



**Livelihood Impacts of Smallholder Rubber Plantations:
Case Studies of Two Communities in Vientiane Province, Lao
PDR**

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Abstract

In Laos rubber plantation investment has increased significantly in recent years, supported by the Government. Farmers decide to cultivate rubber trees in order to generate greater income and diversify their agricultural activities. However, rubber planting also creates impacts on the livelihoods of farmers. This research aims to examine the impacts of rubber plantations on two communities in Vientiane Province. Utilising the sustainable livelihood framework, this research seeks to understand how the introduction of rubber plantations affect livelihood activities, the local land use system, and the environment in the case study communities. Key positive impacts include increased income and job opportunities. However, increased rubber planting reduces the availability of land for crops and livestock rearing and also creates some adverse environmental impacts. Overall, rubber production significantly modifies local agricultural production systems and resource use decision making in communities.

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Acronyms

ADB – Asian Development Bank

ASEAN – Association of Southeast Asian Nations

DAFO – District Agriculture and Forestry Office

DFID – Department for International Development

FAO – The Food and Agriculture Organization of the United Nations

FDI – Foreign Direct Investment

GDP – Gross Domestic Product

GMS – Greater Mekong Subregion

GoL – Government of Lao PDR

HEC – Human Ethics Committee

LAK – Laotian Kip

Lao PDR – Lao People’s Democratic Republic

LDC – Least Developed Countries

LSB - Lao Statistics Bureau

NLMA – National Land Management Authority

MAF – Ministry of Agriculture and Forestry

MDGs – Millennium Development Goals

MPI – Ministry of Planning and Investment

NGPES – National Growth and Poverty Eradication Strategy

ODA – Official Development Assistance

OECD – Organisation for Economic Co-operation and Development

PAFO – Provincial Agriculture and Forestry Office

SDGs – Sustainable Development Goals

UNITAR – United Nations Institute for Training and Research

VUW – Victoria University of Wellington

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Chapter 1 Introduction

1.1 Background

Natural rubber is globally important for development and it is mostly used in tyre manufacture. Since 1900, natural rubber has been a precious commodity in global industry, with an average annual growth rate of consumption of 5.8%, and Asia was the world's largest natural rubber market, including consumption and production (Li & Fox, 2012). Generally, rubber plantations and rubber consumption have been increasingly expanding for many decades. During the past decade, global natural and synthetic rubber production and consumption have slightly increased (Douangsavanh, Thammavong, & Noble, 2008). The natural rubber price rose between 2009 and 2011 because of the growing demand from industrial tyre manufacture (MAF, 2016). However, subsequently, the natural rubber price has fallen because the demand from China, the largest consumer of natural rubber in the world, has decreased (Research in China, 2014). Natural rubber production continued to grow in Asia, and Laos has strongly promoted rubber plantations in order to support the country's economic development (Friis, Reenberg, Heinimann, & Schönweger, 2016).

Economic developments in East Asia are rapidly growing and this accelerates increasing investment and consumption in the region (Asian Development Bank, 2017). Due to the growing economy in this region, investors from growing neighbouring economies, including China, Vietnam and Thailand, have invested more and more in Laos (Friis et al., 2016). As a consequence of such investment, rubber plantations in Laos are rapidly expanding and they significantly contribute to agricultural and rural development (Douangsavanh et al., 2008). Since the end of 1980s, the economy of Lao People's Democratic Republic (Lao PDR or Laos) has been reformed to open the country to the global economy and Laos is in transition from a subsistence farming system to industrial agriculture. The Government of Lao PDR (GoL) has focused on promoting policies and regulations that mitigate the negative effects of this transition, for instance, land reform, stabilisation of shifting cultivation and eradicating opium cultivation (Bouahom, Alberny, Douangsavanh, & Castella, 2011).

Most farmers in Laos still practise subsistence agriculture although agricultural production is becoming increasingly commercialised (Bouahom et al., 2011). Rubber planting investment is very attractive and it is one of most significant agricultural commodities for export of the country. Many farmers have decided to plant rubber in order to take advantage of this kind of investment and to diversify their agricultural activities. In order to invest in rubber production, many people have changed their employment and converted their assets, particularly land and labour (Alton, Bluhm, & Sananikone, 2005). Rubber plantations have a great potential to generate income for farmers in the long-term and provide additional benefits because the rubber latex price is high and farmers can also sell rubber wood (Douangsavanh et al., 2008). In addition, regulations and policies in the country have also improved to attract foreign investment, with the highest amount of investment in the central region of Laos (Schönweger, Heinemann, Epprecht, Lu, & Thalongsechanh, 2012). Notably the two case study communities for this research are located in Vientiane Province, the central part of the country. These rubber plantation investments have encouraged industry in the country and also supported farmers' livelihoods (Lao PDR, 2014).

Although rubber production can provide long-term benefits to local people, some questions regarding sustainability of these benefits remain (Douangsavanh et al., 2008). In Laos, there are three main models of rubber production investment including large-scale concession, contract farming and smallholder farming. Firstly, in the case of land concession for rubber plantations, the GoL and local authorities usually rent state land to rubber production investors (Bouahom et al., 2011). Various studies have revealed that large-scale concessions in Laos often negatively affect local farmers and dramatically transform rural livelihoods and landscapes (Baird & Fox, 2015). Secondly, the contract farming scheme can generally support generating regular income in the country. The local authorities often promote rubber plantations in the form of contract farming and state support this contract farming regime by ensuring contract are regulated (Bouahom et al., 2011). However, unclear contracts often cause problems about benefit sharing. This is because most rural farmers are illiterate and the contracts are also made without accurate guidance from local government officials (Douangsavanh et al., 2008). In the northern region of Laos, large-scale concession and contract farming plantations are mostly dominated by rubber production investors from China (Friis et al., 2016). Lastly,

smallholder refers to a model of rubber planting in which people personally invest in rubber production with their own capital (Bouahom et al., 2011).

Smallholder farmers are still the majority of the population and they are important for the country's development. Specifically, rubber planters produce and export rubber latex, and this can support economic growth in the country. With regards to rubber production, smallholder farmers are involved in all three models (large-scale concession, contract farming and smallholder farming). However, the rubber plantations of smallholder farmers accounts for only 30% of rubber investments in Laos (MAF, 2016). Some farmers may work as casual labour for rubber production companies in large scale plantations and they get pay for their labour (NLMA, 2009). Furthermore, in contract farming, farmers have to work as labour but some people may not receive a wage for their labour, which depends on contract criteria between farmers and investors. In terms of smallholder plantations, farmers have to work without pay for tapping and taking care of their own rubber plantation, or employ others in their community to work instead of them (Manivong, 2007).

In Laos, rubber planting can create various impacts on livelihoods, and different forms of rubber plantations may affect people differently. The government have considered rubber planting expansion as a “win-win solution” in order to encourage investment in the country (Bouahom et al., 2011). Rubber planting can greatly benefit people without negative consequences on human life and the environment if people could manage rubber production properly, or if people can growth rubber with less negative effects on their livelihoods or communities (Douangsavanh et al., 2008). Rubber production leads to increasing income and this can also create employment for villagers in the community. For farmers who work for companies, they earn wages for their labour. For smallholder farmers who own plantations, they can sell rubber products and this supports them to accumulate capital and leads to creating greater income (NLMA, 2009).

However, in various cases in Laos, rubber plantations may also create negative impacts on local people's livelihoods and the environment. To establish rubber planting, land and labour are required, and most farmers have to convert their land to planting areas and work as labourer. The establishment of rubber plantations has affected land use systems and livelihood activities in communities. Moreover, large-scale concession also impacts

ecosystems, such as flora and fauna which are sources of food and products for local people in surrounding communities (NLMA, 2009). These impacts on livelihood mostly occur with smallholder plantations and farmers have to adapt to the new situations created by these changes. This research seeks to understand whether rubber planting farmers experience increased vulnerability when rubber plantations are introduced. To realise this, the impacts of rubber investment need to be clarified, especially on local farmers' livelihoods in the central region which is attractive for foreign investment.

1.2 Research objectives and questions

The research aims to examine the impacts of rubber plantations on local communities in Vientiane Province based on the sustainable livelihood approach. This research explores and analyses the effects of rubber planting on smallholder farmers' livelihoods by following the main components in the sustainable livelihood framework. To explore the impacts, both benefits and obstacles, the research focuses on livelihood activities of farmers and changes in communities such as land use and environment. In addition, the research also examines perspectives of local government officials on policies and farmers' coping strategies.

The main research question is: *How does the establishment of rubber plantations impact local people's livelihoods in communities in Vientiane Province?* To answer the main research question, sub-questions are developed:

1. How do rubber plantations affect local people's livelihood activities?
2. What challenges and opportunities do rubber plantations present?
3. How do local people deal with the impacts of rubber plantations?

1.3 Thesis outline

This research is organised into seven chapters. Chapters two to four provide the foundation for the research. Chapters five to six explain and discuss the research results. Finally, chapter seven presents the conclusion of the research.

Chapter 2, the literature review, provides information about the sustainable livelihood approach and its framework. The chapter explains factors in each component in the framework and the relationships of those components. It also presents an overview of

global rubber production and its impacts. In addition, the chapter illustrates traditional farming systems and the effects of rubber planting in Laos.

Chapter 3 explains the methodology applied in this research and how the research was performed, such as explaining the choice of the research location for conducting interviews, selection of participants, and methods used. The chapter also presents positionality and reflexivity issues for ethical considerations.

Chapter 4 introduces the context of Lao PDR, including background characteristics of the country, context of development and the impacts of rubber plantations. This chapter also presents details of the research locations.

Chapter 5 presents the findings of the research. This shows the livelihood activities of farmers in both case study villages and local land use changes of both communities. The chapter also describes the impacts of rubber plantations on livelihoods and the environment. In addition, the chapter discusses relevant policies and how farmers cope with their difficulties.

Chapter 6 discusses the results from the previous chapter based on the sustainable livelihood framework. The chapter also compares those results with other literature presented by following each component of the sustainable livelihood framework. This chapter provides some recommendations for future developments.

Chapter 7 presents the conclusion of the research. This chapter wraps up the findings of the research. The chapter also highlights some aspects from the discussion and provides personal thoughts for further investigation.

Chapter 2 Literature Review

2.1 Introduction

The chapter consists of three main sections. It begins with the definition of concepts regarding sustainable livelihoods and also explains how the sustainable livelihood approach and framework are applied. This is followed by providing an overview of global natural rubber production and its consequences, particularly in Southeast Asia. Next, the chapter also presents traditional farming system practices in Lao PDR. Finally, this chapter specifically reviews some impacts of rubber plantations on people's livelihood and environment in Laos.

2.2 Rubber plantations and livelihoods

2.2.1 Global rubber production

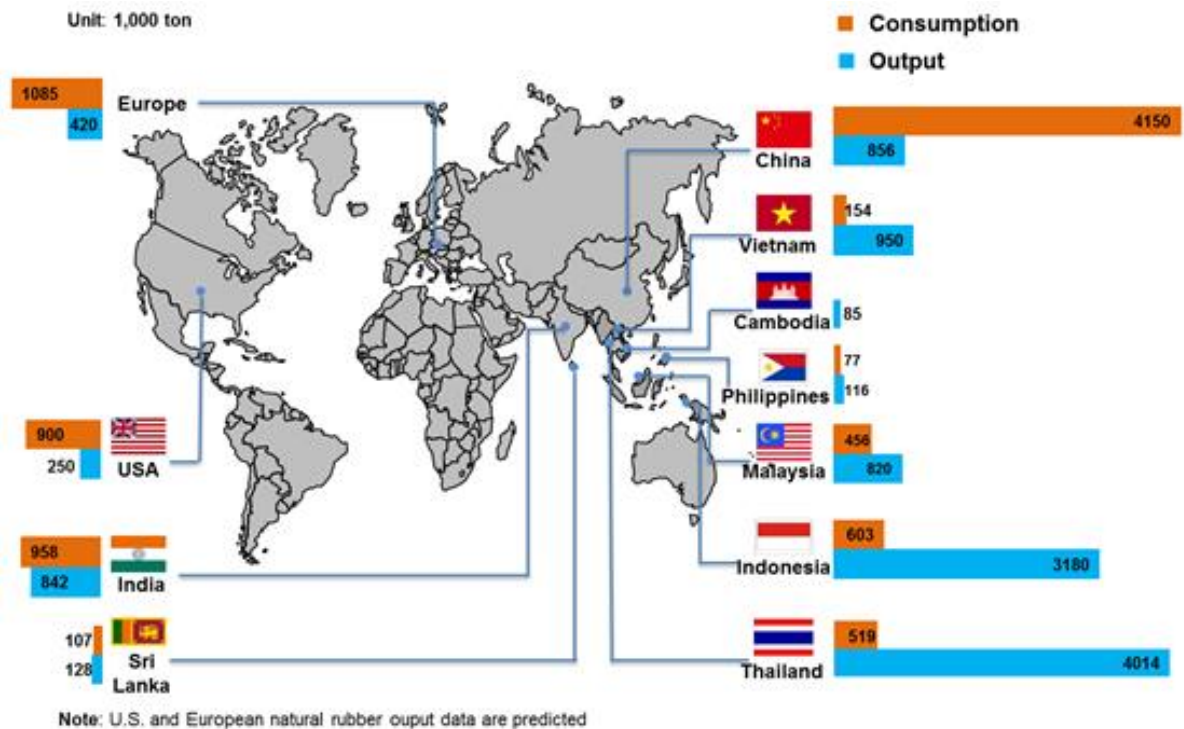
The overall trend of global rubber production has slightly increased during the last decade (MAF, 2016). There are two main different kinds of rubber production. The first is natural rubber that comes from the tree. The Para rubber tree or *Hevea brasiliensis* is a native tree to the Amazon River basin. This type of tree can reach a height of up to about 20 to 30 metres with a girth of 2 to 3 metres. Natural rubber has played a significant role in rubber industry since the beginning of the twentieth century (Williams, 1975, as cited in Manivong, 2007). In contrast, synthetic rubber is “any of various synthetic materials and it is similar to natural rubber. It is made by polymerising unsaturated hydrocarbons, such as isoprene and butadiene” (Collins English Dictionary, 2017). Synthetic rubber, mainly derived from oil-based material, was developed and expanded greatly during World War II in response to disrupted supply of natural rubber and much increased demand. Synthetic rubber has many similar industrial applications, for example the tyre industry, tubing and various accessories in everyday life. From 2005 to 2014, both natural and synthetic rubber productions increased, with a Compound Annual Growth Rate (CAGR) of approximately 3.5 percent for natural rubber and 3.8 percent for synthetic rubber (MAF, 2016).

Natural rubber is a vital agricultural product and it plays an essential role in development. Natural rubber is a material choice for manufacturers, particularly the tyre industry, and rubber has significantly influenced global politics and the environment for

more than a century. From 1983 to 2016, global natural rubber production rapidly increased from 4.4 million metric tons to approximately 13 million metric tons (Mann, 2016). Due to the increase in global natural rubber production, oversupply of natural rubber production exists and remains at around 200,000 tons per year (PR Newswire, 2017). Currently, more than 40 percent of global rubber production comes from natural rubber trees (Mann, 2016). While global natural rubber production is rapidly increasing, synthetic rubber production and application are also growing around the world. Total global synthetic rubber production was about 10.9 million metric tons in 2000 and it increased to 14.8 million metric tons in 2016 (Statista, 2017). The global output of synthetic rubber was expected to reach 16.9 million metric tons by 2021 (PR Newswire, 2017).

In terms of consumption, China is the largest importing country, followed by India, USA and some European countries. In 2013, these countries imported more than half of the supply of global natural rubber, and accounted for 59.6% of the global market (Research in China, 2014). On the other hand, the main producing countries are in Africa and Southeast Asia, for example, Thailand, Indonesia and Vietnam (Research in China, 2014). Figure 2-1 below shows the natural rubber consumption and output of major countries. According to the Global and China Natural Rubber Industry Report 2017-2021, global rubber demand is expected to increase continuously (Research in China, 2014). However, the demand and supply gap of natural rubber in the global market was expected to increase from 200,000 tons in 2006 to 700,000 tons by 2021 (PR Newswire, 2017). This demand and supply gap indicates a high level of demand in natural rubber production and this enormous demand may lead to increasing areas of natural rubber production around the world, especially various countries in the Southeast Asian region.

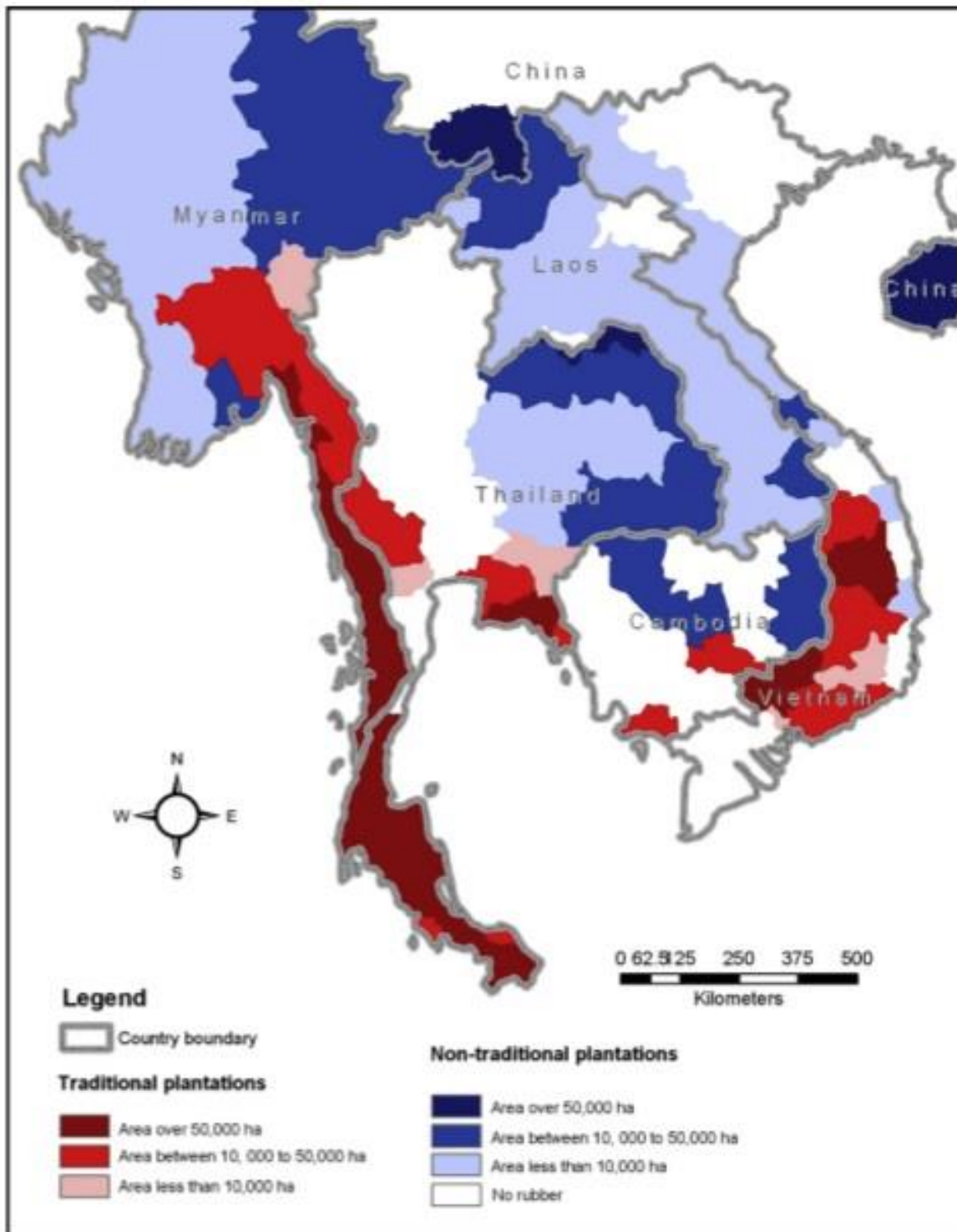
Figure 2-1 Natural rubber output and consumption of major countries in 2013



Source: Global and China Natural Rubber Industry Report (2013-2016) (Research in China, 2014).

Since 2000, rubber planting investment in Southeast Asia has grown significantly, fuelled by a booming price for natural rubber (Ahrends et al., 2015; Schönweger et al., 2012). Rubber production in Asia makes up 93% of the global natural rubber market, and Thailand, Indonesia and Vietnam are the world's top three rubber producers respectively (Research and Market, 2017). Beside this growth, forest and farming land has been converted to industrial plantations in Southeast Asia with more than one million hectares cleared for rubber planting (Fox, Castella, Ziegler, & Westley, 2014). Figure 2-2 illustrates distribution of rubber in the Greater Mekong Subregion (GMS) which has one of the highest rubber densities in the world and significant growth of natural rubber production is expected in this region. For example, rubber cultivation in the mountainous areas of Yunnan province of China, Myanmar, Thailand, Laos, Vietnam and Cambodia is predicted to increase by four times by 2050 (Fox et al., 2014; Rigg, 2016).

Figure 2-2 Traditional and non-traditional rubber tree growing areas in mainland Southeast Asia (based on provincial and state-level statistics collected between 2007 and 2009).



Source: (Fox et al., 2014, p. 156; Li & Fox, 2012, p. 422).

2.2.1.1 China

China is one of many countries in Asia that has a long story of rubber development, with rubber first introduced in Hainan Island in 1906 (Alton et al., 2005; Douangsavanh et al., 2008). Growth in rubber production has been significant in the Post-World War II period. As Douangsavanh et al. (2008, pp. 6-8) identified, there have been four periods of rubber development in China including the “exploration” period (1951-1957), “developing” period (1958-1965), “rash and frustrated” period (1967-1977), and “reform and advance” period (1978 up to present). Through these periods of development, China has become the world’s largest consumer of rubber, fuelled by the nation’s considerable economic growth. However, Chinese rubber demand has not kept pace with production. China’s consumption has accounted for 4.25 million tons or 34.9% of the natural rubber market in 2013, while production was only 856,000 tons (Research in China, 2014).

As previously mentioned, China still has a considerable demand for natural rubber although several countries in Asia have consistency produced natural rubber. As a consequence, the main natural rubber producing countries are in this region and rubber producing areas in these countries continue to grow steadily. Even though China has much land, population density in the country is also high. Due to limited suitable land for rubber expansion in the country, China had to seek suitable land for rubber production investment in GMS countries such as Myanmar, Laos, Vietnam and Cambodia (La-orngplew, 2016; Schönweger et al., 2012). China has decided to develop and invest in rubber production in this region for two main reasons. First, transportation is one of the most important factors, as these countries are close thus reducing the cost of investment. Second, Southeast Asia is suitable for rubber planting because of its unique geography and tropical climate (Douangsavanh et al., 2008).

China is crucially important in the global rubber market. The natural rubber market is currently growing, but the price of natural rubber fluctuates. The use of natural rubber in tyre manufacturing is currently decreasing because economic growth in China has decreased and this has led to dropping world demand for natural rubber in 2016 (Research and Market, 2017). The global rubber price sharply decreased at the beginning of 2006, but its price is expected to increase by next year (PR Newswire, 2017). This fluctuating price trend creates huge impacts on producing countries, especially in the Southeast Asian

region, and on rubber farmers in these countries because they cannot easily store their rubber products until the price increases again. Recently the President of the Thai Rubber Association (2017) noted that “with the lower oil and commodities price and the volatility of the Yuan and the China rubber stock, rubber price stayed in its low zone, pushing some farmers to cut down the trees and resort to other more lucrative sources of income”.

2.2.1.2 ASEAN

ASEAN countries form the world’s largest group of rubber producers and rubber production in these countries accounted for more than \$9.6 billion or 80% of the world natural rubber market in 2016 (World's Top Exports, 2017, as cited in MAF, 2016). In 2015, rubber became a significant sector and it has been one of the key priority products of the ASEAN Economic Community or AEC (ASEAN, 2016). ASEAN countries continue to promote and develop natural rubber production mainly for export to China, the largest consumer country of natural rubber in the world. Table 2-1 presents the top five natural rubber exporting countries in the ASEAN region. Thailand, Indonesia, Vietnam and Malaysia are the world’s top four natural rubber producers. Interestingly, Laos is a small and new rubber producing country but it is in the top five of ASEAN markets exporting natural rubber and ranks number 11 of the world’s market.

Table 2-1 ASEAN Countries that Exported the Highest Dollar Value Worth of Natural Rubber during 2016

ASEAN rank	World rank	Country	Exported value worth (US\$)	% of the world market
1	1	Thailand	\$4.4 billion	36.8%
2	2	Indonesia	\$3.4 billion	28.1%
3	3	Vietnam	\$904.1 million	7.5%
4	4	Malaysia	\$871.1 million	7.3%
5	11	Laos	\$100 million	0.8%

Source: World's Top Exports (2017)

Thailand is currently the world’s leading exporter and producer of natural rubber, followed by Indonesia as the second largest producer. More than half of natural rubber production in the world market is exported by Thailand and Indonesia (World's Top

Exports, 2017). Thailand produced 4.47 million tons while Indonesia produced 3.21 million tons in 2016 (Thai Rubber Association, 2017). Thai rubber production is mainly exported and it is primarily exported to China and European countries. On the other hand, rubber production in Indonesia was largely for domestic consumption in the past decades. For instance, in 2004, Indonesia exported only around 20 percent of its rubber production, while local tyre manufacturing consumed approximately 80 percent of natural rubber production (Suharto, 2004, as cited in Alton et al., 2005). However, Indonesia now exports about 85 percent of the country's natural rubber production, and more than 80 percent of rubber in Indonesia is produced by smallholders. The country is also facing oversupply of rubber production, with decreased demand from China (Indonesia Investment, 2017).

Vietnam and Malaysia also play significant roles in the global market, accounting for more than US\$1.7 billion of the global natural rubber market. Vietnam and Malaysia rank number three and four of the world's natural rubber export suppliers respectively (World's Top Exports, 2017). Vietnam exports rubber to 86 countries around the world, with China as the largest consumer (Research and Market, 2017). Vietnam has expanded its rubber production continuously in recent years and it produces almost US\$1 billion of rubber annually (World's Top Exports, 2017). On the other hand, there has been a decrease in natural rubber production in Malaysia in the past few years. More than 60% of natural rubber producers in Malaysia are smallholders (Alton et al., 2005). Prior to Thailand and Indonesia, Malaysia was the largest rubber producer for a long period but most rubber planters converted their rubber land into oil palm. This is because increasing labour costs led to labour shortage (wages have gone up because it is harder for farmers to afford to employ labourers), and demand for oil palm had also increased (Verheye, 2010). Furthermore, due to the falling rubber price in 2000, the number of rubber smallholders decreased and the government of Malaysia began to consider rubber as a "sunset industry" (Alton et al., 2005, p. 6). However, Malaysia is still the largest consumer of natural rubber latex and ranks number five of the global natural rubber consumers (Malaysian Rubber Board, 2017).

Laos mainly exports rubber to China, Vietnam and Thailand. Most rubber planters in Laos sell raw latex to foreign middlemen from these countries and these raw materials are used by making rubber smoked or raw rubber sheet for processing (MAF, 2016). While

China is the largest consumer in the world, Thailand and Vietnam also significantly import raw rubber from Laos. The northern part of Laos is mainly influenced by Chinese investors, while investors from Thailand and Vietnam heavily invest in the southern part (Bouahom et al., 2011). For example, the Dak Lak Rubber Ltd Company of Vietnam established a concession for a rubber plantation in the southern part of Laos (Laungaramsri, 2012). Another example of buying rubber by foreign investors in Laos is that Thai Hua rubber company (the largest rubber exporter in Thailand) officially joined with Chen Shan Group, the second largest producer in China (La-orngplew, 2016).

Due to the increase in rubber demand in the region during the past decades, especially from China, rubber plantation areas are rapidly increasing in Laos. Laos is considered to be one of the fastest-growing natural rubber production countries in Southeast Asia. From 2011 to 2015, Laos' natural rubber exports increased by 92.6% despite a decline of rubber export in many countries such as Singapore, Luxembourg, Malaysia and Liberia, which fell by -77.8%, -77.4%, -76.2% and -70.1% respectively (MAF, 2016). Rubber planting in the country has increased markedly, as it rose from around 900 hectares in 2003 to 28,800 hectares in 2007 and then suddenly jumped to 281,770 hectares between 2007 and 2014. The tapping area of rubber is expected to reach approximately 280,000 hectares or 400,000 tons of production by 2021. However, the rubber price in the country has fluctuated over time and this often impacts farmers' livelihoods (MAF, 2016).

Rubber plantations have helped accelerate Laos' economic growth by providing a valued commodity and it could be a significant opportunity for the GoL to develop the country's economy. Land resource is essential for developing rubber production and it is essential the government manages existing land resource properly to support rubber planting expansion. Most areas in Laos are rural and suitable for planting although vast areas are upland. For example, rubber planting might convert upland areas from "unproductive" to "productive" areas (La-orngplew, 2016). Furthermore, Laos is a relatively small rubber producing country with favourable conditions for rubber development such as cheap labour and suitable climate (Douangsavanh et al., 2008). However, rubber plantations can create both positive and negative impacts. The scale of the impacts often correlates with the size or area of plantations and most farmers are forced temporarily or permanently to work as paid workers (Gerber, 2010).

2.2.2 Advantages and disadvantages of rubber expansion in Southeast Asia

Natural rubber plays an important role in global economic growth and industrial development. The increasing demand for rubber in industry, particularly tyre manufacturing, boosts an increase of natural rubber consumption. Generally, this has led to a transformation of the landscape in Southeast Asia (Mann, 2016; Research and Market, 2017). Natural forest areas in this region are converted into mono-cropping industrial plantations, especially rubber plantations. The reason for this conversion is that the tropical climate in the region is suitable for the rubber plant. While some rubber plantation areas in Southeast Asia are being converted to oil palm (as in Malaysia), overall rubber production in the region has continued to increase since the 1960s (Ahrends et al., 2015). Rubber expansion could provide benefit to people in the region. Global Witness (2014) describes the successful cases of Thailand and India, where rubber plantations have helped smallholders in communities out of poverty. Smallholders in these countries can manage their lands properly because land tenure is often secure and government has provided effective techniques and some extra finances for rubber cultivations. For example, the government of Thailand has promoted a programme, Rubber Integrated Livelihood Systems, through which smallholders have diversified to combine rubber plantation with other agricultural activities since the last decade. This program provides farmers greater incomes and sustains their livelihoods (Global Witness, 2014).

While natural rubber tree plantations have some commercial and economic advantages, they can also create negative effects on local people in the region. Rubber plantations impact people's livelihoods in Southeast Asia, particularly subsistence agriculture farmers (Global Witness, 2014). As a result of the establishment of rubber plantations, many people have been pushed off their land and become poorer. At the same time, deforestation has also increased because people attempt to clear forest areas for agriculture. These demonstrate how contradictory the interests of farmers and the government are, and therefore careful management is needed. An example of unsuccessful cases is land concession for rubber planting in Cambodia and Laos. In many cases, these countries cannot manage the issues such as land tenure security and the improvement in local livelihoods, and "vested interests are prioritised over genuine national development" (Global Witness, 2014, p. 12). This means that negative impacts will occur if the

government cannot manage the issues properly, and this may lead to other problems, for example corruption.

Furthermore, while rubber expansion can reduce poverty in some places, it could also cause environmental damage (Mann, 2016). Most governments in developing countries pay attention to economic development rather than environmental protection. Although rubber planting may provide high economic returns, it may undesirably affect ecosystems. As Ahrends et al. (2015, p. 53) argued, increasing rubber plantations can potentially create “loss-loss scenarios” in Southeast Asia. For instance, transformation of “high-biodiversity value land” into rubber areas might create “short term returns” but it might also create long-term environmental problems. This shows rubber can lead to the loss of biodiversity and negatively affect the environment in rubber producing countries, although rubber planting may support the country’s economic development.

2.3 Traditional farming system and smallholder rubber production

2.3.1 The traditional farming system in Laos

Lao PDR is a country in transition that is experiencing rapid economic growth and it is one of the world’s fastest growing economies (World Bank, 2017). However, Laos has a small economy and it still remains one of the poorest countries in Southeast Asia. Laos also has a small population and people, especially rural households, mainly rely on agricultural production (Bouahom et al., 2011; Bouahom, Douangsavanh, & Rigg, 2004; Rigg, 2007). Although the agricultural sector produces only 25% of GDP, it remains people’s “predominant livelihood”, especially in northern regions of the country, and employs about 89% of households (MAF, 2012, p. 1). Crop production and animal husbandry are major activities of the rural farming system in the country and this farming system continues to grow despite the growing industries in the country (MPI, 2016).

Although the GoL attempts to promote industry as the main priority for development, agriculture continues to have a significant role in Laos’ economy. The majority of the population are farmers who are engaged in agricultural practice, especially rice production. Land use in rural areas is varied, and ranges from extensive, for example slash and burn cultivation in the uplands, to intensive agriculture such as permanently irrigated farming in the lowlands (Souvanthong, 1995). Rice farming is the predominant

form of agriculture in Laos with around 71% of households involved (MAF, 2012). More than three million tons of rice has been produced annually during the past five years. Rice farming can be differentiated by lowland and upland areas and also by mode of production (particularly, wet or dry paddies) (MPI, 2016). Both lowland and shifting cultivation farming systems account for around two-thirds of cultivated land in Laos (Lao PDR, 2014). In addition, different ethnic groups have different rice cultivation practices. For example, Hmong and Khmu have traditionally practised shifting cultivation, while Lao Loum has mainly practised lowland rice cultivation (Souvanthong, 1995). While lowland rice is the predominant crop in low-lying areas, upland rice in shifting cultivations are also vitally important for people in steep slope areas, especially in the northern region of the country, and slash and burn rice farming is mainly practiced by farmers in northern Laos (Sodarak, 1996).

Shifting cultivation is an agricultural system called “*Hai*” in Laos. It is often known as “slash-and-burn cultivation” or “swidden agriculture” in English (Manivong, 2007, p. 52). This upland cropping system for producing rice is suitable for upland areas and low inputs are needed. Therefore it has been the best agricultural practice in the past for rural households in mountainous areas (Manivong, 2007). Shifting cultivation can be defined as a sustainable system for agricultural practice if farmers can sustain its best repeated cycle, which is around 5 to 15 years of fallow periods. However, fallow periods are often reducing, due to population pressure, and this leads to unsustainability (Sodarak, 1996). The shifting cultivation system in Laos mainly involves not only crop production activity, but also other activities such as livestock rearing and non-timber forest products (NTFPs) collection (Manivong, 2007).

The government formulated land use policy in order to stabilise slash and burn agriculture. Shifting cultivation is often defined as a traditional farming system which exists despite modern methods of agricultural production. Change in agricultural practices are strongly influenced by external interventions, including relevant policies and programs (Ducourtieux, 2004). Most relevant policies are formulated and implemented based on geographical characteristics, and land use systems in Laos can be categorised by region, including northern, central and southern parts of the country (Souvanthong, 1995). Various development programs or projects are conducted in Laos, and industrial tree plantation

promotion projects, especially rubber planting, are promoted by the government to increase local farmers' income in rural areas as a priority of development (Khamhung, 2004).

Regarding rubber production, technical and skilled labourers are needed in rubber planting, maintenance and the harvesting process (Verheye, 2010). Particularly, the tapping process for collecting rubber latex requires skilled labour because it is difficult to get a high quality of latex in this process without creating damage to the rubber tree (FAO, n.d.-b). In the process of natural rubber production there are two phases including the “immature or establishment phase” and the “mature or production phase” (Manivong, 2007, p. 20). The establishment phase normally takes around 5 to 6 years before the first tapping of the rubber tree and planters need to carefully maintain their rubber during this phase (Verheye, 2010). Some people may need to spend money on the maintenance of the young rubber tree if they do not have enough labour and there is no return for rubber during this period. During the mature phase of rubber plantations, rubber planters can get full return for their investment through the production of rubber latex production and its productive phase usually is around 35 years (Manivong, 2007).

2.3.2 Impacts of rubber on smallholders in Laos

Rubber expansion not only supports the economic growth of the country, but rubber expansion also considerably influences people's lives in rural areas. Investment in rubber plantations can generate employment and boost rural incomes, which can contribute to national development. Converting traditional farming land is an opportunity for farmers to generate greater income (Overbeek, Kröger, & Gerber, 2012). With regard to rubber plantations in Laos, Bouahom et al. (2011) suggested that there are three main regimes of rubber plantations or models of rubber production investment including smallholders, contract farming and concessions. Different regimes have been established and each kind of regime is affected by various factors such as labour, capital, market, information and land management (Bouahom et al., 2011). According to NLMA (2009), the large-scale concession system for rubber planting is similar to a factory and has an owner who manages and controls capital, technology and labour. However, employment in the rubber plantation company is insecure because it is seasonal or temporary work. Another rubber production regime is contract farming, in which farmers and investors enter into an agreement. With this form of investment, local farmers invest their land and labour while

investors invest in providing seedlings, technical training and help with marketing. In the system of smallholder rubber planting, farmers personally invest in rubber planting, including land, labour and seedlings (NLMA, 2009). Moreover, farmers need to seek for markets and invest in technology, and farmers mostly benefit from lessons learned from other villagers in the community or their relatives.

For rubber production, a mono-cropping system can provide greater benefit than a mixed farming system (Overbeek et al., 2012). Although mixed crop production may secure farmers in terms of food availability (especially prior to the crop harvesting period because most farmers often face problems of food scarcity during this period), farmers can earn higher incomes from mono-cropping. An example is in Louangnamtha District, where rubber producers who plant only rubber are likely to earn higher income than others who are using a mixed farming system. In this district, research has shown that local people who cultivate rubber with other crops or have other occupations such as being a driver or a livestock farmer seem to generate less income than mono-cropping rubber planters do (Vongvisouk, Mertz, Thongmanivong, Heinemann, & Phanvilay, 2014). Rubber production investments significantly change local agroforestry to a mono-cropping system and this change may create several drawbacks to local people, such as decreased household income and NTFPs for food security (Friis et al., 2016). Moreover, the concessions for rubber production have also caused damage to the environment and to the livelihoods of people who live near them (Baird, 2011).

As already mentioned with respect to the benefits of rubber production, it can create employment for locals in communities and some farmers may earn a greater income. Rubber production became an important source of income for farmers because they can work for rubber estates. Although farmers can receive a wage for their labour, these farmers' income is still uncertain because working with investors is mostly irregular (NLMA, 2009). Farmers cannot work regularly during the refoliation and flowering of rubber trees period, which normally takes around one or two months per year. The rubber trees produce a low yield of latex during this period because the soil is dry (Rubber Board, 2002). Some farmers can work part-time on maintenance in rubber planting areas such as grass shear in summer, but this is just a few times per year (Verheye, 2010). In addition, only a small number of farmers can permanently work with rubber estates because only

limited numbers can be employed in companies and high qualified and skilled staff are required for those companies.

China's investment plays a crucial role in the production and development of rubber in Laos, especially in the northern part of the country (Cohen, 2009). Large-scale concessions and contract farming schemes are the main forms of land use for rubber planting in Laos and both create considerable impacts on local communities. In the northern region, Chinese investors dominate concessions and contract farming schemes. Even if large-scale investment in rubber production is a feature of Laos' natural rubber production, small-scale plantations (including contract and smallholder farming) still account for more than half of total rubber plantation areas in the country. Therefore, smallholders are still an essential driver of rubber promotion and development (MPI, 2016). However, in the context of Laos, smallholder farmers often experience uncertainty in respect of technical skill development and the economy because most farmers are poor and unskilled labourers (Bouahom et al., 2011).

As previously mentioned, rice is a staple food for Lao people and rice production and shifting cultivation remain significant for various communities in Laos (Vongvisouk et al., 2014). However, the practice of increasing income by planting cash crops is considerably increasing. While most people attempt to shift their occupation to rubber production in order to increase their income, those people have to adapt themselves to a new situation as well (Alton et al., 2005). Several farmers are willing to shift to cash crop production but some farmers have to enter into "contracts with unfavourable terms or have lost their land entirely" (Fox et al., 2014, p. 2). This is because some farmers still lack the financial resources or ability to access finance to invest on their own. Similarly, rubber planting also affects local occupations such as livestock and paddy rice production. For instance, some farmers in a community in Louangphrabang Province were reluctant to shift from raising livestock to rubber planting because their grassland area was decreased due to rubber expansion (Friis et al., 2016).

On the other hand, development policies have strongly influenced rubber production and development. Different policies can create different impacts on different aspects. Misinterpretation of rubber promotion policy may also create several negative impacts and local people often suffer from those effects (Overbeek et al., 2012). As Baird (2011, p. 12)

argued “the policy of the government of Laos to ‘*turn land into capital*’ is crucially intertwined with another important aspect, ‘*turning people into labour*’, even if it is not directly referred to as such”. Moreover, decision making without carefully considering the impacts may also lead to creating various obstacles to development.

To consider the effects of decisions and to avoid creating conflicts between farmers and rubber planting investors, locals should be involved in the process of decision making. However, local people often miss out on participating in the process. For instance, in 2005 and 2006, rubber cultivations were established in several communities in Nambak District, Louangphrabang Province by a company. Even though the company collaborated with district officials actively and informed villagers, those villagers still had limited power to negotiate with the company about the plantations (Friis et al., 2016). Another example is the differences of rubber promotion policy implementation between different agencies in northern part of the country, Louangnamtha and Oudomxay provinces. Here, an agreement on disallowing concessions in these provinces was signed in 2005, but some authorities still have approved concessions (Cohen, 2009). While Louangnamtha’s governors have ceased rubber investment in the province by warning locals against expansion of rubber, Oudomxay has just allowed a Chinese investment of rubber expansion of about 2,500 hectares (La-orngplew, 2016).

Smallholder rubber planting is important in the process of transition from subsistence agriculture to commercial crop production in Laos (Manivong, 2007). In Laos, the number of smallholder rubber plantations is rapidly increasing, especially in upland areas or the northern region (Bouahom et al., 2011). Information is needed for supporting farmers and promoting rubber production. However, the GoL lacks basic information towards crop promotion (Manivong & Cramb, 2007). Results of the research at community level are important for policy making and rubber plantation issues continue to contribute to the public debate (Bouahom et al., 2011). Some literature and research have focused on the impacts of rubber plantations, but they have tended to focus on large-scale concessions rather than small-scale rubber plantations. For instance, Laungaramsri (2012) and Kenney-Lazar (2009) focused on the impacts of large-scale plantations in the southern and northern parts of Laos. In addition, the coping strategies of locals against negative effects are not

clearly presented in these studies. Therefore, this study attempts to focus on the impacts of rubber cultivation on smallholders and their coping strategies.

2.4 Sustainable livelihoods

2.4.1 The definition of sustainable livelihoods

The sustainable livelihood concept is applied in order to understand and analyse the impact of rubber cultivations on locals' livelihoods. Livelihood is a complex issue and it often refers to a set of activities, assets and capacities required to secure the necessities in people's lives. Chambers and Conway (1992, p. 6) defined it as:

Livelihood comprises the capabilities, assets (stores, resources, claims and access) and activities required for a means of living; a livelihood is sustainable when it can cope with and recover from stress and shocks, maintain or enhance its capabilities and assets, and provide sustainable livelihood opportunities for the next generation; and which contributes net benefits to other livelihoods at the local and global levels and in the short and long-term.

Furthermore:

'A livelihood is sustainable when it can cope with and recover from stresses and shocks and maintain its capabilities and assets both now and in the future, while not undermining the natural resource base' (FAO, n.d.-a).

These definitions show that livelihood involves various factors. The sustainable livelihood approach and framework are presented next. DFID (n.d.); and Scoones (1998) provide the sustainable livelihoods framework as a tool to help us to understand people's coping strategies and the link between factors, and to identify measures for development of livelihoods.

2.4.2 Sustainable livelihood approach

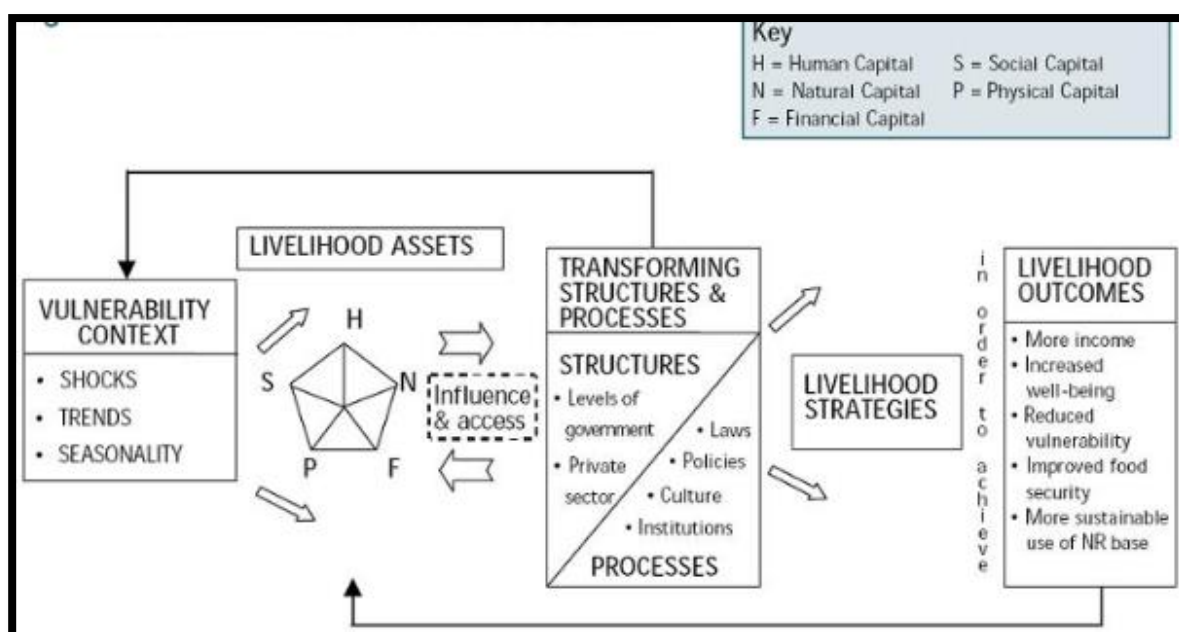
The Sustainable Livelihood Approach (SLA) is useful for poverty study. It mainly focuses on the systematic understanding of individuals or communities and supports opportunities for reducing poverty. SLA is flexible and open for adaptation and therefore this approach can apply to various projects or research purposes (Kollmair & Gamper, 2002). It does not emphasise all aspects of livelihoods but rather focuses on identifying issues holistically by starting from a broad and open-ended analysis (Krantz, 2001).

According to Kollmair and Gamper (2002), SLA has six core concepts. These are (1) *People-centred*: SLA concerns people's livelihoods and their dynamic rather than the resources used in their daily life. (2) *Holistic*: SLA is a view that inspires understanding livelihoods holistically. This concept connects all relevant factors but it is not influenced or categorised by incidents. (3) *Dynamic*: SLA helps us to learn the impacts of livelihood changes. (4) *Building on strengths*: It is important to analyse existing strengths rather than the needs of the community. This will help to increase the capacity of stakeholders to achieve their purposes. (5) *Macro-micro links*: SLA tends to connect these two levels, as decision making at the level of policy often influences local living. (6) *Sustainability*: A livelihood will be sustainable when it can cope with difficulties (Kollmair & Gamper, 2002). Moreover, consideration of sustainable livelihoods must take into account social, economic and environmental factors or difficulties (Chambers & Conway, 1992; DFID, 1999).

2.4.3 Sustainable Livelihood Framework

Sustainable Livelihood Framework (SLF) is an instrument within the sustainable livelihood approach that helps to understand people's livelihoods. SLF provides significant elements as a checklist. It includes the main elements and factors influencing livelihoods (DFID, 1999). To use this framework, we have to understand many different components because different people may have different perspectives and interpret the framework's elements differently (DFID, n.d.). The SLF focuses not only on rural livelihoods analysis, but can also apply in analysis of urban livelihoods, in order to understand vulnerability and relations between both urban and rural contexts (DFID, n.d.). The framework has five main components including contexts, resources, institutions, strategies, and outcomes, as shown in Figure 2-3 below.

Figure 2-3 Sustainable Livelihoods Framework



Source: DFID (1999).

Vulnerability context shows the external influencing factors, which affect the livelihood assets component, including shocks, trends and seasonality. These factors are essential because they effect the livelihood assets element directly (DFID, 1999). Firstly, *shocks* can seriously damage people's assets and this factor can be natural disasters, conflicts, economic disasters, etcetera. Secondly, trends (for example population trends) are a significant part of the vulnerability context and they might be positive or negative trends. Trends can affect rates of return to livelihood strategies. Lastly, seasonality is often related to economic development in rural areas and seasonal changes in prices, food and employment mostly affect poor people and create difficulties (DFID, 1999).

The livelihood asset pentagon helps to illustrate people's assets and these assets are located within the vulnerability context. The pentagon consists of five important elements including human capital, natural capital, financial capital, physical capital and social capital. (1) Human capital refers to healthiness, knowledge and capacity of labour that allows people to reach their livelihood targets. (2) Natural capital is closely linked to the vulnerability context. It is the quality and quantity of natural resources, for example ranging from "intangible public goods" (for example the air and biodiversity) to "divisible assets used directly for production" such as forest, land, etcetera (DFID, 1999, p. 11). (3)

Financial capital represents financial resources, including “available stock and regular inflows of money”, that people use to pursue their living objectives (DFID, 1999, p. 15). (4) Physical capital constitutes the “basic infrastructure” and “producer goods” or tools that people use for increasing productivity (DFID, 1999, p. 13). (5) There are several meanings of social capital. In the SLF, social capital means the social resources that people draw on in achieving their goals (DFID, 1999).

Transforming structures and processes in the framework refers to “the institutions, organisations, policies and legislation that shape livelihoods” (DFID, 1999, p. 17; Kollmair & Gamper, 2002). Structure (as hardware) represents the organisations “that set and implement policy and legislation, deliver services, purchase, trade and perform all manner of other functions that affect livelihoods” (DFID, 1999, p. 19). Meanwhile, processes (as software) determine the operations and interactions between the structures and individuals. Both structure and processes are sometimes overlapped and conflicted (DFID, 1999).

Livelihood strategies are designed to support “choice, opportunity and diversity” in order for people to pursue their livelihood objectives (DFID, 1999, p. 23). As a dynamic process, livelihood strategies combine various activities to help people in achieving their needs. To consider the relationship between livelihood strategies and other elements in the SLA, it is essential to understand competition among people, which creates obstacles for people to reach their livelihood goals. Some examples of such competition are competing for jobs, markets, natural resources, etcetera (Kollmair & Gamper, 2002).

Livelihood Outcomes are the “achievements or outputs” of livelihood strategies (DFID, 1999, p. 25), for instance, increased income and wellbeing, reduced vulnerability, improved food security and more sustainable use of natural resources. These achievements support better understanding of “the current configuration of factors” within the SLF (Kollmair & Gamper, 2002, p. 9). Livelihood outcomes significantly affect people’s assets and livelihood outcomes often fluctuate (Kollmair & Gamper, 2002). Moreover, as an outsider, a researcher can thoroughly investigate, perceive and observe, rather than making quick assumptions regarding the outcomes (DFID, 1999).

2.4.4 Applications of the Sustainable Livelihood Approach

To understand an overall picture of local people's livelihood, I utilise the sustainable livelihood approach in this research. All main components (vulnerability context, the livelihood assets, transforming structures and processes, and livelihood strategies and outcomes) are being used in order to identify and analyse the research results, and to discuss all key findings. The research results will be discussed in Chapter 6 by following the sustainable livelihood framework as an outline for discussion. Besides, the SLA will be applied in order to answer all research questions. The focus of the research analysis are the components of livelihood assets (the five kinds of capital) and transforming structures and processes. These two components will help to describe the impacts of rubber expansion and also explain how relevant policies have influenced people's livelihood. Some findings are explained based on the vulnerability context component. In addition, the livelihood strategies component also helps to understand how people can cope with difficulties after the introduction of rubber planting.

2.5 Summary

To sum up, the chapter provided the context of global and regional rubber production and its effects. The overview of rubber production gave a general idea of how rubber is important. The impacts have shown how rubber planting brings both advantage and disadvantage to economic development, the environment and locals' livelihoods. Specifically, this chapter also explained the farming systems in Laos and how rubber expansion impacts these farming practices in the country. Moreover, this chapter also illustrated the sustainable livelihood approach and framework, and described how the approach is applied in the research. The focus of the research is on key components in the sustainable livelihood framework.

The chapter also illustrated some key issues such as incomes generation, land use change, and decision-making on control over resources. In terms of income generation, even though investment in rubber production may increase farmers' incomes, this investment may negatively influence livelihood activities, for example their agricultural practices. As a consequence, this may increase potential vulnerability in locals' livelihoods. Rubber planting may have impacts on local land use systems, which possibly lead to creating negative effects on the environment, including soil and water sources. Labour is

one of the most important of the capitals for investment in rubber plantation establishment and smallholder farmers mostly work as labourers in rubber production. Most farmers work with rubber estates and they get wages for their labour. However, this work is insecure because it is temporary work. Moreover, making decisions regarding rubber plantation investments is crucially important because this strongly influences change in locals' livelihoods, and this may affect how farmers utilise their resources, especially their land resource. Therefore, this research aims to understand how rubber planting impacts the way people use their resources and how farmers can cope with difficulties, which might be caused by rubber expansion.

Chapter 3 Research Methodology

3.1 Introduction

This chapter presents the qualitative methodology used in the research. The chapter initially provides information on basic ideas about the research's philosophical context. The following sections give an outline of the research design and methods including fieldwork preparation and instruments for data collection. The chapter also highlights the process of data analysis and presentation, and finally describes ethical considerations.

3.2 Philosophical foundation

A research paradigm or theoretical perspective is “the set of common beliefs and agreements shared between scientists about how problems should be understood and addressed” (Kuhn, 1970, p. 45). This helps to understand how people's worldviews shape methodology. A research paradigm often refers to assumptions about ontology and epistemology and how these shape a comprehensive picture of how knowledge is viewed.

To differentiate between ontology and epistemology, it can be said that ontology is the belief about truth which seeks to answer the question ‘What is reality?’. An ontological assumption enables the researcher to focus on people's experiences and worldview (Lapan, Quartaroli, & Riemer, 2012). On the other hand, epistemology, or the theory of knowledge, is a branch of philosophy that is concerned with the nature of knowledge and which questions ‘What do you know and how do you know it?’ (Creswell, 2014; Kolak, Hirstein, Mandik, & Waskan, 2006, p. 146). It concerns what relationship the researcher has with the research. Epistemology attempts to understand the constitution of knowledge, as justified, true, or believed (Kolak et al., 2006). Epistemological and ontological assumptions influence various research paradigms, and constructivism is just one of those paradigms (Maxwell, 2005).

Constructivist epistemology recognises reality as a construct of people's minds. Social constructivists presume that people develop subjective meanings from their life or work experiences, and that there are several perspectives on reality or truth (Creswell, 2014). Constructivist scholars are more likely to apply qualitative methods to understand realities rather than quantitative methods. As the sustainable livelihood framework is being

applied in the research, I used constructivist epistemology to grasp the research topic from the participants' perspectives. Therefore, in accordance with the constructivist epistemology, qualitative methods are applied to understand farmers' perceptions and experiences.

3.3 Research design

A qualitative approach was applied as the primary research methodology to understand how people perceive the impact of rubber plantations on their livelihoods. Qualitative research focuses on understanding phenomena from the 'perspective of the insider' (Lapan et al., 2012, p. 3). Qualitative research design is generally flexible, evolving and emergent. The research focuses on people's perceptions and these may not be easily measured scientifically. Qualitative research methodology enables respondents to share their experience across broad subjects because the researcher can use open-ended questions (Creswell, 2014). Open-ended questions provided participants the opportunity to directly interact with the researcher and also allowed them to freely express their feelings or opinions. Moreover, qualitative research emphasises textual analysis rather than statistical analysis (Lapan et al., 2012).

The research design uses the case study method because it was appropriate with the paradigm and topic of the research. It also helped to determine the scope of the research, Lapan et al. describe:

The case study research is an investigative approach used to thoroughly describe complex phenomena, such as recent events, important issues, or programs, in ways to unearth new and deeper understanding of these phenomena. Specifically, this methodology focuses on the concept of case, the particular example or instance from a class or group of events, or programs, and how people interact with components of this phenomenon (2012, p. 245).

I conducted case study research in order to understand local people's perceptions on the impacts of rubber plantations in particular locations. The case study method allowed me to explore the research questions by focusing on single or multiple cases, for example at the level of the individual or community unit (Denzin & Lincoln, 2011). This methodology is appropriate when the researcher "has clearly identifiable cases with boundaries and seeks to

provide an in-depth understanding of the cases or a comparison of several cases” (Creswell, 2007, p. 74).

3.4 Research methods

3.4.1 Description and recruitment of participants

Based on information from discussions with government officials at the Provincial Agriculture and Forestry Office (PAFO) in Vientiane Province and the District Agriculture and Forestry Office (DAFO) in Hinheub and Phonehong District, two villages were selected as case studies Somsanook Village and Phonkham Neua Village. Both villages have a considerable number of rubber planters. In these two selected communities, local villagers have different occupations such as farmers, officials, merchants, etcetera. A wide range of locals were selected randomly and respondents were also chosen based on their availability and occupations, in discussions with government officials. Participants were recruited also from discussions with village authorities. Prior to selection, I considered the privacy of the participants in the villages. I explained to all participants how I was going to handle and secure the information collected. Laos has a hierarchical culture or system in communities and local people traditionally respect their community’s leaders. Therefore, making decisions about the selection of participants was also based on the head of the village’s advice.

The number of participants depended on various factors such as the unit of analysis (individual or group), research timeframe, and scope. A total of 15 in-depth interviews were conducted in this research, and twelve selected villagers (six participants per community) were interviewed in their houses. The remaining three interviews with government officials were conducted at PAFO and DAFO. I felt this number was appropriate as qualitative interviewing produces very rich information.

3.4.2 Interviews

The qualitative researcher is the primary instrument for data collection and analysis. Semi-structured interviews were used to gather information. Semi-structured interviews provide a clear direction and a flexible guide for the researcher (Daymon & Holloway, 2010; Yin, 2009). Individual interviews were appropriate for data collection because this research focuses on the impacts of rubber planting at individual or household level. Semi-

structured interviews helped to deeply understand the perspective of villagers impacted by rubber plantations.

Semi-structured interviewing included a number of open-ended questions. These open-ended questions enabled participants to answer flexibly and also aided a deeper understanding of participants' opinions. Open-ended questions also gave a chance for clarifying issues during the interview. Prior to the interviews, question guides were prepared (Appendix 3). I utilised two different sets of questions as a guideline in the interviews: the first set was employed for local villagers in the two case study villages and another set was employed for the three participants from the government offices. These three representatives from the government offices were interviewed in order to understand the implementation of relevant policies for rubber plantations in the study areas. Participants in the communities were interviewed to understand their perceptions and coping strategies. All villagers and government officials were willing to discuss with me the impacts of rubber plantations on locals' livelihoods and all participants signed the consent form (Appendix 2).

I audio recorded all interviews with the average length of interview between 45 to 60 minutes. One of the difficulties in organising interviews was how to access communities. A gatekeeper is a person at the study site who helps the researcher gain access to communities (Creswell, 2014). Gatekeepers were important for this research, especially to facilitate data collection. My research gatekeeper was an official from PAFO who had knowledge relevant to the research topic. This gatekeeper also helped inform all participants about the purpose of the research before the interviews were conducted. He assisted in the interviews and also supported the process of data analysis by clarifying collected data of participants and study sites. However, I was also facing some difficulties during the interview. For example, the gate keeper sometimes interrupted the interview. The reason for this is that the gate keeper wanted to share his experiences about the issues discussed.

3.5 Data analysis and interpretation

The process of analysis started from the interview stage. All interviews were recorded using an audio recording device. I also took field notes in order to assist in the

process of making transcriptions. All transcriptions were made electronically in Laotian and they were then translated into English. To enable a clearer understanding of data, I read through transcriptions and reflected on the results based on my experiences in the fieldwork.

For the analysis stage, data gathered from official documents and interviews was used. Data analysis was based on the sustainable livelihood approach and aimed to understand how villagers were impacted by the planting of rubber. The research focused on positive and negative effects and how people can cope with these impacts. Applying this approach allowed me to explore the impacts and to identify coping strategies of locals in the communities.

After the stage of data organising, I identified themes and findings for further presentation. To begin the analysis, I read through the transcriptions and looked at patterns and features. I analysed findings by looking at the impacts of rubber planting from locals' perceptions. Finally, data was interpreted based on a combination of the actual data collected and my own perspective or experiences. However, the research had to consider my positionality and participants' perceptions as well.

3.6 Ethical considerations

This research followed Victoria University of Wellington's Human Ethics Policy and Guidelines; with approval by the Human Ethics Committee (HEC) prior to fieldwork. Prior to the data collection stage in the field, by following the procedure of the government organisations in Laos, the official letters (Appendix 6.1) were prepared and approved by the Ministry of Agriculture and Forestry (MAF), and submitted to the PAFO, DAFO and villages respectively. This stage was very time consuming, however it was crucially important for gaining access to communities. Prior to conducting interviews, I explained to PAFO and DAFO officials the need for confidentiality. In the field sites, all participants were initially informed concerning their rights; reinforcing their right to participate or withdraw from the interview, as well as the confidential nature of interviews and presentation of results (that no one participant would be identifiable through the research).

I believe that my work and educational background had shaped my personal experiences and worldview, and that this may also influence the research. Positionality is

an important issue in qualitative research because it can influence communication between researchers and participants directly or indirectly. Researcher and participants have different positionalities and perceptions and this was thus considered in conducting interviews (Sultana, 2007). Being Lao, my positionality can be considered as an insider, but as an outsider too as a result of my work and educational experiences.

As an insider, the participants from the government offices recognised me as their co-worker. This is because I had been working in the MAF and also sometimes working with PAFO and DAFO officials in Vientiane Province since 2002. We are drawn from similar working, social and educational backgrounds. I could share working expertise and educational experiences. For example, the Director of Hinheub DAFO studied and graduated from a university in Thailand in 1997. He was confident to talk about his Master's thesis and the research topic was about forest tree species that we are familiar with. This enabled our discussion to continue smoothly and I realised that I was treated as an insider in this context. On the other hand, as an outsider, most villagers saw me as a person who was well educated. I came from the capital city and I also travelled with the government officials. These made me different from local villagers. Thus, I had to explain about myself and the research objectives before conducting interviews. Despite being somewhat of an outsider, local people were very courteous and polite.

Reflexivity refers to the researchers' 'critical reflection' in the process of doing research; from designing research to collecting and presenting data (Sultana, 2007, as cited in Soukkaseum, 2017, p. 41). It is utilised as a tool to grasp how knowledge is acquired, organised and demonstrated (Soukkaseum, 2017). I realised that reflexivity was important for every step in the research process and that it could improve quality of the data. For instance, by reflecting on transcriptions, I could combine my understanding with the locals' perception in order to identify themes in the data analysis step.

3.7 Limitations

With regards to field data collection, some participants might have declined to respond negatively about their communities or organisations and this might have affected the results of the research. Participants were polite and, in Lao custom, it is not considered appropriate to openly criticise others or embarrass visitors, such as myself. Institutional

power may influence research participants indirectly and researchers might not be able to avoid this when it occurs. This is because this influence is sometimes not obvious and the relationship between power and institutions is an intimate thing. In some cases, target participants were not available when conducting interviews due to time constraints of the research. Because of time constraints, the research participants were not as diverse as hoped, as I had aimed to incorporate a variety of occupations. More time in conducting fieldwork could supposedly help deeper understanding of the context of communities and locals' livelihoods. Although all research interviews were conducted in farmers' houses, most people were working in the daytime and it was difficult to ask to interview them during their working period. In addition, I aimed to interview women in both communities, but unfortunately only one woman was available for an interview during this research. This woman provided a lot of valuable information, for example she explained how development projects affected uses of her land resources, through an interview. Therefore, future research should include more women or consider gender balance issues as much as possible.

3.8 Summary

Overall, it can be seen that the chapter described the research methodology and gave a basic idea of the philosophical foundation used. Based on constructivist epistemology, qualitative methodology and semi-structured interviews were applied to collect, analyse and interpret information. Some major ethical issues in conducting research were presented. This chapter also briefly demonstrated positionality and reflexivity in the last section, and gender balance issues were also touched on. Finally, the chapter showed some limitations of the research methodology. The next chapter will provide the general context of rubber production and development in Laos, and research locations will also be described.

Chapter 4 Context of Development and Rubber Plantations in Laos

4.1 Introduction

This chapter comprises four main sections regarding development and rubber production in the country and locations of the study. Initially, the first two sections present a general background and the country's development direction. The next section describes the history of, and related policies for, rubber production and promotion in Laos. The final section provides a contextual description of the study sites, including two villages in Vientiane Province.

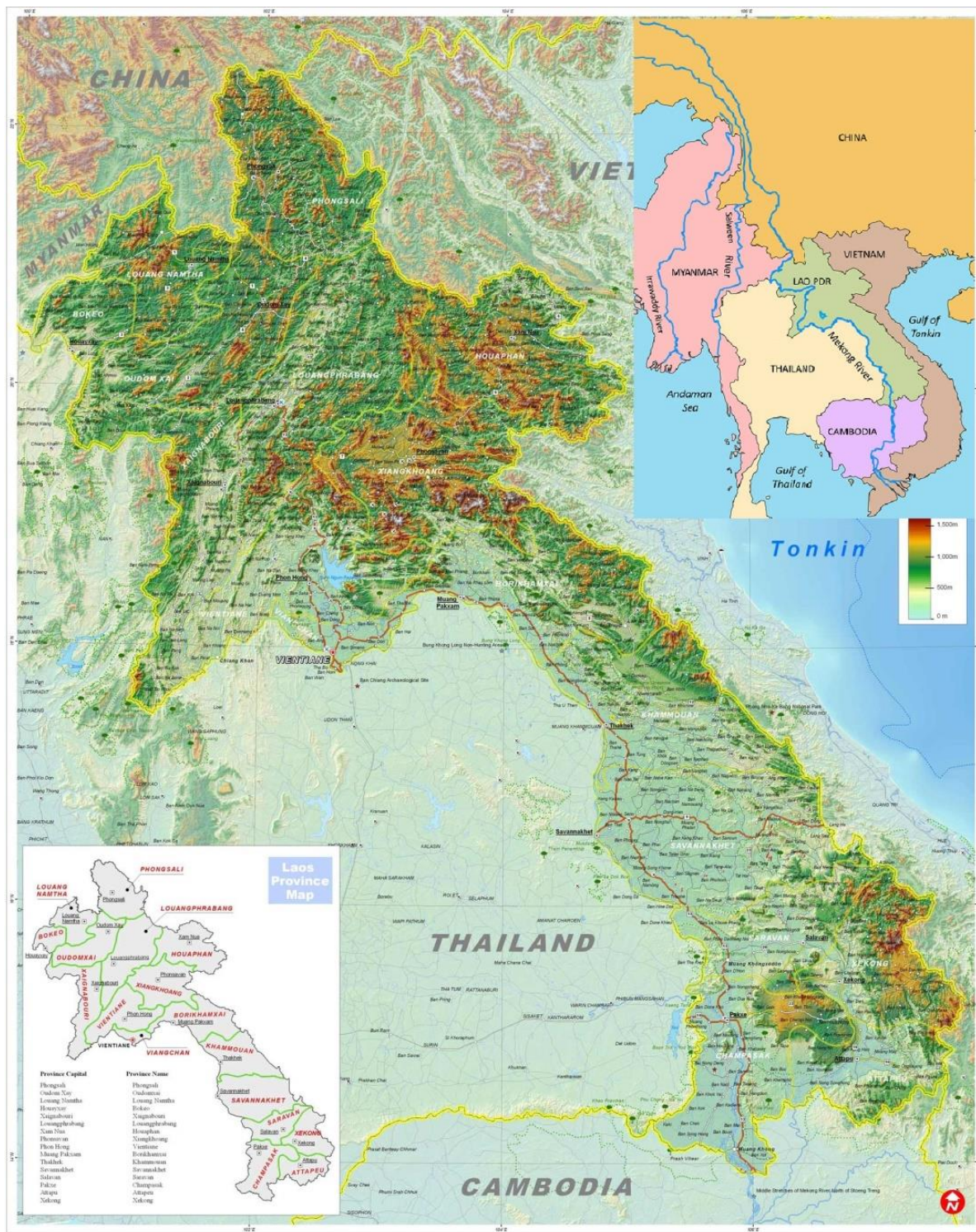
4.2 Background characteristics

4.2.1 Geography and natural resources

Lao PDR is a land-locked country situated in the centre of the Indochina peninsular in Southeast Asia and it shares a border with China, Myanmar, Thailand, Cambodia and Vietnam. The country consists of 17 provinces and there are three main regions including north, middle and south, and the capital is Vientiane. Vientiane is located in the centre of the country and it is the largest city in terms of economy and population. With a land area of 236,800 km², the country is dominated by mountainous terrain and about 87% of the total area is considered as upland (MAF, 2002). The topography of the country is largely mountainous in the north and east, with plains in the south-western region (see figure 4-1). Laos consists of three main regions: the rough terrain in the north; the long mountain chains along the eastern border with Vietnam; and the plains region lying along the Mekong River (Manivong, 2007; Messerli et al., 2008).

The Mekong River is one of the world's largest river basins and the river runs through six countries in the GMS including Laos (Mekong River Commission, n.d.). The Mekong River basin has an area of around 202,000 km² in Laos or 85% of the total area of the country, and this area accounts for about 35% of the total basin area (Mekong Institute, n.d.). The Mekong flows from north to south through the country and it is fundamentally important for people's livelihoods because it is the main source for water, especially for agricultural farming areas which account for approximately 17% of the total land area (Mekong River Commission, n.d.).

Figure 4-1 Topography of Laos and the Mekong river system



Source: UNITAR (n.d.) and FISHBIO (n.d.)

Laos is rich in natural resources with forest as one of the most significant resources (Lao PDR, 2014; MPI, 2016). Alongside agricultural farming, the forest underpins poor people's livelihoods. The forest is an important source of income for approximately 44,200 farm households or more than 40% of total farm households in Laos (MAF, 2012). However, forest cover has significantly decreased since the 1940s; it declined from around 70% or 17 million hectares of the country's area to 64% in the 1960s (Manivong, 2007). Then it continuously reduced to 11.6 million hectares or 49% in 1982, and steadily declined from 47% to 41.5% between 1992 and 2002. The forest area was approximately 40% in 2010 (Vongsiharath, 2009). However, the government strategy aims to increase forest coverage to 70% by 2020 through replanting efforts (MAF, 2005, 2010a; Phompila, Lewis, Ostendorf, & Clarke, 2017).

Forest reduction in Laos is strongly influenced by slash and burn for upland agricultural production. Rubber plantations have also played an important role in the reduction of forest cover as forest is cleared to make space for plantations. Even though forest cover has recently not reduced considerably, native forest areas in the country have decreased progressively (Phompila et al., 2017). During the 1990s, shifting cultivation areas of around 6.5 million hectares replaced the native forest in the country. Phompila et al. (2017) also elaborated that transformation of native forest and shifting cultivation areas are strongly influenced by rubber cultivations.

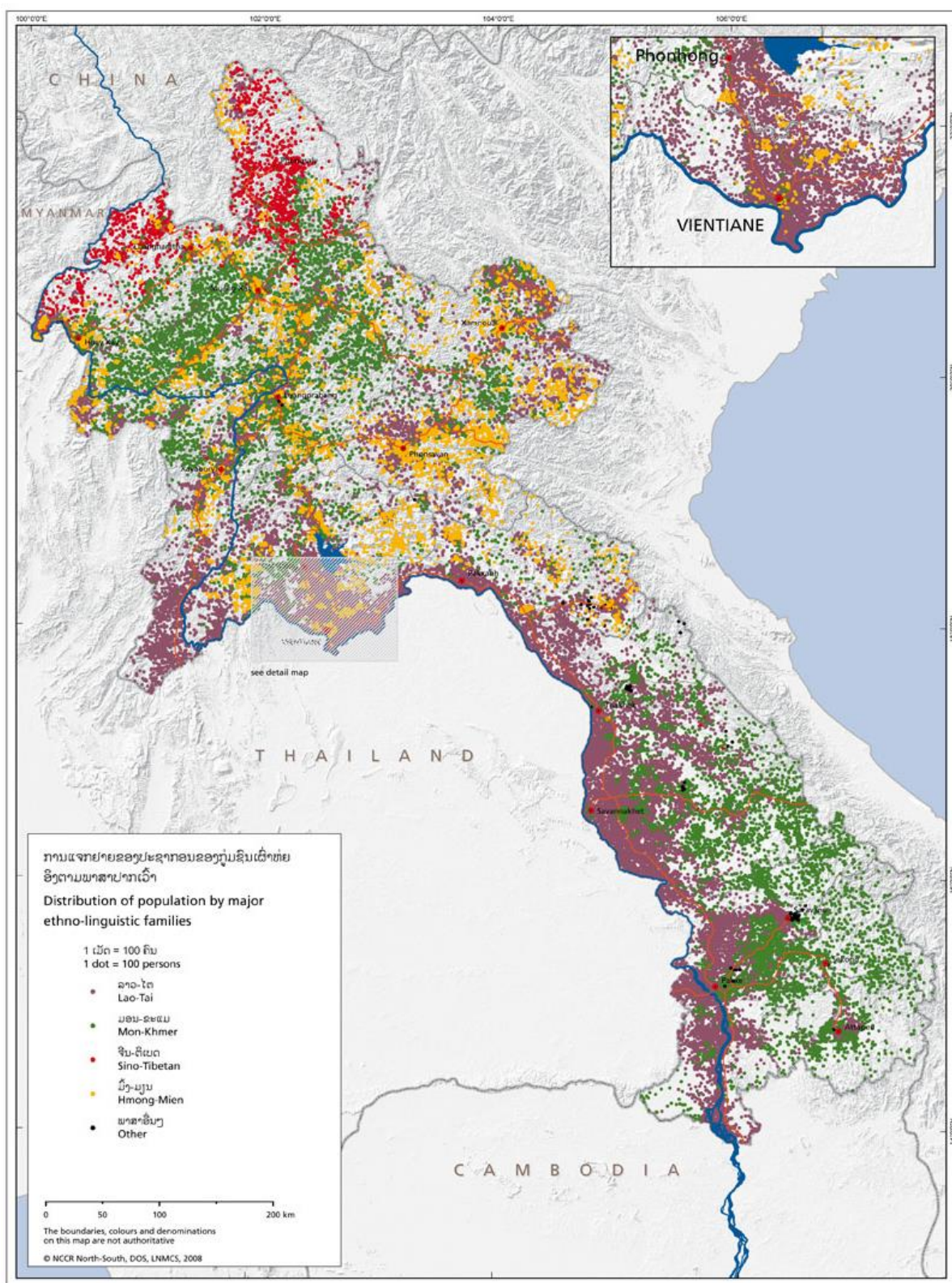
4.2.2 Demography, government and policies

The population of Laos was 6.49 million in 2015 (Lao Statistics Bureau, 2015). The country has experienced significant population growth from 5.6 to 6.49 million between 2005 and 2015 (MPI, 2016). Most people still live in the rural areas and rely on agriculture (Bouahom et al., 2004; Lao PDR, 2014). Even though the government has considerably improved transport infrastructure over the last decade, several rural regions still lack road access due to mountainous terrain (Messerli et al., 2008). According to the national population census in 2015, approximately 67 percent of the total population live in rural areas and 8 percent of these live in areas without accessibility to a road (Lao Statistics Bureau, 2015).

The population is ethnically diverse (Rehbein, 2007). According to the Lao Front for National Construction (LFNC), Laos consists of 49 distinct ethnicities and four

ethnolinguistic families, as shown in Figure 4-2. These families are Lao-Tai or Tai-Kadai (67%); Mon-Khmer or Austro-Asiatic (21%); Hmong-Mien, Hmong-Yao or Miao-Yao (8%); and Sino-Tibetan or Tibeto-Burman (3%) (King & van de Walle, 2010; Messerli et al., 2008, p. 82). Lao people are spread geographically, with the groups often recognised by their geographical feature (uplands, midlands or lowlands) rather than by only their ethnolinguistic characteristics. Most Lao-Tai live in urban areas or lowlands around the Vientiane plain and along the Mekong River, and the Mon-Khmer generally live in the midlands. The majority of these groups primarily practise a lowland paddy system. The Hmong-Mien people are often located in the highlands in the north, and similarly the Sino-Tibetan groups mostly live in the upland north areas. These groups practice upland farming systems primarily in the hills or uplands (King & van de Walle, 2010).

Figure 4-2 Distribution by ethnolinguistic groups in Laos



Source: Messerli et al. (2008).

Laos experienced internal political instability and conflicts from 1954 to 1975. Lao PDR was formally established in 1975 and since then the Lao People's Revolutionary Party (LPRP) has governed the country. In 1991, the legal system of the country was shifted "from one based on decrees and resolutions of the National Assembly into a system based on statutes" (Hill & Menzel, 2009, p. 297). Under the 1991 constitution, various legislation was introduced and implemented (Hill & Menzel, 2009). For instance, land reform and stabilisation of shifting cultivation (Bouahom et al., 2011). Consequently, the country has focused on economic development as the main priority. Globalisation has created considerable effects on the economic system development since 1986 (Menon & Warr, 2013; Rehbein, 2007; Rigg, 2007). Similar to the economic reforms in China and Vietnam, Laos announced the New Economic Mechanism (NEM) in 1986. This aimed to create a socialist-oriented market economy, although there was also a view that "capitalism is being systematically introduced with the assistance of foreign experts" (Rehbein, 2007, p. 8).

As a result of the introduction of NEM, the first investment law was introduced in 1988 in order to relax several import and export restrictions. This led to increasing foreign investment in the country, especially in the form of Foreign Direct Investment (FDI) and Official Development Assistance (ODA) (Kyophilavong & Toyoda, n.d). The NEM has considerably influenced the agricultural and forestry sector and the government has attempted to support farmers to increase agricultural production and profits (Souvanthong, 1995). Beside this, the GoL has identified "focus development areas" and has promoted rural villages resettlement in the areas in order to (1) improve infrastructure and services for local people, (2) eradicate opium cultivation areas by promoting an increase in agricultural production, and (3) stabilise shifting cultivation by improving natural forest management (Bouahom et al., 2011, p. 12).

4.3 Context of development

Laos is one of the world's fastest growing economies and it has experienced strong economic growth over the last decade, with an average GDP growth of 7.8% a year (World Bank, 2017). Laos is a lower middle income country and the country's Gross National Income (GNI) per capita was US\$2,150 in 2016 (Lao PDR, 2017; World Bank, 2017). Despite the rapid economic growth, Laos has been classified as one of the Least Developed Country (LDC) since 1971 (United Nations, n.d.). Poverty and disparity remain

considerable, with around 23.2% of the population living below the poverty line (Asian Development Bank, 2017). The government has set a target to graduate from LDC status by the year 2020 (Lao PDR, 2004). This means that Laos has to focus on eradicating poverty in the country, particularly in rural areas. Meeting Millennium Development Goals (MDGs) and Sustainable Development Goals (SDGs) are important for this graduation (Lao PDR, 2017; MPI, 2016).

To tackle the challenges of the country's development, the government formulated long-term plans via the Eighth Five Year National Socio-Economic Development Plan (NSEDP) in 2016. Based on the pillars of sustainable development, the Eighth NSEDP emphasises expanding the market-oriented economy (with focus on macroeconomic policies), and “highly skilled labour, functioning institutions and strong basic infrastructure” as key development priorities (MPI, 2016, p. 83). Since the 2000s, Laos has identified poverty reduction as the top priority for development and graduating from the LDC status is the ultimate goal for the country's development (Lao PDR, 2017; Soukkaseum, 2017). The LDC graduation is based on three criteria including GNI, the Human Asset Index (HAI) and the Economic Vulnerability Index (EVI). The country needs to reach the target for at least two of three graduation criteria in order to leave the LDC status (MPI, 2016). Overall, Laos has made substantial progress towards achieving LDC graduation (Lao PDR, 2017). However, despite the progress, the economic vulnerability (EVI gap) remains high because economic development still depends largely on agriculture and natural resources (MPI, 2016).

Overall, MDG achievement was impressive. For example, targets on hunger, education disparity, gender disparity, child mortality, and water and sanitation were achieved although there remains room for improvement. However, diversification is needed and Laos currently needs to adopt the new SDG framework (MPI, 2016). The National Growth and Poverty Eradication Strategy (NGPES), a strategic framework, was designed to reduce poverty in Laos (Lao PDR, 2004). Although, overall, Laos has made good progress, the government still needs to focus on further structural economic transformation and greater diversification. Agriculture, for example, still accounts for more than 60 per cent of employment (Lao PDR, 2017). In addition, the energy and mines sector, and

manufacturing, have shared only 1% and 8% of total working hours respectively (Lao PDR, 2017).

Currently, the majority of agricultural production systems are extensive farming with low productivity (MAF, 2002, 2012). Correspondingly, improving household food security is one of the most significant policies which support the objective of poverty reduction in Laos. To implement this policy effectively, the government has to improve market-based farming systems in order to reduce disparities between lowland and upland farming systems (Lao PDR, 2004). On the other hand, by focusing on promoting economic growth and reducing poverty, the government has increasingly promoted large-scale investments (Bouahom et al., 2011; MPI, 2016). As a consequence of market-oriented promotion policies, the rural landscape has been transformed from subsistence agriculture to industrial plantations (Friis et al., 2016; Schönweger et al., 2012). Besides, the government is attempting to create more permanent jobs for people by stabilising shifting cultivation with the aim that this will alleviate poverty in remote areas (Bouahom et al., 2011). Most rural farmers tend to shift from traditional cropping production to commercial plantations, especially the planting of rubber.

4.4 Rubber production in Laos

Rubber was introduced by French colonists in 1930 in Champasak Province in the southern region (Douangsavanh et al., 2008; Manivong & Cramb, 2007). The first rubber planting area was only about 2 hectares (Kenney-Lazar, 2009; Thanthathep, Douangphila, Phichit, & Keomixay, 2008). A booming rubber industry in Laos has occurred since the early 1990s (Kenney-Lazar, 2009). For example, in Khammouane Province, around 80 hectares of rubber were planted in Thakhek District by Phathana Khet Phoudoy Company in 1990 and another planting area of 23 hectares was introduced in Hinboun District (Thanthathep et al., 2008). In Champasak Province, a rubber area of approximately 50 hectares was cultivated in Bachiangchaleunsouk District in 1995. And in the northern part of the country, more than 342 hectares of smallholder rubber was introduced between 1994 and 1996 in Louangnamtha Province (Manivong, 2007). In 1996 rubber was also planted in Sangthong District, Vientiane Capital of about 3.5 hectares (Thanthathep et al., 2008).

The ‘turning point’ of rubber planting in Laos occurred in the early 1990s in the northern region of Laos (Thanthathep et al., 2008). Farmers in Hadyao Village, Louangnamtha Province first started to harvest their 342 hectares of rubber trees in 2002¹ and have generated income from rubber since then (Manivong, 2007). Local people in this village can produce around 1,360 kg/ha/year of latex and they can generate a high annual income of approximately US\$880/hectare (Thanthathep et al., 2008). This plantation has been successful and it has influenced the rubber planting decisions of various smallholders throughout Laos. Consequently, rubber planting has spread over the entire country. Overall, rubber is expected to increasingly expand and become the major export sector for Laos. It has also become a priority for replacing opium cultivation and stabilising shifting cultivation or slash and burn, particularly in the uplands (Cohen, 2009; Thanthathep et al., 2008).

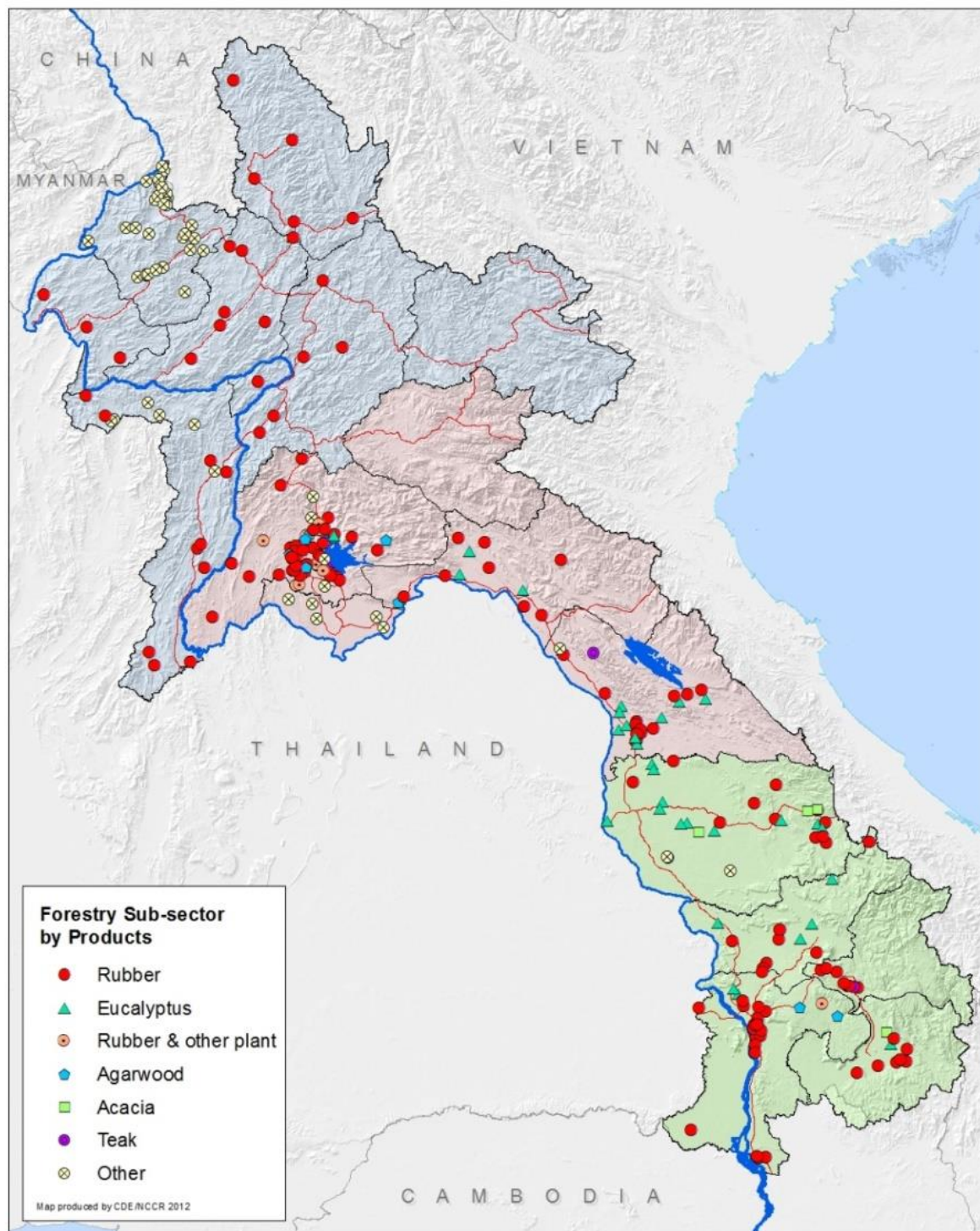
According to Verheye (2010), there are two main different systems to collect rubber latex, including the latex plus cup dregs, and the coagulation in cups system. The latex plus cup dregs system is widely used and it is usually transported in the same day for processing in the factory. The coagulation in cups system can be transported after a few days, but it is considered as a lower-grade rubber (Verheye, 2010). In Laos, smallholder farmers mostly harvest rubber by the first system, the latex plus cup, but farmers need to add ammonia to coagulate the latex. This is because there is no factory for processing, particularly in the case study area, and farmers need to store rubber latex collected for selling once a fortnight (Field notes, 2017).

The government has increasingly approved large-scale concessions for foreign investors in order to expand commercial plantations in recent years (Baird, 2011; Bouahom et al., 2011). By 2004, there was considerable foreign investment in rubber plantations. Mostly rubber planting areas in the north are dominated by Chinese investors, and the central areas and the south are dominated by Thai and Vietnamese companies respectively

¹ During the first period of rubber establishment between 1994 and 1996, a total of 154,000 rubber trees were planted, occupying 342 hectares. In 2003 and 2004, 76,500 trees or about 170 hectares of rubber were planted, and in 2005 another 56,800 rubber trees or about 126 hectares were established. All of these rubber trees have been planted within the 1,700 hectares of village agricultural land (Manivong, 2007).

(Thanthathep et al., 2008). Plantation investments are located all over the country (Figure 4-3). Overall, rubber cultivations are the main investment, numbering 225 projects in 2012, followed by 49 projects of eucalyptus, and 23 planting mixed tree (rubber and teak or rubber and acacia) investment projects. In 2012 the rubber area accounted for 129,614 ha, while the eucalyptus area was 95,978 hectares and acacia was 39,971 hectares (Schönweger et al., 2012).

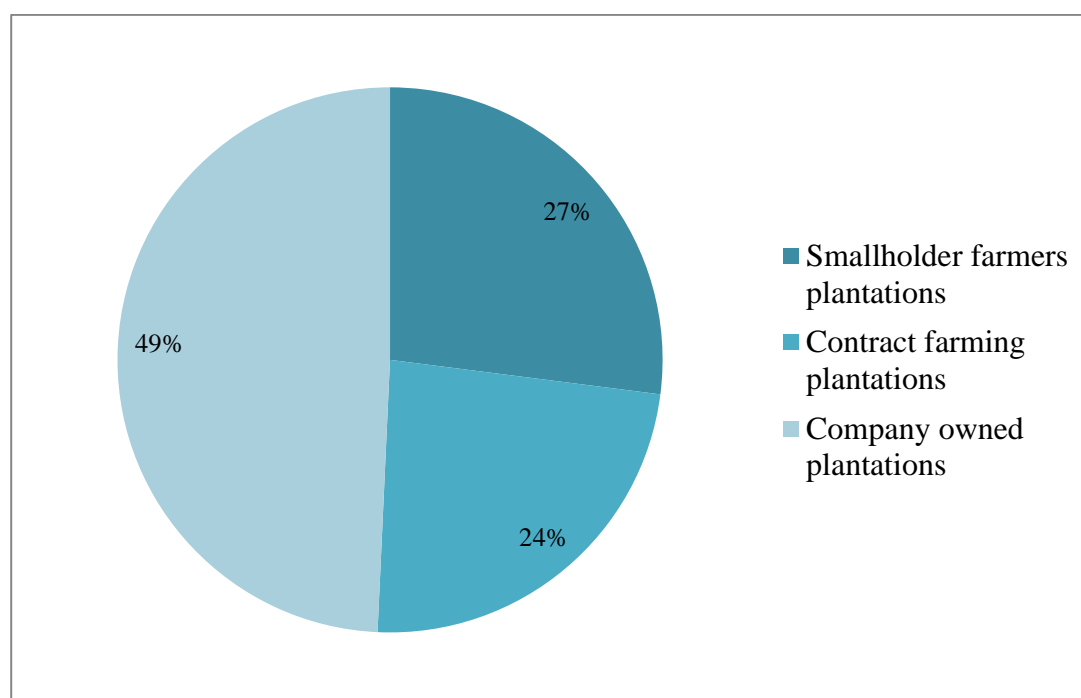
Figure 4-3 Investment project locations and main products in the forestry subsector



Source: Schönweger et al. (2012).

The rapid growth of Southeast Asian economies has accelerated demand for rubber production in Laos (Schönweger et al., 2012), and rubber plantations are correspondingly expanding, particularly in the north of country. Currently, the total area of rubber planting is 248,864 ha. The chart below illustrates the proportion of rubber plantations in Laos, differentiating between farmer (smallholder), contract farming and company owned plantations. The area of the farmer plantations is 66,833 ha, the area of the contract farming plantations is 58,647 hectares and area of the company owned plantations is 121,873 ha. Despite the considerable area, the harvested area is only 35,959 hectares or around equivalent to 14.45% of total rubber area (MPI, 2016). This is because most rubber plantations (85.55%) are still not ready for production or tapping, as the immature phase normally takes around six or seven years.

Figure 4-4 Proportion of rubber plantations in Lao PDR, 2016



Source: MPI (2016).

Over the last decade, the government has promoted contract farming in order to reduce poverty (Fullbrook, 2011; MAF, 2010b). The central government policies have strongly promoted cash crops because these policies mainly focus on land use and land tenure issues. The goal of these policies is to stabilise shifting cultivation, alleviate poverty and eradicate opium in the country (Bouahom et al., 2011). To reduce the risks in planting

cash crops, contract farming has been promoted as a strategy by forming written agreements between farmer and trader (Fullbrook, 2007). According to Fullbrook (2011), successful contract farming depends on several factors, for example written production agreements, market price, advance payments, certified production systems, and market information. Although contract farming aims to minimise risks and increase profits, successful cases are dominated by “people with cash who are not poor” (Fullbrook, 2007, p. 49). The regulations for promoting contract farming need to be improved because it is hard for local people to understand and follow the regulations, and their awareness of the regulations is also low (Fullbrook, 2007).

In contrast to contract farming promotion, according to the national forestry strategy of 2015, industrial plantation (including rubber) areas in Laos will not exceed 500,000 hectares by 2020. In the situation of “the uncontrolled expansion” of industrial plantations, especially rubber planting, the government had to deal with this situation by signing “a moratorium on land” in May 2007 (Bouahom et al., 2011, p. 13). This moratorium aims to control rubber plantation expansion in order to balance the benefits and negative effects. For example, the government and local communities may get benefits from rubber planting concessions, but local farmers may be affected by rubber plantations. However, since the early 2000s, “foreign investors are engaged in a race to land concessions” (Bouahom et al., 2011, p. 13). Currently, the rubber cultivation areas are nearly 300,000 hectares and the areas are continuously increasing (MAF, 2015).

By the year 2025, the Strategy for Agriculture Development 2010 has also identified development targets to be achieved, by focusing on the needs of smallholders and modernisation of commercial agricultural production (Lao PDR, 2014; MAF, 2010b). Modernising production is expected to increase quality in the process of agricultural production, create a ‘pro-poor and green value chain’, and support sustainable agricultural production and forest management (Lao PDR, 2014, p. 19). To reach the targets of industrialising and modernising the agricultural sector, some significant policy measures are being introduced. These measures aim to (i) establish modern cooperatives that are able to access to credit, technology and modern production equipment, (ii) ‘promote the use of agriculture machinery in each production stage linking with marketing’, (iii) ‘determine and prioritise strategic agricultural products in order to shift from agriculture production to

industrialisation and modernisation’, and (iv) ‘increase investment ratios in agro-processing’ (MAF, 2015, p. 30).

4.5 Study sites

Vientiane Province is located in the central part of the country, around 70 km from the center of Vientiane Capital (MPI, 2017). The province is bordered by Louangphrabang Province on the north, Xiengkhouang, Xaysomboun and Bolikhamxay Provinces on the east, Vientiane Capital and Thailand on the south, and Xayaboury Province on the west (Figure 4-6). Vientiane has 11 districts and Phonehong District is the capital of the province. According to the Population and Housing Census 2015, the population in Vientiane Province was 419,090 people (Lao Statistics Bureau, 2015). The landscape of the province is mainly characterised by rugged mountains and the large Vientiane plain, which is the largest plain in the country and it is the major source of agricultural production. With an area of approximately 66,768 ha, the province produces over 250,000 tons of rice per year. Farmers also produce other crops such as maize, Job’s-tears², cassava, bananas, limes and vegetables (MPI, 2017).

Rubber plantations are rapidly increasing in Vientiane Province. The province has the highest number of investment projects in the country, with more than 350 projects or almost 400,000 hectares of land lease for concessions (Schönweger et al., 2012). By 2009, almost 300,000 hectares of land concessions in Vientiane Province had been granted for foreign investments, including for mining, agro-fuel, rubber, wood, food, etcetera. (MPI, 2017). Specifically, rubber production is currently becoming the main priority for the agricultural sector in the province as an official from Hinheub DAFO said that: “... *Rubber planting is significantly expanding and it is becoming a major sector of our province. The province will export more rubber in the near future...*” (Interview, 20/07/2017). Rubber plantations have spread over the province, especially in Hinheub District and Phonehong District. There is one rubber latex selling point in Ban Phonekham Neua in Phonehong District (Figure 4-5), and two selling points in Ban Nongluang and Ban Somsanook in

² Job’s-tear is a tropical Asian grass, *Coix lacryma-jobi*, cultivated for its white bead-like modified leaves, which contain edible seeds. Retrieved December 02, 2017, from <https://www.collinsdictionary.com/dictionary/english/jobs-tears>

Hinheub District. All rubber latex products are sold and transported to China through Boten checkpoint in Luangnamtha Province (Field notes, 2017).

Figure 4-5 Selling point in Phonekham Neua Village, Phonehong District



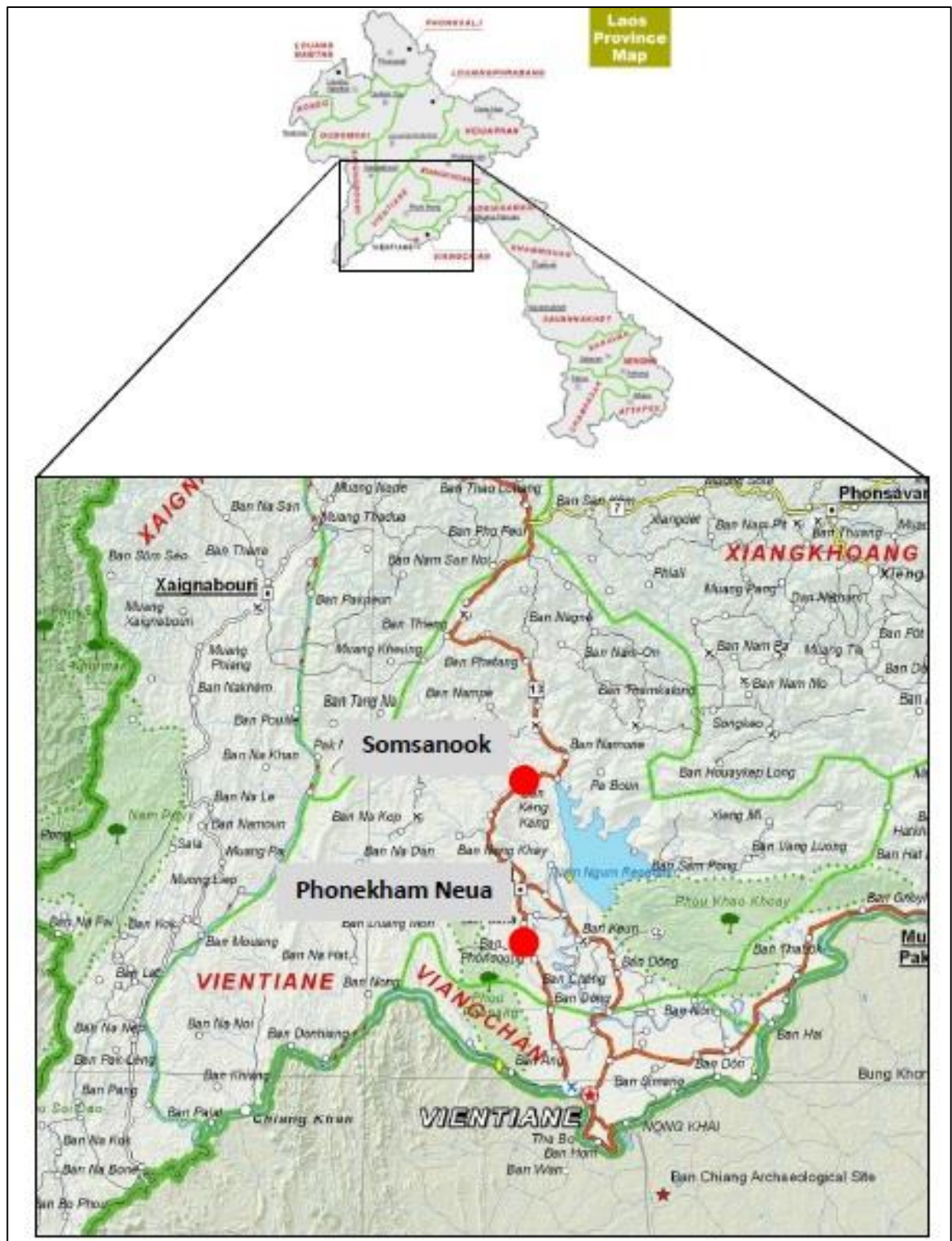
Source: Author (2017).

In the fieldwork, two villages in Vientiane Province were selected for the case study, including Somsanook Village in Hinheub District and Phonekham Neua Village in Phonehong District (see Figure 4-6). The first case study village is Somsanook Village and it is centrally located within the province. The village is close to the Nam Ngum reservoir³ and so has potential for fishing activity. Another case study village is Phonekham Neua Village, which is situated in the south of Vientiane Province and this village is close to the border of Vientiane Capital. This creates a considerable opportunity for villagers in trading because villagers can easily access transportation and communication, for example mobile

³ It was the first hydropower scheme in Lao PDR. The dam and reservoir provide a great deal of ancillary benefits to local communities, including flood management, creation of a commercial fishery, irrigated agriculture and tourism. Retrieved December 02, 2017, from <http://www.hydrosustainability.org/getattachment/a582eb2c-7ed0-46ce-ac91-e93e7367695f/Nam-Ngum-1-Hydropower-Plant,-Lao-PDR.aspx>

phone (Field notes, 2017). These two villages were nominated during the field work because the majority of villagers in both villages are planting rubber and both communities have learnt lessons about rubber production from the north.

Figure 4-6 Research locations



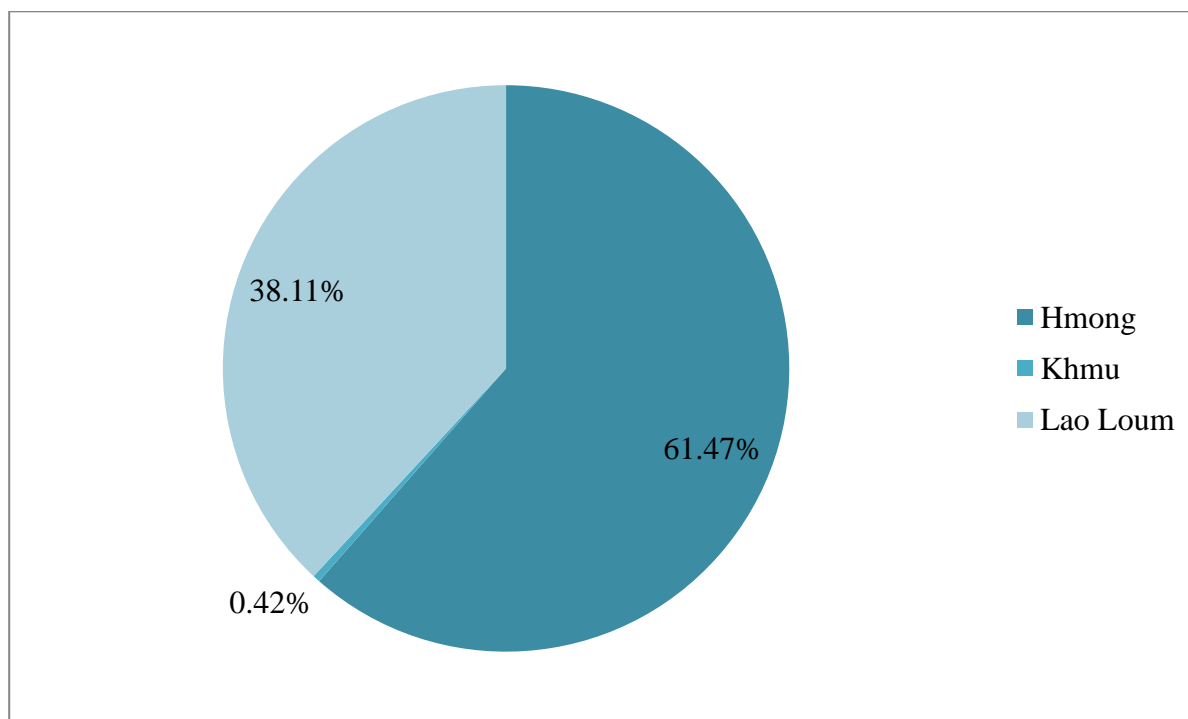
Source: UNITAR (n.d.).

4.5.1 Somsanook Village

Somsanook Village, or known as “*Ban*” Somsanook in the Lao language, is situated along Route 13 north (the major road of the country). The village was established in 1970 in Hinheub District and it borders Vangvieng District to the north, Sivilay Village to the east, Keo-oudom Village to the south, and Nampat and Vangkhi Villages to the west. Somsanook has a diversity of geography, consisting of various mountainous areas with some parts flat. You can easily find rubber trees by driving through the village. According to the deputy head of village, the average rubber holding area is approximately 2 to 3 hectares per household (Field notes, 2017).

The village’s population currently is 1,438 people, with 707 female villagers or about 50% of the population, and this includes three ethnic groups of Hmong, Khmu and Lao Loum (Figure 4-7). The majority of the population in the village is the Hmong group, consisting of 884 (433 women) people. This is followed by the Lao Loum population of 548 (271 women) and the Khmu population of six (three women) people (Field notes, 19/7/2017).

Figure 4-7 Proportion of population in Somsanook Village, by ethnic group



Source: Interview with the deputy village head of Ban Somsanook (19/7/2017).

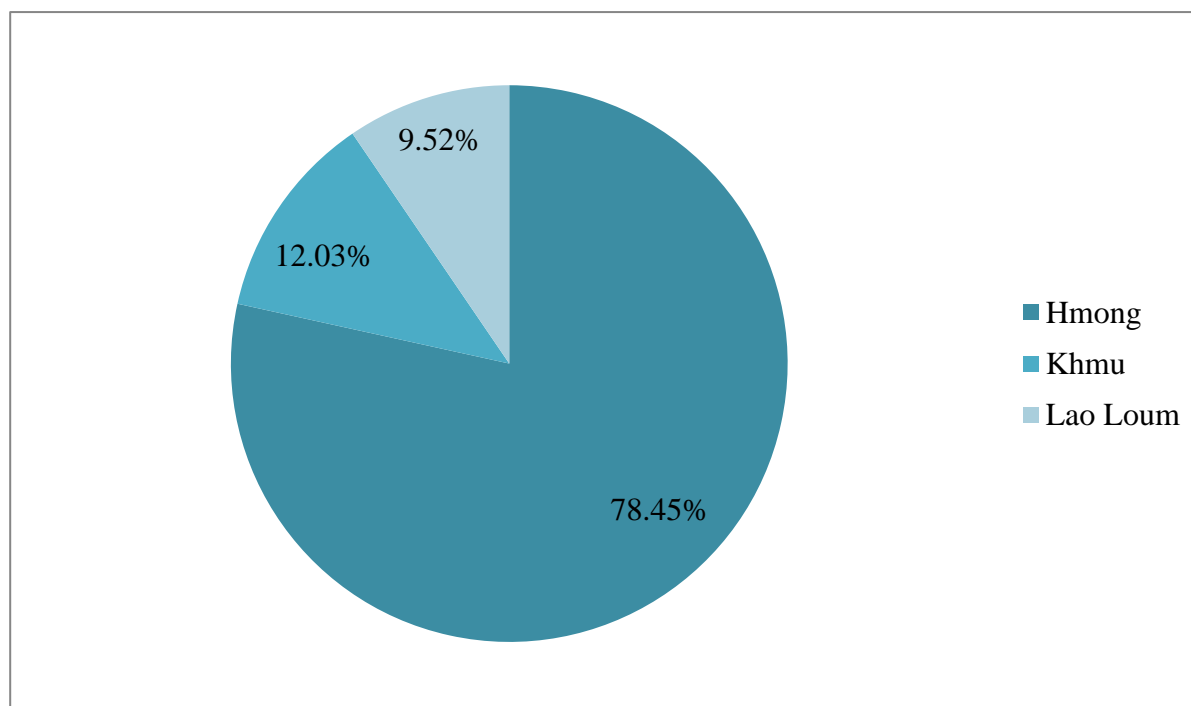
Rubber was first introduced by Mai Phommaly's company to Somsanook Village in the early 2000s and the traditional shifting cultivation practice has significantly changed. More than half of the village's households are now involved in rubber planting. Some villagers may plant rubber as smallholder plantations, while several people made contracts with companies (contract farming) or work as labour for companies. With its economy based on agricultural production and livestock rearing, the villagers are primarily farmers, merchants and labourers, some of whom are employed in construction work and at rubber plantations. In addition, fishing is an extra activity for villagers because people can catch fish from the Nam Ngum reservoir, and some people may generate income from this activity. According to the District Agriculture and Forestry Office (DAFO) report, the total land area of Somsanook village is 14,961 ha. This includes a reservoir area of around 9,000 ha, rubber area of 3,772 ha, rice paddy of 940 hectares and other crops of 28 hectares (Field notes, 19/7/2017).

4.5.2 Phonekham Neua Village

According to the village head, Ban Phonekham Neua was founded in 1972 when there were only the Khmu ethnic group in the village. In 1990, Hmong migrated from Feuang District to this village and became the majority group in Phonekham Neua Village. Geographically, Phonekham Neua is dominated by flat areas and public transport is a potential for village development. Road conditions are appropriate for farmers and traders in this area because the village is located along the national Route 13. It is also close to the big market (Km 52 market) called "*Talad Lak 52*" where people can easily buy materials for planting and harvesting rubber (Field notes, 2017).

The total population is 2,067 people, with 1,077 being women. Hmong represent 78.5% of the local population or 1,598 people (804 female); Khmu represent 12% or 245 people (120 female); and Lao Loum account for 9.5% or 194 people (101 female) (see Figure 4-8). Phonekham Neua Village shares a border with Honglueay Village to the north, Phonethan Village to the east, Phonekham Tai Village to the south, and Nongnak Village to the west (Field notes, 2017).

Figure 4-8 Proportion of population in Phonekham Neua Village, by ethnic group



Source: Interview with the village head (27/7/2017).

The main livelihood activities are agriculture, rice production, raising livestock, trade and services. The total village area is 242 hectares and the area is dominated by agricultural land of 217.5 hectares, including livestock, rice paddy and crop productions. Rubber plantation areas accounts for only 5 hectares in this village but Phonekham Neua villagers own rubber plantation areas of around 50 hectares outside the village. In addition, the settlement area is 24.5 hectares in Phonekham Neua Village (Field notes, 2017).

4.6 Summary

This chapter provided the overall context of the country including geography and natural resources, demography, government and policies for the country's development. The implementation of MDG and SDG targets are presented in order to show how Laos is involved in global development. For country development, relevant policies are described and some impacts of rubber production in the country are also presented. Lastly, the chapter describes characteristics of the case study villages, including Somsanook and Phonekham Neua Villages in Vientiane Province. The next chapter will provide research findings and analysis of data from field work.

Chapter 5 Key results: Livelihood Activities and Perspectives on the Impacts of Rubber Plantations

5.1 Introduction

This chapter demonstrates how rubber affects local people's livelihoods in both case study communities. The chapter provides information about current livelihood activities of two villages. This helps to answer the sub-question, "*How do rubber plantations affect local people's livelihood activities?*". Besides, this chapter also describes the perspectives of local government officials on the improvement created by relevant policies. Moreover, the chapter also responds to another sub-question, "*How do local people deal with rubber plantations' impacts?*".

5.2 Livelihood activities

Both Somsanook and Phonekham Neua Villages rely on farm-based livelihoods. Land use systems were mainly mixed agricultural systems (upland and lowland crops, and livestock). Although rubber planting is rapidly expanding in these two villages, most villagers still primarily depend on subsistence agriculture and mixed agricultural systems are the basis of their food security. These mixed agricultural systems are flexible and depend on the unique context of each village such as its geographical condition and traditional farming practices. For example, agriculture practices in Ban Somsanook are largely based on shifting cultivation, whereas farmers in Ban Phonekham Neua are mainly engaged in lowland rice farming.

While the government aims to stabilise shifting cultivation in rural areas (Bouahom et al., 2011), shifting cultivation is still relatively essential for locals' livelihood in Somsanook Village. Most villagers produce food crops for household consumption, especially cultivating rice as a staple food. It is not only lowland rice, but upland rice is also important for food consumption. Upland rice is still important for most villagers, although rubber plantations are rapidly increasing in the village. For instance, one of the villagers said that:

.... During the period of the dropping price of rubber, I was teaching at school and it was enough for my family. For other villagers, some people had to work as

labourers and some had to cultivate upland rice. They have to cultivate upland rice for household consumption. For people who have no land, they might work for someone in the village (Interview, 20/07/2017).

The majority of villagers in Somsanook Village practise upland subsistence farming. Although farmers are primarily employed in conventional agriculture, lowland rice paddy areas account for only five hectares in the village (Interview with the deputy head of the village, 2017). Some villagers still cultivate upland rice in shifting cultivation areas by mixing rice with other seasonal crops such as maize, banana, chillies, cucumber, pumpkin and vegetables (Figure 5-1). These crops are cultivated not only for household consumption, but also for household income generation. For example, a villager in Somsanook Village said that “... Some people can sell seasonal crop production. Sometimes they can get four to five million kip per year...” (Interview, 19/07/2017).

Figure 5-1 Banana and rubber plantations along Route 13 North in Somsanook Village



Source: Author (2017).

Currently, rubber planting is the main source of income for most households in Somsanook village. Prior to rubber planting in the village, farmers also planted other industrial trees for timber some of which are Earleaf acacia or ‘*Acacia auriculiformis*’ and Burma padauk or ‘*Pterocarpus macrocarpus*’ (Interview, 2017). Most villagers have replaced these trees with rubber planting since the early 2000s. Since then, rubber has been widely planted in the village by the Hmong group, and the Lao Loum group started to plant rubber about five years later. A farmer who entirely replaced an Earleaf acacia plantation by rubber planting explained that:

... I used to plant acacia with the support of JICA project⁴ and I cannot get any benefits. After that, I cut those acacia and Burma padauk, and I had planted rubber instead... I had planted those trees for more than ten years, but no one can buy. Project also did not support this plantation... (Interview, 20/07/2017).

Beside agricultural practice in Somsanook Village, several farmers have temporary jobs as a secondary source of income and this may provide people an extra wage. For example, some villagers have invested in their own business (for example, a small convenience store for selling food supplies) or some people work construction jobs in the village. These jobs can support locals’ livelihood in various ways such as improved food security, improved houses, improved health safety, etcetera (Field notes, 2017). This will be elaborated on more in the section on coping strategies.

In contrast to upland rice production in Somsanook Village, lowland rice plays a more important role in the mixed agricultural system of Phonekham Neua Village. Around 80 per cent of the village’s area is agricultural land and rice is the predominant crop. Lowland rice growing and livestock rearing were the main agricultural activities prior to rubber planting. The head of Phonekham Neua Village is one of the farmers who cultivate rice and raise cattle as their main activities. For example, the farmer described that the ‘...

⁴ The Forest Conservation and Afforestation Project – Japan International Cooperation Agency (JICA) had been implemented (from July 16, 1998, till the July 15, 2003) for the purpose of strengthening the capacity of the local administration for promotion of participatory forest management in order to reduce the trend of forest degradation in the fifteen targeted villages in Vientiane Province. Retrieved December 10, 2017, from https://www.jica.go.jp/english/our_work/evaluation/tech_and_grant/project/ex_post/asia/pdf/laos_2007_1.pdf

rubber planting area used to be an area for rearing cattle'. Besides, rubber plantation areas have rapidly expanded during the past few years in Phonekham Neua Village. In the early 2000s, smallholder rubber planting was first introduced in the village by the Hmong group and they were followed in this by the Lao Loum and the Khmu groups. The Hmong people learnt rubber production techniques as a result of their kinship ties and social networks. Rubber expansion, however, in the village is currently slowing down due to limited land as one of villagers explained: "... *I planted some rubber trees, but cannot expand more. In the past, land in this village was not allocated. Thus, we (villagers in the village) could cultivate rice and raise livestock. After huge expansion by villagers, we have to cease...*" (Interview, 27/07/2017). During the 1990s, the government had started to improve land management, and this case was also influenced by the Land Use Planning and Land Allocation (LUP/LA) program⁵ of the government (Field notes, 2017).

Livestock is significant for household income generation in both villages. For example, the deputy head of Somsanook Village said that '*... both activities are opportunities for villagers. One is rubber planting and another is livestock. Some villagers raise livestock upstream of the Nam Xong River*'. Livestock raising can help secure local people's livelihoods because livestock can be sold when cash is needed or food shortage occurs. Most people raise cattle (or sometimes buffalo) to generate income, and cattle and buffalo are often traditionally used to prepare land for paddy farming (Field notes, 2017). However, this usually takes time (at least 2 to 3 years) and it also requires high capital to buy and raise cattle or buffalo. Pig and goat farming can also help farmers to increase their income and villagers often consume these animals during special occasions, for example New Year or wedding ceremonies. Lower capital and a shorter rearing time are evident compared to cattle or buffalo, but there is some investment required such as food, shelter and medicine. Poultry are also widely raised for household saving and consumption. Across both villages, locals are raising chickens and ducks in almost every household. This is because small scale poultry farming requires low inputs for raising and people can easily consume poultry as their daily meal.

⁵ Land Use Planning and Land Allocation (LUP/LA) program has been implemented since the early 1990s. The program aims to address the problems of the main cause of rapid deforestation in the country. Retrieved December 03, 2017, from http://www.eepsea.org/pub/tr/12628443311Manivong_and_Sophathilath_-_Land_Use_Planning.pdf

Even though rubber planting provides considerable benefits, it sometimes negatively affects communities in some aspects as well. According to Bouahom et al. (2011), there are three main regimes or models of rubber planting, including large-scale concession (company ownership), contract farming (between farmer and company) and smallholder (farmer ownership). Each regime has different characteristics (for example, concession and contract farming regimes may require large arable land, while smallholder plantations may need just small areas for planting), and each type differently impacts farmers' livelihoods. In both communities, local people are involved in rubber plantations in various ways. Some people work as labour for rubber plantation companies, especially local farmers who have no land for agricultural production. Several people make a contract with companies by using their land and labour. For local people who have land and some capital for investment, they mostly plant rubber as individual owners.

In the early 2000s, large-scale concessions for rubber plantations were established in both Somsanook and Phonekham Neua Villages. In Ban Somsanook, Mai Phommaly's company was the first rubber plantation investment and more than half of rubber farmers have worked for the company (Interview, 2017). In Phonekham Neua Village, Cheu Cha Hang Company has provided jobs for many villagers who have no permanent jobs, and this company was the largest company for rubber planting. As the director of Phonehong DAFO said: '*... The first group was the Cheu Cha Hang, this Chinese company came from the north. They occupied considerable land for rubber plantations*' (Interview, 27/07/2017). While these companies are profitable for economic development in both villages, they have also created some obstacles for some villagers such as environmental impacts and land title issues. Land resource is fundamentally important because these concessions require considerable land. In addition, labour is needed for large-scale rubber production, particularly labour from local communities because the labour wage in communities may be lower than labour from outside.

Another model of rubber planting is contract farming and this model may provide opportunities for people who have land for planting. Various rubber production investors have invested in rubber production in both villages since the 2000s and farmers can easily make a contract with those rubber planting investors. Although contract farming can encourage villagers to establish their own rubber plantations in both villages, these villagers

have to share money from selling rubber products during the mature period of natural rubber. Many people have entered into the contract because they have not enough funds to establish their own plantation. As a villager in Somsanook Village said:

‘...They [other villagers who work for her rubber plantation] have to work as labour because they have low income and they are quite poor. They have just a small piece of land and they have no funds to invest in rubber planting. Some of them have to plant with the project [make a contract with investors]’ (Interview, 20/07/2017).

The majority of rubber planting is by smallholder farmers and this regime is vitally important for villagers’ livelihoods. This type of plantation can support household income generation in both study villages and farmers can get full return from selling their rubber production. However, farmers require a huge amount of funding, land and labour in order to establish their own rubber plantation. Therefore, some people, who have only land and labour, have to sign a contract with the investor if they need to plant rubber. For example, the deputy head of Somsanook Village said that *‘About half of planters have invested to start rubber planting with their own funds... After three to four years working with the project [contract farming], they might invest to establish their own planting area’*. In addition, farmers have to wait to get returns during the immature period which normally takes around six to seven years.

5.2.1 Livelihood activities during the establishment phase of rubber plantations

During the immature period of rubber of around six to seven years, smallholders cannot get an economic return from tapping latex (Interview, 2017). Careful maintenance is also needed for young rubber trees during the establishment period. The first year is critically important because rubber plants are young and the dead plants must be replaced. Farmers need to disbud and prune young rubber trees during this period (FAO, n.d.-b). Weed control is significant during this period because it helps young plants to receive high amounts of sunshine. However, weeding is hard work as one of the participants in Somsanook Village said:

The first few years phase is the most difficult period for rubber planting because we have to weed for young rubber trees ... Rubber planting is not an easy task; we [including his family members] have to weed at least three times a year. We have to

buy a weed trimming machine although we have seven to eight people as labourers in our family (Interview, 20/07/2017).

For two to three year old rubber plants, weeding is still needed, but it is less active because the rubber canopy closes (Figure 5-2). Most smallholders have to weed manually, and weed control during the establishment phase is extremely expensive. Therefore, most villagers use their own family members, including children in the family, as labour for rubber maintenance during this immature period. One of the villagers in Phonekham Neua Village explained that “... *My kids have also helped me in taking care of rubber. Kids can do a little, while mature people like us have to work hard...*” (Interview, 20/07/2017). Moreover, large-scale plantations traditionally use agrochemicals in order to reduce labour (Verheye, 2010).

Figure 5-2 The immature phase of a rubber plantations in Phonekham Neua Village



Source: Author (2017).

5.2.2 Livelihood activities during the production phase of rubber plantations

Latex is extracted from rubber trees and farmers can get a return from selling raw latex in the production period. Farmers can harvest the latex for around 28 to 35 years during the production period (FAO, n.d.-b; Manivong, 2007). Intensive labour is needed for small-scale rubber production, particularly in the production phase when tapping starts (Manivong, 2007). Tapping is the process of collecting latex from the rubber tree. A rubber tree can be tapped for latex when it reaches about five to six years old (Verheye, 2010). The tapper must start tapping as early as possible, at approximately 2 am (Interview, 2017). This is because the temperature of the early morning air is low and this encourages latex to flow normally for about five to eight hours per day. Farmers can tap rubber trees around 85 to 140 days per year and tappers cannot tap if the collecting cup is wet (Verheye, 2010).

Farmers often face obstacles in the process of harvesting natural rubber. Verheye (2010) identified three main difficulties, including rainfall and tapping skills or techniques. Firstly, rainfall may reduce the quality of rubber latex if it dilutes the latex. Heavy rain also disrupts tappers during the latex collection process. As a participant said on a rainyday: *‘... Like today, I cannot collect the latex because it is raining. Rubber trees produce latex but I have no chance to tap those rubber trees’*. Secondly, tappers often accidentally create wounds on the rubber trees due to lack of tapping skills. The third problem is over-exploitation which may partially or completely interrupt the latex flow because farmers use latex stimulants to increase the rubber latex.

5.3 Rubber plantation impacts

5.3.1 Implications for employment in communities

5.3.1.1 Increased employment opportunities

In both study villages, Ban Somsanook and Ban Phonekham Neua, rubber planting has influenced the livelihood activities of villagers. Farm-based systems are major activities in the villages and combined agricultural systems continue to have a significant role in local people’s daily life. Agricultural production can generally support their income. Together, livestock production also helps people in terms of daily income generation and household consumption (Field notes, 2017). Even though agricultural production may support farmers’ income and food production, most of agricultural products are seasonal crops such

as maize, cucumber and vegetables or even beef. Moreover, rubber expansion can create job opportunities in both communities, for example weeding and as tapping labour. Local people in the study communities believed that they received an adequate return from rubber production as one of the farmers in Somsanook Village described:

... Selling latex is better than other agricultural products... When the price increases, my husband and I can earn more than six million per month. It is hard to work as labour. If we have our own rubber plantation, we can tap rubber trees until 10 or 11 am and then we can pause... (Interview, 20/07/2017).

Beside agricultural production, rubber planting also helps several villagers to supplement their household income. In these two villages, planting of rubber sometimes is an alternative to generate more income and several people have decided to personally invest in the rubber planting business. Local farmers have replaced their agricultural land or other industrial plantations by rubber planting because they believed that rubber production may be better than other agricultural production activities. For example, some villagers have shifted from rice planting to rubber planting, combined with cattle raising, as a participant in Phonekham Neua Village said:

I think that rubber planting is easier than cattle rearing and provides me a higher income. If we can use our own labour every day, we will get a total of six million kip per month... I cease to grow rice but currently rear cattle with more than 70 cattle in the same plot of land (Interview, 27/07/2017).

Rubber plantations can create opportunities for various households to generate higher income, although this comes through hard work. Most villagers, who have low income or have no land, also prefer to work with the rubber plantation companies. It is because people can work as casual worker and get extra income for their households. In addition, they are also regularly hired by rubber investors. Increasing income leads to development of infrastructure in the villages. For example, villagers' buildings are improved because people can tap rubber trees to earn income or sell their rubber latex. As the deputy head of Somsanook Village explained:

... Household income in our village has considerably increased. We can see this from houses, most small brush houses have changed to big permanent houses. However, we have to work hard too. It is not easy because we have to get up at 3-4 am (Interview, 19/07/2017).

As a consequence of rubber production, an increase of household income in both villages can also generate employment such as in construction work. These jobs may help locals who have no land or have low income. These people cannot invest to establish their own business, for example trading (small convenience store), because they do not have enough funds. Employment in study villages can support people when they face difficulties as one of the research participants said: ‘... *During the falling price period, I can earn money from construction work...*’. Overall, rubber plantations can help to increase farmers’ household income and create more employment in both villages. Therefore, most locals in both villages have followed other villagers or their relatives to plant rubber.

5.3.1.2 Reduced alternatives for agricultural production

Agricultural production plays a significant role in locals’ livelihoods in the two study villages and this production is a major source of income and food for villagers. It is not only crop production, but animal production also supports villagers’ livelihoods. Raising cattle remains an important source of income and food for villagers in both villages. However, many villagers have had to abandon livestock rearing due to the rubber planting. Grassland is required for cattle raising, but grassland is reduced because most farmers have converted their land into rubber planting areas. There were some huge plots of grassland prior to rubber planting establishment because villagers did not divide their land by constructing wire fences. Some farmers could rear their cattle in that grassland, but grassland is currently reduced by rubber plantations. For instance, as one of the villagers in Phonekham Neua Village described:

I sold cattle and followed other villagers in the village to plant rubber because I cannot rear cattle in my farmland. I want to keep my cattle, but my land is so small and it was surrounded by rubber plantations. Prior to rubber planting, I had more than ten cattle... (Interview, 28/07/2017).

Available grassland was not the only problem for livestock production, and farmers often faced other difficulties in raising cattle such as capital. This is because raising cattle properly requires a huge amount of money. To establish cattle rearing, farmers need to buy at least two or three cattle (Field notes, 2017). In addition, farmers have to heavily invest for fodder and medicine. Thus, several villagers have to work with companies as labour in order to collect money to invest in their own business in the future. Various people want to continue rearing cattle but they have not enough funds as the deputy head of Somsanook

Villager said: *“If I had much money, I would rear cattle because it is easy to sell and it is not difficult like rubber planting... I will start growing grass for rearing cattle because I have raised some cattle along Nam Xong River...”* (Interview, 19/07/2017). In this case, the villager believed that he could get a higher return from cattle raising, but he needed to get funds for the start-up investment.

While various farmers were satisfied to change their employment to rubber planting because their household income would increase, some villagers were reluctant to change but they had to change. Raising cattle also provides a high economic return for farmers. Cattle rearing can also be a source of meat that people can consume and sell in the market. Although various people can get return from tapping rubber latex, some still recognise cattle rearing as a better source of income. This is because farmers can sell cattle for good sums of money when they need it. People can then use the money for investment in other business or when health problems occur. For example, a villager explained the issue that:

... During the establishment period of rubber planting, I had to sell my cattle to establish a new small convenience store in my house. I miss my cattle. I want to buy the cattle back but I cannot buy them because no one sells cattle. If I was not in trouble at that time [his cattle invaded others' land with young rubber trees], I would not sell my cattle because rearing cattle is better... For example, if I rear five cattle I can sell them a year later and get a huge amount of money. But when I sell the latex in a fortnight, I will get some money and I can just spend it to buy small things in my daily life... Raising cattle is better than rubber planting because I can sell them anytime. The rubber price is also declining and every day I have to tap the trees for latex. I have to work at night and cannot work during the day time because I need to sleep ... I did not want to plant the rubber trees and I had just heard from other villagers that it makes money. They all planted rubber then I had no place for raising cattle. Thus, I followed them to plant rubber... (Interview, 28/07/2017)

In addition, some farmers want to rear cattle in the rubber plantation area but it may lead to problems. Even though some farmers want to integrate cattle raising with rubber plantations, cattle may damage rubber trees. Cattle may eat the leaves of immature rubber trees or cattle may cause harm to rubber tree roots during the maturing period of the trees. On the other hand, cattle may be troubled when they eat rubber leaf as a villager described:

... I cannot rear cattle in my rubber plantation area because cattle may tread on the rubber roots. I also do not have enough grass for my cattle. Cattle also eat

water from the cup on the rubber trees and they might die because we coagulate latex by mixing formic acid. Moreover, cattle can have rubber leaf and cattle may die if they eat too much...

Overall, rubber planting has led to significant change in rural livelihood activities in both study villages. Rubber planting supports smallholders to regularly generate household income. However, planting of rubber also potentially influences the decrease of raising livestock, especially the number of cattle in both case study villages. Livestock is an alternative for farmers in agricultural production and livestock is an important source for household income and consumption. Farmers in both communities often experience obstacles regarding land and funding for cattle rearing.

5.3.2 The local land use system

5.3.2.1 Reduced shifting cultivation areas

Rubber areas are rapidly expanding in the villages. Around 180 to 190 out of 230 households are planting rubber in Somsanook Village, while more than half of the households in Phonekham Neua Village are planting rubber (Interview, 2017). This significant growth leads to land use change in both communities and most villagers have converted their arable land to rubber planting areas. For instance, due to rubber plantations in Somsanook Village, shifting cultivation areas have dramatically decreased. Many villagers ceased to cultivate upland rice and replaced it with rubber plantations. One of the participants mentioned how rubber influenced the land system in the village in conversation:

... While many villagers entered into a contract with the company in order for the planting of rubber, some locals invest with their own funds. In this year, shifting cultivation is mostly abandoned because they have focused on rubber planting for a few years (Interview, 19/07/2017).

In terms of contract farming, farmers have to use their land with an optional use of their labour. People can use their labour and their land or only their land. It depends on criteria in the contract between farmers and investors. For example, in Somsanook Village, there are two rubber production investors and land is needed for making contracts with these two companies. One company pays daily wages for labour and buys some materials such as wires and poles for constructing fences to protect rubber trees. This means that

farmers can work for the company as labour to get pay and they will also get a return of 30% on the latex when it is sold. Another company provides rubber seedlings and some materials but does not pay for labour. With this company, farmers have to work without pay and they will get a return of 65% on the latex. As the deputy head of Somsanook Village explained that:

... We work for companies following a contract. After selling the latex, we can get 30% and the company get 70% because they bought us wire and young rubber plants, and they also paid for labour costs... They might pay 400,000 to 500,000 kip per hectare for weeding. They also pay for tapping and other maintenance work... We do not need to invest anything but we have to use only our own land... There are two companies... another company does not pay for our labour. In this case, the company will get 35% and we can get 65% when we have sold the latex...

Generally, rubber expansions have directly influenced shifting cultivation areas, especially in Ban Somsanook. Most villagers in Somsanook Village rely on upland agricultural farming and rubber planting has changed their traditional practices of land use in the village. Many people have converted their arable land into rubber planting areas. While some can invest with their own funds to initiate rubber plantations, some have to make a contract with investors by using their land.

5.3.2.2 Limited access to land resources

Land is the most significant resource for farmers in both villages because farmers can utilise land as a fundamental capital. If villagers have land, they can develop their land as a source of income and food production. For example, villagers can use their land for rubber production in the form of contract farming. Farmers might have no funds to establish by themselves, but they can start a plantation by sharing the benefits with an investor through a contract if they occupy land resource. Therefore, land is one of the most important factors that affects local farmers' livelihoods.

Various villagers in Somsanook Village do not have a permanent certificate of land title because the local government cannot provide the permanent land use certificate to locals. Land registration is not yet finished in most rural areas in Laos, including Somsanook Village. This is because permanent land title is a long process and a huge budget is needed for the local government to deal with this issue. Lack of budget has potentially led to some land conflicts in communities. In the case of Ban Somsanook, some

people are not satisfied to give their land to a rubber planting company or investor. Prior to the establishment of rubber plantations by investors, farmers could use some land for agricultural production. During the establishment period, an investor promised to compensate farmers for their land. This investor partially compensated some villagers. However, many people still cannot claim this compensation as a villager explained:

... At the beginning, the owner of the rubber plantation project promised to give us 600,000 kip per plot in order for using our land, but he did not pay and my father has died already... My father had two plots of land about 2.5 hectares in his project ... The project owner planted rubber on that land and he told us that he had already obtained a land concession at the district office ... I have no certificate of land title, but I have only a certificate for temporary use of land ... Many villagers are facing the same problem. Some people received some money from him but it was not us. He told us to ask the officials at the district office. I have no kinship at the district and they (the local government officials) often speak to us in an evasive way once we ask them about this issue. Thus I personally have ceased to resist this opponent ...

It is not only land concession for rubber plantations that creates obstacles in using land in Somsanook Village, but other development schemes have also impacted local people. Laos has heavily invested in infrastructure development and there are various construction projects in the country. The construction of a high-speed railway⁶ from China, one of the mega projects, is affecting many provinces in the northern part, including Vientiane Province. Somsanook Village is directly impacted because it was a part of this mega project. Some villagers cannot use lands that they have been used to using, and they cannot claim appropriate compensation for those lands as one participant complained:

About 3.5 hectares of my mother's land are affected by the railway project. I have no certificate and I couldn't claim anything for this land. I tried to register for the certificate but they did not issue it because they are afraid that I will sell the land. Now it belongs to the public and I can't do anything... (Interview, 20/07/2017).

Similarly, development projects have often influenced people's livelihood. Another case is land concession for a hydropower dam and this project has also affected local

⁶ Laos officially started work on a 414-kilometer-long Laos-China Railway project linking its northern city of Boten, on the Lao-China border, to Vientiane. The project, which is being undertaken as a joint venture between the two governments (Laos 30%; China 70%) will cost an estimated US\$6 billion, equivalent to almost half Laos' gross domestic product (GDP) of US\$13.7 billion in 2016. Retrieved December 10, 2017, from <http://www.atimes.com/article/fast-trains-nowhere-southeast-asia/>

farmers in Somsanook Village. A villager said that '*... I did not pay tax for my land because I did not receive a bill for payment. After constructing this dam, I lost my land of around ten hectares and I could not get any return. They compensated to only four or five people who have rice paddies...*'. Overall, land use in both villages has significantly changed over the last decade. It is not only rubber plantations that have impacted local people, but development projects have also affected farmers' activities, especially land use for agricultural production.

5.3.3 Implications for food security

Prior to tapping rubber in Somsanook Village, many people often faced food shortage problems. In the past, the poorest group in the village did not have enough rice for approximately three months before harvest season (Interview, 19/07/2017). Establishment of rubber plantations can contribute to increasing villagers' income and this can solve the problem of food shortage. As a participant in Somsanook Village simply stated: '*Our family have a better life. We often experienced food shortage in the past, but we currently have enough food for our family...*' (Interview, 19/07/2017). Most people can purchase food after selling their rubber products and this can contribute to reduction of risk in food security. The reason for this is that most people will not only depend on rice or particular crop production because they can produce rubber as an alternative for supporting food production.

While rubber planting can support people in increasing household income, local people have to utilise their land, including agricultural land, for start-up investment in establishing rubber plantations. For farmers who have small pieces of land, they have to look for temporary jobs during the immature phase of rubber plantations. Some farmers may grow rice during the first year of the immature period of rubber. However, most farmers cannot cultivate rice or other crops after the first year until the rubber trees can be harvested (around a seven year period). Therefore, several people have to work because they cannot use their land for food production. For instance, a rubber planter stated that:

... Some villagers work for me as latex tappers. If they do not work here, they have nothing to do. They can get a little return... They have a small piece of land, but they have no money to establish a rubber plantation. Some of them have made a contract with investors... (Interview, 20/07/2017)

For people who have no land, they have to work as labour because they have not enough finances for establishing a plantation. This group of people often have to find temporary work, for example a construction job, to support household food consumption. However, they still have extra time to work in agriculture because they can utilise some arable land in the village. This type of land is allocated for only seasonal crop production, but villagers cannot use it for plantations or long-term production. This means that they can produce food for selling and their household consumption although they cannot establish their own rubber plantation. As the deputy head of Somsanook Village explained:

... They can tap rubber in the early morning, and cultivate crops during the daytime... These farmers have rice for their household... They can work not only for rubber production, but they can also work as a construction worker (Interview, 19/07/2017).

Although rubber plantations may support locals' food security, rubber has also influenced reduction of food in some aspects in both villages. The reason is that rubber planting requires large-scale land and this may affect the agricultural land of local farmers in both villages. Various people typically produce food and generate income from their land. If people use their arable land for rubber planting, they have to work more in order to get food or income, especially during the immature phase of rubber. Therefore, several people have to do shifting cultivation to generate food for their household as one of the participants said: *"If villagers have no land, they have to practise shifting cultivation..."* (Interview, 19/07/2017). This shows how staple food production, especially rice, is important for local farmers' livelihoods and, therefore, available rice is often used as an indicator for poverty measurement.

Even though rubber cultivation may help some villagers to supplement their household income, it may also cause decreasing food production. For some people who have land and can generate high income, they can regularly purchase food for household consumption because they can use their land to support income generation. On the other hand, for those who have small plots of land or have no land, they have to work harder and some people have to work as hired labour in rubber production.

5.3.4 Environmental effects

Rubber plantations are expanding and this is affecting the environment in both villages. As a consequence of this planting, considerable areas of natural forest have been cleared. For example, the company cleared the natural forest in order for planting rubber in Phonehong District; as the director of Phonehong DAFO said: “... *Around 300 to 400 hectares are occupied by the company...*” (Interview, 27/07/2017). This implies that native forest areas are damaged by rubber planting expansion. Conversion of native forest into plantations may also result in decreasing soil quality. For instance, a participant in Phonekham Neua Village worries about the impact of rubber plantations on soil, and he said that “*After cutting these rubber trees, the soil condition may not appropriate for agriculture...*” (Interview, 28/07/2017). If soil is damaged by rubber planting expansion, this may lead to negative effects on agricultural production in the future.

Generally, rubber trees require large amounts of water in order to produce latex (Mann, 2016). In the case study villages, rubber plantation areas are large and rubber trees may consume lots of water. This may lead to water shortage if planters cannot manage it properly. Some rubber production companies have cleared large areas of natural forest for rubber plantations and they do not have any measures for preventing loss of water sources in communities (Field notes, 2017). Various villagers are concerned about this issue as a villager in Phonekham Neua Village expressed: “*I observed that there was some water for rearing cattle prior to rubber planting by the Chinese Company. We are also facing water shortages and there is no water for our animals*” (Interview, 28/07/2017). This is not only an issue for Phonekham Neua, but both case study villages need to consider protecting their natural resources.

Rubber expansion could increase ecological effects such as decreasing soil fertility and water shortage. Soil and water are the most significant resources not only for rubber planting, but they are also important for village development, especially agricultural production activities which are closely linked to farmers’ livelihoods. Therefore, decision makers and relevant stakeholders should carefully consider environmental protection in respect of rubber plantation investment.

5.4 Policy support to rubber farmers

According to the 8th Five-Year Development Plan, the Government aims to develop agro-processing industry in Vientiane Province by promoting economic crops (MPI, 2017). Rubber is one of the major economic crops and it is widely promoted in Vientiane Province. Relevant policies have been developed and implemented for promoting rubber production as a priority for development. However, overall implementation of the rubber promotion strategy by the government at local level still does not fully support farmers in the province. Various rubber planters have to learn and develop rubber production techniques on their own. For example, an official from PAFO revealed:

In terms of planting techniques, we did not support them (farmers) because they have better experience. We can only enforce regulations, for example rubber planters should register with the local government and they have to clearly inform about herbicide or fertiliser... (Interview, 18/07/2017).

In addition, the fluctuating rubber market is one of the most serious issues, with farmers in Laos currently facing the problem of a falling price (MAF, 2016). In Vientiane Province, the local government attempts to support farmers by promoting the rubber market. Local authorities are responsible for monitoring the market and reporting the situation to central government (Field notes, 2017). However, the provincial and district officials often face considerable difficulties in respect of rubber market monitoring. These officials cannot fully support farmers because they cannot effectively negotiate with middlemen. Middlemen mostly negotiate the rubber price with local farmers directly. For example, a conflict occurred but officials could not control the situation as a local official recounted:

Regarding the rubber market, they (middlemen) manage themselves and they often have conflicts among middlemen. For instance, a middleman had registered with us (PAFO) and he conflicted with another middleman who had registered with another province. In this case, it was not easy to control because the area is quite far and it is close to the border of their province... (Interview, 18/07/2017).

The local government attempts to promote rubber production in different ways, for example through technical support and market promotion. They aim to develop rubber planters and the rubber market system. However, a limited budget may lead to ineffective implementation of the policy. The government is currently experiencing various difficulties

in promoting rubber production such as developing local government officials' capacity and improving the rubber market. Therefore, a large budget is needed for the government to support all farmers. Although the local government cannot fully support local farmers, they can sometimes help farmers when problems occur as an official explained:

We do not have enough funds to support farmers. It is not only rubber, but it also happens with rice and maize... We can sometimes help farmers when natural disasters occur, for example the flood that occurred in Kasi District... We may not control the rubber expansion because we did not see any problems regarding rubber plantations. We cannot help them if the rubber price has decreased. Thus they have to decide to plant rubber on their own (Interview, 18/07/2017).

In order to promote rubber plantations effectively, land use policy should be improved. In the present context, it is difficult to identify areas for agricultural production (Field notes, 2017). Although provincial and district land use plans have been formulated, implementation of those plans was not precisely followed. For example, it was unclear how much land was planned for rubber plantation areas and where rubber should be planted. Therefore, the policy has to be cleared or improved for implementation as agricultural promotion official pointed out:

I think we should clearly identify land use in both lowland and upland areas. We should not focus on only one crop in the lowland, and we should diversify crop planting in order to support food security in the province and reduce the risk due to dropping price. For example, the rubber price in Thailand is decreasing and the productive phase of most rubber is ending. We should consider this issue and what should be done... (Interview, 18/07/2017).

Overall, there are various relevant policies that aim to support local farmers in developing rubber planting. The rubber market should be promoted in order to stabilise the rubber price. Relevant policies should be improved, particularly land use should be more clearly identified, and effectively implemented.

5.5 Coping strategies

5.5.1 Social collaboration

Following other villagers or family members in the village is the main reason for villagers deciding to plant rubber trees. In rural areas in Laos, social relationships strongly influence people's livelihoods in communities and these relationships are important for

villagers to cope with their difficulties. For example, people can borrow money from their relatives or neighbours when food shortage occurs in their family. Family relationships or kinship, and relationships among villagers in the villages, are formed and developed by many factors such as communication and the economy. Rubber planting may help to develop relationships among villagers as a farmer stated: '*... Some people can borrow money for purchasing food and they can pay a debt when they can sell their rubber latex. Rubber creates a lot of benefits...*' (Interview, 19/07/2017). In this case, relationships between villagers are improved because those villagers value rubber plantations as a form of household asset.

Moreover, animal raising can support villagers at times of special occasions. Generally, most villagers have traditionally celebrated some occasions in the community, for example the New Year ceremony and rituals, and people have to prepare customary food for ceremonial occasions. People have to spend a huge amount of money during these occasions and therefore some people raise animals in order to support these occasions. Livestock and poultry are the main food for these special events. Livestock are mostly used when conducting a formal ceremony such as a wedding ceremony, while poultry can be used when celebrating a small ceremony.

5.5.2 Agricultural production as alternatives

Generally, rural farmers produce seasonal crops to generate higher income for their household. This seasonal crop production often helps locals to deal with their difficulties. Farmers often experience problems when the rubber price falls and people may sell these products to support their family. In Somsanook Village, farmers can produce some seasonal crops for their family consumption and income generation. For some people who have no land or have a small plot of land, they can use some concession areas for production, as a farmer noted:

... Several villagers have planted some crops along the riverside during the dry season ... There was a land concession for electricity production but we can use it for planting temporary crops such as pumpkin, maize, chillies, lettuce and cucumber. These crops are not only consumed, but we also sell them... (Interview, 19/07/2017).

Animal rearing and fishing can also help people in both villages, especially fishing in Somsanook Village. As an opportunity for farmers in Ban Somsanook, people can earn a high income from fishing because Nam Ngum reservoir is located in this village. This reservoir is not only a major source of fresh water fish during the rainy season, but it is one of the most important tourist places in the country. In addition, people can also rear animals for consumption and for earning income as a villager said: “... *During the period of the dropping price, many people have reared pigs and cattle, and have fished during the rainy season*” (Interview, 19/07/2017). These alternatives may support people not only as regular income, but farmers can also sell them anytime when problems occur unlike rubber latex.

Rural people have various strategies to cope with situations such as agricultural production and relationships among villagers. These two strategies are very common in rural communities in Laos and these often support poor farmers in communities. Social relationships play a significant role in locals’ livelihood improvement and most people can get support from relatives in communities to handle their problems. Moreover, agricultural activities are not only the main job for farmers, but these can support rubber smallholders to generate extra income or support them during the falling rubber price period.

5.6 Summary

To conclude, rubber planting has significantly influenced farmers’ livelihoods in both communities, especially in respect of livelihood activities and land use systems. Land resource and labour are crucially important for rubber planting establishment. Local people have various approaches to overcome their difficulties. Moreover, policies for supporting farmers to develop rubber production need to be improved. The next chapter will discuss the research results based on present literature and the sustainable livelihood framework.

Chapter 6 Discussion

6.1 Introduction

The research aimed to answer the main question: *How does the establishment of rubber plantations impact local people's livelihoods in communities in Vientiane Province?* To understand the effects of rubber planting on livelihood, livelihood activities and local land use systems are discussed. The sub-question '*What challenges and opportunities do rubber plantations present?*' will be responded to by describing how rubber plantations support or threaten farmers' livelihood activities. Following the sustainable livelihood framework, the theoretical underpinning of the research, the chapter discusses the results in light of these research questions. The chapter also makes recommendations for the country's development and future research.

6.2 Relationship between the impacts of rubber planting and rural livelihoods

Overall, the purpose of the research was to explore and analyse the impacts of rubber plantations on local farmers' livelihoods by using the sustainable livelihood approach. The study found that rubber plantations can increase farmers' household income, create employment, and reduce shifting cultivation areas in both villages. Given these benefits, most locals followed others in the village to plant rubber. However, rubber planting also adversely affects local farmers' livelihoods such as through decreased agricultural production alternatives, and reduced water and soil quality. Furthermore, rubber production also limits access to land resource and affects villagers' food security.

Regarding access to the land resource, concessions for rubber planting may create obstacles in the use of land resources in both communities. The reason for this is that lands are occupied by investors and several local people did not receive compensation for their land although they had used that land prior to the rubber plantation being introduced. Moreover, rubber planting also affects household food security in both case study villages. Some people can earn money from rubber production and people can buy food for household consumption. This can improve people's health quality and food security in communities. However, considerable land is needed for rubber plantations and most lands are arable land. This may cause reduced food crop production in communities.

In addition, the results also illustrated how policies influenced rural farmers and how people deal with situations of difficulty. To understand locals' livelihoods, this research needed to explore what activities are carried out and how locals can resolve problems that occurred. The findings of this research show the influence of social relationships with relatives and among villagers in communities, and describe agricultural production activities that people use in their daily life. Social relationships could be developed due to rubber planting and this could improve local people's livelihoods. Further, agriculture production can also support local farmers when people face difficulties, especially rubber planters during the establishment period of rubber plantations.

6.3 The Sustainable Livelihood Framework

This research aims to demonstrate how the establishment of rubber plantations affect farmers' livelihoods in the case study communities in Vientiane Province. Overall, the research found that rubber expansion directly and indirectly influenced villagers' livelihoods in both study communities. Rubber planting in these communities has significantly affected locals' occupation, farming system, food security and ecosystem in both villages. These issues will be discussed based on key components of the sustainable livelihood framework, including vulnerability context, livelihood assets, transforming structures and processes, and livelihood strategies and outcomes (DFID, 1999), and the results will be compared with other literature presented.

6.3.1 Vulnerability context

In terms of the vulnerability context component, "seasonal shifts in prices, employment opportunities and food availability are one of the greatest and most enduring sources of hardship for poor people in developing countries" (DFID, 1999, p. 3). Selling rubber products can supplement household income and provide some benefits to farmers. Friis et al. (2016, p. 38) have shown that people will potentially have jobs when rubber planters start latex tapping which "might make up for the loss of livestock and upland agriculture". The findings of this research also indicate that increasing people's income may lead to increasing employment opportunities as well. Rubber plantations can directly create jobs for villagers in communities because planting, harvesting and production of rubber require a number of skilled and low-cost labourers in communities. This can improve villagers' livelihood and influences new job creation, for example services and construction

work, in both study communities. Furthermore, income generation also influences food availability in study villages. This is because increasing income can support people to buy food for consumption.

‘Food insecurity is the core dimension of vulnerability’ and livelihood outcomes can also be assessed by improvement of household food security (DFID, 1999, p. 25). A finding of the research revealed that reduction of food production was strongly influenced by land use change, which is significantly affected by rubber production. Most rubber planters used their land for rubber plantations and this might reduce areas for crop and livestock production, particularly rice as the staple food and also of cattle. Most people have converted arable land to rubber planting and this may impact food production for household consumption. Moreover, livestock raising was not used only for generating higher income, but livestock can also support locals as a source of meat or food. Reduction of food supply is often associated with a decrease in a livestock production system (Friis et al., 2016). In this case, the situation would be vulnerable if farmers cannot generate income during a falling price period or the establishment period of rubber.

Household income change is often related to the price of rubber and this significantly influences locals’ livelihood strategies. Smallholder farmers often face difficulties during periods of falling prices, and the immature phase of rubber planting and production. This may directly impact a decline in the regular wage for rubber production. All these issues — income generation, rubber price, rubber production wage and livelihood strategies of local farmers — are closely linked and one may influence another. Friis et al. (2016, p. 36) suggested that “the employment opportunities anticipated by rubber development had so far not materialised to any great extent... the work-to-wage ratio was too low for the plantation work...”. People have to adapt themselves to new situations when difficulties occur. The results of this research also demonstrated how these difficulties influence farmers’ livelihoods and how farmers in both communities deal with those difficulties. For example, locals may produce agricultural products for selling or consumption, and use their relationships with other villagers or relatives to overcome their problems during the early difficult period.

6.3.2 Transforming structures and processes

According to DFID (1999), livelihood strategies of local people are influenced by structures and processes and livelihood strategies also directly cause livelihood outcomes. To understand livelihood strategies, the transforming structures and processes component and also the livelihood assets component have to be considered. Enabling policies, institutions and processes can support people to achieve ‘winning livelihood strategies’ and to produce desired livelihood outcomes. In addition, household assets can widen locals’ livelihood options and the range of livelihood options directly influences livelihood strategies (FAO, n.d.-a). Both structures and processes cannot be separated because structures make the processes function. If structures can be thought of as hardware, processes can be thought of as software (DFID, 1999, p. 21).

With regard to policies, the previous chapter described perceptions of some local government officials in Vientiane Province on how to improve relevant policies and the implementation of those policies. The results indicated that land use policy and its implementation are the main focuses for policy improvement and the focus strategy in Laos mainly involves large-scale investment. Manivong (2007) suggested that the dispersal strategy involves smallholder farmers and the dispersal approach is appropriate for the context of Laos because this strategy can be aligned with existing policies which aim to strongly promote smallholders in rural areas. Particularly in Vientiane Province, smallholders are involved in both large-scale and small-scale rubber production, and some rubber smallholders may work part-time for large-scale plantation companies.

According to Bouahom et al. (2011), the Lao Government’s policy is based on land and forest allocation and land use change is significantly influenced by rubber planting. Land management rights are crucially important for local farmers but they often face problems of land management. The results of this research also revealed the effects of development projects on land rights of local farmers in Somsanook Village. It is not only rubber planting that can impact livelihood, but other development projects such as high speed railway and hydropower projects have also influenced locals’ livelihoods. This shows how relevant policies affect people in the village and implementation of policies creates impacts. These development schemes and rubber plantations frequently create barriers to effective land management in communities. This often leads to land conflict within

communities if local authorities and villagers in the community are not able to manage this issue properly. Similarly, Boutthavong, Hyakumura, Ehara, and Fujiwara (2016, p. 2) also indicated that “land formalisation or ownership does not always secure individual ownership rights in an equitable way, and in fact can be detrimental to the customary land rights of local communities”. The government have directed the formalisation of land rights in order to grant land rights. However, this formalisation resulted in “displacing many local people from their customary lands to other lands, because poor households are often weak at controlling or managing their properties and at converting their land into capital” (Boutthavong et al., 2016, p. 2).

6.3.3 Livelihood assets

In the sustainable livelihood framework, the component of livelihood assets significantly correlates with other main components, especially transforming structures and processes and livelihood strategies components. The aforementioned livelihood assets component consists of five different types of assets including human, natural, financial, physical and social capital, with all assets interlinked (DFID, 1999). Firstly, human capital can refer to active labour, knowledge and skills (FAO, n.d.-a). The results demonstrated the importance of skilled labour in the rubber production process, especially during the mature period of rubber planting. Manivong (2007) described two types of labour in rubber production including primary and secondary labour. The primary labour is an adult worker who can work full-time, while the secondary labour mostly is children aged from 10 to 15 years old who can help or work part-time for their family because they have to go to school. This research also found that some people are concerned about labour for tapping their rubber as one of the villagers in Somsanook said: ‘... *My daughter is studying at university. I don't know if she will come back to continue my rubber plantation or not...*’. This shows how important labour is, and how it also influences the sustainability of rubber production.

The sustainable livelihood framework also shows that “there is a wide variation in the resources that make up natural capital, from intangible public goods such as the atmosphere and biodiversity to divisible assets used directly for production (trees, land, etcetera), and the relationship between natural capital and the Vulnerability Context is particularly close” (DFID, 1999, p. 11). Land is one of most significant resources for local farmers. Bouahom et al. (2011, p. 34), for example, found that some farmers sold off their

land and they have not had enough land for agricultural production. Bouahom et al. (2011, p. 18) also found that due to poverty farmers have to temporarily work with rubber production companies. In the form of contract farming, “farmers fall under the status of authorized users”, while land management is performed by investors (Bouahom et al., 2011). The findings of this research also showed how rubber planting impacts local villagers in both villages, particularly the impacts of large-scale concessions for rubber production. Some villagers’ rights in using their land are limited and impacted because the government utilises that land for land concessions for investment.

As the sustainable livelihood framework shows financial capital has two main sources including available stock and regular inflows of money (DFID, 1999). To establish rubber planting, huge financial support is required for the start-up. This rubber production investment takes a long time to get returns (Manivong, 2007). Some farmers use their land and labour as an investment for establishing rubber plantations, while some farmers, who have no land, have to work for investors and have to buy new land for rubber production. These farmers are recognised as poor and they often experience difficulties in the establishment of rubber plantations. The component of financial capital is closely linked to the policies component. Therefore, policy implementation can heavily influence people’s assets, especially financial capital. This is because the institutions component or (the government normally) can support local farmers’ finance. For example, local government can support credit for rubber plantation investment.

The framework also shows that physical capital always refers to public infrastructure but sometimes it may also refer to livestock, equipment, vehicles and houses, and these are often influenced by the structures and processes component (DFID, 1999; FAO, n.d.-a). This research found that establishment of rubber planting was associated with reduction of certain livestock production systems, especially cattle raising. As a consequence of rubber production, grassland is reduced in both study villages and this creates difficulties in finding food and places for cattle rearing. These difficulties may force people to abandon cattle rearing. Similarly, Friis et al. (2016) demonstrated how rubber concessions influenced the change of the local land system in a community in the north of Laos. Specifically a decrease of rice yields, and the abandonment of the livestock production system after the establishment of rubber production (Friis et al., 2016). The

reduction of cattle rearing in both case study villages of the current research has caused not only household food security issues, but it has also affected farmers' livelihoods as a whole. For example, the abandonment of cattle raising may compromise health as people commonly sell cattle when health problems occur. Cattle form household capital, and are able to be sold whenever the situation demands. Rubber, particularly in the immature phase, is in contrast.

Lastly, "social capital is the most intimately connected to transforming structures and processes" (DFID, 1999, p. 9). The findings of this research demonstrated how local people cope with their difficulties. Various local farmers are able to overcome their problems by producing seasonal crops. Furthermore, most local villagers have relationships with other villagers or their family members in their community and they can deal with difficult times by helping each other. However, the livelihood strategies component is often influenced by other components, especially the transforming structures and processes component. This means that policies often impact local villagers' livelihood strategies. This may involve political influences of locals in the community. For example, in the case of Somsanook Village, some villagers can get a return from land concession for rubber plantations, while some people cannot get a return for their land rights. As a research participant revealed: *'...While some villagers can claim back some of the cost of their land. But I cannot claim back for my land...'*. This case illustrates the close linkages between policies and people's assets, particularly the implementation of policies and the social capital of local villagers.

6.3.4 Livelihood strategies and outcomes

In the sustainable livelihood framework, the livelihood outcomes component shows the outputs of livelihood strategies and both components are closely linked (DFID, 1999). Different people adopt different livelihood strategies depending on changes of situation or context in the community. Prior to establishment of rubber planting in the case study villages, most local villagers were mainly engaged in farming based livelihood, and crop and animal production were the main activities for generating household income and ensuring food availability. The majority of villagers in Somsanook Village used to rely on shifting cultivation, which mainly produces upland rice and some seasonal crops. Besides, some villagers raised cattle using a small farming system, as well as poultry for

consumption. For Phonekham Neua Village, various people were subsistence farmers and local people mostly cultivated lowland rice and seasonal crops. Likewise, some villagers reared cattle and cattle were often used to plough the rice fields.

After establishment of rubber plantations, various people have had to change their livelihood activities. Firstly, during the establishment phase of rubber planting, rubber planters have to work hard because there is no return during this period. To secure their food availability, villagers have to continuously cultivate rice or crops, or rear cattle. However, for people who have a small piece of land which they have used for rubber planting, they have to find new arable land for agricultural production. Some natural grassland is damaged and reduced due to rubber expansion and several farmers have abandoned cattle raising. Many farmers in both case study villages have to work as labour during this establishment period. This establishment phase is the most difficult period for farmers, particularly poor farmers, because people have to take care of rubber plants without economic returns.

Secondly, during the production period of rubber planting, farmers can harvest rubber trees and can make a good return from their rubber production. Rubber planters can sell rubber latex to purchase food and spend this money on living expenses. However, some people still have to work or produce food in the case of falling rubber prices. The price usually fluctuates and farmers often face difficulties when the rubber price decreases. Some people can produce seasonal crops in concession areas, for example in a hydropower project area, and go fishing for household consumption. Livestock and poultry can also support people's food security, especially for special events in the community. Although animal raising is important for supporting locals' livelihoods, several farmers have had to cease cattle rearing because rubber planting has influenced local land use in both case study communities.

Different livelihood strategies affect livelihood outcomes differently and those "livelihood outcomes influence the ability to preserve and accumulate household assets" (FAO, n.d.-a, p. 1). Although rubber planting may negatively affect people's livelihoods, rubber planting can also create positive impacts for villagers. One of the obvious outcomes is increasing household income which leads to creating more employment opportunities in both study communities. Increased household income can also help to improve food

security during difficult periods. As a consequence, various people have case study communities have used their land for rubber production which impacts arable land in both case study villages. Moreover, rubber planting may also create some drawbacks such as negative environmental effects and restricted access to land.

6.4 Summary

In summary, several findings are discussed using the main components of the sustainable livelihood framework as an outline of discussion. The first component, the vulnerability context, shows how seasonal shifts in prices of rubber, employment opportunities and household food availability link to livelihood strategies and policies. The transforming structures and processes component illustrates influences of relevant policies on local livelihoods. The results from other literature are also presented in regards to this component of the framework. The livelihood assets component presents how five capitals in the component are important for locals' livelihoods. This chapter has also discussed the relationship of the last two components, livelihood strategies and livelihood outcomes, and how people adopt strategies in communities.

Chapter 7 Conclusion and Recommendations

The overall objective of the research was to examine the impacts of rubber cultivation on locals' livelihoods in communities in Vientiane Province, and a qualitative methodology was applied. The research has presented key findings regarding local land use systems, livelihood activities, household food security, and environmental impacts in the case study communities. This research has also provided discussion based on the sustainable livelihood framework, which helps to understand the effects of rubber planting on farmers' livelihoods.

7.1 Research background

To accelerate economic growth and development in Laos, the GoL has promoted a transformation from subsistence agriculture to commercial agriculture. Rubber planting now plays a significant role in economic development and livelihood improvement in the country. The government is attempting to stabilise shifting cultivation and substantially reduce poverty, particularly in remote areas. To achieve this, rubber plantation promotion is seen as one of the solutions that support reducing shifting cultivation areas and increasing local people's income. As a consequence, rubber planting has increased considerably during the past few decades, with associated impacts on the environment and communities, especially on local people's livelihoods.

Vientiane Province has received considerable investment, and the agricultural sector is the main priority for these investments. The majority of people are living in rural areas and most local people are employed in agriculture. Rubber has now become a primary agricultural commodity for export of the province. In both of the research's case study villages, rubber has considerably increased during the past decade and most villagers are engaged in rubber planting. This has created various impacts on villagers' livelihoods. Overall, this research aimed to understand these impacts and how people cope with these impacts.

7.2 Summary of findings

To answer the main question, '*How does the establishment of rubber plantations impact local people's livelihoods in communities in Vientiane Province?*', sub-questions

need to be responded to accordingly. Firstly, the findings described livelihood activities in both case study villages, and changes in these activities, to help clarify how rubber expansion influences people's way of living. Secondly, the sub-question, '*What challenges and opportunities do rubber plantations present?*', needs to be answered because this assists to describe the difficulties that occurred due to the introduction of rubber plantations and what people could do to manage their plantations. Moreover, the impacts on the environment, including soil and sources of water, in communities were also presented. Finally, the results and discussion chapter helped to explain the way people adapt themselves to new situations, which are caused by rubber planting, and this responds to the last sub-question, '*How do local people deal with the impacts of rubber plantations?*'. Therefore, these relevant issues can explain the impacts of rubber planting on farmers' livelihoods and the environment in the case study villages.

The key findings of this research illustrate the impacts of rubber plantations in the case study villages in various respects. The introduction of rubber planting can create jobs for local villagers and increase their incomes. Smallholder farmers can plant rubber as an alternative crop and rubber farmers can sell rubber latex. Rubber plantations in both study villages have also created employment for villagers. For farmers who work with rubber estates or have their own plantation, they can have extra jobs to earn more income after they finish rubber tapping or maintenance work, which work is mostly done in the morning. This can also secure villagers' food availability during their difficult periods because villagers can collect money from selling rubber products. In addition, increasing villagers' incomes also supports developing relationships among people in the villages. Rubber planters can easily borrow money from others in the community when they face difficulties because most villagers believe that selling rubber latex can provide regular incomes.

However, rubber planting also negatively impacts local people's livelihoods and the environment in both case study communities. Although rubber plantations may support many farmers to have greater incomes, some people still do not have enough money to spend in their daily life because this work is irregular. Rubber plantations often influence local farmers' livelihood activities, especially agricultural practices such as livestock rearing and seasonal crop production. Cattle are mostly reared by way of traditional small scale production in both communities but this can be an important source of food and

income for farmers. Due to rubber plantations, some people are indirectly forced to abandon cattle raising. Similarly, seasonal crop production also supports farmers in terms of food security and income generation. Even though agricultural production systems can support local farmers in communities, agricultural production systems in communities might be changed because of the establishment of rubber plantations.

Local land use systems are changed due to increasing rubber plantations and this significantly impacts farmers' livelihoods. Decision making can be considered as a main driver in this change because various development projects have created several impacts on locals' livelihoods, for example control over land resource. Despite increasing food security due to rubber production, many farmers have used their arable land for rubber cultivation and this may impact food production for their household consumption. Moreover, environmental impacts are created by rubber plantations, including water shortage and decreased soil quality.

7.3 Impacts of rubber expansion and policy implications

Rubber planting may affect local communities differently and this depends on various factors. Land resource is one of the main factors that influences farmers' livelihoods and shapes the consequences of rubber plantation establishment. Based on land resource, villagers can be generally categorised into three main groups, including people who hold large plots of land, people who have small plots of land and people who have no land for production. For the group of people who own large plots of land, rubber planting may not create huge impacts on their livelihood compared to others because most people partially use their land for planting. These people still have some land for other crops or animal production. Another group is people who hold a small piece of land and they tend to use all their land for rubber production. This group of people has to also work elsewhere or produce agricultural products for food consumption or income generation during the establishment period of rubber. The last group is villagers who have no land for production, and this group is the poorest group. Most people in this group attempt to work more than both the other groups mentioned because they desire to buy land for rubber planting.

7.4 Recommendations

The research indicated some key findings in the case study province, based on the sustainable livelihood approach and its framework, which may help to support the development of policies. The results may be able to support the GoL in assisting rural communities and improving development strategies. To promote local people's livelihoods, the government needs to formulate appropriate strategies for community development, and understanding of livelihoods is fundamentally important for coherent policy development and implementation. Specifically, there is a need for policies to recognise the need to protect village land and biodiversity and protect the flexibility of agricultural livelihoods. For local people's livelihoods in the case study villages, Somsanook and Phonekham Neua Villages, it is important to be aware of local land use change because rubber plantations have strongly influenced this. This research reveals that land use systems in both communities are affected by rubber plantations and development projects. From this point on, implementation of rubber expansion promotion and development policies has to be considered carefully. For example, rubber plantation areas at district level or in communities should be clearly identified. Furthermore, access to funding is often limited at the local level and this causes various problems in policy implementation, and funds should be allocated in order to promote effective implementation of policies. To ensure effective policy implementation, careful monitoring and a regulation of expansion of rubber is needed and this would potentially contribute to improving local's livelihoods.

Rubber planting has rapidly increased and has become the primary job for most villagers in the case study villages. However, while rubber planting is an opportunity for villagers in terms of increasing incomes in both communities of this research, local people often find difficulties in financial support for investment. To promote rubber plantation investment, better credit facilities for farmers are needed and funds should be provided for farmers in the villages. The investment in rubber planting requires huge capital, including land, labour and materials for plantation establishment. Although the government may provide additional funds to some villagers, target farmers for encouragement should be clearly identified and poorer groups should be supported as a priority.

This research has significant implications for future research in developing understanding of locals' livelihoods, particularly the impacts of community development.

With regard to livelihood activities, rubber planting has significantly influenced the way that people earn a livelihood, especially their farming systems. This is because the rubber price fluctuates and people need to secure their livelihood, for example by producing agricultural products. Further studies should focus on alternatives, and consider resources and opportunities in communities for villagers to supplement their ordinary income. Even though rubber expansion may increase household incomes in the case study villages, it is also important to maintain cattle and seasonal crops. Agricultural practices can be permanent employment or alternatives for villagers to generate higher income. The results of this research show how seasonal crops and livestock production play an important role in household income generation and food security. Seasonal agricultural production should be considered for promotion because this may support farmers during difficult periods, for example the immature phase of rubber, and agricultural production may help farmers in reducing risks when the rubber price drops. In addition, this research was conducted during the establishment phase and the beginning of the production phase of rubber planting in the case study areas. Further research may utilise these results and should focus on how rubber production after the early production phase of about five to ten years affects locals' livelihoods.

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Appendices

Appendix 1.1 Information sheet for government officials



Impacts of smallholder rubber plantations on livelihoods of local communities: A case study of communities in Vientiane province, Lao PDR

INFORMATION SHEET FOR PARTICIPANTS (Local government officials)

Thank you for your interest in this project. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering my request.

Who am I?

My name is Alounxay Onta and I am a masters student in Development Studies at Victoria University of Wellington, New Zealand. This research project is work towards my thesis.

What is the aim of the project?

This project aims to explore the impacts of rubber plantation on local people's livelihoods in two communities in Vientiane province, Lao PDR. This research will particularly focus on those who use their own land for rubber plantation investment and explore farmers' perceptions regarding their livelihoods.

This research has been approved by the Victoria University of Wellington Human Ethics Committee [provide approval number].

How can you help?

If you agree to take part I will interview you at a place of your choice. I will ask you questions about farmer livelihoods in rubber plantations. The interview will take about 45-60 minutes. I will record the interview and write it up later. You can stop the interview at any time, without giving a reason. You can withdraw from the study by contacting me at any point before 1st September 2017. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

You will not be named in the final report but your organisation will be named (provided you have the authority to agree to this on behalf of the organisation).

Only my supervisors and I will read the notes or transcript of the interview. The interview transcripts, summaries and any recordings will be kept securely and destroyed 3 years after the research ends.

What will the project produce?

The information from my research will be used in my Masters thesis.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- ask for the recorder to be turned off at any time during the interview;
- withdraw from the study before 1/9/17;
- ask any questions about the study at any time;
- receive a copy of your interview recording (if it is recorded);
- be able to read a summary of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact either:

Student:

Name: Alounxay Onta

University email address:

ontaalou@myvuw.ac.nz

Supervisor:

Name: Prof John Overton

Role: Director of Postgraduate Program in Development studies

School: School of Geography, Environment and Earth Sciences

Phone: +6444635281

John.overton@vuw.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64-4-463 5480.

Appendix 1.2 Information sheet for government officials (Lao version)



ຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບການດຳລົງຊີວິດຂອງຊຸມຊົນ:
ກໍລະນີສຶກສາຊຸມຊົນທີ່ຖືກກະທົບໃນແຂວງວຽງຈັນ, ສປປ ລາວ

ຂໍ້ມູນເບື້ອງຕົ້ນສໍາລັບຜູ້ໃຫ້ສໍາພາດ
(ພະນັກງານລັດຖະກອນ)

ຂອບໃຈສໍາລັບທີ່ໃຫ້ຄວາມສົນໃຈຕໍ່ໂຄງການຄົ້ນຄວ້ານີ້. ກະລຸນາອ່ານຂໍ້ມູນເບື້ອງຕົ້ນກ່ອນຕັດສິນໃຈເຂົ້າຮ່ວມ ຫຼືບໍ່ເຂົ້າຮ່ວມ. ຖ້າທ່ານຕັດສິນໃຈຮ່ວມກໍ່ຂໍສະແດງຄວາມຮູ້ບຸນຄຸນຕໍ່ທ່ານ ຫຼື ຖ້າທ່ານບໍ່ສາມາດເຂົ້າຮ່ວມກໍ່ຂໍຂອບໃຈທີ່ພິຈາລະນາຂໍສະເໜີຂອງຂ້າພະເຈົ້າ.

ຂ້າພະເຈົ້າແມ່ນໃຜ?

ຂ້າພະເຈົ້າຊື່ ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ ເປັນນັກສຶກສາປະລິນຍາໂທ ສາຂາການສຶກສາດ້ານພັດທະນາ ທີ່ມະຫາວິທະຍາໄລ ວິກຕໍຣີ ປະເທດນິວຊີແລນ. ໂຄງການວິໄຈດັ່ງກ່າວນີ້ແມ່ນສໍາລັບບົດວິທະຍານິພົນຂອງຂ້າພະເຈົ້າ.

ຈຸດປະສົງຂອງໂຄງການແມ່ນຫຍັງ?

ໂຄງການນີ້ແມ່ນມີຈຸດປະສົງເພື່ອສຶກສາຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃນສອງຊຸມຊົນ ຢູ່ແຂວງວຽງຈັນ ປະເທດລາວ. ໂຄງການຄົ້ນຄວ້ານີ້ແມ່ນແນໃສ່ ຜູ້ທີ່ນໍາໃຊ້ດິນຂອງຕົນເອງສໍາລັບການລົງທຶນປຸກຢາງພາລາ ແລະ ພ້ອມທັງສຶກສາແນວຄວາມຄິດຂອງຊາວສວນກ່ຽວກັບຊີວິດການເປັນຢູ່ຂອງເຂົາເຈົ້າ. ການຄົ້ນຄວ້ານີ້ໄດ້ຮັບການອະນຸມັດໂດຍຄະນະກຳມະການຈາລຶຍະທຳສໍາລັບການວິໄຈ ຂອງມະຫາວິທະຍາໄລ ວິກຕໍຣີ [ເລກທີ].

ທ່ານສາມາດຊ່ວຍໄດ້ແນວໃດ?

ຖ້າທ່ານຕົກລົງເຂົ້າຮ່ວມ ຂ້າພະເຈົ້າຈະສໍາພາດທ່ານຕາມສະຖານທີ່ທີ່ທ່ານຕ້ອງການ. ຂ້າພະເຈົ້າຈະຖາມທ່ານຕາມຫົວຂໍ້ທີ່ກ່ຽວຂ້ອງກັບຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນທີ່ປຸກຢາງພາລາ. ການສໍາພາດຈະໃຊ້ເວລາປະມານ 45-60 ນາທີ. ຂ້າພະເຈົ້າຈະບັນທຶກການສະພາດ ແລະ ຂຽນຕາມຫຼັງ. ທ່ານສາມາດຢຸດການໃຫ້ສໍາພາດໄດ້ຕະຫຼອດເວລາໂດຍບໍ່ຕ້ອງມີເຫດຜົນ. ທ່ານສາມາດຖອນໂຕຈາກການສຶກສານີ້ໂດຍຕິດຕໍ່ຫາຂ້າພະເຈົ້າໄດ້ຕະຫຼອດ ກ່ອນວັນທີ 1 ຕຸລາ 2017. ຖ້າທ່ານຖອນໂຕ ຂໍ້ມູນທີ່ທ່ານໃຫ້ມາຈະຖືກທຳລາຍ ຫຼື ສົ່ງຄືນໃຫ້ແກ່ທ່ານ.

ແມ່ນຫຍັງຈະເກີດຂຶ້ນກ່ຽວກັບຂໍ້ມູນທີ່ທ່ານໃຫ້?

ຊື່ຂອງທ່ານຈະບໍ່ມີໃນບົດລາຍງານສຸດທ້າຍ ແຕ່ຊື່ອົງກອນຂອງທ່ານຈະມີໃນບົດລາຍງານ (ທ່ານມີສິດທີ່ຈະຕົກລົງເລື່ອງດັ່ງກ່າວໃນນາມຂອງອົງກອນ).

ມີພຽງແຕ່ອາຈານທີ່ປຶກສາ ແລະ ຂ້າພະເຈົ້າຈະອ່ານປຶ້ມຈົດບັນທຶກ ຫຼື ບົດບັນທຶກຂອງການສຳພາດ. ບົດສັງລວມ ແລະ ການບັນທຶກສຽງຈະຖືກເກັບຮັກສາ ແລະ ຈະທຳລາຍໃນເວລາ 3 ປີພາຍຫຼັງສິ້ນສຸດການຄົ້ນຄ້ວາ.

ຈະໄດ້ຫຍັງຈາກໂຄງການ?

ຂໍ້ມູນຈາກການຄົ້ນຄ້ວາຈະຖືກນຳໃຊ້ໃນບົດວິທະຍານິພົນຂອງຂ້າພະເຈົ້າ.

ຖ້າທ່ານຕົກລົງເຂົ້າຮ່ວມ, ທ່ານຈະມີສິດຫຍັງແດ່ໃນການເຂົ້າຮ່ວມ?

ທ່ານບໍ່ຈຳເປັນເຂົ້າຮ່ວມຖ້າທ່ານບໍ່ຕ້ອງການ. ຖ້າທ່ານຕັດສິນໃຈເຂົ້າຮ່ວມ ທ່ານມີສິດທີ່ຈະ:

- ເລືອກທີ່ຈະບໍ່ຕອບຄຳຖາມໃດກໍໄດ້;
- ບອກໃຫ້ປົດການບັນທຶກສຽງໃນຂະນະທີ່ສຳພາດ;
- ຖອນໂຕຈາກການສຳພາດກ່ອນ ວັນທີ 1/9/17;
- ຖາມຄຳຖາມກ່ຽວກັບບົດຄົ້ນຄ້ວາໄດ້ຕະຫຼອດເວລາ;
- ເອົາສຳເນົາການບັນທຶກສຽງການສຳພາດ (ຖ້າມີການບັນທຶກ);
- ອ່ານບົດລາຍງານຂອງການຄົ້ນຄ້ວາໂດຍອີເມວຫນັກສຶກສາເພື່ອຂໍສຳເນົາ.

ຖ້າທ່ານມີຄຳຖາມ ຫຼື ບັນຫາ ທ່ານສາມາດຕິດຕໍ່ຫາໃຜ?

ຖ້າທ່ານມີຄຳຖາມ ທ່ານສາມາດຕິດຕໍ່ໄດ້ທັງ:

ນັກສຶກສາ:

ຊື່: ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ

ອີເມວ: ontaalou@myvuw.ac.nz

ອາຈານທີ່ປຶກສາ:

ຊື່: ທ່ານ ຈອນ ໂອເວີຕັນ

ຕຳແໜ່ງ: ຫົວໜ້າແຜນງານນັກສຶກສາປະລິນຍາໂທ
ສາຂາການສຶກສາດ້ານພັດທະນາ

ຄະນະ: ພູມສາດ, ສິ່ງແວດລ້ອມ ແລະ ວິທະຍາສາດ

ໂທລະສັບ: +6444635281

ອີເມວ: John.overton@vuw.ac.nz

ຂໍ້ມູນຄະນະກຳມະການຈຳລິຍະທຳສຳລັບການວິໄຈ (Human Ethics Committee)

ຖ້າທ່ານມີຄຳຖາມ ກະລຸນາຕິດຕໍ່: ຊຸຊານ ຄໍເບັດ (Susan Corbett). ອີເມວ: susan.corbett@vuw.ac.nz ຫຼື

ໂທລະສັບ: +64-4-463 5480.

Appendix 1.3 Information sheet for participants in the communities



Impacts of smallholder rubber plantations on livelihoods of local communities: A case study of communities in Vientiane province, Lao PDR

INFORMATION SHEET FOR PARTICIPANTS (Participants in the communities)

Thank you for your interest in this project. Please read this information before deciding whether or not to take part. If you decide to participate, thank you. If you decide not to take part, thank you for considering my request.

Who am I?

My name is Alounxay Onta and I am a masters student in Development Studies at Victoria University of Wellington, New Zealand. This research project is work towards my thesis.

What is the aim of the project?

This project aims to explore the impacts of rubber plantation on local people's livelihoods in two communities in Vientiane province, Lao PDR. This research will particularly focus on those who use their own land for rubber plantation investment and explore farmers' perceptions regarding their livelihoods. This research has been approved by the Victoria University of Wellington Human Ethics Committee [provide approval number].

How can you help?

If you agree to take part I will interview you at a place of your choosing. I will ask you questions about farmer livelihoods in rubber plantations. The interview will take about 45-60 minutes. I will record the interview and write it up later. You can stop the interview at any time, without giving a reason. You can withdraw from the study by contacting me at any point before 1st September 2017. If you withdraw, the information you provided will be destroyed or returned to you.

What will happen to the information you give?

This research is confidential. This means that the researchers named below will be aware of your identity and your identity will not be disclosed in any reports, presentations, or public documentation. However, you should be aware that in small projects your identity might be obvious to others in your community.

Only my supervisors and I will read the notes or transcript of the interview. The interview transcripts, summaries and any recordings will be kept securely and destroyed 3 years after the research ends.

What will the project produce?

The information from my research will be used in my Masters thesis.

If you accept this invitation, what are your rights as a research participant?

You do not have to accept this invitation if you don't want to. If you do decide to participate, you have the right to:

- choose not to answer any question;
- ask for the recorder to be turned off at any time during the interview;
- withdraw from the study before 1/9/17;
- ask any questions about the study at any time;
- receive a copy of your interview recording (if it is recorded);
- be able to read a summary of this research by emailing the researcher to request a copy.

If you have any questions or problems, who can you contact?

If you have any questions, either now or in the future, please feel free to contact either:

Student:

Name: Alounxay Onta

University email address:

ontaalou@myvuw.ac.nz

Supervisor:

Name: Prof John Overton

Role: Director of Postgraduate Program in Development studies

School: School of Geography, Environment and Earth Sciences

Phone: +6444635281

John.overton@vuw.ac.nz

Human Ethics Committee information

If you have any concerns about the ethical conduct of the research you may contact the Victoria University HEC Convener: Associate Professor Susan Corbett. Email susan.corbett@vuw.ac.nz or telephone +64-4-463 5480.

Appendix 1.4 Information sheet for participants in the communities (Lao version)



ຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບການດຳລົງຊີວິດຂອງຊຸມຊົນ:
ກໍລະນີສຶກສາຊຸມຊົນທີ່ຖືກກະທົບໃນແຂວງວຽງຈັນ, ສປປ ລາວ

ຂໍ້ມູນເບື້ອງຕົ້ນສໍາລັບຜູ້ໃຫ້ສໍາພາດ
(ຜູ້ເຂົ້າຮ່ວມຢູ່ໃນຊຸມຊົນ)

ຂອບໃຈສໍາລັບທີ່ໃຫ້ຄວາມສົນໃຈຕໍ່ໂຄງການຄົ້ນຄວ້ານີ້. ກະລຸນາອ່ານຂໍ້ມູນເບື້ອງຕົ້ນກ່ອນຕັດສິນໃຈເຂົ້າຮ່ວມ ຫຼືບໍ່ເຂົ້າຮ່ວມ. ຖ້າທ່ານຕັດສິນໃຈຮ່ວມກໍ່ຂໍສະແດງຄວາມຮູ້ບຸນຄຸນຕໍ່ທ່ານ ຫຼື ຖ້າທ່ານບໍ່ສາມາດເຂົ້າຮ່ວມກໍ່ຂໍຂອບໃຈທີ່ພິຈາລະນາຂໍສະເໜີຂອງຂ້າພະເຈົ້າ.

ຂ້າພະເຈົ້າແມ່ນໃຜ?

ຂ້າພະເຈົ້າຊື່ ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ ເປັນນັກສຶກສາປະລິນຍາໂທ ສາຂາການສຶກສາດ້ານພັດທະນາ ທີ່ມະຫາວິທະຍາໄລ ວິກິດເຮຍ ປະເທດນິວຊີແລນ. ໂຄງການວິໄຈດັ່ງກ່າວນີ້ແມ່ນສໍາລັບບົດວິທະຍານິພົນຂອງຂ້າພະເຈົ້າ.

ຈຸດປະສົງຂອງໂຄງການແມ່ນຫຍັງ?

ໂຄງການນີ້ແມ່ນມີຈຸດປະສົງເພື່ອສຶກສາຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນໃນສອງຊຸມຊົນ ຢູ່ແຂວງວຽງຈັນ ປະເທດລາວ. ໂຄງການຄົ້ນຄວ້ານີ້ແມ່ນແນໃສ່ ຜູ້ທີ່ນໍາໃຊ້ດິນຂອງຕົນເອງສໍາລັບການລົງທຶນປຸກຢາງພາລາ ແລະ ພ້ອມທັງສຶກສາແນວຄວາມຄິດຂອງຊາວສວນກ່ຽວກັບຊີວິດການເປັນຢູ່ຂອງເຂົາເຈົ້າ. ການຄົ້ນຄວ້ານີ້ໄດ້ຮັບການອະນຸມັດໂດຍຄະນະກຳມະການຈາລຶຍະທຳສໍາລັບການວິໄຈ ຂອງມະຫາວິທະຍາໄລ ວິກິດເຮຍ [ເລກທີ].

ທ່ານສາມາດຊ່ວຍໄດ້ແນວໃດ?

ຖ້າທ່ານຕົກລົງເຂົ້າຮ່ວມ ຂ້າພະເຈົ້າຈະສໍາພາດທ່ານຕາມສະຖານທີ່ທີ່ທ່ານຕ້ອງການ. ຂ້າພະເຈົ້າຈະຖາມທ່ານຕາມຫົວຂໍ້ທີ່ກ່ຽວຂ້ອງກັບຊີວິດການເປັນຢູ່ຂອງປະຊາຊົນທີ່ປຸກຢາງພາລາ. ການສໍາພາດຈະໃຊ້ເວລາປະມານ 45-60 ນາທີ. ຂ້າພະເຈົ້າຈະບັນທຶກການສະພາດ ແລະ ຂຽນຕາມຫຼັງ. ທ່ານສາມາດຢຸດການໃຫ້ສໍາພາດໄດ້ຕະຫຼອດເວລາໂດຍບໍ່ຕ້ອງມີເຫດຜົນ. ທ່ານສາມາດຖອນໂຕຈາກການສຶກສານີ້ໂດຍຕິດຕໍ່ຫາຂ້າພະເຈົ້າໄດ້ຕະຫຼອດ ກ່ອນວັນທີ 1 ຕຸລາ 2017. ຖ້າທ່ານຖອນໂຕ ຂໍ້ມູນທີ່ທ່ານໃຫ້ມາຈະຖືກທຳລາຍ ຫຼື ສົ່ງຄືນໃຫ້ແກ່ທ່ານ.

ແມ່ນຫຍັງຈະເກີດຂຶ້ນກ່ຽວກັບຂໍ້ມູນທີ່ທ່ານໃຫ້?

ບົດຄົ້ນຄວ້ານີ້ຈະເປັນຄວາມລັບ ໝາຍຄວາມວ່ານັກຄົ້ນຄວ້າຈະເກັບຂໍ້ມູນສ່ວນຕົວ ແລະ ຂໍ້ມູນດັ່ງກ່າວຈະບໍ່ຖືກເປີດເຜີຍໃນບົດລາຍງານ, ບົດສະເໜີ ຫຼື ເອກະສານຕ່າງໆ. ຢ່າງໃດກໍ່ຕາມ ການຄົ້ນຄວ້າເປັນໂຄງການນ້ອຍ ຂໍ້ມູນຕ່າງໆອາດມີບາງຄົນໃນຊຸມຊົນຮູ້ນຳ.

ມີພຽງແຕ່ອາຈານທີ່ປຶກສາ ແລະ ຂ້າພະເຈົ້າຈະອ່ານປຶ້ມຈົດບັນທຶກ ຫຼື ບົດບັນທຶກຂອງການສຳພາດ. ບົດສັງລວມ ແລະ ການບັນທຶກສຽງຈະຖືກເກັບຮັກສາ ແລະ ຈະທຳລາຍໃນເວລາ 3 ປີພາຍຫຼັງສິ້ນສຸດການຄົ້ນຄ້ວາ.

ຈະໄດ້ຫຍັງຈາກໂຄງການ?

ຂໍ້ມູນຈາກການຄົ້ນຄ້ວາຈະຖືກນຳໃຊ້ໃນບົດວິທະຍານິພົນຂອງຂ້າພະເຈົ້າ.

ຖ້າທ່ານຕົກລົງເຂົ້າຮ່ວມ, ທ່ານຈະມີສິດຫຍັງແດ່ໃນການເຂົ້າຮ່ວມ?

ທ່ານບໍ່ຈຳເປັນເຂົ້າຮ່ວມຖ້າທ່ານບໍ່ຕ້ອງການ. ຖ້າທ່ານຕັດສິນໃຈເຂົ້າຮ່ວມ ທ່ານມີສິດທີ່ຈະ:

- ເລືອກທີ່ຈະບໍ່ຕອບຄຳຖາມໃດກໍໄດ້;
- ບອກໃຫ້ບົດການບັນທຶກສຽງໃນຂະນະທີ່ສຳພາດ;
- ຖອນໂຕຈາກການສຳພາດກ່ອນ ວັນທີ 1/9/17;
- ຖາມຄຳຖາມກ່ຽວກັບບົດຄົ້ນຄ້ວາໄດ້ຕະຫຼອດເວລາ;
- ເອົາສຳເນົາການບັນທຶກສຽງການສຳພາດ (ຖ້າມີການບັນທຶກ);
- ອ່ານບົດລາຍງານຂອງການຄົ້ນຄ້ວາໂດຍອີເມວຫນັກສຶກສາເພື່ອຂໍສຳເນົາ.

ຖ້າທ່ານມີຄຳຖາມ ຫຼື ບັນຫາ ທ່ານສາມາດຕິດຕໍ່ຫາໃຜ?

ຖ້າທ່ານມີຄຳຖາມ ທ່ານສາມາດຕິດຕໍ່ໄດ້ທັງ:

ນັກສຶກສາ:

ຊື່: ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ

ອີເມວ: ontaalou@myvu.ac.nz

ອາຈານທີ່ປຶກສາ:

ຊື່: ທ່ານ ຈອນ ໂອເວີຕັນ

ຕຳແໜ່ງ: ຫົວໜ້າແຜນງານນັກສຶກສາປະລິນຍາໂທ
ສາຂາການສຶກສາດ້ານພັດທະນາ

ຄະນະ: ພູມສາດ, ສິ່ງແວດລ້ອມ ແລະ ວິທະຍາສາດ

ໂທລະສັບ: +6444635281

ອີເມວ: John.overton@vu.ac.nz

ຂໍ້ມູນຄະນະກຳມະການຈຳລີຍະທຳສຳລັບການວິໄຈ (Human Ethics Committee)

ຖ້າທ່ານມີຄຳຖາມ ກະລຸນາຕິດຕໍ່: ຊຸຊານ ຄໍເບັດ (Susan Corbett). ອີເມວ: susan.corbett@vu.ac.nz ຫຼື

ໂທລະສັບ: +64-4-463 5480.

Appendix 2.1 Participant consent form – Government officials



Impacts of smallholder rubber plantations on livelihoods of local communities: A case study of communities in Vientiane province, Lao PDR

CONSENT TO INTERVIEW (Local government officials)

This consent form will be held for 3 years.

Researcher: Alounxay Onta,
School of Geography, Environment and Earth Sciences,
Victoria University of Wellington.

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in an audio recorded interview.

I understand that:

- I may withdraw from this study at any point before 1st September 2017, without giving any reason, and any information that I have provided will be returned to me or destroyed.
- The information I have provided will be destroyed 3 years after the research is finished.
- Any information I provide will be kept confidential to the researcher and the supervisor. I understand that the results will be used for a Master's thesis and a summary of the results may be used in academic reports and/or presented at conferences.
- I consent to information or opinions which I have given being attributed to my organisation in any reports on this research: Yes ☐ No ☐
- I would like a summary of my interview: Yes ☐ No ☐
- I would like to receive a summary of the final report and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Appendix 2.2 Participant consent form – Government officials (Lao version)



**ຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບການດຳລົງຊີວິດຂອງຊຸມຊົນ:
ກໍລະນີສຶກສາຊຸມຊົນທີ່ຖືກກະທົບໃນແຂວງວຽງຈັນ, ສປປ ລາວ**

**ແບບຟອມຍືນຍອມ
(ພະນັກງານລັດຖະກອນ)**

ແບບຟອມຍືນຍອມຈະຖືກນຳໃຊ້ໃນໄລຍະ 3 ປີ.

ນັກຄົ້ນຄ້ວາ: ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ,
ຄະນະພູມສາດ, ສິ່ງແວດລ້ອມ ແລະ ວິທະຍາສາດ,
ມະຫາວິທະຍາ ໄລ ວິກຕໍຣີ ເວລລິງຕັນ ປະເທດນີວຊີແລນ.

- ຂ້າພະເຈົ້າໄດ້ອ່ານຂໍ້ມູນເບື້ອງຕົ້ນ (Information Sheet) ແລະ ຜູ້ຄົນຄ້ວາໄດ້ອະທິບາຍລາຍລະອຽດໃຫ້ຂ້າພະເຈົ້າ. ທຸກຄຳຖາມແມ່ນໄດ້ຮັບການອະທິບາຍ ແລະ ຂ້າພະເຈົ້າຄິດວ່າສາມາດສອບຖາມໄດ້ຕະຫຼອດເວລາ.
- ຂ້າພະເຈົ້າຕົກລົງໃຫ້ບັນທຶກສຽງການສຳພາດ.

ຂ້າພະເຈົ້າເຂົ້າໃຈວ່າ:

- ຂ້າພະເຈົ້າສາມາດຖອນໂຕຈາກການສຶກສານີ້ໄດ້ທຸກເວລາກ່ອນວັນທີ 1 ຕຸລາ 2017 ໂດຍບໍ່ຕ້ອງໃຫ້ເຫດຜົນ ແລະ ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກທຳລາຍ ຫຼື ສົ່ງຄືນຂ້າພະເຈົ້າ.
- ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກທຳລາຍ ພາຍໃນ 3 ປີພາຍຫຼັງສຳເລັດການຄົ້ນຄ້ວາ.
- ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກເກັບເປັນຄວາມລັບໂດຍນັກຄົ້ນຄ້ວາ ແລະ ອາຈານທີ່ປຶກສາ. ຂ້າພະເຈົ້າເຂົ້າໃຈວ່າຜົນຂອງການຄົ້ນຄ້ວາຈະຖືກໃຊ້ສຳລັບບົດວິທະຍານິພົນ ແລະ ບົດສັງລວມອາດຈະຖືກນຳໃຊ້ໃນລາຍງານວິຊາການ ແລະ/ຫຼື ສະເໜີໃນກອງປະຊຸມວິຊາການ.
- ຂ້າພະເຈົ້າຍືນຍອມໃຫ້ຂໍ້ມູນ ຫຼື ຄຳຄິດເຫັນ ກ່ຽວກັບອົງກອນຂ້າພະເຈົ້າເພື່ອໃຊ້ໃນການຄົ້ນຄ້ວານີ້: ແມ່ນ ☐ ບໍ່ແມ່ນ ☐
- ຂ້າພະເຈົ້າຕ້ອງການບົດສັງລວມການສຳພາດ: ແມ່ນ ☐ ບໍ່ແມ່ນ ☐
- ຂ້າພະເຈົ້າຕ້ອງການບົດລາຍງານສຸດທ້າຍ. ແມ່ນ ☐ ບໍ່ແມ່ນ ☐

ລາຍເຊັນຜູ້ເຂົ້າຮ່ວມ: _____

ຊື່ຜູ້ເຂົ້າຮ່ວມ: _____

ວັນທີ: _____

ລາຍລະອຽດຕິດຕໍ່: _____

Appendix 2.3 Participant consent form – Villagers



Impacts of smallholder rubber plantations on livelihoods of local communities: A case study of communities in Vientiane province, Lao PDR

CONSENT TO INTERVIEW (Participants in the communities)

This consent form will be held for 3 years.

Researcher: Alounxay Onta,
School of Geography, Environment and Earth Sciences,
Victoria University of Wellington.

- I have read the Information Sheet and the project has been explained to me. My questions have been answered to my satisfaction. I understand that I can ask further questions at any time.
- I agree to take part in an audio recorded interview.

I understand that:

- I may withdraw from this study at any point before 1st September 2017, without giving any reason, and any information that I have provided will be returned to me or destroyed.
- The information I have provided will be destroyed 3 years after the research is finished.
- Any information I provide will be kept confidential to the researcher and the supervisor. I understand that the results will be used for a Master's thesis and a summary of the results may be used in academic reports and/or presented at conferences.
- My name will not be used in reports, nor will any information that would identify me
- I would like a summary of my interview: Yes ☐ No ☐
- I would like to receive a summary of the final report and have added my email address below. Yes ☐ No ☐

Signature of participant: _____

Name of participant: _____

Date: _____

Contact details: _____

Appendix 2.4 Participant consent form – Villagers (Lao version)



ຜົນກະທົບຂອງການປຸກຢາງພາລາຕໍ່ກັບການດຳລົງຊີວິດຂອງຊຸມຊົນ:
ກໍລະນີສຶກາສາຊຸມຊົນທີ່ຖືກກະທົບໃນແຂວງວຽງຈັນ, ສປປ ລາວ

ແບບຟອມຍິນຍອມ

(ຜູ້ເຂົ້າຮ່ວມຢູ່ໃນຊຸມຊົນ)

ແບບຟອມຍິນຍອມຈະຖືກນຳໃຊ້ໃນໄລຍະ 3 ປີ.

ນັກຄົ້ນຄ້ວາ: ທ້າວ ອາລຸນໄຊ ອ່ອນຕາ,

ຄະນະພູມສາດ, ສິ່ງແວດລ້ອມ ແລະ ວິທະຍາສາດ,

ມະຫາວິທະຍາ ໄລ ວິກຕໍເຣຍ ເວວລິງຕັນ ປະເທດນິວຊີແລນ.

- ຂ້າພະເຈົ້າໄດ້ອ່ານຂໍ້ມູນເບື້ອງຕົ້ນ (Information Sheet) ແລະ ຜູ້ຄົນຄ້ວາໄດ້ອະທິບາຍລາຍລະອຽດໃຫ້ຂ້າພະເຈົ້າ. ທຸກຄຳຖາມແມ່ນໄດ້ຮັບການອະທິບາຍ ແລະ ຂ້າພະເຈົ້າຄິດວ່າສາມາດສອບຖາມໄດ້ຕະຫຼອດເວລາ.
- ຂ້າພະເຈົ້າຕົກລົງໃຫ້ບັນທຶກສຽງການສຳພາດ.

ຂ້າພະເຈົ້າເຂົ້າໃຈວ່າ:

- ຂ້າພະເຈົ້າສາມາດຖອນໂຕຈາກການສຶກສານີ້ໄດ້ທຸກເວລາກ່ອນວັນທີ 1 ຕຸລາ 2017 ໂດຍບໍ່ຕ້ອງໃຫ້ເຫດຜົນ ແລະ ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກທຳລາຍ ຫຼື ສົ່ງຄືນຂ້າພະເຈົ້າ.
- ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກທຳລາຍ ພາຍໃນ 3 ປີພາຍຫຼັງສຳເລັດການຄົ້ນຄ້ວາ.
- ຂໍ້ມູນທີ່ຂ້າພະເຈົ້າສະໜອງໃຫ້ຈະຖືກເກັບເປັນຄວາມລັບໂດຍນັກຄົ້ນຄ້ວາ ແລະ ອາຈານທີ່ປຶກສາ. ຂ້າພະເຈົ້າເຂົ້າໃຈວ່າຜົນຂອງການຄົ້ນຄ້ວາຈະຖືກໃຊ້ສຳລັບບົດວິທະຍານິພົນ ແລະ ບົດສັງລວມອາດຈະຖືກນຳໃຊ້ໃນລາຍງານວິຊາການ ແລະ/ຫຼື ສະເໜີໃນກອງປະຊຸມວິຊາການ.
- ຊື່ຂອງຂ້າພະເຈົ້າຈະບໍ່ຖືກໃຊ້ໃນລາຍງານ ຫຼື ຂໍ້ມູນສ່ວນຕົວຕ່າງໆຈະບໍ່ໄດ້ລະບຸເຖິງຂ້າພະເຈົ້າ
- ຂ້າພະເຈົ້າຕ້ອງການບົດສັງລວມການສຳພາດ: ແມ່ນ ☐ ບໍ່ແມ່ນ ☐
- ຂ້າພະເຈົ້າຕ້ອງການບົດລາຍງານສຸດທ້າຍ. ແມ່ນ ☐ ບໍ່ແມ່ນ ☐

ລາຍເຊັນຜູ້ເຂົ້າຮ່ວມ: _____

ຊື່ຜູ້ເຂົ້າຮ່ວມ: _____

ວັນທີ: _____

ລາຍລະອຽດຕິດຕໍ່: _____

Appendix 3.1 Question guide for government officials

Interview questions for local government officials

1. Roles and responsibilities

- 1.1. Key interview information
 - 1.1.1. Name of organisation:
 - 1.1.2. Date & location of interview:
 - 1.1.3. Name of interviewer:
- 1.2. What are main activities of your organisation?

2. Impacts of rubber plantations issues related to livelihood

- 2.1. What are benefits and drawbacks of rubber plantations?
- 2.2. How do rubber plantations affect people's use of land?
- 2.3. How do planting and harvesting rubber change people's occupations?

3. Policies related to rubber plantations and implementation of the policies

- 3.1. What are policies and activities regarding rubber plantation?
- 3.2. How can policies and its implementation help farmers to cope with the impacts or difficulties?
- 3.3. What are advantages or disadvantages of these policies?
- 3.4. How can these support farmers' activities of rubber plantation?
- 3.5. What should be done in order for your organisation to improve supporting farmers?

Appendix 3.2 Question guide for villagers

Interview questions for villagers

1. General information

1.1. Key interview information

1.1.1. Date & location of interview:

1.1.2. Name of interviewer:

1.2. How many people in your family?

1.3. How many male and female? How many adults and children?

1.4. Who is mainly responsible for taking care family and/or making money?

2. Livelihood situations before and after planting and harvesting rubber

2.1. What is your job (before and after planting rubber)?

2.2. What are benefits and drawbacks of rubber plantations?

2.3. What is the main source of income for your family?

2.4. How has planting rubber changed your incomes or jobs?

2.5. How has harvesting rubber changed your incomes or jobs?

2.6. Before planting rubber, what did you use your land for (and after planting)?

3. Impacts of rubber plantation and opportunities for dealing with difficulties

3.1. How do rubber plantations affect your family or occupation?

3.2. How can you deal with the impacts or difficulties?

3.3. What kind of support is appropriate for dealing with difficulties?

3.4. How do government policies influence your rubber plantation activities?

Appendix 4 Ethics approval



Phone 0-4-463 5480
Email susan.corbett@vuw.ac.nz

MEMORANDUM

TO	Alounxay Onta
COPY TO	Prof John Overton
FROM	AProf Susan Corbett, Convener, Human Ethics Committee
DATE	12 May 2017
PAGES	1
SUBJECT	Ethics Approval: 24558 Impacts of smallholder rubber plantations on livelihoods of local communities: A case study of communities in Vientiane province, Lao PDR

Thank you for your application for ethical approval, which has now been considered by the Standing Committee of the Human Ethics Committee.

Your application has been approved from the above date and this approval continues until 5 March 2018. If your data collection is not completed by this date you should apply to the Human Ethics Committee for an extension to this approval.

Best wishes with the research.

Kind regards

Susan Corbett
Convener, Victoria University Human Ethics Committee

Appendix 5 Support letter



Prof John Overton
Telephone +64-4-4635281
Email john.overton@vuw.ac.nz

15 May 2017

To Whom It May Concern:

It is my pleasure write a letter in support of Alounxay Onta's research for his Development Studies thesis on the 'Impacts of smallholder rubber plantations on the livelihoods of local communities: A case study of communities in Vientiane Province, Lao PDR'. He is enrolled as a master's student in Development Studies at Victoria University of Wellington, New Zealand and the research project is work towards his Master's thesis. His research will be conducted from June to August 2017 in Vientiane province, Lao PDR. I am supervising his thesis research and I am the Director of the Postgraduate Programme in Development Studies.

The research aims to explore the impacts of rubber plantation on local people's livelihoods in two communities in Lao PDR and explore local peoples' and local government officials' perceptions of farmers experiences. This research will provide a useful framework for deeper understanding of the impacts on livelihoods and contribute to government policy formulation or decision making. His research proposal has been approved by the Head of School and obtained ethics approval from the Human Ethics Committee of Victoria University of Wellington.

As Alounxay's supervisor, I fully support his efforts of doing Master's thesis research. If you need any additional information from me please contact me at Victoria University of Wellington or calling me at +644 4635281, and my email address is john.overton@vuw.ac.nz. Or you can contact Alounxay Onta by calling at +8562022333131 or +64220940681, and his email address is ontaalou@myvuw.ac.nz.

Yours sincerely,

(Prof. John Overton
Director, Postgraduate Programme in Development Studies)

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ນະຄອນຫລວງວຽງຈັນ, ວັນທີ: 30/06/2017

ຮຽນ: ທ່ານ .....

໑. ຫົວໜ້າ ກົມແຜນການ ແລະ ການຮ່ວມມື

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ນະຄອນຫລວງວຽງຈັນ, ວັນທີ: 30/06/2017

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