

Rubber Cash Crop and Changes in Livelihoods Strategies in a Village in Northeastern Thailand

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Abstract

This research article aims to explain the changes of livelihoods strategies in a village in the Northeast region of Thailand after the introduction of rubber as cash crop. Northeast region is considered a new rubber growing area of Thailand, the world's largest rubber exporter. A village in Udonrthani province was selected as a case study for a qualitative research conducted in 2012-2013. In order to get a full understanding of these changes, the research studied livelihood changes in the village over the last 62 years or since the village establishment. We have classified livelihood strategies into three periods, based on the dominant mode of production and livelihoods. The first period was the livelihoods before cash crops, in which people were involved in subsistence mode of production. The second period was marked by the introduction of cash crops and market economy into the village in the early 1960s. During this period, subsistence economy had been transformed into market oriented. Forest lands were changed into cash crop farms, so much that the natural capital lost its balance and became less dependable. The third period, starting in 2001, was the rubber period, the focus of this research. Rubber came to the northeastern region as a result of the promotion of the state. Strong research, development and extension supports that used to work well in the Southern region were applied to promote rubber growing here. However, the adoption of rubber was not without problems. People had to adjust themselves to the capitalist standardized farming practices of rubber. In addition, there was a misbalance of and unequal access to capital assets, particularly financial capital. Within the changing socio-economic context and constraining status of capital assets and access, rural households adopted integrated livelihood strategies, including 1) economic diversification or pluri-activities to reduce risks and increase income 2) maintaining rice cultivation to guarantee food security 3) keeping the ownership of agricultural land as an important capital asset 4) investment in higher education of the younger generation of the household. The article also discusses the implication of these livelihood strategies on rural society, and provides policy and research recommendation.

Keywords: Livelihoods, rubber, Thailand, rural transformation, capital

1. Introduction

The penetration of capitalism and globalization into agriculture has resulted in the transformation of subsistence forms of production into market-oriented cash crop production to serve world markets. This process was accompanied by the destruction of natural resources, particularly forests. In the northeast region of Thailand, the expansion of capitalist systems has greatly affected the livelihoods of the people in the region. Over the last 60 years, since the period when the country had adopted the First National Economic Development Plan in 1961, the region's economy has rapidly transformed from a subsistence mode of production to market-oriented production. Cash crops were grown in upland areas that used to be covered with natural forests. The types of cash crops grown in the region have changed over time, depending upon the global and local market demands, as well as the support from the government and market mechanisms. The most recognized changes were the introduction of jute in 1957 after a series of floods in Bangladesh, the world's major jute producer, and the replacement of this by the most popular and wide-spread cash crops – cassava, one of the major inputs for the cattle feed industry of Europe. Cassava reached its peak during 1977-1995. Sugar-cane was another popular cash crop from the 1980s until now (Pasuk & Baker; Falvey, 2000; Thongyou, 2003). The expansion of cash crop

production in the northeast was done by means of forest clearing. This contributed to the rapid decline of forest lands in the Northeast region, from 42 per cent of forest land per total regional land areas in 1961 to 14 per cent in 1988 (Pinthong, 1991). Indeed, the change in the agricultural system and the environment has much influence on the livelihoods of rural households in the region. Many research and government statistics reveal the fact that the proportion of poor households in the country is found to be highest in the Northeast.

During the last 10 years, one new cash crop was introduced to the region by the state, with an aim to reduce poverty and increase the income of rural households. This new cash crop was rubber, or para-rubber, a cash crop which had been grown widely in the Southern region several years before. The world's continuous demand for natural rubber has maintained the high price of rubber latex. Research supported by the government had generated new rubber varieties which are suitable for the climate and land of the Northeast region. All these plus the decrease of cassava price had motivated many farmers in the region to start growing rubber. At present, rubber land covers an area of 3,477,303 rai (Note 1) (556,368.48 hectare) or 18.5 per cent of the rubber land area of Thailand, the world's largest producer and exporter of natural rubber (RRIT, 2012). The Northeast region has now become the country's second largest region for rubber production, following the South.

According to government reports, the main reason for rubber promotion in the Northeast was because rubber gives higher return to farmers than other cash crops that had been earlier promoted, namely cassava and sugar cane. In addition, government reports suggested that the cultivation of rubber, which is a perennial plant, would help revive the degraded environment of the region due to the massive cultivation of short-lived cash crops for over 50 years (RRIT, 2012). In contrast to this thesis, some suggested that rubber was another type of cash crop that would harm biological diversity, no less than other cash crops. In addition, just like other cash crops, rubber price is determined by the world market and is beyond farmers' or even the Thai government's control. Therefore, farmers are at no less risk. Worse, rubber trees need to grow seven years before producing latex. Therefore, farmers need good preparation for a long-term investment and management, and might be at even more risk.

The initiation and expansion of rubber cultivation in the Northeast region posed many interesting points in rural sociology, which recognizes the importance of actors or agency, rural community, and rural transformation. Rubber trees being perennial cash crops which take up to seven years to be harvested posed the questions of how rural households in the Northeast, which are accustomed to cash crops which give fast returns within one year, will adjust their livelihoods strategies and farm management; and whether all households regardless of their wealth can take up this opportunity; or will this opportunity be taken by some better-off households only; and if so, what will be the impact of this cash crop on rural communities?

In order to get answers to the above questions, this research will apply the livelihoods concept (Chambers and Convey, 1992; Carney, 1998; Scoones, 1998 and Farrington et. al., 1999) in the study. In particular, this research will employ the Sustainable Livelihoods Framework (DFID, 1999). This framework will enable us to understand the complex relationship of various factors related to rural households' decision and design of their livelihoods strategies, which are not limited to the cultivation of any particular crop only.

The objective of this research article is to explain the changes in livelihoods strategies of rubber smallholder households in a village in the northeast region of Thailand. In order to get a full understanding of these changes, the research studied livelihoods changes over the last 62 years from 1950 to the present, or since the village establishment. We feel that the historical analysis of livelihoods analysis will generate new knowledge of rural people's strategies to take advantage of opportunities and cope with the problems arising out of rapid changes as a result of the integration of the region into the capitalist system.

2. Methods

This research used a qualitative research methodology. We have purposely selected one village for an in-depth study. Village Yang (pseudo name) in Kudjub district, Udonthani province in the Northeast region of Thailand was the research site. The criteria for village selection is that the village is located in the Northeast region and has rubber smallholder households at more than 60 per cent of the total households in the village, some of which must have cultivated rubber for more than seven years. The units of analysis of this research are household and village community. The duration of the research is 12 months (1 April 2012 - 30 March 2013). Research data were collected by means of in-depth interview, group interview, and participant and non-participant observation. Data collection tools were interview guides and an observation guide. Data were collected during May 2012 through December 2013, by one key researcher and one research assistant. Data were analyzed by means of content analysis.

3. Results

3.1 Rubber in the Global and Asian Context

Hevea brasiliensis, also known as the Para rubber tree after the Brazilian port of Para, is a native plant of the Amazon basin and was introduced from there to countries in the tropical belts of Asia and Africa during late 19th century. Rubber has been regarded as one of the most far-reaching and successful forced-migration of plant species which at present occupy an area of over 9.3 million hectares, 93 per cent of which is in Asia. The global production of rubber in 2011 was 25.510 million tons, of which 10.629 million tons were natural rubber and 14.856 were synthetic. The production of natural rubber during 2007-2011 expanded at the rate of 1.7 per cent per year. In 2011, the world's biggest producers were Thailand, Indonesia, and Malaysia. The amount of production of natural rubber of these three countries was up to 70.2 per cent of the world, with Thailand contributing 33.5 per cent (3.5 million tons), Indonesia 27.1 per cent (2.8 million tons) and Malaysia 9.6 per cent (1.0 million tons). Other countries can produce less than 1 million tons per year (RRIT, 2011).

The use of natural rubber increased at the rate of 2.1 per cent during 2007-2011. The use of rubber during this period was between 9.33-10.78 million tons. The biggest users in 2011 were China (34%), U.S.A. (9.3%), India (9.1%) and Japan (7.4%) (RRIT, 2011). Rubber is used most in producing tyres. Other industries include rubber-based industrial and engineering products, footwear products, latex-based products like foam and fiber foam, gloves, condoms, latex thread, catheters, nipples, sport goods like balloons, and bladders and balls (Rubber Asia, 2013).

Asia is now the largest supplier of world rubber, producing up to 93 per cent of the total supply. Rubber growing areas in Asia in 2010 were 11,500,000 hectare. Of this, Indonesia has the largest rubber areas (3,445,000 ha.), followed by Thailand (2,761,000 ha.) and Malaysia (1,019,000 ha.). These three countries combined accounted for 69 per cent of the rubber area in Asia in 2010. The Asian production is mostly smallholder-based, for example in Thailand, Indonesia, Malaysia, and India. But relatively large, state-owned plantations dominated in China, Vietnam, and Cambodia. Thailand has a little over 95 per cent participation of small holdings, while the share in Malaysia is around 90 per cent and in Indonesia around 85 per cent (Rubber Asia, 2013).

3.1.1 Rubber Production and Promotion in Thailand

It has been over 150 years since rubber was grown in Thailand. The dominant version of "rubber stories" written in government documents was that in 1882, when 22 rubber plants were brought to Asia by British colonizers, and grown successfully in Malaysia and Indonesia. Some of the rubber plants were later brought into Thailand in 1858, and were grown in Trang province in Southern Thailand. Now rubber has become one of the country's most important cash crops, and Thailand has become the world's largest producer and exporter of natural rubber since 1991. In 2011, Thailand produced 3.57 million tons and exported 2.95 million tons of rubber. There are now approximately 4 million households involved in rubber cultivation, or about 6 million rubber growers, most of which (95%) are small farmers. The Southern region has the largest area and number of rubber growers, followed by the Northeast, the East and Central, and the North.

Even though the production of rubber in Thailand is based on smallholders, productivity is relatively high in comparison with Indonesia, Malaysia, Vietnam, China, and many other countries. The efficiency is due significantly to research, development, and extension support by various organizations under the Ministry of Agriculture and Agricultural Cooperatives. These agencies include the Rubber Research Institute of Thailand (RRIT), the Office of the Rubber Replanting Aid Fund (ORRAF), the Rubber Estate Organization (RES) and the Department of Agricultural Extension (Viswanathan, 2008). The RRIT conducts research on all aspects of rubber development, including agro-ecological zoning, land suitability classification, technology transfer, and rubber quality control. ORRAF is responsible for providing planting grants to new growers, rubber growers' capacity development, rubber growers' organization strengthening, and local market development. ORRAF has up to 108 local offices in every region of the country, 44 of which are provincial offices, 51 district offices, and 13 stations (RRIT, 2011). ORRAF is entrusted to provide planting grants to rubber growers on areas not greater than 14 rai (2.5 ha) at the rate of 4,621 Baht/rai, for a total period of 7.5 years corresponding to the immature stage of rubber trees. This financial assistance has been increased to 28,885 Baht/ha (Viswanathan, 2008). Those rubber growers who are in the land reform areas may get planting support from the rubber promotion scheme run the Agricultural Land Reform Office.

Money to support rubber growers comes from export duty paid by rubber exporters. Rubber exporters are obliged to pay export duty or cess at the rate of 0.9 Baht/kg of the rubber exported. The cess is credited to the account of the ORRAF and used as a revolving fund for rubber research, farmers' replanting, and the establishment of new rubber farms.

As for rubber markets, 90 per cent of rubber producers in Thailand sell their produce to local markets at village, sub-district, district and provincial level, and smoking factories. These local markets are run by private traders. Some rubber growers formed themselves into groups or rubber growers' organizations, and sell their produce together. They will invite traders to do an auction and sell their produce together to traders who give the highest price. Apart from local traders, the government also set up the Central Rubber Market (CRM) in Songkhla, Suratthanee and Nakornsithamarat provinces in the South, and in Nongkhai and Buriram in the Northeast (RRIT, 2012). The market intervention by CRM aims at introducing rubber trading under systematic rules and regulation, and at opening new market channels (and hence creating more bargaining power) to growers. However, in 2010 only 15.7 percent of smoked rubber was sold in the CRM (RRIT, 2011) due to the fact that CRM has more limited market networks than private traders.

3.1.2 Rubber in the Northeast Region of Thailand

The Thai state was the key promoter of rubber gardening in the region, through ORRAF. In 1985 ORRAF provided planting aid funds to three groups of farmers, namely those who were part of the land settlement area, the land reform area, and the members of agricultural cooperatives. This first project covered an area of 156,411 rai. The success led to the second project, covering an area of 256,510 rai (27,586 farmers). The second phase of the project covered an area of 200,000 rai. In 2003, a new project was launched, covering an area of 700,000 rai during 2003-2006. Under this project, new rubber farmers received a loan of 5,360 Baht/rai. During 2010-2012 another 800,000 rai were set as a target. Now, ORRAF has an aim to expand the rubber areas in the Northeast to another 500,000 rai.

Table 1. Area of rubber cultivation in northeastern region Thailand by province (Years 2008-2010)

Province	Area of Rubber Cultivation Classified by Year (in rai) (1 hectare = 6.25 rai)		
	Year 2008	Year 2009	Year 2010
1. Kalasin	137,398	144,268	147,848
2. Khon Kaen	38,507	44,283	47,604
3. Chaiyaphoom	31,431	34,574	37,164
4. Nakornphanom	140,517	148,158	178,151
5. Nakornratchasima	25,833	27,455	28,539
6. Buriram	178,331	189,138	194,651
7. Mahasarakham	3,881	4,580	5,314
8. Mukdaharn	110,000	131,067	135,203
09. Yasothorn	49,657	57,106	63,812
10. Roiet	24,657	27,123	30,021
11. Loei	382,497	427,083	461,968
12. Sisaket	176,096	189,866	195,673
13. Sakonnakorn	171,665	182,531	235,269
14. Surin	90,686	93,017	91,686
15. Nongkhai	637,824	648,973	838,290
16. Nongbualampoo	94,288	98,136	108,435
17. Amnatcharoen	42,418	44,539	47,458
18. Udonthani	295,000	315,049	325,866
19. Ubonratchathani	168,523	177,151	189,839
Total	2,799,209	2,984,097	3,362,791

Source: http://www.rubberthai.com/statistic/stat_index.htm, Retrieved April 30, 2014

Obviously, the Thai state apparatus has played a very important role in motivating rural farmers to grow rubber by providing technical support and loans. At present (2012), rubber areas in the Northeast region are 3,362,791 rai. Rubber farms are dispersed in every province in the region, but provinces in the northern part of the region (Nongkhai, Loei, Udornthani and Sakonakorn) have the largest rubber areas. These areas have the most suitable climate for rubber cultivation and the heaviest institutional support from the government.

3.2 Livelihoods Transformation in a Rubber Smallholders Village

In the following we will discuss the livelihoods of households in Village Yang, the research site, from its existence until now, covering the period of 62 years from 1950 - 2012. This period started before the great transformation took place in the northeast region, and covered the period of massive forest clearing to grow cash crops. Cash crop production was introduced into the northeastern region during the agricultural modernization period, which may be viewed as the great transformation. There is no sharp marking of the period, but it started roughly with the Thai state's adoption of the First National Economic Development Plan in 1961, which gradually transformed the dominant mode of subsistence production into a market-oriented, export-led cash crop plus rice production system. There has been extended research of this "great transformation" (though the term may not be used), but most have portrayed the peasants as the victims of the government's policy and the capitalist system. One way out of this marginalization process proposed by alternative development strategists was to get back to the roots, to overcome the market's domination through for example, integrated farming systems based on traditional knowledge, sufficiency economy, knowledge management (of traditional and new technology), and the reproduction of rural or ethnic culture. Indeed, cash crop production was seen as a path to the depeasantization, or the destruction of the peasantry, small farmer, and smallholders due to constant agricultural failures after switching from one cash crop to another, lack of control of market, and no bargaining power for input and product price. From this perspective, rubber is just another trial of cash crop production which may end up as another error.

Taking the above analysis as background knowledge, this research will look at the smallholders in the northeast region who took the chance to grow one of the most promising cash crops (from both small holders', agricultural specialists' and government's agricultural promotion's perspectives) - rubber. We have adopted the livelihoods strategies model (DFID, 1999) in which capitals available to the farmers and farmers' choices of livelihoods strategies to sustain their livelihoods, based on the availability and accessibility of capital, must be incorporated into the analytical framework. We expect that this perspective, which allows for a broader look at the farmers' choices and which is not limited to any particular crop, cash crop, or even only to agricultural based production, would give a clearer picture of the farmers' livelihoods management, and a better understanding of its current and future challenges and prospects.

Based on data obtained in this research, livelihoods of the peasantry in Village Yang can be best classified by time period. This is because there were distinct livelihoods strategies chronologically among the peasantry, which we have classified into three periods, namely the period of subsistence mode of production before cash crops, the cash crop period, and the rubber period. These will be discussed in details below.

3.2.1 Livelihoods before Cash Crops (1950-1970): Subsistence Farming in the Forest Fringe

3.2.1.1 Major Characteristics of Capital Assets and Access

1) The Balance of Capital Assets as a Foundation of Economic and Social Life.

At the early stage of village establishment in the 1960s, there was a balance of the important forms of capital assets in the village community. The *natural capital* was abundant. The early settlers and their followers moved to this forest fringe area and settled down there because of the abundance of natural resources - the major production and livelihoods sources. People occupied the land based on family labor and consumption needs. There was a vast area of land and forests to be cleared and turned into farm lands. The forests provided wood to build houses, many kinds of food, as well as herbs to cure villagers' illness. In terms of *social capital*, the early settlers were composed of three major groups from Kalasin, Khon Kaen and Loei provinces, each of which was related by blood or marriage. These three groups shared the same ethnic background, language, and religion. Due to hardship and difficulties in land clearing, house building, big animal hunting, illness, as well as rice planting and harvesting, people had to cooperate. Otherwise they could not survive, as many activities could not be done by only a few male or female members of a family. In addition, all of the religious and traditional ethnic ceremonies required communal participation. These formed the cultural ethics of group survival. The social ties or social cohesion was strong, supported by local culture or *cultural capital*, working in good balance with the economic life based on the rich natural capital.

With regards to *human capital*, people had all the skills required to clear land, farm, hunt, and raise and socialize children. The uninterrupted social and economic life which had been passed on from generation to generation equipped them with all the required skills and knowledge. Should there be anything missing, they tried to fill it. For example, to establish a community, a spiritual leader played important roles. The settlers thus invited a charismatic Buddhist monk to reside in the temple they built for him. The monk did help the community to survive through difficult times. Important community rules were established by the monk, many of which continue to be practiced today. In short, religious and spiritual beliefs were the foundation of the guiding principles that aimed at communal survival.

Even though the *physical capital* (or produced capital such as roads and weirs) and *financial capital* were not highly available, people could survive, as subsistence economy was the major mode of production. People tried to “produce everything one eats, and eat everything one produces”. The production for market was much smaller than the subsistence production. For example, as a common practice, harvested rice would be set aside for home consumption for the period of one year or more; only the surplus of this would be sold. Food security was the first priority for these people.

2) More Equitable Chance to Access Capital

In comparison with the present situation, village people during this period had a much more equitable chance to access all types of capital. It was a customary practice that one should neither occupy land more than one’s ability to farm, nor occupy more than the consumption needs of one’s family. Limited access to a market put people’s consumption needs at a low level. In addition, in this new frontier, there was an abundance of land. Thus the factor that determined the strength and weakness of a family was the number of the family work force in relation to its dependants, or the family cycle. Since each family had its ups and downs, the ethics of group solidarity and group survival were maintained. Most of the village rules and customary practices reproduced the principle value of group solidarity and group survival. Hence, the social and cultural capital assets were to a great extent equally distributed among village members.

3.2.1.2 Livelihoods Strategies

Based on the balanced availability of capital assets and the relatively equitable chance among the village population to have access to the capitals discussed above, the major livelihoods strategies during the subsistence mode of production period included:

- 1) Production that focused on home consumption. Subsistence production was first priority. A smaller segment of the production was produced for the market, to earn cash income.
- 2) The economic life of the people relied on natural resources: land, forest products, and rain.
- 3) The important role of family farms, using family labor for subsistence production, with occasional labor exchange within the community.
- 4) The important role of all forms of capital assets as a foundation for farm production and family sustenance.

3.2.2 Livelihoods of Rice and Cash Crops Small Holders (1971-2000): Capitalized Family Farm and Migration

3.2.2.1 The Transformation of Peasant Economy

A major factor that created a big change of the village economy was the introduction of cash crops to the area. As discussed in the previous section, Village Yang’s economy had been dominated by subsistence economy, supported by the balance of capital assets, namely the natural, human (and knowledge), and social (and cultural) capitals. During the early 1960s Thailand adopted the export-led and modernization development strategies. Rural areas of the northeastern region were connected to global markets. A series of cash crops were introduced to the northeastern region, which had vast land and a large population involved in subsistence rice production. This region was known to be “lagged behind”, was at risk of “communist infiltration”, and needed to be “developed”. The state apparatus including those under the Ministry of Agriculture and Agricultural Cooperative and the Bank of Agriculture and Agricultural Cooperative (BAAC) were the key agencies to promote the green revolution and provide financial support to the peasantry. Energetic merchants and traders also played important roles to sell necessary inputs, new knowledge, and buy the products from the peasants.

Village Yang was also within this development stream. Peasants of Village Yang were reluctant at first to adopt cash crop production, but the success of some courageous fellows in the village and elsewhere (known to them through social network of relatives and friends) made them confident to take the risks. Forests were cleared to grow cash crops, starting from jute in around 1978, to cassava in 1983, and sugar cane at about the same period.

All of these cash crops offered a good price initially, but after the number of growers increased or there was a decline in the global market, the price dropped. A new kind of cash crop with better prospects would replace the previous one, partly through the promotion of the state agency.

Jute was the first cash crop introduced to Village Yang. At the macro level, global demand for jute was not met due to a series of floods in Bangladesh, the major producer of jute. Jute was used to make sacks to ship goods. The Thai government and traders took this opportunity to promote jute. But soon the demand shrank, due to new technologies in shipping. Peasants were not satisfied with the price, and also with the means of processing. Jute must be put in natural water resources for days, until the outer part of the stalks decay. This created bad smells and polluted natural water resources. But the real change came with the introduction of cassava. Cassava was introduced into Village Yang (and upper northeastern region) in 1983. There was a great demand for cassava to produce cattle feed in Europe. As a large part of Village Yang (and the northeast region as a whole) was upland arid areas not suitable for growing paddy rice, cassava, which can grow well in arid areas, was very tempting in the eyes of the villagers, as well as the agricultural extension agencies, BAAC, traders, and the government. Forests were cleared at a much quicker pace than during the jute period, because the cultivation of cassava was very simple. But in 1987 cassava prices dropped, due to the decision of European Union countries to reduce the use of imported cassava in cattle feed to protect feed plant growers there. The decline of the price drove the people to shift to grow sugar cane, the competing crop of cassava. Sugar cane was introduced in the area at about the same time as cassava, but was not as popular. In Udonthani province there were two large sugar factories, which could not produce to its full capacity due to a shortage of sugar cane. Thus there was room for farmers to grow sugar cane.

The cultivation of cash crops drew people close to the market and the monetary system. Many villagers soon found themselves in debt traps with both formal and informal loan sources, due to the unpredictable market price of agricultural produce and increased consumption needs. One way out of this trap was migration. Many villagers migrated to larger cities to work. The most common place was the national capital of Bangkok and the more industrialized regional city of Nakornratchasima. Others travelled to work abroad, in other countries in Asia such as Taiwan and South Korea. The remittance from migrants was used to pay debts and invest in agriculture.

To ensure food security, all household in Village Yang still maintained rice cultivation. Those who had only a small piece of land suitable for rice cultivation would just produce for home consumption. Those who had a larger piece of land would produce for consumption and for selling.

3.2.2.2 Major Characteristics of Capital Assets and Access

1) The Misbalance of Capital Assets that Used to Form a Foundation of Economic and Social Life.

The cultivation of cash crops in upland areas of Village Yang was made possible by forest clearing. Natural resources thus rapidly deteriorated. Soon there was no more forest land to be cleared, because the remaining forest land was declared the national reserved forest park. The *natural capital* drastically shrank. As for *human capital*, traditional skills and knowledge alone was not enough to make the villagers survive in the new market-oriented economy. They had to learn about new technology to produce profitable cash crops, to know how to get loans from government sources and from traders, and how to find money to pay the debts and interests, to find markets for their products, and negotiate prices. In many instances, peasants were in the 'underdog position' due to a lack of knowledge. In many instances, agricultural promotion officers did not have appropriate knowledge or time for technology transfer, and village people had to find information from traders and fellow villagers. Indeed, due to many instances of failures and misinformation provided by extension workers, villagers had more trust in information from experienced friends and relatives in their social network. *Social capital* thus played important roles.

Cash crop production brought people in Village Yang closer to the market economy. The production process required financial inputs. But as discussed above, subsistence peasant started their business with loans from the government, and they did not know how to manage it wisely. Many used the agriculture loans in their daily consumption, consumer goods, new electrical supplies, motorcycles, children's education, medical costs, children's wedding, and much more. People had more financial capital but also more debts.

In summary, there was a misbalance of the capital assets, ranging from natural capital and human capital to financial capital. On the contrary, social capital remained strong and could integrate well with other capitals. Indeed, people tried to make the best use of their social capital, by transferring it to other capital or using it as a means to get access to other capitals. For example, as discussed above, human and knowledge capital was strengthened by people's learning from their network or from their social capital. Obviously, capital misbalance

did not mean that people lacked capital, but that people needed to put much more effort into restoring its values and finding ways to make these capitals work together in a more synergetic way in the new social and economic context.

2) More Differentiated Chances to Access Capital

Production of cash crops drove people of Village Yang to clear more lands until land became a scarce resource and had monetary value. Production of cash crops with its ups and downs required careful farm management, especially when the production relied on loans for investment. Some families were more successful than others. Under the monetary system, some families were able to accumulate more wealth, especially those who had more and better quality land, more household labor and good management of the family, the farm, and the loans. Some of these better off families had extra labor force who were able to migrate for work within the country and abroad and send remittance home to invest in cash crop production or buy more lands. But not all of the migrants were successful. Some family had more debts due to fraud in transnational work placement. In summary, during this period there were more differentiated chances among people to have access to some capital assets, particularly financial capital and natural capital.

3.2.2.3 Livelihoods Strategies

Within the socio-economic context and the status of capital assets and access discussed above, this research found that rural household of Village Yang had adopted the following livelihoods strategies:

- 1) The production of cash crops, made possible by forest clearing and formal and informal loans.
- 2) The production of rice for home consumption and for the market.
- 3) The diversification of household economic activities, which included both farm and non-farm activities. The most important non-farm activities was in-country and transnational migration.
- 4) The important role of the family farm. The family was kept as a unit of production and consumption. Remittance from migration was used to sustain the family and the farm, or buy more land for agriculture or as an asset.
- 5) Efforts to keep agricultural land, particularly paddy rice land.
- 6) The shifting or transferring of capital assets for survival or wealth accumulation.

3.2.3 Livelihoods of Rubber Smallholders: A Chance of Sustainable Family Farm or Just another Trial and Error?

Since 1978, on-farm experiments of rubber cultivation were conducted in the northeast region of Thailand to test whether rubber trees could grow and give a satisfactory amount and quality of latex. After having been proved to be successful, rubber tree cultivation has been widely promoted in the region since 1988. Soon rubber promotion reached Village Yang. The adoption of rubber at farm level was slow at the beginning. Past failures with several cash crops created reluctance among farmers to take another risk. In addition, rubber was different from other cash crops as it took up to seven years to yield product. People in the region were accustomed to cash crops which yielded products within a shorter time span, mostly within one year. However, the nation-wide known success of rubber farmers in the south, in addition to the experience of some northeasterners who used to work as migrant tappers in successful rubber farms in the South (Note 2) aroused their interest.

3.2.3.1 Major Characteristics of Capital Assets and Access

1) Continual Misbalance of and Unequal Access to Capital Assets

As discussed in 3.2.1.1, the major factor contributing to sustainable livelihoods of the peasantry during the subsistence mode of production before the 1960s was the balance of capital assets and equal access to these capitals within peasant society. The balance and equity rapidly deteriorated as peasant society become part of the world capitalist system, where subsistence production was replaced by the production of cash crops to serve the needs of the world markets, ranging from jute to cassava and sugar cane. Obviously, rubber is another type of cash crop. Since there was no more forest land left to be cleared, rubber trees were grown on the lands that were previously used for growing cassava and sugar cane. The low land that was used for rice cultivation was kept for the same purpose, as rice was the most important staple food.

Natural Capital: Though rubber trees have a much longer life than cassava and sugar cane, and the cultivation of rubber trees did create more green space in the village, rubber gardens were much different from natural forest. Rubber gardening is based on mono-crop culture, and intercropping is done only during the first three years. As rubber trees become bigger, other crops cannot grow well under their shade. Though there have been attempts

elsewhere in Thailand, particularly in the South where rubber cultivation is more matured, to practice long term intercropping in rubber gardens with crops that can grow in shade, in Village Yang people still have a very conservative view of rubber cultivation. “Beautiful rubber gardens” that rubber farmers were proud to show to our research team and other visitors consisted of only rubber trees that existed with very clean walkways through direct linings of rubber trees. The use of chemicals in latex after tapping also created some worries among villagers about consuming any edible plants, mushrooms, or animals in the areas, particularly in the rainy season. In short, though rubber trees have created greener spaces in the village, the natural capital keeps perishing.

Financial Capital: Financial capital plays an even more important role for rubber cultivation than for other cash crops. Rubber trees take seven years to yield latex, the major economic return of rubber gardening. During the first three years, farmers can grow other short-life cash crops. Some of the most popular intercropping plants in Village Yang were cassava, tomato, and pineapple. Though cassava was not recommended by rubber extension workers due to the fact that they compete with rubber in water consumption, rubber growers in Village Yang took the risk, as they were familiar with the crop and as cassava market networks were well established in the area. In short, though intercropping was possible, the yield and subsequent income were not big. Therefore, those who want to start rubber cultivation need to have some savings or take out loans. In Village Yang, many households used their savings from overseas and urban migration to start rubber cultivation. People who did not have any savings had difficulties in starting rubber cultivation by depending on loans only.

Human Capital and Knowledge Capital: Human capital and knowledge capital will be discussed together, as knowledge is the integral part of human capital. As discussed above, rubber cultivation is very standardized – more standardized than any other cash crops that the people of Village Yang used to grow. The Thai state has invested significantly in rubber research and extension. Rubber research stations (under the Rubber Research Institute of Thailand) were established in every region of the country, including the Northeastern Region, where one of the regional research stations was established in Nongkhai province, not far from Village Yang. It is compulsory for farmers who get loans and free rubber plants from ORRAF to follow the rubber cultivation guidelines strictly. This was done to make sure that rubber gardens will give high yields and good quality latex and that the farmers can pay back the loans. This research found that in general, rubber farmers in Village Yang had very well adopted the new agricultural technology transferred to them by agricultural extension workers. But in some cases, farmers also applied their life-long knowledge in agriculture to their rubber farm management. The use of cassava as an intercropping plant and the fertilizer application methods against ORRAF advice are the examples. In addition, their past experiences with some state agencies also make them become very cautious in selecting rubber varieties for their farm. For example, many farmers used their social networks (an element of social capital) to gain knowledge on appropriate rubber varieties and bought these for their farm, rather than getting the rubber plants free of charge from ORRAF. Some bought rubber plants and got additional advice from rubber farmers from the Southern region who migrated to this area to do rubber farming and sell rubber plants to new rubber growers. This is because farmers in this and nearby villages had bad experiences growing cashew-nut trees, provided for free by an agriculture extension agency, which did not produce any fruits. Based on this bad experience, they have become more cautious in the adoption of new technology, particularly in rubber cultivation which takes up to seven years to yield outputs with the long harvesting period of up to 25 years.

Unequal Access to Financial Capital: In this research we have found that people in Village Yang had unequal access to the financial capital, the most important capital asset to start rubber cultivation. By principle, ORRAF provided loans to farmers who have high prospects to succeed in rubber cultivation. These farmers must have land ownership, appropriate land, a good attitude, and some seed money. As a result, rich and middle-level farmers can be part of this project, but not the poorer farmers. This has resulted in increasing economic disparities within the village community.

3.2.3.2 Livelihoods Strategies

Within the socio-economic context and the status of capital assets and access discussed above, rural households have adopted the following livelihoods strategies:

1) Economic diversification or pluri-activities.

Rural households in Village Yang could not survive by relying on any one particular activity. Economic diversification has thus become one of the most important livelihoods strategies. A household is composed of members with different strengths and weaknesses, as a result of the difference in their age, gender, education attainment, skills, health status, and much more. These members were thus involved in the economic activities that were most suitable to their capacities. In addition, rural households do not have control over the market price

for their produce, so they usually grow a few cash crops to reduce risks. They are also involved in many non-agricultural activities, as work migrants in urban areas and overseas. Some have also started their own business in the village, such as running grocery shops, rice mills, and mini-bus services. In addition, they continue to grow rice, their main staple food. The diversified composition of economic activities is outlined below (see Table 2 below):

- a) Rubber farmers not only grow rubber trees, but they also grow many plants in rubber plots (intercropping) to earn income when rubber trees do not yet yield latex.
- b) In addition, they grow other crops in other plots, such as cassava and sugar cane to earn income and reduce risks because they cannot control the market price of these cash crops.
- c) Rubber farming families also have some of their members employed in agricultural sectors and non-agricultural sectors. Some are involved in non-agricultural sectors, particularly as workers in urban areas in Bangkok and overseas, some with the intention to save money to invest in rubber cultivation. More agricultural-sector employment can be found in nearby areas in fully-grown rubber farms as tappers. As a result, there are many return migrants.

Table 2. Economic diversification in village yang

Type of Economic Activities (sequence in each item shows farmers' perceived significance)	Percentage of Households
Rubber + rice + non-agricultural employment	40
Rice + rubber + non-agricultural employment	25
Rice + rubber + sugar cane + cassava	20
Rubber + rice + cassava	15
Total	100

2) Rice cultivation is maintained.

All farming families still continue to grow rice every year (see Table 2 above), as rice is regarded as the most important staple food. The traditional value of eating one's own rice (rice produced by the family), of having enough rice in the barn (so that no one would ever starve), and of having rice to make merit, still prevailed. This may be considered part of the pluri-activities of the rural households.

3) Rural people still keep their land and try to buy more land.

Land has become the most valued asset, with ever increasing market prices, as more people want to invest in rubber cultivation in this area which has the appropriate climate. Some rich farmers who cannot afford to buy more land in the village have now started to buy land in nearby areas and far away, with the intention to grow rubber.

4) Social capital has become an important asset.

Social capital has become the factor that helped rural farmers to overcome problems related to the lack of other capital assets. Social networks (an element of social capital) helped people to get appropriate knowledge, inputs such as rubber plants, and employment. In short, social capital can be transferred into human, knowledge, and physical capitals.

5) More investment in education.

More investment in education is a result of the dominant national value of educated people and white-collar jobs, the educational welfare system, and an increased income of households. Investment in education for the younger generation of the household during the last ten years has resulted in a situation in which there are now more households with members who are middle-level employees in local government offices, government officials, private industries, and private companies. It is likely that these people will permanently leave the agricultural sector, while some of the household members will remain. Some of those who remain in the agricultural sector are those who do agriculture by choice, which will make them become more productive and innovative than in the past.

4. Conclusion and Policy and Research Implication

This research aims to understand livelihoods strategies of rubber smallholders in a rubber village in the Northeast region of Thailand. In order to get a full understanding of these strategies, the research also studied livelihoods changes in the village over the last 62 years, or since the establishment of the village. Qualitative research methods were used in the study. We have classified livelihoods strategies of the rubber smallholder households into three periods, based on the dominant mode of production and livelihoods of each period. The first period is the livelihoods before cash crops – the period in which people were involved in the subsistence mode of production. The second period was marked by the intrusion of cash crops and market economy into the village social and economic life. During this period, the peasant subsistence economy was transformed into a market-oriented economy. The third period was the rubber period, the focus of this research. Documentary research shows that rubber came into the northeast region as a result of promotion by the state. Strong research, development, and extension supports that worked well in the South have been applied to promote rubber in the Northeast region, with an aim to increase people's income, increase more sustainable (perennial) cash crops, and create more green space in the region where 50 years of short-life cash crops have severely damaged the environment. This research has found that the rubber expansion and extension policy corresponds well with the situation of the middle and better-off northeastern peasantry, who were willing to take another risk after various failures with many cash crops in the past. The success of rubber farmers in the South, the relatively high price of rubber compared to other cash crops that used to be popular in the region, and the perennial nature of the plant that goes well with the aging population in rural areas all motivated northeastern people to start growing rubber.

The adoption of rubber has not been without problems. Our research has found that new rubber growers in the northeast have to adjust themselves to the standardized farming practice of rubber growing. In many instances, they were able to apply their traditional knowledge to the scientific knowledge. The research found that the misbalance of capital assets and unequal access still prevail, particularly with regards to financial capital. Better-off households who have some savings are in a better situation to start rubber cultivation and get support from extension agencies. This is partly due to the fact that rubber takes up to seven years to yield outputs. As a consequence, it is likely that rubber cultivation will worsen the income disparity problems in the village.

Even though the government's promotion of rubber has, as one of its stated purposes (RRIT, 2011), the intention to increase green space in the Northeastern region, it is obvious that rubber farms are very different from natural forest. This research found that rubber farming practices focus more on the productivity of rubber, and less on the environment. Intercropping was applied only during the first three years, mainly to create income for farmers. After that, rubber farms are based on mono-crop culture. In addition, the use of herbicides and other chemicals in the farms reduces the potential of rubber farms and the nearby areas from being natural food sources for the farmers.

One of the most interesting points found in Village Yang is that with the increase of income, people in the village put a high value on education. Many households have members who work as white-collar employees in government agencies, business sectors, and industries. These people might leave the agricultural sector permanently. The research also notes that there are many return migrants, from Bangkok and overseas, who see new opportunities in establishing rubber farms at home. These are the people who become farmers by choice. They are those who think that agriculture is a feasible occupational alternative. This may result in the growth of "efficient small agricultural production" in the village and rural areas, as opposed to what some theorists perceive of as rural transformation as either the growth of capitalist farms or the proletarianization process.

Policy and Research Implication

The study of livelihoods strategies of rubber smallholders enables us to see many new opportunities for policy and research intervention.

Firstly, government agencies, which claimed that the promotion of rubber in the degraded area of the Northeast was to increase the greening of the region, should set environmental reconstruction as one of their most important targets. More research should be supported on sustainable rubber agro-forestry systems, which looks beyond a system of a few years of intercropping at the immature period of rubber, or just planting other plants on separate plots. More research is needed on suitable plants to be grown with mature rubber trees in the Northeast region, where climate and rainfall are different from the South (Note 3). Financial support should be given to farmers who want to start or shift to a sustainable agro-forestry system, or to farmers who are already involved in sustainable integrated farming, to add rubber into their farming system. Research should be done on these farms (preferably by involving farmers as researchers) to get the most suitable agro-forestry system based on the integration of indigenous and modern knowledge.

Secondly, extension support should focus more on rubber growers' organizations. At present, rubber growers in Village Yang have no bargaining power, as they are not part of a growers' group or cooperatives. When rubber prices decreased, they have shown their potential, with support from ORRAF, by selling their produce together through an auction system. Such empowerment projects should be strengthened.

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Reference

- Carney, D. (Ed.). (1998). *Sustainable Rural Livelihood: What Contribution Can We Make?* Department for International Development. Nottingham: Russel Press Ltd.
- Chambers, R., & Convey, G. R. (1992). *Sustainable Rural Livelihoods: Practical Concepts for the 21st Century*. Brighton: Institute for Development Studies, Discussion Paper 296.
- DFID. (1999). *Sustainable Livelihoods Guidance Sheets*. London: Department for International Development.
- Falvey. (2000). *Thai Agriculture: Golden Cradle of Millennia*. Bangkok: Kasetsart University Press.
- Farrington, J., Carney, D., Ashley, C., & Turton, C. (1999). *Sustainable Livelihoods in Practice: Early Applications of Concepts in Rural Areas*. ODI Natural Resource Perspectives, No. 42. London: Overseas Development Institute.
- Kaag, M., et al. (2004). Poverty is Bad: Ways Forward in Livelihood Research. In D. Kalb, W. Pansters, & H. Siebers (Eds.), *Globalization and Development: Themes and concepts in current research* (pp. 49-7). Dordrecht/Boston/London: Kluwer. http://dx.doi.org/10.1007/1-4020-2475-4_3
- Pasuk, P., & Baker, C. (1995). *Thailand: Economy and Politics*. Kuala Lumpur: Oxford University Press.
- Pinthong, J. (1991). *Evolution of Forest Land Clearing for Agricultural Purposes* [vivatanakarn khong karn bukbung thidin tham kin nai khet pa]. Bangkok: Local Development Institute.
- RRIT - Rubber Research Institute of Thailand. (2011). *Academic Data on Rubber, Year 2011* [khawmoon vichakarn yang para 2554] Bangkok: Department of Agricultural Academics, Ministry of Agriculture and Agricultural Cooperative.
- RRIT - Rubber Research Institute of Thailand. (2012). *Academic Data on Rubber, Year 2012* [khawmoon vichakarn yang para 2555] Bangkok: Department of Agricultural Academics, Ministry of Agriculture and Agricultural Cooperative.
- Rubber Asia. (2013). Global Rubber Industry: The Asia Dominance. Retrieved March 25, 2013, from http://rubberasia.com/v2/index.php?option=com_content&view=article&id=555%3Aglobal-rubber-industry-the-asian-dominance&catid=5%3Athe-best-of-rubber-asia&Itemid=7
- Scoones, I. (1998). *Sustainable Rural Livelihoods: A Framework for Analysis*. IDS Working Paper No. 72. Brighton: IDS.
- Somboonsuke, B., Prommee P., Cherdchom P., & Petcharat, J. (2003). The Sustainable Livelihood of Rubber Small Holder: A Case Study of Rubber-Fruit Tree Farming System in Kao Phra Community, The Southern Thailand. *Kasetsart Journal (Soc. Sci)*, 24, 156-168.
- Somboonsuke, B., Wetayaprasit P., Cherdchom P., & Pacheerat K. (2011). Diversification of Smallholding Rubber Agroforestry System (SRAS) Thailand. *Kasetsart Journal (Soc. Sci)*, 32, 327-339.
- Sorensen, N. N., & Olwig, K. F. (2002). *Work and Migration: Life and Livelihoods in a Globalizing World*. London and New York: Routledge.
- Thongyou, M. (2003). *Transformation of Peasant Economy*. [karn plianplang khong setagit chaona Isan]. Bangkok: Sangsan Press.
- Viswanathan, P. K. (2008). Emerging Smallholder Rubber Farming Systems in India and Thailand: A Comparative Economic Analysis. *Asian Journal of Agriculture and Development*, 5(2), 1-20.

Notes

Note 1. 1 hectare = 6.25 rai

Note 2. Up to 70 per cent of rubber tappers in the South of Thailand were people from the Northeast. At present this might have changed due to migrant labor from Myanmar, but there are no current statistics, as many of these cross-border migrants were undocumented illegal migrants.

Note 3. Recorded rubber-fruit tree system as intercropped fruits include durian, rambutan, long kong, and champada, which are grown in the same plot as rubber between rubber rows, called rubber multi crop (Somboonsuke et al., 2011). These fruit trees can be grown well in the South, but not in the Northeast. Timber species that grow well are neem and teak (Somboonsuke et al., 2011).

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