize was a viable product due to the price guarantee programme run by the Thai government. It was thus difficult to achieve household saving based on annual cash crops. Rubber became the new cash crop in which to invest in for more stable household savings.

There are two main strategies the Hmong have implemented to promote household economic security: in the long term the accumulations of rubber trees to leave as an inheritance for the next generation and in the short term the sale of rubber plantation land. Accumulation of rubber trees for inheritance is an expectation in most households particularly in the high income group. Many of the rubber plantation farmer households in the high income group have lived in the area for three decades, and have amassed agriculture lands which are expected to pass to next generation to live off and ensure secure livelihoods. The rubber plantation was, thus, accumulated as an asset until the trees become unproductive. The other investment strategy of rubber is the sale of the rubber plantation: once sold the household often migrate to another area. The middle income group who moved to the village after the end of the Cold War, were more likely to adopt this strategy as an opportunity to ensure household economic security, even if the plantation was yielding large amounts of liquid rubber. Investment in rubber was expected reap opportunities including increased access to financial capital. The medium income group found that living in upland area had many challenges, including ensuring household security and sustainable livelihoods for the next generation, unemployed of household members and land possession insecurity. Due to these challenges many of the households reported efforts to save money so they could buy land and property in the low land, closer to the cities so their children were more likely to be employed. The expectation was that the next generation would get a sustainable job and income.

The impact of production costs on agriculture investment

A significant risk on the economic security of households was the increased cost of annual cash crops, the cost-benefit ratio being impacted by fluctuations in productivity and price. All income groups were confronted with this problem, particularly the low income households, and in some seasons they decided not to

cultivate annual cash crops due to the high risk. The low income group adopted rubber cultivation as an investment for the future. They were for many reasons the last to take up rubber cultivation but learnt how to reduce the cost of rubber production from the other groups.

2) Rubber plantation in local economy level

Rubber cultivation provided "economic hope" for upland people engaging with the national agriculture policy. The Hmong engaged with market mechanisms for a long time before getting support from the state policies. However, rubber differs from maize and needs a long-term management plan before the benefits from rubber trees are realized.

Rubber cultivation created different patterns of land and labour arrangements (Anan, 1989) such as sharecropping and the renting of land with unfixed rental costs. As such, rubber plantations necessitated revision of labour and land management; for example, when upland rubber farmers did not have enough land for rotation, especially in the medium and low income groups they would look for other land for household annual cash crops cultivation from their relatives and other rubber plantation farmers, such as high income households, with large tracts of land. The nature of rubber farming allowed for the cultivation of annual cash crops in the first few years of the rubber plantation. Rubber owners allowed relatives or others who did not have enough land for cultivation, to plant crops between the rows of rubber trees, although the relatives were required to invest in seed, chemical fertilizer and provide the labour themselves. Moreover, the relatives were required to take care of rubber trees as well as preventing forest fires. Cultivating in the rubber plantation also benefits rubber trees because it indirectly fertilizes the trees.

3) Rubber and its role in conservation

Rubber cultivation was, in part, adopted in response to conservation efforts in Doi Yao – Pha Mon. Forest fires and the resulting pollution were seemed as a huge problem in the areas for decades – rubber plantations provided a forest fire buffer zone and led to a decrease of forest fires in the area.

Slash-and-burn patterns of cultivation were a major cause of forest fires and smog requiring major changes in state regulations and policy. The government created different tools to encourage upland people to participate in no-burning processes of agriculture land preparation, particularly through introducing perennial cash crops such as fruit trees as well as rubber plantation.

The introduction of rubber plantations provided the Hmong famers with an alternative agricultural venture that did not require burning, especially as rubber is sensitive to heat which affects both quality and quantity. Rubber farmers and village leaders launched a strategy to prevent the damage of rubber trees, which involved the payment of fines for those who damaged trees through fires. Moreover, they organized a forest fire watchman during the summertime whose job it was to prevent unexpected forest fire at night. The state authorities also saw (and promoted) the role of rubber cultivation as a strategy to solve forest fires in the area. Thus, rubber cultivation was accepted by both upland famers and the state authorities, in their role as forest regulators, as a new method of prevention from forest fires which resulted from previous agricultural activities.

6.2 Theoretical discussion of the findings

Plantation adoption by upland people in upland area was characterized in previous studies as the Hmong being victims of development. This study argues that it is not correct to stereotype upland cultivation as victimization.

Rubber cultivation in the Northern Thailand upland area, adopted by the Hmong, as small-scale rubber farmers in the reserved forest upland area was in part due to the state's promotion to contribute to the national economic growth under the global rubber market (Sayamon, n.a.). It could be say that the Hmong rubber plantation adoption is different from other characteristics of plantations because the Hmong were able to decide for themselves to accept rubber as a new cash crop on their own farms. Examining rubber plantation in upland area through "relational space" theory (Barney 2009) found that the Hmong upland farmers had challenges in the management of their land since the arrival of forest policy during the Communist era. They tried to contest upland rights management in different ways such as memorial contestation (Urai 2015), traditional knowledge on forest and resources management (Apai 2003; Songwit 2004),

as well as adapting to the dynamics of economy (Prasit 2011) to access more rights on resource management in upland area. Therefore, the emergence of rubber plantation can be understood through a political economy approach analyzing the relationship changes in forest management. The Hmong, in this sense, did not surrender to the plantation system. They did and are still struggling and bargaining about access to upland rights for resources management. This does not mean that all of them could access to rubber plantation freely, as it depended upon capital hold, capital exchange and access to investment. Some of them who could not possess land for rubber plantations as a plantation owner because of inadequate of capital still had opportunities to benefit from rubber, for example, from relatives who were rubber owners, to cultivate in between rubber tree rows, or becomes an expert on rubber tapping.

The Hmong's rubber plantation adoption, in this sense, shows their creative engagement (Li 1989) to development, and not one of surrender to the plantation system that exploits people who are powerless. Indeed, they have adopted rubber cultivation to improve their relationship with the state agencies that monitor and regulate upland people economic activities.

Finally, I argue that the Hmong's rubber plantation shows efforts of upland people to participate in, and contribute to, the state development projects. However, policies makers as well as some activists could not see their effort, instead labeling them as victims of investors in development that made them lose power and rights. Moreover, some the state agencies added to the negative labels by seeing them as forest destroyers during campaigns such as "*Tuang Kuen Phuen Paa*" (Claiming back forest areas) campaign.

6.3 Summary

The thesis demonstrates that the patterns of cultivation changed along with shifting relationships between the state and the Hmong in upland areas over a period of three decades. The research points to the following policy implication and recommendations.

The Hmong's rubber farmers, in reserved forest areas, have emerged to solve household economic security. Rubber, on the one hand, is expected to increase

household income by engaging with the state policy on economical plants. The Hmong, in this way cannot be judged as victims of development because the Hmong rubber farmers have tried to engage with policy of economic growth. Through adopting to rubber cultivation, the farmers received support from development organization such as the Local Administrative Office, NGOs in some financial opportunity invest in rubber cultivation. On the other hand, rubber cultivation allows farmers emancipation from the pressure on an air pollution producer in smog problem since reducing of burning process of cultivation. The state agencies on forest control have represented the Hmong burning pattern of cultivation as a main cause of smog problem for three decades. The Hmong, thus, attempted to respond to the state policies on environment concerns. Rubber cultivation, in this sense, becomes a strategic cash crop of the Hmong community and it responses to the community's pressure.

Living without official land title, means that upland people face great insecurity. This demonstrates the limitation of law and the state policies on upland development. Even though, they are productive, the Hmong are not able to engage the market with their products under the state's mechanisms. Rubber cultivation, for instance, is a clear case study on the contradictions of development policy and upland people engagement.

According to policies on upland development and conservation, land is important for their living and livelihoods because people in rural and agricultural spaces are reliant on agricultural economic activities. Even though some of their household members are able to get income from non-farm economic activities, at the very least, they want to make sure that they have land for cultivation in case of lost opportunity from non-farming activities. Land title is needed for them to continue living in upland areas. It needs to be designed in such a way to make sure land possession is not only for the current generation, but also next generation.

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CURRICULUM VITAE

Author's Name Mr. Autsadawut Mongkolkaew

Date/Year of Birth October 17, 1982

Place of Birth Thoeng, Chiang Rai, Thailand

Education

2004 Bachelor of Science (Sociology and Anthropology) Faculty of Social Science, Chiang Mai University, Thailand

2001 High School, English – Math, Thoeng Witthayakom School, Chiang Rai, Thailand

Scholarship 2012 – 2013, Regional Center for Social Science and Sustainable Development (RCSD)