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Knowledge and Sustainable Livelihood Outcomes

A case study of rural livelihoods in Bang Khlong Bong Pattana

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Declaration

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Abstract

Two prominent ideologies are present in the Thai rural governance structure: The Sufficiency Economy, which promotes a self-sufficient life, and the Rural Revitalisation program, which aims at restoring the rural area by attracting younger generations. In the village of Bang Khlong Bong Pattana these two ideologies are at play. The Rural Revitalisation program enabled a redistribution of 2.5 rai plots of land, which created a *Sufficiency Economy Settlement* within the village. In doing so, the program lead to the formation of four social groups, with significantly differing livelihood strategies and outcomes (i.e. agricultural practices, income). In order to understand these differences, the *Sustainable Livelihood Framework* was applied as we looked at the potential explanation of natural, social, and human capital in explaining the differences between the four social groups. While our research is situated within the field of social sciences, both natural and social methods were used during the fieldwork to have an interdisciplinary approach. A mix of semi-structured interviews, questionnaires, GIS, focus group, and statistics were used in order to collect both qualitative and quantitative data. From the research it appears that knowledge (measured by education and other forms of knowledge) are the two primary factors explaining the discrepancies between the four groups. Furthermore, this research shows the potential limitation of the Sufficiency Economy as people, independently of their income, rely on a wide range of activities for generating income rather than solely on income generated from their land.

Keywords: *Agriculture, Education, Knowledge, Sufficiency Economy, Thailand*

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Abbreviations

BKBP	Bang Khlong Bong Pattana
CI	Critical Institutionalist
FAO	Food and Agriculture Organisation
GDP	Gross Domestic Product
GIS	Geographical Information System
GPS	Global Positioning System
IS	Incubation Student
NGF	New Generation Farmer
NGO	Non-Governmental Organisation
NTFP	Non-timber forest product
Q	Questionnaire
SLF	Sustainable Livelihood Framework
SLUSE	Sustainable Land Use and Natural Resource Management
SPG	Land Reform Office
SS	Special Student
SSI	Semi-Structured Interview
SQ	Sub-question
SY	Sor Yor
TC	Thai counterparts

Contents

1. Introduction

Thailand is an upper-middle income country situated in south-east Asia. Despite its continuously changing and unstable political environment, as well as the setback of a number of financial crises, the country has gone through a prosperous wave of economic growth in the second part of the 20th century, continuing to the present day (Asian Development Bank, 2015). Agriculture played a major role in this, and even today the sector occupies over 43 percent of the country's total land area (FAO, 2019). Technological change during the Green Revolution further accelerated growth in agricultural output, eventually enabling Thailand to become a net exporter of food products (Isvilanonda and Bunyasiri, 2009).

However, as the country has continued along its successful development path, the importance of agriculture for the national economy has declined. While in 1980 the sector accounted for over one-fifth of Thailand's GDP, by 2007 its share was less than one-tenth (Isvilanonda and Bunyasiri, 2009). Such a shift from an agriculture-based society towards one centred around industrial expansion is a common trend in countries' economic development and can have large impacts on the spatial-demographic composition of a nation (Huffman, 2001). Indeed, between 2012 and 2016 Thailand experienced an increase in internal migration, with rural to urban migration accounting for a majority of this movement (Kumar et al., 2018). Furthermore, as the country is focusing its agricultural sector on maintaining and improving its export capacity by focusing on single export crops like rice, maize or oil palm, there is a growing issue of food insecurity at the household level, particularly in rural areas (Isvilanonda and Bunyasiri, 2009).

Simultaneously and somewhat in opposition to these trends are two interrelated ideologies, prominent in the country's governance structure: *Sufficiency Economy* and *Rural Revitalisation*. The Sufficiency Economy philosophy was formulated by the late King Bhumibol, and promotes a modest lifestyle, where needs are met by the self (Sachayansrisakul, 2009). For agriculture, such a philosophy means prioritising subsistence farming over cash cropping and enabling people to meet their livelihood needs with the land they own or have access to. Furthermore, the Thai government also recognised the issue of ageing rural residents and the declining interest of young people to pursue an agricultural career path. In response, there are various governmental programs promoting rural revitalisation, either through land distribution, improved use of technology or lifelong learning initiatives (Mekdum, 2015).

Our field site, the village of Bang Khlong Bong Pattana (BKBP) is an excellent example of the interplay between these national trends and promoted ideologies. Between 2006 and 2013 the village has experienced a land redistribution program in part to alleviate poverty and in part to revitalise the area. The project entailed the redistribution of 2.5 rai (0.4 ha) sized plots to households in four distinct social groups with diverse backgrounds. While the received amount of land was the same for each household, it is evident that there is a significant difference in how people can use and benefit from this land.

Therefore, our research aims to better understand and to identify the factors responsible for these differences, through employing both natural and social science methods. Following a process of elimination by triangulation, we put special emphasis on the role of knowledge as a crucial human

capital in mediating people's ability to use and benefit their agricultural plots adequately and efficiently. As such, our report works with the following research question:

Why is there a difference in livelihood strategies amongst Bang Khlong Bong Pattana's four social groups?

We approach this question through the following sub-questions:

SQ1: How does people's geographical proximity to natural resources explain their agricultural practices?

SQ2: What is the role of social capital in people's livelihood outcomes?

SQ3: How is knowledge and education a differentiating factor for the villagers' livelihood outcomes?

The report is divided into five sections. Chapter 1 presents the conceptual framework used for our research. Chapters 2 and 3 outline the methods we used and our overall results. In chapter 4 we present a discussion of the limitations of the research and situate our results within our theoretical framework. The report concludes by arguing that a difference in educational levels, knowledge and access to information is the most crucial factor in explaining varied livelihood outcomes. Furthermore, our results feed into a broader policy analysis of Thailand's efforts at implementing the ideologies of Sufficiency Economy and Rural Revitalisation. As such, we attempt to assess the State's success of helping people meet their livelihood needs through the land allocated to them, and of revitalising rural areas with young farmers.

1.1. Study Site

Situated in the Wang Nam Khiao District of Thailand's Nakhon Ratchasima Province, the village of BKBP is comprised of approximately 500 households (Figure 1). Almost exclusively built around an agricultural economy, the village is divided into two larger sections: a so-called modern area (also referred to as the *Sufficiency Economy Settlement*) primarily engaged in organic farming, and a traditional area focusing on chemical-intensive mono-cropping. The modern area is home to approximately 300 households farming on the 2.5 rai plots distributed by the government, as well as a communal farming plot and a community forest; while the much larger traditional area is used by around 200 households each farming on lands sized between 5-15 rai. Our research focuses solely on the modern area, both due to time limitation and the practical comparability of livelihoods due to the uniform plot sizes. Villagers here grow a wide range of crops, including coffee, bamboo, salad vegetables, as well as fruits including mango, durian and jackfruit. There appears to be an overall challenge of water scarcity, soil infertility and indebtedness (Headman SSI, 2019; SLUSE Field Description, 2019).

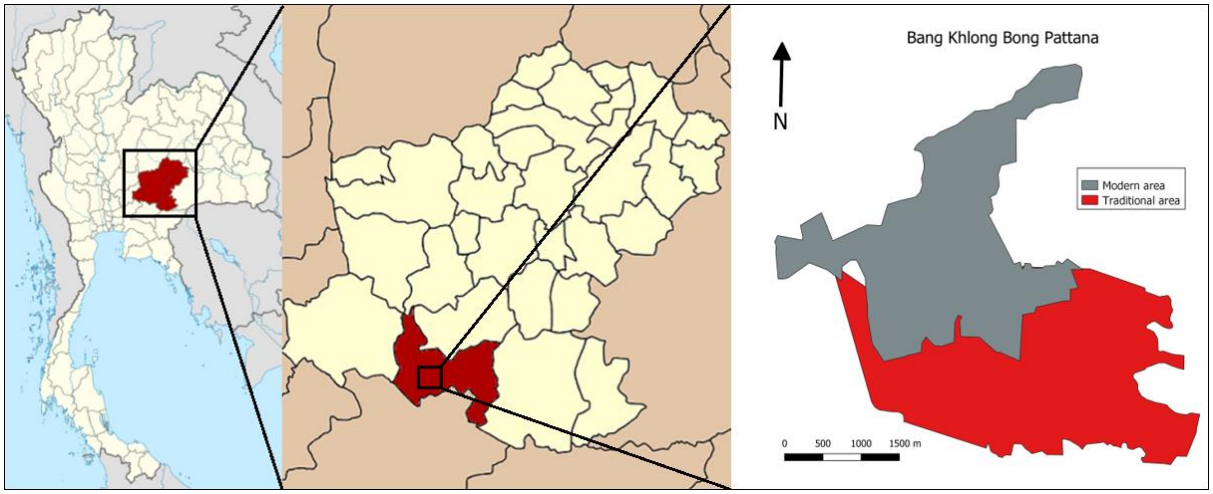

Figure 1: The location of the study site of Bang Khlong Bong Pattana

2. Conceptual Framework

2.1. Defining the main concepts

Overall, our research uses the concept of *livelihoods*, based on the definition provided by the Sustainable Livelihoods Framework (Figure 2). The SLF emphasizes five relevant forms of assets that people own: physical (i.e. tools, machinery), social (i.e. connections, group affiliation), human (i.e. education, knowledge), natural (i.e. land, water) and financial (i.e. income, savings, pension) (Ellis, 2000). However, as Ellis fails to put strong emphasis on the role of social capital, we build on Bourdieu (1986) to regard it as a capital not only available as a collective good, but also as accessible to people in specific individual contexts, backgrounds and group settings (p.241).

Ellis (2000) further notes that simply taking stock of assets would not yield an adequate picture of livelihood strategies. A sufficient analysis requires a consideration of the social relations, institutions and organisations, as well as the trends and shocks (i.e. drought, migration) that modify access to these assets (p.30). Furthermore, in our research we go beyond the SLF and consider a Critical Institutionalist (CI) approach. Critical Institutionalists argue that the practical lure of the SLF 'dilutes its theoretical essence' and leads to a neglect of institutions' role in field-based analyses (Jakimow, 2013). We consider this by investigating the role of land titles, local community groups and local-, district-, and national governance systems in livelihood strategies in BKBP.

Ellis (2000) further distinguishes between two distinct *livelihood outcomes*: those affecting livelihood security (i.e. income) and those affecting environmental sustainability (i.e. soil and land quality) (p.30). He notes that while achieving the former is usually a clear objective of livelihood strategies, the latter may or may not be one (Ellis, 2000). Building on the assumption that environmental sustainability is not necessarily an intended outcome of BKBP's villagers, we define livelihood outcomes solely in terms of *income security*. When assessing income, we include agricultural profits, off-farm wage income, as well as pensions, remittances and other financial support (Curtis, 2018).

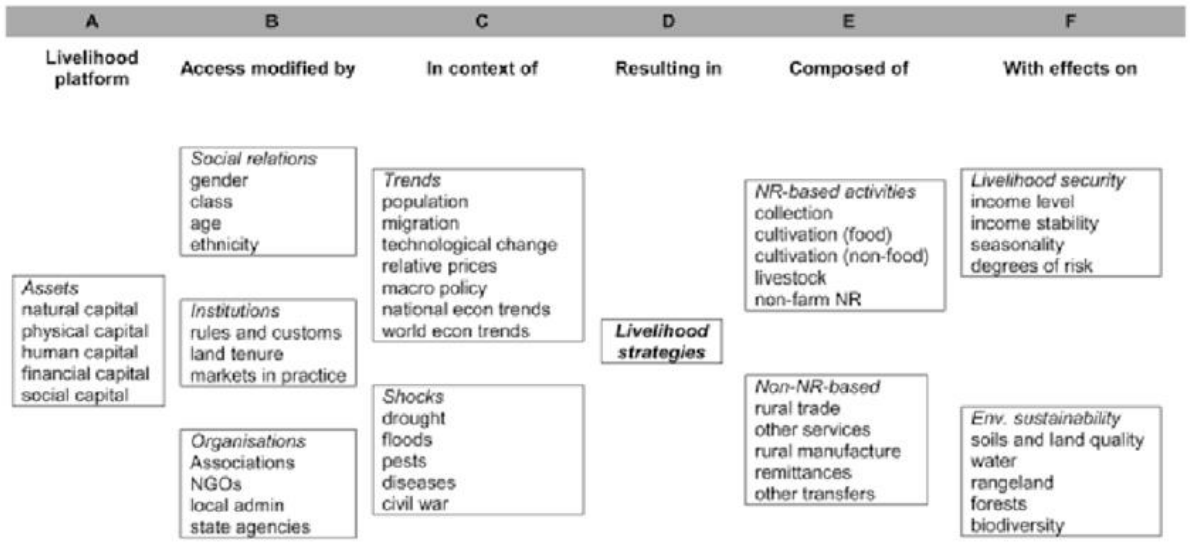

Figure 2: Ellis's Sustainable Livelihoods Framework (Ellis, 2000)

2.2. Knowledge, Education and Rural Livelihoods

While keeping in mind the importance of all the above factors in creating a holistic understanding, we also acknowledge that specific case-based contexts in which livelihoods exist make certain forms of capital or mediating factors more significant than others. According to Huffman (2001), education and knowledge are 'considered to be the most important forms of human capital' (p.335). Preliminary information and in-field research suggest that in BKBP there is significant variation in households' educational attainment, but also knowledge regarding agricultural practices and market access. As such, our main conceptual framework is centred around knowledge and the assumption that knowledge and education are key in explaining the difference in successful livelihood outcomes. Huffman's (2001) work on the relationship between education and agriculture, as well as empirical evidence from cases around the globe provide useful theoretical support for this end.

In accordance with Huffman (2001), we work with *one-period static agricultural household models*, where the focus is on how the human capital obtained by households (in this case knowledge and education) impacts other livelihood outcomes, such as income levels, land use strategies or non-farm diversification. While education is usually measured in years of formal schooling, the term *knowledge* can comprise a much broader set of variables, including, but not limited to, experience from learning-by-doing and knowledge sharing (Smith, 2002; Huffman, 2001). While the importance of schooling versus experience changes based on specific agricultural contexts, there is overarching evidence that more of either is beneficial for raising agricultural productivity, efficiency, and profitable livelihood choices (Huffman, 2001, p.346).

On a national scale, Reimers and Klasen (2013) note that as states develop and transform traditional agricultural models through modernisation, the impact of education on agricultural productivity increases. One possible explanation for this is that an increase in knowledge leads to specialisation and skills acquisition, which tends to promote technological change and raise worker productivity (Huffman, 2001, p.334).

The positive consequences of increased education and knowledge are also manifold for individuals and households. Investigating schooling levels and agricultural production in Nepal, India and Peru, Foster and Rosenzweig (1996), Pudasaini (1983) and Jacoby (1993) found a positive and significant correlation between years of education and farm output. More knowledge also appears to be crucial in facing climatic and economic fluctuations, by enabling farmers to create better adaptation strategies in times of uncertainty (Lin, 1991; Strauss et al., 1991). Additionally, as the share of agriculture in nations' GDP declines and technological change reduces the size of the labour force required, rural residents are pushed to find other off-farm income sources. Huffman (2001) found that additional education increases individuals' ability to nurture diversified livelihood strategies and find profitable income sources in off-farm environments (p.354).

As the beneficial impacts of increased knowledge levels and education become apparent, an important question to ask is *how knowledge is acquired*. This aspect of the conceptual framework is necessary, because it reconnects this single asset with broader social and institutional factors. It also allows us to operationalise our theory, by focusing on three interrelated ways of knowledge acquisition: schooling; learning-by-doing; and knowledge sharing. While schooling in most cases is provided by the state, it is difficult to trace inequalities in access, making years of formal education the most straightforward measurement tool.

However, learning-by-doing and knowledge sharing requires the mobilisation of certain social and human assets, making its measurement cumbersome, but useful. For instance, Foster and Rosenzweig (1996) found that farmers in India benefited equally from learning-by-doing as from learning-from-neighbours, when adopting high yield variety seeds. While knowledge sharing is often informal and facilitated by individuals, institutions can also play a significant role in the form of community groups, specialised workshops or extension services (Lockheed et al., 1980).

As such, we try to measure these latter two types of knowledge through participation and membership in community groups, where knowledge about market access, cropping advice, and tackling water scarcity and soil fertility are commonly shared. We also measure learning-by-doing through qualitative questions regarding people's previous land-use and attendance of practical courses, which can indicate previous and acquired experience. Lastly, while our data primarily relies on quantitative data on schooling, we believe that using formal education as an indicator can help us differentiate between the livelihoods of different groups.

3. Methodology

We began our field research by trying to understand the local context using two semi-structured interviews (SSIs). It gave us information on the organisation of the village, its history, and its social dynamics. One overall result from this method was that the village is composed of four different social groups and that there seems to be a significant difference between the livelihood outcomes of these groups. Hence, to understand these diverse characteristics we decided to use "method triangulation". Method triangulation "involves the use of multiple methods of data collection about the same phenomenon" and allows gathering a complete understanding of the topic (Carter et al., 2014; p. 545).

3.1. Semi-structured Interviews

We conducted ten SSIs: five with villagers, two each with the village Headman and the director of the land reform office (referred to as Sor Por Gor (SPG)), and one with a village committee representative. Initial SSIs served to gain an overall understanding of the village, including its history, land use, cropping information and villagers' groups. We also used this information to design the questionnaire. Based on the results of the initial SSIs and the questionnaires, we conducted follow-up interviews with the SPG official to ask questions about their role in the land redistribution, its history, as well as the apparent income gap between four groups. We also conducted three follow-up SSIs with villagers about their agricultural knowledge, knowledge sharing, and the three-month agricultural course provided by the government.

3.2. Questionnaire Survey

We used questionnaires to investigate the livelihoods of the households in the modern area. We gathered 32 responses of the 200 households present. Our respondents included 15 men and 17 women with an average age of 50, with a proportionate distribution of respondents amongst the four social groups. We conducted pilot-testing with two households and found some inadequacies and two more questions needed to be added. The final questionnaire (see Appendix 10.3) consisted of 38 questions in three main sections: personal information, agricultural practices, and income. Furthermore, we added a qualitative focus to the questionnaire by having a few open questions. We wanted to get a representative sample of the four social groups. However, we could not obtain a list of village inhabitants and their group distribution. Therefore, we primarily used snowball sampling to enable group members to point us to associated group members. In order to achieve a balanced and spatially distributed sample, we sometimes had to employ convenience sampling methods.

3.3. Geographical Information System (GIS)

In order to understand the outcome of the land redistribution in BKBP and its complex composition, we created a map of the area in QGIS. We applied GIS to establish an overview of our study area in BKBP. As the focus in this report is the modern village, only this part was mapped in detail. The modern village was drawn on the basis of an old map published by Kaewyod (2014). A range of information was provided by this map including the 2.5 rai plots, community plots, water bodies, forested areas and roads. The map was georeferenced to geographical points in the village, and the information was then processed into individual data layers. We verified this information by comparing the layers to satellite images from google maps. Our Thai counterparts furthermore provided us with an elevation map, a map of the traditional village and zone division of the modern village. Terrain slopes and contour lines were derived from the elevation map.

In the field we collected GPS points from participants in our questionnaire. This information was important in order to locate the participants' household and their 2.5 rai plots in relation to water sources and hilly terrain. Closeness to water enhances the possibility for irrigation, while a steep terrain demands harder work, and is more prone to consists of rocky soils with a risk of being less fertile.

3.4. Focus Group

In collaboration with our Thai Counterparts we organized a focus group meeting in the modern area with 15 villagers (Image 1). We did so in order to deepen our understanding of the environmental and infrastructural composition of the village; the participants helped us confirm aspects in the area that we already knew of or identify aspects we hadn't been aware of previously. This was information such as location and use of the community plot, community forest, and water sources. They also strengthened our understanding of the zone division by drawing this into a map we had created and brought to the meeting – this data was further analysed in GIS. The villagers furthermore provided specific information on the development of the village in the past 50-60 years. This information was interpreted together with information we got from the interviews with the Headman, and the SPG officer and we were then able to develop a detailed timeline of the village history.

Image 1: Focus group

3.5. Statistics

We retrieved quantitative data from the questionnaires, in order to pursue correlation tests and student's t-test (also known as t-test) in R studio. The correlation tests enabled us to understand potential causal relationships between the four social groups and other variables such as income or education (Navidi, 2011). Using t-tests we sought to understand the potential different relationship between individual social groups with other variables. In order to do so, we assumed that the datasets all followed a normal distribution. However, due to the small sample size we did not test this.

4. Results

4.1. Narratives of the land redistribution

The following information is derived partially from SSIs with the SPG officer, the governmental institution responsible for implementing the land redistribution, and partially from SSIs with the village Headman, and villagers. This information is important for understanding the development and construction of the village, how the land redistribution happened and how the four social groups were formed during this process. From our interviews with the SPG officer and the Headman we learned that the village of BKBP has gone through a major development in the last 60 years (Figure 3). In the 1960s, people migrated to the area from neighbouring villages to clear the forest for agriculture.

However already in the 1970s, the soil fertility in the area had declined, and people returned to their original villages. From this point onwards, until the introduction of the land redistribution program, the migration process has been quite stationary.

A range of conflicting narratives paint a blurry picture of the origin of the land redistribution. According to the Headman, a political conflict over the land started in 2002 between two parties campaigning in the area. The general narrative concerns a soldier, supporting Thaksin, the prime minister candidate at that time. This soldier allegedly bought a large piece of land illegally with the intention of building a new golf course. This land was supposedly claimed back by the government and redistributed. However, according to the SPG officer, the narrative was just rumours initiated as a strategy to discredit Thaksin. In reality the land belonged to a company, and the land was bought and redistributed by the government as a strategy to alleviate poverty and revitalise rural areas.

In 2003 the land redistribution program was led by an NGO, however as they failed to execute it properly, this first attempt proved unsuccessful after two years. In 2006, the responsibility was given to SPG, therefore introducing the modern area. The main role of SPG was to provide land to people who applied – however, the purpose was not to increase the people's wealth excessively, but rather "make them have a sufficient life" in accordance to the Sufficiency Economy (SPG officer SSI, 2019). The SPG land titling system was introduced in 1975 along with the land reform, as a section under the Ministry of the Environment. It grew out of the need to distribute land that was formerly classified as forested area and illegally occupied by farmers. The aim of setting up SPG was to legalize farmers land use by providing formal land rights (Chankrajang, 2015).

During the early days of fieldwork, we learned from interviews with the Headman, SPG officer and a community representative that the villagers in the modern area are divided into four social groups; (1) Sor Yor (SY), (2) Incubation Students (IS), (3) New Generation Farmers (NGF) and (4) Student Special (SS) group. We further found that the groups are a product of the land redistribution process, which is part of a general rural revitalization project throughout Thailand (Mekdum, 2015). In 2006, SPG mainly focused on poverty reduction, and plots of 2.5 rai were primarily given to indebted people without land. As such, the first group of people that were allowed access to the area was the SY – a group of poor people that had either asked SPG for arable land or wanted to help reforest the area. In the following years the criteria for getting access to the land were revised several times.

From 2007-2009, a partnership was established between SPG and the Educational Institution in order to encourage students to work in agriculture. At the beginning of this period, the second group known as the Incubation Students received the 2.5 rai plots. These students came from all over Thailand, and had an agricultural education, providing them with a certain amount of knowledge within this field. Besides being agricultural students, the only requirement was that they did not own any land.

By 2008, SPG decided to tighten the criteria for applicants further by introducing an age limit from 20-45, followed in 2010 by a requirement for a minimum educational level of grade 12. This was to attract younger people and to ensure applicant's' ability to collect information from outside sources like the internet. Following these implementations, the NGF group was introduced. Many of these people originally came from urban areas (e.g. Bangkok), without any previous experience in agriculture, but with the required educational level of grade 12 to get the 2.5 rai plots. In 2014, the last wave of the

land redistribution occurred and a small number of highly educated agricultural students from Bangkok were given access to the 2.5 rai plots, making up the SS group. While studying at the university, they did a project on SPG in the village, and were thereby introduced to the land redistribution. However, out of three students, only one succeeded in getting land.

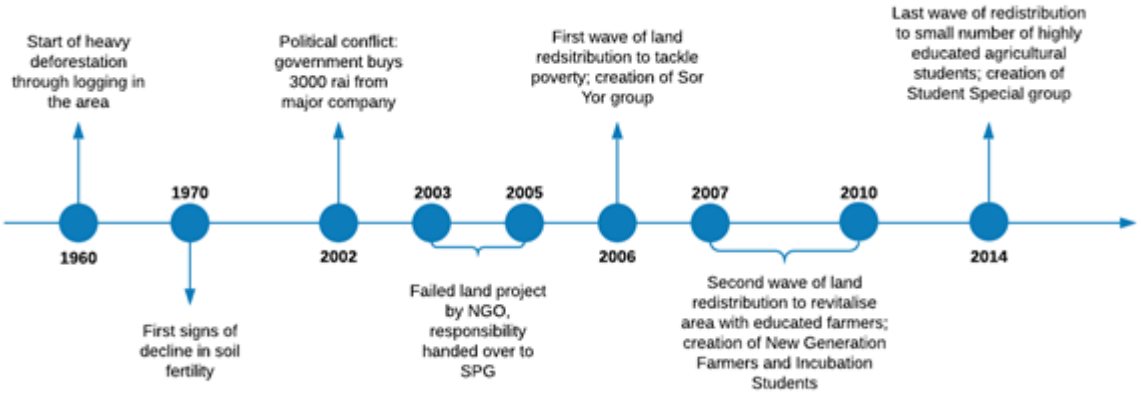

Figure 3. Timeline from SSI and Focus Group

In order to receive the land, all applicants had to be evaluated and to follow a specific set of rules for using this land (table 1). Before being entrusted with the land and receiving the SPG right, the applicants had to pass 60% of these rules. During this process, the inspector would evaluate their effort once every three months. If the rules were not respected, they did not receive the land.

Table 1: List of rules to be followed by the applicant in order to receive the land

Categories	Rules
Producing agricultural products	1. You have to manage your own land, but hiring labour is allowed
	2. You have to plant multiple crops
	3. You have to grow short term products
	4. You have to have work four out of seven days on your land
	5. You have to do the household accounting on a daily basis
	6. You have to have enough income from the land
Living requirements	7. You have to have an official house to live in
	8. You have to have proper toilet facilities
	9. You have to stay there regularly
	10. You have to plant vegetables for subsistence

4.2. Geographical description of the modern area

The modern area in BKBP is a result of the land redistribution process described above. The outcome of this process is illustrated in figure 4. In total, the modern area covers 3832 rai. Of these, 700 rai was designated for the 2.5 rai plots, 300 rai for roads and water resources, 50 rai for community plots, and larger areas not suitable for agriculture, were set aside for a community forest. A large governmental forested area divides the modern village into two separate sections. Most households are located south of the forest, along with the community plots and the majority of community forests. However, some households are also located north of the forest. The southern part is readily accessible and is well-connected due to an efficient road network. However, this is not the case in the northern part where the few roads are crumbling and littered with potholes.

The village consists of five zones as defined by the SPG; zones 1, 2, 4 and 5 are centred in the southern part, while zone 3 is located more remotely in the northern part. Two criteria were decisive for the zone's location; (1) proximity to water sources, both in form of water bodies and groundwater and (2) suitability for agriculture (SPG officer SSI, 2019). A number of water bodies are scattered around the village – the largest are located near zone 1 and 4, and a few smaller ones are located in zone 3. The landscape varies throughout the zones; zone 3, 4 and 5 generally have very steep terrain with rocky soils, while zone 1 and 2 are much flatter with more loamy soils.

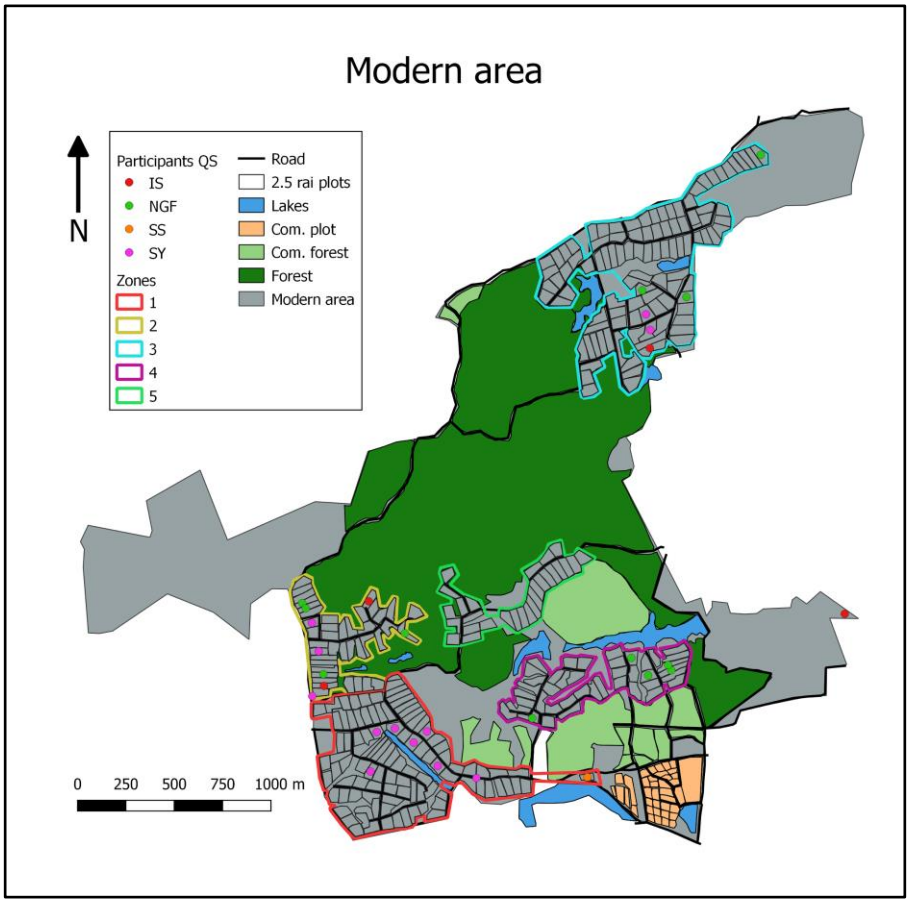

Figure 4: Map of the modern area of BKBP in 2019

4.3 Differences in livelihood strategies and outcomes

Our preliminary analysis in the field and questionnaire results showed us that there is a clear difference between the four social groups' ability to use and benefit from their 2.5 rai plots of land. This section first presents the main differences in livelihood strategies and moves on to introduce the varied outcomes.

In terms of farming practices, vegetables and fruits are the most important crops throughout the four social groups, followed by livestock keeping (Figure 5). However, our results suggest that as a group, SY farm practices are the least diversified (not considering SS, which consists of one person only and is therefore not comparable in this section). While this group mostly relies on three activities (fruits, vegetables and raising chicken), NGF and IS have a broader range of foci, including bamboo, coffee and aquaculture.

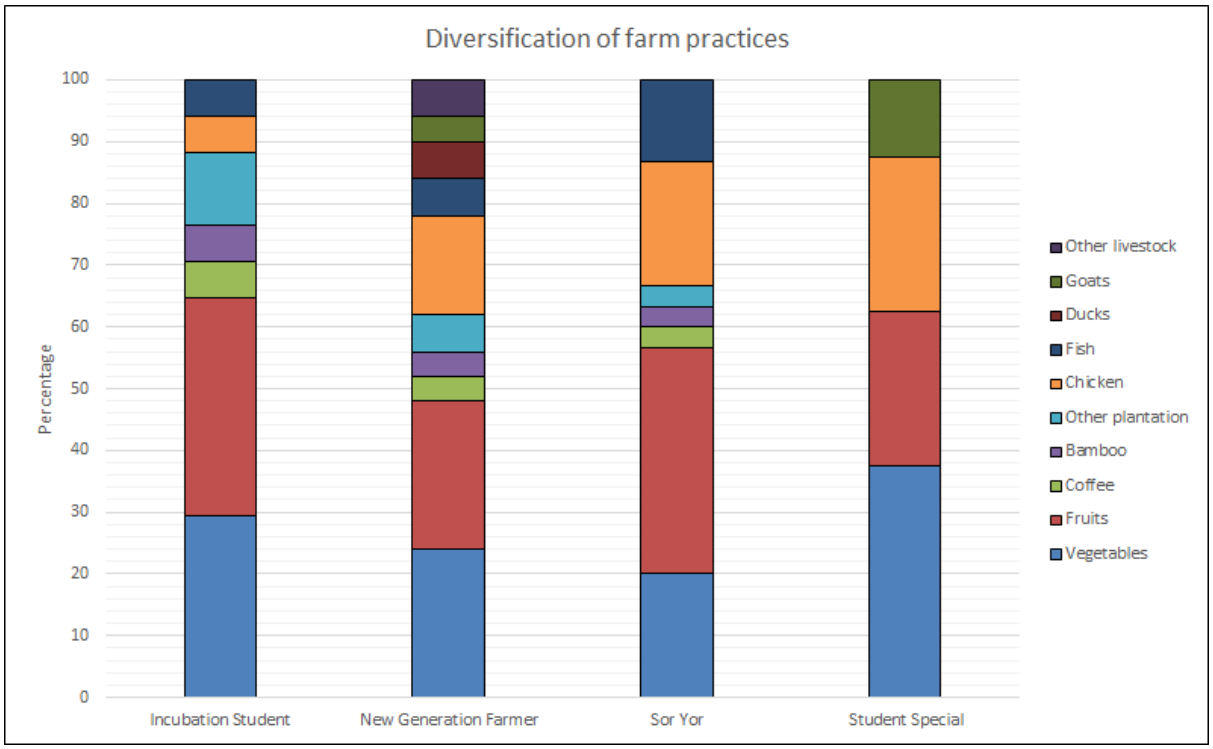

Figure 5: Graph of the different farm activities of the four social groups of BKBP (n=32)

Furthermore, by looking at off-farm income sources, Figure 6 shows that all social groups except SS diversify beyond agriculture. However, there are major differences in these type of income sources. For instance, while all three groups have a major off-farm labour component, a qualitative focus in our questionnaire yielded that SY are engaged mainly in low-paid jobs (i.e. construction, garage work, seasonal farm labour).

At the same time, IS are mainly involved in own businesses, act as middle men for market supplies or works as drivers, while NGF are involved in higher-paid off-farm work (i.e. policemen, community accountant). Furthermore, both NGF and IS own land elsewhere and derive income from this. In terms

of support, SY and NGF are both dependent on pensions, government aid and remittances. However, NGF seem more dependent on the latter, indicating a possible link between their income and family members living in Bangkok or abroad.

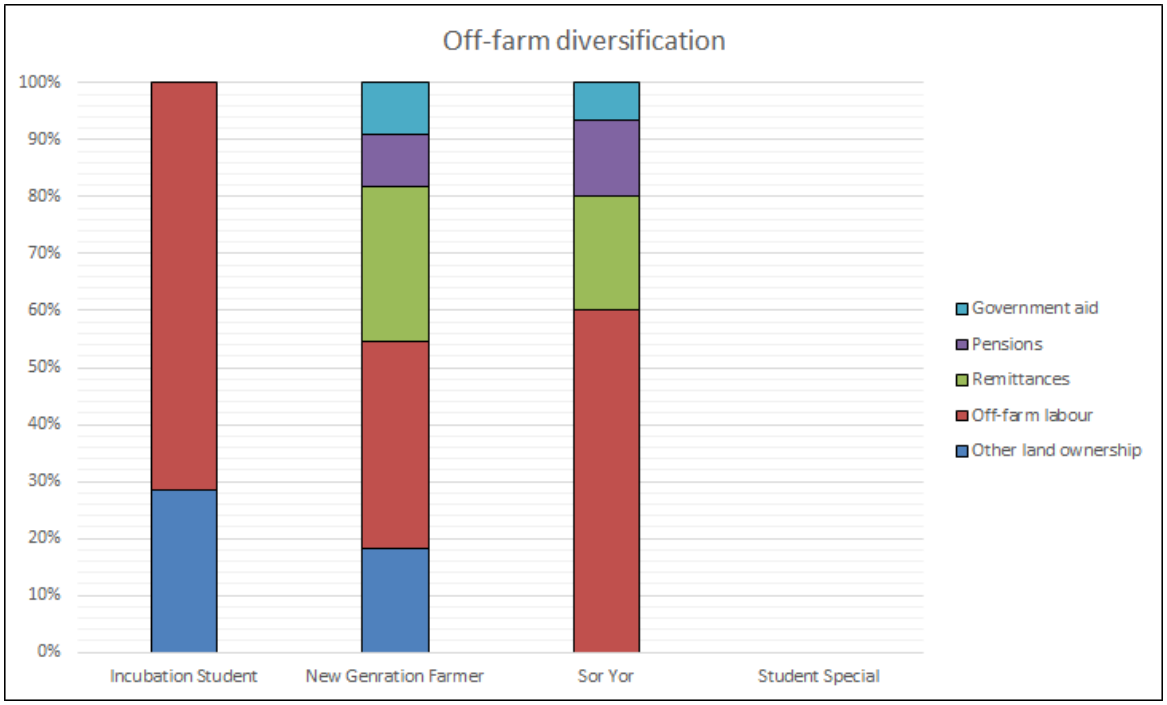

Figure 6: Complementary income sources to on-farm activities in the four social groups of BKBP (n=32)

The varied livelihood strategies that are apparent between the social groups translate into a highly diverse livelihood outcome. Figure 7 shows that our respondents' monthly income is widespread and that there are large discrepancies between the average group incomes. The lowest earning group is SY, who have an average monthly income of around 3.700 baht. While the NGF group is scattered more broadly, their average income is still almost double that of SY. The SS group is slightly lower than NGF, but this respondent is a freshly graduated student living alone and expressed that this income 'more than enough' (SSI SS, 2019). The IS group have an average income of 15000 baht, more than four times higher than SY.

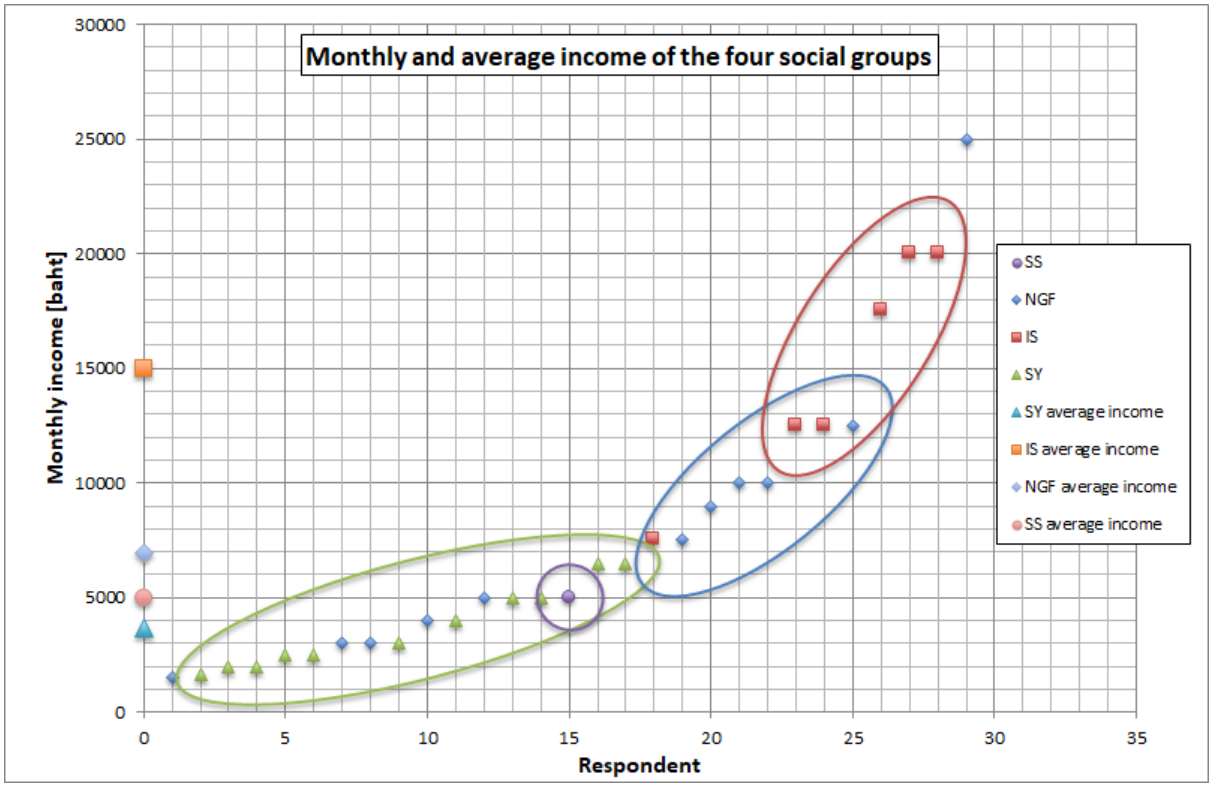

Figure 7: Scatter Plot representing the monthly and average income of the four social groups (n=32)

These differences are also supported by visual observations of living standards in the field (Image 2,3). SY often lived in basic wooden structures with tin roofs, and seemingly lacked maintenance. Water was typically collected in ceramic barrels, suggesting increased use of rainwater. On the contrary, NGF lived in concrete houses with tiled roofs, and had modern pumps and irrigation systems. When visiting the SS, we saw a concrete house located close to a pond, surrounded by greenhouses and fields. Unfortunately, we were unable to visit an IS in person as they were often working away from their land. These observations are used solely for the purpose of illustrating the group differences. They were not done systematically and are therefore not part of our methodology.

Image 2: Housing structures of Sor Yor (left) and New Generation (right) respondents

Image 3: Greenhouse of the Special Student respondent

4.4. Potential Explanations

In an attempt to explain the reasons behind the stark differences between the four social groups, we focused on three potential explanations, based on conversations with our interviewees and questionnaire respondents. In this section we present and analyse the role of natural capital and infrastructure, social capital and the human capital of education and knowledge.

4.4.1. The role of natural capital & infrastructure

Our initial assumption was that there is a difference in the social groups' geographical proximity to natural capital and infrastructure. In order to answer **SQ1**, we combined the use of GIS, SSIs and questionnaires. In the modern area, water scarcity and low soil fertility are the main issues (see Figure 8). Since soil fertility is very much linked to the slope of the land, we also considered this aspect. In addition, since there is a large community forest in the area, we also investigated its role in

households' livelihoods through the extraction of *non-timber forest products (NTFP)* (Vedeld et al. 2007).

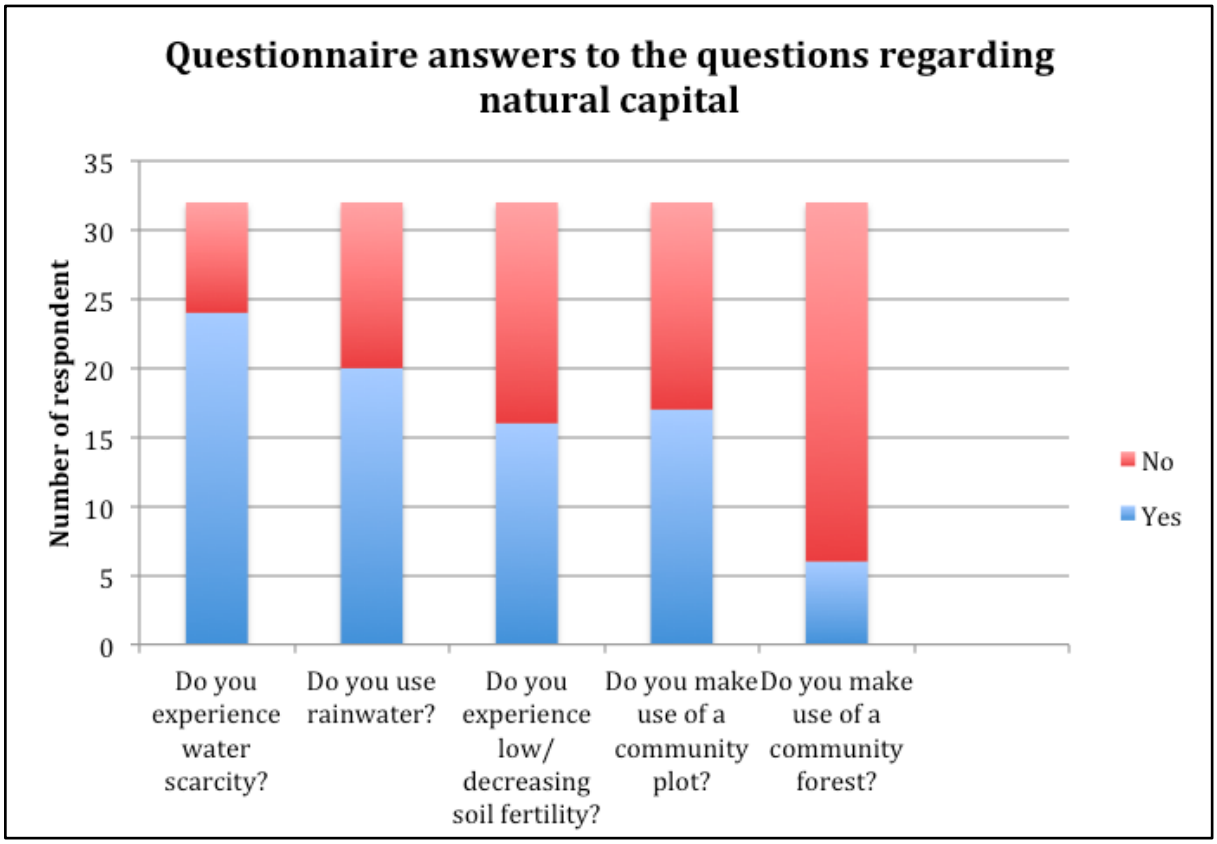

Figure 8: Chart representing responses to questions regarding natural capital (n=32)

Water scarcity and soil fertility

Water shortage is experienced by all four social groups, mainly during the dry season (November-April) when water sources are prone to drying out (Figure 9). The period of the water shortage varied between a few days to a few weeks a year. Notably, IS seemed to experience this issue to a lesser extent than the other three groups. Using R Studio, a correlation test was established, and no correlation was found between the social groups and the incidence of water scarcity (r=-0.09).

Furthermore, 38 percent of people who do not experience water shortage told us that the reason behind it was their location in relation to water sources, indicating the possible importance of location (two NGF, one IS). Using GIS, we observed that zone 1, 3, 4, 5 are located close to water sources and are inhabited by members of all four social groups (Figure 4). While zone 2 is located furthest away from larger lakes, and the villagers in this area only have access to small ponds, here too respondents belonged to a variety of social groups. Therefore, there seems to be no connection between the social groups and their proximity to water resources.

Interestingly, respondents deal with this challenge in different ways. While many use rainwater (62.5 percent of our respondents), this water is mainly used for the household's consumption and rarely for agriculture. One of our respondents invested in water pumps (NGF); one switched cultivation to species requiring less water (IS) and two did not water their plants (SY).

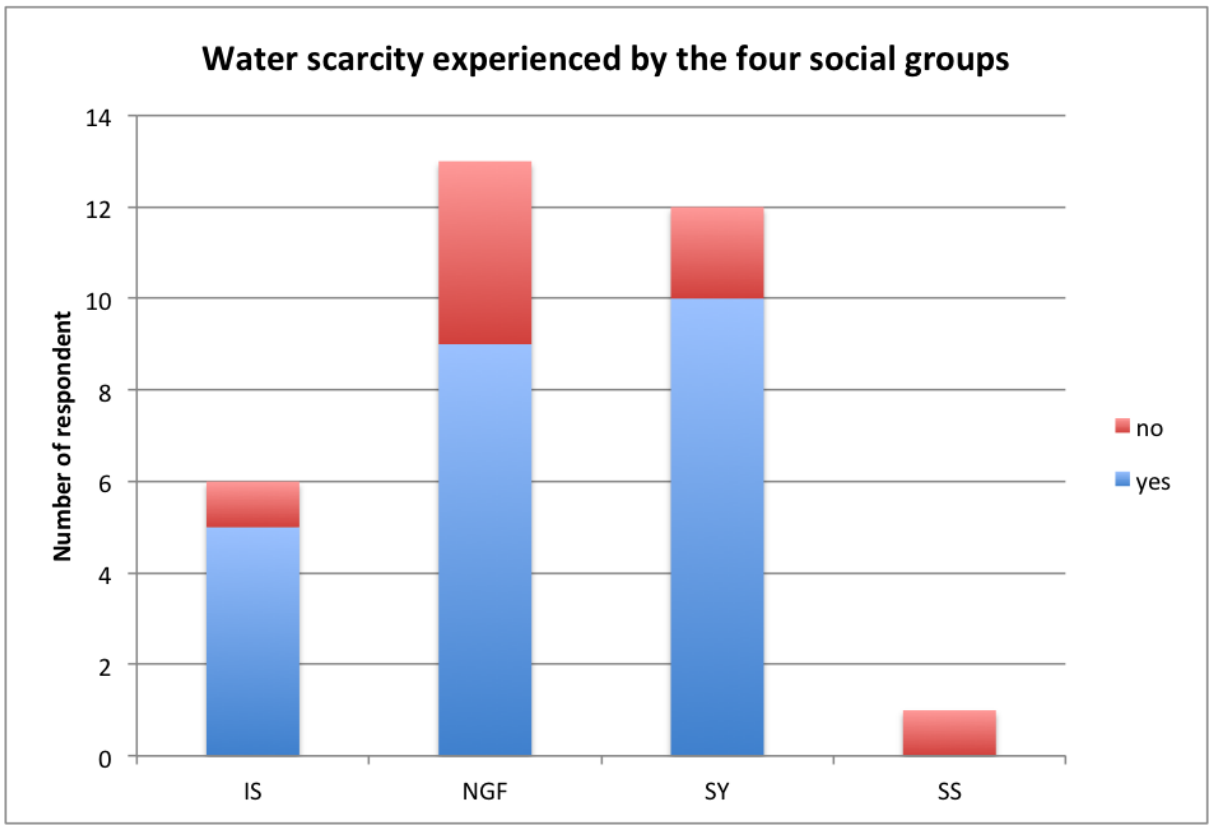

Figure 9: Chart representing the water scarcity experienced by the four social groups (n=32)

The problem of soil fertility arose because of the deforestation undertaken in the area in the 1960s (Headman SSI, 2019). Because of the hilly environment of the village, the soil is very rocky and there are large variations in soil fertility between and within farmers' plots (NGF 1 SSI, 2019). For our respondents, rocky soil was the main reason leading to soil fertility issues. Figure 10 shows that this problem is faced by all social groups, without strong discrepancies among them. We used R Studio to see if there was a correlation between soil fertility issues and the social groups. The test came back negative (r=-0.07).

Furthermore, we created an elevation map of the modern area in order to see if there is any connection between the social groups and the slope of their land (Figure 11). Zone 1 and 2 are located in a relatively flat terrain, while zone 3, 4 and 5 seem to be hillier. However, as there are representatives of each social group in these types of terrains, we did not find that either more disadvantaged than others. Accordingly, plot location could not explain the difference in our respondent's ability to use and benefit from their 2.5 rai plots.

Individually, in order to tackle these issues, five respondents (one SS; two NGF; two SY groups) said to apply organic fertilisers, which they noted is improving the soil fertility. Furthermore, one respondent (NGF) applied terracing to be able to cultivate on the slopes and prevent nutrient runoff.

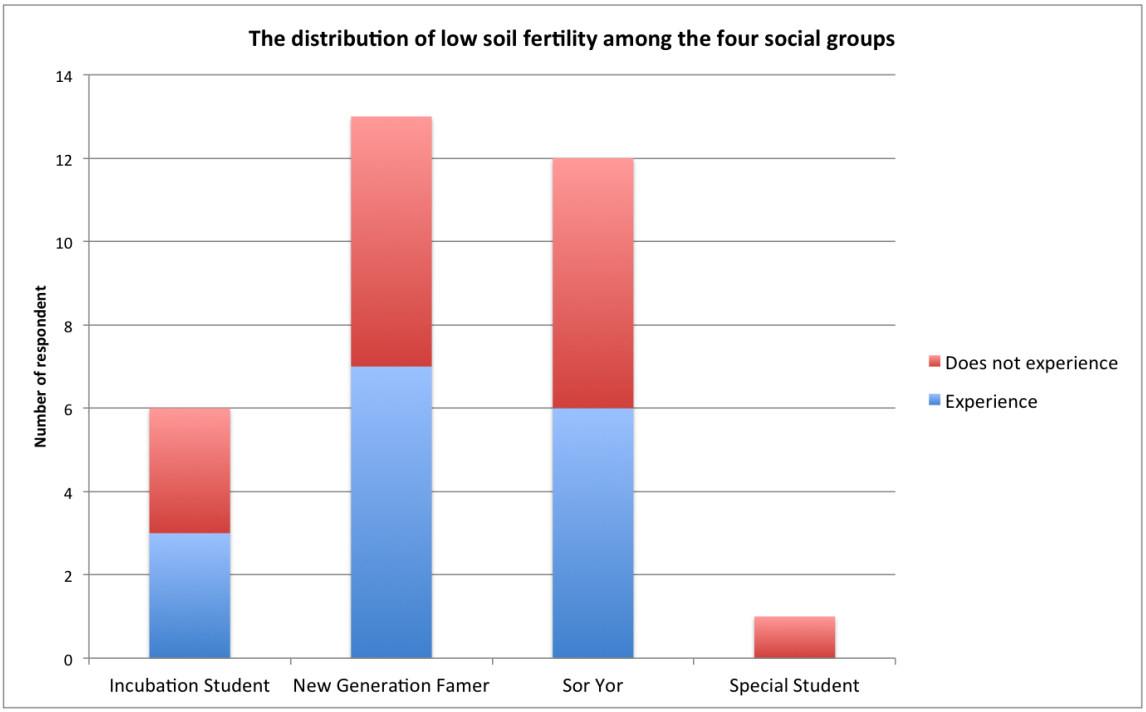

Figure 10: Chart representing the distribution of low or decreasing soil fertility among the four social groups (n=32)

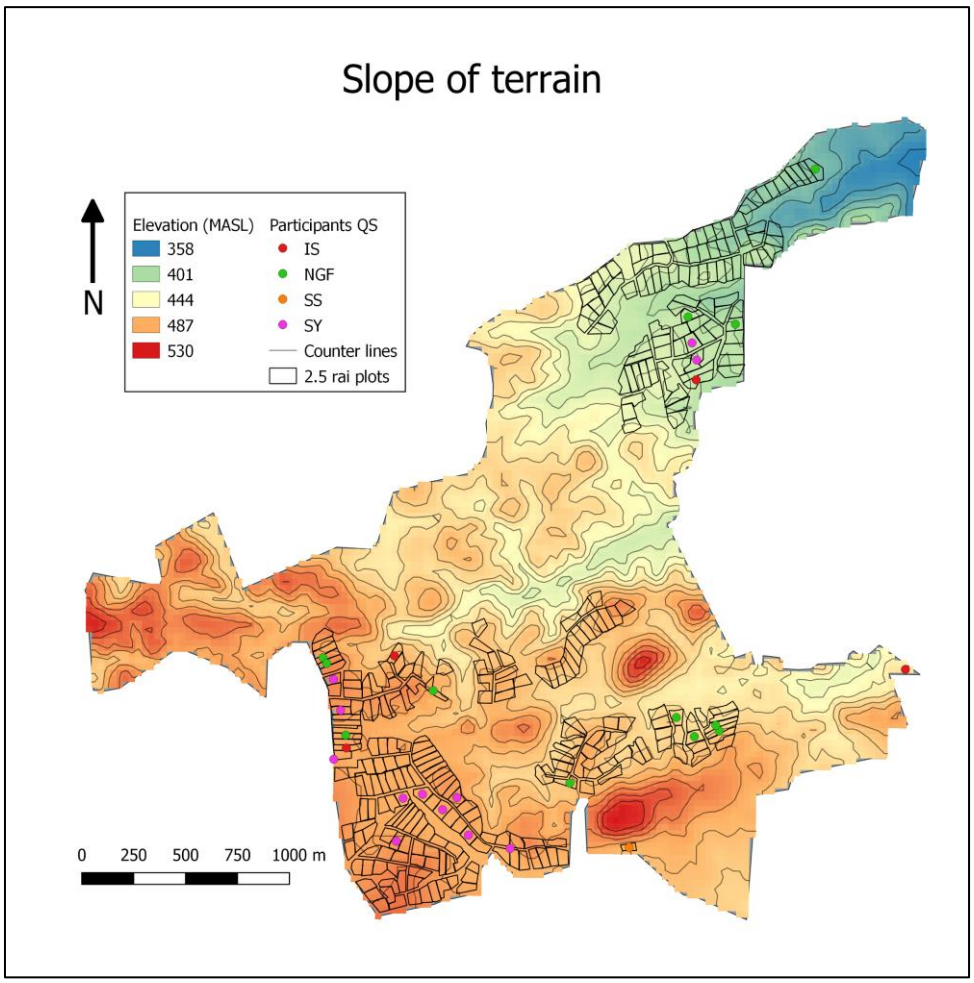

Figure 11: Map of the slope of the terrain in BKBP in 2019

Community forest and infrastructure

While in theory community forests can represent a strong natural capital (Charoensuk et al., 2018), villagers do not seem to rely heavily of NTFPs. 12 respondents specified that they merely partook in the replanting process. Five use the forest by collecting NTFPs or growing and harvesting products; one respondent explained that she grows herbal medicine that she then sells on to the local hospital (NGF); two people grows coffee and bamboo under the forest canopy (NGF), while two others collects mushrooms (SY). However, overall there seems to be no correlation between the four social groups and forest use (r=-0.25).

Additionally, the quality of the roads varies throughout the modern area. This is especially the case in zone 3 in the northern region, where the roads are in need of restoration. Villagers in this area expressed frustration regarding poor electricity supply and complained about the lack of responsibility from the SPG office in fixing these problems. However, we did not find any connection between these problems and the social groups, as members of each group are living in both the southern and northern region (Figure 4).

In conclusion, our data confirms the existing challenges of water scarcity and soil infertility. However, due to the random spatial distribution of our respondents, we did not find any statistically significant correlations between these challenges and the four social groups. Therefore, these challenges cannot serve as potential explanations for the varied livelihood outcomes. These results were further confirmed by our knowledge that lands were distributed equally and randomly between the social groups (SPG SSI, 2019).

4.2.2. Social capital as a potential explanation

Another potential explanation for the stark difference in the social groups' livelihoods is that *'those with stronger social capital have a better livelihood than those with weaker social capital'.* The following information is derived from interviews with the Headman, the SPG officer and questionnaire results and addresses **SQ2** in particular**.** We based our understanding of social capital on Angelsen et al.'s (2011) categorisation of tangible (i.e. formal and informal groups) and intangible (i.e. kinship, trust, neighbours) relationships (p.79), which people draw upon to pursue their livelihood objectives (p.74).

Under tangible relationships we specifically understood people's participation in various community groups and meetings, which could be a good outlet for gaining market access, creating beneficial (trade) partnerships and receiving information regarding agricultural practices. We understood intangible relationships as neighbour connections and prior contacts in the village before they settled, which could indicate a stronger social safety net and smoother integration (Bourdieu, 1986).

Social capital through group participation

Tangible social participation in the modern area happens in three different arenas: through membership in specialised groups; through a monthly community meeting; and through trimestral representative meetings.

SPG created the following 12 specialised groups upon villagers' requests: rice-, goat-, cattle-, compost-, coffee-, stores-, organic-, earthworms-, big plot plants-, herbs-, and vegetable-group. Furthermore,

it appears that further groups were created through bottom-up initiatives, such as the agroforestry-, bamboo-, or new leader groups.

An overall purpose for these groups is to share information regarding tillage, cover crops, soil fertility improvement, planting techniques and tackling water issues (SY 1 SSI, 2019; SS SSI, 2019). Moreover, 25 percent of our respondents said that they sold their products through one of the groups, showing the increased market access potential through group participation. A majority of all social group members belong to a specialised group, as only 12.5 percent of respondents declared that they did not belong to any. These results suggest that social groups are represented equally across these specialised groups. Therefore, one does not appear to benefit more from membership than others.

The monthly community meeting is attended by one representative of each of the 12 groups and SPG officials (SY 2 SSI, 2019). The trimestral meeting is joined by the Headman, ten elected representatives each of the modern and traditional areas of the village (Headman SSI, 2019). Both these meetings are generally used for communicating problems faced by the groups (e.g. electricity shortage) and making general announcements (e.g. arrival of Danish research students). Of our respondents, only six stated they were part of the ten representatives, one belonging to SY, one to IS, and four to NGF. While these meetings may prove useful to the representatives by establishing stronger connections, the low participation levels by the general public suggests there is no correlation between social group membership and social capital derived from these meetings.

Social capital through personal connections

One reason suggested by the SPG officer for the difference in livelihood outcomes between the social groups was that newcomers had a difficult time adapting and integrating into the village. By asking respondents about their prior connection with the village, we tried to understand the ease of their integration and if it varied between the different social groups. Our hypothesis was that if newcomers knew people, they would more easily be accepted in the village and find a market for their products. However, we found no correlation between the fact that people had a contact in the village before coming and their income or their group ($r= 0.039$, $r= 0.02$, respectively).

These results do not suggest that social capital has no role per se in shaping people's livelihoods. For instance, one respondent stated that she is able to sell her vegetables at higher prices in Bangkok through her connection with a former university professor, while another can sell her products to Europe, New Zealand and Canada by knowing the 'right' middlemen (NGF 2 SSI, 2019). Furthermore, six respondents noted they have private loans, suggesting the role of social capital in potentially obtaining loans at better terms than government loans.

Neighbour relationships are also important for sharing information on agricultural practices or market access, although the potential in this varies between people. Information acquired through SSIs suggests that jealousy and conflict regarding this information is very present in the village (NGF 2 SSI, 2019). However, we found no evidence suggesting that these trends are shaped around discrimination towards particular social groups.

These overall results show that while social capital can have an important role in shaping people's livelihoods, membership to community groups, and the consequent social capital derived from these

is not a defining factor in explaining the difference in strategies and outcomes between the social groups.

4.4.3. Human capital and livelihood outcomes

'The main difference between Sor Yor and us is that we have experience and can apply knowledge.'
(Quote from NGF)

Narratives similar to the above quote motivated us to consider the difference in education and knowledge as the main explanation for the varied livelihood outcomes. By investigating the human capital of the villagers (as defined in 2.2) we sought to answer **SQ3**.

Years of education
Using questionnaires, we sought to understand the educational background of respondents and to investigate potential discrepancies in education between the four different groups. In order to be consistent, we assumed everyone followed the formal Thai educational system. This is composed of three years of kindergarten, six years of primary school, six years of high school, four years of bachelor studies, and one year of master studies (Scholaro, 2018). Through R studio, we conducted a correlation test to understand if there was a correlation between the social groups and their years of education. It appeared that there is a strong correlation (r=-0.60). We found that SY has the lowest years of education, while SS and IS have the highest. In order to further specify this result, we conducted t-tests, which further confirmed these results (Table 2).

Table 2: t-test data regarding the difference in education between the four social groups

	IS			**NGF**			**SY**			**SS**		
	Df**	t-value	p-value	Df**	t-value	p-value	Df**	t-value	p-value	Df**	t-value	p-value
IS				17	2.24	0.03*	16	5.60	3.96e-05*	5	-.037	0.72
NGF	17	2.24	0.03*				23	4.27	0.00*	12	-0.93	0.36
SY	16	5.50	3.96e-05*	23	4.27	0.00*				11	-2.26	0.04*
SS	5	-0.37	0.72	12	-0.93	0.36	11	-2.26	0.04*			

* p-value is significant for alpha=0.05
** Df= degree of freedom

Figure 12 compares the average educational years and average monthly incomes of the respondents. The figure supports that SY have the lowest average education and income levels. Looking for statistical significance, we found a correlation between these two variables (r=0.39). This correlation is moderate but considering our small sample size it may prove to be significant.

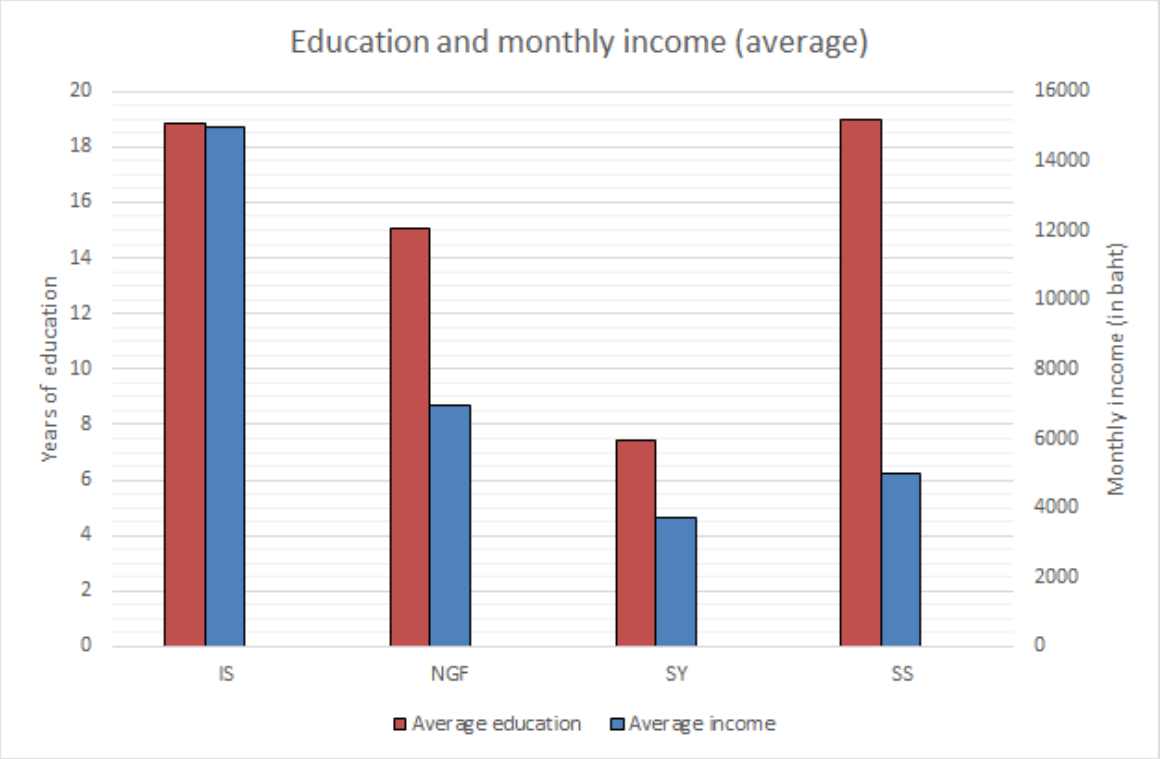

Figure 12: The average years of education and average monthly income level per groups in the modern area of BKBP

Government-provided knowledge, discrimination, and market access

These results made us wonder if previous education is the sole factor explaining differences between the groups' livelihoods. Preliminary SSIs showed that each person who received land had to follow a three-month course organised by SPG (NGF 1 SSI, 2019). According to the SPG officer, the course aims at teaching 'everything there is to know' about vegetable farming (SPG SSI, 2019). However, it appeared that the social groups did not receive the same course. Indeed, the SPG modified the course after seeing its limitations for the pioneer group (SY). Moreover, considering the low educational background of SY members, SGP did not include 'advanced' matters such as marketing as they thought it might be too complex for the group (SPG SSI, 2019).

When conducting interviews, one NGF respondent noted that the course is good in theory, but not so much in practice (NGF 2 SSI, 2019). Furthermore, one member of the SY group explained that 'students' are divided into groups, each learning about five different types of vegetables only. He also noted that the course lacked general information on crop resilience, sustainable water management and improving soil fertility. By focusing on the practical aspects of growing the five vegetable crops, the course neglected information on investment costs, seed prices and other important information. Various respondents noted that because of this, farmers need to learn and gain experience through trial and error, which can be costly and risky (SY 1 SSI, 2019; SS SSI, 2019). One respondent from the NGF group explained that his own agricultural background was more important than the knowledge he learned during the course.

We also asked three interviewees (SPG officer, SY 1, NGF 2) what they thought was the difference between the efficiency of SY and the three other groups. For the SPG officer the reason is '*their*

background, as less well-off people lack the skills and knowledge to develop agriculture'. For the SY it was because of the market fluctuation and for the NGF it depended on '*individual's goal for life and living conditions (such as the ability to school your children)'*. The NGF told us that some NGF never had agricultural experience before coming to BKBP but they were still able to use their land efficiently. For him, education, and ability to apply knowledge is important and will influence individual's income.

In order to cope with knowledge gaps in the village, SPG implemented the monthly community meetings with the SPG officials. However, as seen previously, in practice these meetings do not contribute much practical knowledge, or when they do, it seems that the advices given are contradictory and not exhaustive (SY 1 SSI, 2019). Some respondents also noted that there is jealousy regarding knowledge, which often prevented knowledge sharing (NGF 2 SSI, 2019; NGF 3 SSI, 2019).

Finally, we also considered the ability to access markets as type of knowledge-base. Through our qualitative research we found that more educated groups like NGF, SS and IS are able to target more niche markets in Bangkok and abroad. For instance, NGF and SS tend to sell their produce through cooperatives, while IS target consumers through Facebook and upper-class urban markets. In contrast, SY are primarily dependent on middle men and local markets.

Overall, our results show that there is a major difference in education levels SY and the remaining three groups. This difference is somewhat correlated with income levels, where SY members have a significantly lower average income than other groups. Furthermore, while the three-month course provided by the government seems to equip land recipients with an equal knowledge-base, interviews showed signs of discrimination in the type of knowledge received by the different groups and their ability to apply this knowledge. Additionally, knowledge-sharing within the community and between the social groups is somewhat limited by jealousy and conflicts, while market access also appears to be a differentiating factor. These results suggest that a difference in knowledge levels is one of the most crucial factors in explaining the difference in livelihood outcomes.

7. Discussion

7.1 Relating our results to the conceptual framework

One of the core principles behind the Sustainable Livelihoods Framework is the notion that rural livelihoods are increasingly dependent on a variety of income sources outside of agriculture (Ellis, 2000). Barrett (2001), notes that rural people can derive as much as 50 percent of their incomes from off-farm sources. Our results align with these observations, as over 75 percent of respondents indicated that they depend on an income source outside of farming. Naturally, a more detailed account of the sources and sizes of incomes (e.g. proportion of each income) would indicate the extent to which diversification and specialisation are strategies for 'survival' and profit-maximization, respectively.

However, the relevance of the SLF goes beyond this by highlighting the deeper, inter-community differences in rural settings, as well as the underlying factors contributing to these differences (Ellis, 2000). At first glance, the setting of BKBP could appear as a 'regular' village with differing livelihoods

amongst its residents. A deeper analysis reveals not only that the village is divided into two separate subsections with different agricultural practices, but that the 'Sufficiency Economy Settlement' subsection is further stratified into four social groups, each with different histories, backgrounds and capabilities. Furthermore, this division is the result of a State intervention, in the form of a major land redistribution process.

By focusing on different capital assets, we confirmed the existence of such inter-community differences and set out to understand the underlying reasons. Based on prior narratives of infertile soils and water scarcity issues, a logical first assumption was that people's relation to natural resources was a decisive factor in explaining the stark difference in their livelihood outcomes (Allison et al., 2004). Due to time limitation we failed to conduct edaphic and water measurements to get specific data on soil and water quality, but our results based on GIS mapping and qualitative methods indicated that while both soil fertility and water scarcity are recurring issues, they are not spatially limited to specific social groups.

Furthermore, it appeared that while all respondents face these challenges, some are able to cope better by applying organic fertilisers or investing in water pumps and irrigation weirs, which motivated us to look beyond natural resources. Investigating the closely intertwined concepts of social and human capital, we aimed to assess their importance by testing for correlations with livelihood outcomes. Bourdieu's (1986) categories of collective and individual social capital proved useful, and accordingly led us to investigate how people's belonging to community groups (as outlets for information exchange) and prior contacts in the village strengthened their abilities to create a sustainable livelihood.

In this aspect our results both aligned with and opposed our conceptual framework. While most respondents agreed that specialised groups are useful arenas for gaining information on agricultural practices and market access strategies, the distribution of membership was not significantly different between the four social groups. Furthermore, we found no correlation between prior social contacts and income levels, independent of social groups. Of course, social capital can be defined by broader variables and our results are therefore somewhat biased by our methods. For instance, we noticed that political spheres are very much present in the area (based both on the ongoing election campaign, and narratives of political rumours regarding the land redistribution). Therefore, looking at people's membership or affiliation to certain political parties might have yielded different results.

Following Huffman (2001), our final assumption was that a difference in human capital, specifically knowledge and education, could be the key to understanding the difference between the social groups' livelihood outcomes. Here we found positive correlations between the quantifiable variable of formal education and income levels, with the poorest group (SY) having an average schooling half that of the NGF group. We applied qualitative research to satisfy Huffman's (2001) and Smith's (2002) notions of knowledge as a broader concept than just formal education. In this aspect, our results were somewhat varied.

While it seemed that the SPG office was aware of the difference in educational level among the recipients of agricultural plots and therefore demanded that each recipient followed a three-month course, the courses offered differed depending on who followed them. Through making prejudiced

assumptions of the SY group's prior capabilities, their course provided them with basic agricultural practices, while the more educated NGF were taught innovative organic practices to tackle soil infertility. Furthermore, we considered market access as another type of knowledge and indeed found that the higher educated respondents are able to find specialised, niche markets, while SY rely more on community groups and middle men.

However, knowledge is a broad and ambiguous term. Indeed, a major limitation in our study is that we did not look deeper into the specific types of agricultural knowledge people depend on and could therefore not make significant comparisons between the groups' individual perceptions of important knowledge. In this regard, using Participatory Poverty Assessments (PPA) could have been a better strategy (Curtis, 2018). In PPAs respondents define and outline their prioritisation of crucial assets, rather than us imposing our targeted foci.

7.1.1 Broader policy observations

Overall, our results of looking at livelihood strategies and outcomes in the village of BKBP can relate to the broader philosophical and ideological narratives of the Thai state. The land redistribution project in the area was an outcome of both the Sufficiency Economy and the Rural Revitalisation narratives. Looking at the former, the highly diversified nature of nearly all our respondents raises the question as to what extent this policy is successful and feasible. The stark difference between groups' livelihood outcomes is to some extent explained by their use of the 2.5 rai supplied to them, but more so by people's capabilities to cultivate and market their products, and to bend the official rules of land use and seek a wider array of income sources. For some, this means leasing further land to cultivate cash crops, while others take up higher-paid employment in nearby urban areas. It seems that a higher education is related closely to such profitable livelihood strategies.

As such, this also seems to indicate the limitations of the Rural Revitalisation policy. Beyond the generally high age of our respondents, we noticed that many of the young, educated farmers spend most of their time away from their plots (indeed making it difficult to arrange interviews with them), either cultivating other properties or running their own businesses elsewhere.

Overall, as Thailand's agricultural exports grow steadily and the country is further opening up towards globalization, it is interesting to consider how feasible it is to envisage a rural society depending solely on self-sufficiency. As younger generations are increasingly moving away from rural areas as part of a global trend, perhaps investing in technology and less regulated land use could be a more useful strategy (Deott and Estruch, 2016). Furthermore, the fact that both economically less successful farmers and their wealthier counterparts seem to rely on a broader array of income sources than just their 2.5 rai plots indicates that neither of these policies achieve their intended goals.

7.2. Methodology Reflections

Overall, the methods used in our field research worked well and complemented each other in a logical manner. However, we recognise a number of limitations and reflect upon these in this section. We found SSIs especially useful when questions asked revolved around attitudes, opinions and perceptions, because the answers could not be predetermined, and we were able to add more questions according to respondents' answers. However, one of the weaknesses in a limited time-frame is that it is time-consuming both during and after the interview has been conducted. As such, it

could have been more successful if we had time to interview more households especially those who were not at home and went out to work. Furthermore, because of the long distance, we only conducted a telephone interview with the SPG officer. Thus, we only got his reflection and response by verbal cues rather than eye contact, facial expressions and body movements, which limited our full understanding of his reaction to our questions.

Questionnaire surveys are a good method to obtain a large amount of data in a short amount of time, and it is useful to test hypotheses and show correlations with different variables (Chen, 2011). Despite this, using questionnaires to collect data has its disadvantages as well. First, questionnaires are unable to acquire context and meaning behind responses if they are close ended (Rea & Parker, 2005). Sometimes, it can be difficult to know the reason why they answer the way they do. For example, we cannot know why people do not attend certain meetings if we do not ask about the reasons. Therefore, this method is not suitable for in-depth understanding, and needs to be combined with other methods for further study. Also, if the questions are open ended, the answers will differ with different respondents, making it difficult to analyse (Reardon & Glewwe, 2000).

Although snowball and convenience sampling helped us to find suitable respondents, we cannot ignore their disadvantages. Firstly, as the respondents were introduced by people who were surveyed initially, they may be a group of people with similar ideas and characters, leading to a selective bias. Second, some individuals may be omitted intentionally by the informants because of their own interests or other reasons, resulting in many suitable respondents not to be found (Chen,2011). In general, as non-random sampling methods, snowball and convenience sampling can make the sample representativeness decrease. Furthermore, due to the time limitation, we could not distribute more questionnaires to have a more representative sample. The sample size of 32 respondents may not adequately represent the whole population.

GIS is a strong tool for visualization of geographical information, which allows for in-depth and holistic spatial analysis of a vast amounts of data. However, the accuracy of such analysis depends on the data source. If data is incomplete or obsolete, it may distort the final outcome, and interpretation of this should therefore be treated carefully (Fotheringham and Rogerson, 1993). In our case, the fact that we used an old map for geo-referencing means the end result could be slightly distorted. Therefore, when linking the GPS to the different plots, there could have been some inaccuracy. Furthermore, the old information used for the map had to be verified by villagers, who might not have provided exact data.

Additionally, in the process of our field work, we knew that the land redistribution, the formation of the four social groups, as well as knowledge-sharing happened in a specific institutional context. However, we did not measure the magnitude of this role and analyse how institutions specifically affect livelihoods. In a further study, we could improve this by specifically targeting institutional aspects in SSIs, as well as digging deeper into the political-historical context of the region.

7.3. Reflections on group work

At the initial stage of the group work, we were aware of our different academic backgrounds representing both natural and social science. It was important for us to recognize everyone's strength and interest in developing our research. We decided to focus on social science, which is reflected in

our methodology and data, however aspects of natural science were also included to maintain an interdisciplinary approach.

Before the fieldwork, we were provided with preliminary information about the village, from which our *a priori* assumptions were developed. However, when we arrived at the village, we found some inaccuracies in this information, which created an initial challenge to the group. This, we were able to overcome by being flexible and adapt as a group. During our initial fieldwork we cooperated with our Thai counterparts (TC) to get a general understanding of the village. However, because of the groups' different research focus, our fieldworks were primarily carried out in two different areas. Our meetings in the evenings were therefore used for sharing relevant information between the groups.

As our TCs were able to communicate with the villagers alone, we sometimes had two interpreters available, which enabled us to optimize our fieldwork, by splitting into two groups. Our collaboration with the interpreters was very efficient; in addition to interpretation, they assisted us with guidance on how to approach the cultural differences and inappropriate topics. Furthermore, thanks to an active assistance of villagers we were able to carry out our research even more effectively. These things combined allowed us to do preliminary analysis of our data collection earlier than anticipated, and we were therefore able to do several follow-up interviews strengthening our research. It was important that everyone could participate actively in the fieldwork, and we therefore made sure that everyone had the opportunity to try to perform SSIs, questionnaires, note-taking etc.

8. Concluding remarks

In the face of a major governmental intervention, the village of Bang Khlong Bong Pattana has gone through radical transformations over the past two decades. During a window of eight years the State distributed over 200 uniform small plots to people who applied and were deemed eligible. As a consequence, the village expanded by approximately 3800 rai of arable land, community and government forests and communal plots. Village demographics also went through significant changes, with over 250 newcomers arriving from diverse socio-economic and geographical backgrounds.

Based on prior notions of environmental and socio-economic challenges, our study aimed to investigate how livelihoods were shaped in the face of such a major transformation. After confirming the presence of these challenges and understanding the existence of four different social groups, we specifically investigated the differences between these groups and aimed to identify the most tangible explanations for these.

Our findings revealed that members of the Sor Yor group have somewhat different agricultural practices and significantly lower income levels than all other three groups. After initial qualitative research regarding these differences, we narrowed down our focus to three major asset components: natural, social and human; and considered their relationship to the varied livelihood outcomes of the social groups (measured in income levels). We looked at these relationships either through finding statistically significant correlations between quantifiable measures (i.e. income level and education) or eliminated the need for such correlations through GIS and qualitative methods.

Overall, due to the social groups' random spatial distribution, we found no causality between people's access to natural resources and their livelihood outcomes. While social capital manifests itself in various forms in the village (i.e. community meetings, neighbour relations), we did not see a clear correlation between these and groups' ability to derive benefits from them.

Finally, we found a positive correlation between years of formal education and livelihood outcomes. It seems that the group with the lowest average schooling also has the lowest monthly incomes. To broaden our perceptions of knowledge beyond formal education, we attempted to include other types of knowledge through qualitative interviews. As a result, we discovered that the contents of the mandatory three-month course supplied to all respondents varied based on the social group it targeted. These and further narratives by villagers and official personnel (SPG officer and Headman) led us to conclude that a difference in knowledge levels is indeed a significant factor in explaining the stark differences in the livelihood strategies and outcomes of BKBP's villagers.

Furthermore, our overall results regarding the diversified livelihood strategies of villagers, and their ability to make efficient use of their land speak to the broader ideologies of Sufficiency Economy and Rural Revitalisation. The lack of both less well-off and wealthier residents to benefit from solely the 2.5 rai indicate that these strategies fail to achieve the outcomes intended. Further research into the roles of institutions and people's perceptions of important livelihood outcomes could prove useful for this end.

List of references

Angelsen, A., Larsen, H. O., Lund, J. F., Smith-Hall, C., & Sven, W. (2011). Collecting Contextual information. In *Measuring Livelihoods and Environmental Dependence - Methods for research and Fieldwork*. Washington DC: Earthscan.

Asian Development Bank (2015). Thailand Industrialization and Economic Catch-Up. Country diagnostic study. Mandaluyong City, Philippines: Asian Development Bank. 1-77

Barrett, C., Reardon, T. and Webb, P. (2001). Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications. *Food Policy*, 26(4), pp.315-331.

Bourdier, P. (1986). The Forms of Capital. Pp. 241-258 in Handbook of theory and research for the sociology of education, edited by J.G. Richardson. New York: Greenwood Press.

Carter, N., Bryant-Lukosius, D., DiCenso, A., Blythe, J., & Neville, A. (2014). The Use of Triangulation in Qualitative Research. *Oncology Nursing Forum*, *41*(5), 545–547. http://doi.org/10.1188/14.ONF.545-547

Chankrajang, T. (2015). Partial Land Rights and Agricultural Outcomes: Evidence from Thailand. *Land Economics*, *91*(1), 126–148. http://doi.org/10.3368/le.91.1.126

Charoensuk, A., Jaroensutasinee, M., & Jaroensutasinee, K. (2018). Quantitative and qualitative analysis of non-timber forest product after change in National Park Designation of Parah Forest in Thailand. *Journal of Environmental Biology*, *39*, 387–392. http://doi.org/10.22438/jeb/39/3/mrn-611

Chen, G. (2011). Communication Research Methods: Fudan University Press, pp.138

Curtis, B. (2018). Multidimensional poverty measurements. In: Understanding Global Poverty: Causes, capabilities and human development. *Routeledge*, p. 47–69.

Deotti, L. and Estruch, E. (2016). [online] Fao.org. Available at: http://www.fao.org/3/a-i5718e.pdf [Accessed 28 Mar. 2019].

Ellis, F. (2000). Rural livelihoods and diversity in developing countries. Oxford: Oxford University Press.

FAO. (2019, March 25). Thailand. Retrieved April 5, 2019, from http://www.fao.org/countryprofiles/index/en/?iso3=THA&fbclid=IwAR3hwPezABs05Z2VXVmDtQ7M5531B3lNSPKZGI4fi1ohtImJr-qqy1FvH5A

Foster, A.D., & M.R. Rosenzweig. (1996). Technical change and human-capital returns and investments: Evidence from the Green Revolution. *The American Economic Review* 86:931-953.

Isvilanonda, S. and Bunyasiri., I. (2009). Food Security in Thailand: Status, Rural Poor Vulnerability, and Some Policy Options. ARE Working Paper No. 2552/1. Department of Agricultural and Resource Economics, Faculty of Economics, Kasetsart University, Bangkok.

Jacoby, H. (1993). Shadow wages and peasant family labor supply: An econometric application to the Peruvian sierra. *Review of Economic Studies,* 60:903-921.

Jakimow T. (2013). Unlocking the Black Box of Institutions in Livelihoods Analysis: Case Study from Andhra Pradesh, India. *Oxford Development Studies,* 41. http://dx.doi.org/10.1080/13600818.2013.847078

Lin, J.Y. (1991). Education and innovation adoption in agriculture: Evidence from hybrid rice in China. *American Journal of Agricultural Economics,* 73:713-723.

Lockheed, M. E., Jaminson, D. T., & Lau, L. J. (1980). Farmer Education and Farm Efficiency: A Survey. *Economic Development and Cultural Change*, *29*(1), 37–76.

Headman. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

Huffman, W. E. (2001). Human capital, education, and agriculture. In *Handbook of Agriculture Economic* (pp. 334–376). essay, Ames Iowa: Iowa State University, Dept. of Economics.

Kumar, A. X., Tresise, C. B., Compas, C., Murphy, A. M. (2018). Overview of Internal Migration in Thailand *part of* Internal Migration in Southeast Asia: Towards Better Inclusion of Internal Migrants. *UNESCO, UNDP, IOM, UN-Habitat*.

Kaewyod, Y. (2014). The Study of Community Participation in Agro-Tourism Development in Wang Nam Khiao Sufficiency Economy Settlement, Nakhon Ratchasima Province. Land Reform Research and Development Group Academic and Planning Program. Agricultural Land Reform Office.

Mekdum, W. (2015). New Farmer Development in Agricultural Land Reform Area in Thailand.

Navidi, W. C. (2011). *Statistics for engineers and scientists* (3rd ed.). New York, NY: McGraw-Hill.

NGF 1. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

NGF 2. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

NGF 3. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

Pudasalni, S.E. (1983). The effects of education in agriculture: Evidence from Nepal. *American Journal of Agricultural Economics* 65:509-515.

Rabionet, S. (2011). How I learned to design and conduct semi-structured interviews: An ongoing and continuous journey. *The Qualitative report*, 16,2:563-566

Rea, LM. & Parker, R.A. (2005). Designing and conducting survey research.

Reardon, T. & Glewwe, P. (2000). Designing household survey questionnaires for developing countries. Lessons from 15 years of the living standards measurement study, Washington D.C volume 2. pp.157-165

Reimers, M., & Klasen, S. (2013). Revisiting the Role of Education for Agricultural Productivity. *American Journal of Agricultural Economics*, *95*(1), 131–152. http://doi.org/10.1093/ajae/aas118

Representative. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

Sachayansrisakul, N. (2009). Sufficiency Economy: A Reasonable Approach for Thailand's Future. *NIDA Development Journal*, *42*.

SLUSE Field description. (2019). Thailand - description of field sites and research themes 2019.

Scholaro. (2018). Education System in Thailand. Retrieved March 25, 2019, from https://www.scholaro.com/pro/Countries/thailand/Education-System

Sor Yor 1. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

Sor Yor 2. (2019). Semi-structured interview. Interview in Bang Khlong Bong Pattana village.

SPG. (2019). Semi-structured interview. Phone interview.

Smith, K. (2002). What is the 'Knowledge Economy'? Knowledge intensity and distributed knowledge bases (pp. 5–32). Maastricht.

Stewart F.A., & Rogerson, P. A. (1993). GIS and spatial analytical problems. *International Journal of Geographical Information Science*, *7*(1), 3-19.

Strauss, J., Barbosa, S.M., Teixeira, D. Thomas and Junior, R.G. (1991). Role of education and extension in the adoption of technology: A study of upland rice and soybean farmers in Central-West Brazil. *Agricultural Economics,* 5:341-359.

Vedeld, P., Angelsen, A., Bojö, J., Sjaastad, E., Berg, G.K. (2007). Forest environmental incomes and the rural poor. *Forest Policy and Economics,* 9(7), 869-879

10. Appendix

10.1. Appendix A: Schedule of fieldwork

Days	**Morning**	**Afternoon**	**Late afternoon**	**Evening**
Taking shots for promo film (throughout field trip)				
28th February (Thursday)	Introduction at KU Bangkok	Travel to field course	Travel to field course	Preparation of the following day
1st March (Friday)	Meeting with Headman	SSI with one representative from Committee	Restarted research plan	Worked on research plan
2nd March (Saturday)	SSI with Headman	SSI with Student Special	SSI with New Generation Farmers	Finalised questionnaire and reflection on the collected data
3rd March (Sunday)	Questionnaires	Questionnaires	Questionnaires (16 for the day)	Reflections on collected data
4th March (Monday)	SSI with SPG official	Questionnaires	Questionnaires (7 for the day)	Reflections on collected data
5th March (Tuesday)	Reflections on collected data	Focus group with modern area villagers (mapping exercise) (around 15 villagers present)	Questionnaires (4 for the day)	GIS: creating detailed map
6th March (Wednesday)	Reflection on collected data: GIS continued; importing and quantifying questionnaire data; importing qualitative data from questionnaires, SSIs; planning rest of research on the trip			
7th March (Thursday)	Eco-tourism field trip	SSI with New Generation; SSI with Sor Yor		Reflections on collected data
8th March (Friday)	Follow-up SSI with SPG official	Verifying GPS data; correcting wrong waypoints (in village)	SSI with New Generation; SSI with Sor Yor	
9th March (Saturday)		Community meeting		
10th March (Sunday)	Travel back to Bangkok			

10.2. Appendix B: Methodology table

Methods	**Participants**	**Data collected**	**Number realised**
Semi-structured interview	Headman	General information on the village	2
	One of the 10 representative of the community	General information on the village	1
	SPG official	Specific information on the land redistribution: its conduct and its impact	2
	New Generation Farmer	General information on personal livelihoods	1
	Special Student	General information on personal livelihood	1
	New Generation Farmer	Information on knowledge access and availability in the village	1
	Sor Yor farmer	Information on knowledge access and availability in the village	1
	New Generation Farmer	Specific information on knowledge exchange in groups	1
	Sor Yor farmer	Specific information on knowledge exchange in groups	1
Questionnaire	People from all four social groups	Personal information on their personal background, agricultural practices, income	32
Geographic Information System	Thai counterparts and Danish group	Visual representation of the village, location of respondents	2
Focus Group	People from all four social groups	Zone delimitation, dates regarding important events in	1

		the village and the modern area	

10.3. Appendix C: Questionnaire

A1. Topic of the research:

We are 4 master students from the University of Copenhagen, studying Agricultural Development and we are on a field trip as we would like to investigate the livelihoods of the villagers of the sufficiency economy village and understand if a land of 2 rai is enough to live with. We would use the data of the questionnaire to write our final report, which will be read by our teachers only. All data you provide will remain anonymous, will be used only for the report and will not be published.

Answering the questionnaire is ONLY done on a voluntary basis.

A2. General details

GPS-point: x:_____ y:_____ z:_____	Interviewer:
Sub-location:	Group Number:
Note taker:	Translator:
Consent for picture received: YES / NO	Date and time: : /03/2019

Personal information / People's history

1. Name: _____
2. Gender: M / F / Other
3. Age: _____
4. Marital status:
    a. Married
    b. Single
    c. Widowed
    d. Divorced
5. Household head: YES / NO
6. Years of education:
7. Where are you from?
8. Which SPG group are you from?
    a. Sor Yor
    b. Incubation student
    c. New generation farmers
    d. Student special group

9. When did you come in the sufficiency economy village? _____
10. How many people is there in your household?
11. Do you own a SPG land right certificate? YES/NO
12. If no, do you work for someone else? YES/NO
13. How often do you get inspection from the SPG office (if any)?
    a. Once a week
    b. Once a month
    c. less than once a month
    d. Once a year
    e. No inspections
14. Why did you come to the modern part of BKBP?

15. Are you part of a community group?
    a. Rice
    b. Savings
    c. Organic farming
    d. Other (please state)
16. Are you part of the 10 representatives of the sufficiency economy village? YES/NO
17. Did you have any contacts in the village before coming here? YES/NO
18. Do you attend the monthly community meetings? YES/NO
19. Do you attend any other community meetings? YES/NO

Agricultural practices

20. What is the size of your land (in rai): _____
21. What type of agriculture fo you practice?
    a. Organic
    b. Conventional
22. What do you use your land for:
    a. Agriculture
        i. Cassava
        ii. Sugar cane
        iii. Corn
        iv. Vegetables
        v. Fruits
        vi. Others
    b. Livestock
        i. Pigs
        ii. Chickens
        iii. Cows
        iv. Goats
        v. Others

c. If other: _____

23. Do you grow cash crop or crops for subsistence only?
24. What type of infrastructure do you use?
    a. Irrigation
    b. Tank
    c. Pump
    d. Solar panels
    e. Mobile application
    f. Machinery (e.g. tractors)
25. Do you use rain water? YES/NO
    a. What for?
26. Do you experience water scarcity? YES/NO
    a. Why?
27. Do you experience low soil fertility/soil fertility decrease? YES/NO
28. Do you experience electricity shortage? YES/NO
29. Are you involved in a community plot? YES/NO
30. Are you involved in a community forest? YES/NO

Income

31. What is your monthly household income (AFTER expenses e.g. fertiliser, seeds, debts)?
    a. 0-10,000
    b. 10,000-15,000
    c. 15,000-20,000
    d. 20,000-25,000
    e. 25,000-more
32. Do you have any debt? YES/NO
33. If yes, to whom?
    a. Government
    b. Private
    c. Other
34. Do you get income from other sources than agriculture?
    a. Off-farm labour
    b. Remittances
    c. Pensions
    d. Support – from:
    e. Other
35. Where do you sell your products?
    a. Agricultural cooperatives
    b. Private

market d. Other

c. Village group

36. How do you go to the market (if relevant)?

37. Are you intending on staying here in the future?

38. Do you think that 2 rai (your land) is enough for you to live with?

Note:

10.4. Appendix D: SSI guidelines

Day 1: Questions for villager

1. Introduction, thank him/her for time
2. How much land they work on? Do they have the right to the land (SPG) or are they working on it for someone else?
3. When did they start working on this land? What were the criteria for getting access to it?
4. What kind of crops do they grow? How (organically, what kind of machinery?) Do they have any livestock? Is agriculture your main income?
5. Do they have a secondary/other sources of income?
6. Where do they sell their crops? Or do they only grow for their own subsistence?
7. Do they have any challenges with farming?
8. When did they move to this land? From where?
9. Do they receive support from any organisation in the village/district?
10. What are the rules for keeping this land? Are there often inspections and by whom?
11. Are they using the community plot? How?
12. Are they using the community forest? How?
13. Do they think the 2 rai is enough to sustain them?
14. Did their livelihood improve by the land redistribution?
15. What are their future plans? Do they plan on staying and working on this land? Will their children (if they have any) stay?

Day 7: Follow up SSI for NGF

1. Thank you for your valuable information last time & that we have some follow-up questions.
2. We asked you the last time about why there is such a big difference between the different groups, and you mentioned education as an important factor. Could you expand on this? We also met people from the New Generation group who only took the 3-month course and are able to use their land effectively. So do you think there are other factors, besides education, influencing this difference?
    a. Age?
    b. Knowing the right people?
    c. Natural resources?
3. If knowledge is the big issue, are there any initiatives to share knowledge with other villagers less well-off?
4. In terms of natural resources, even here in your area we talked with people close to your plot who are not able to use their land well, even though there are similar environmental conditions Why do you think this is the case?

5. Is the land enough to sustain a family? What is sufficiency and can you give an example of an expense that does not fall under 'sufficiency'?
6. Is the land enough to give people the lifestyle they desire? Is it enough to finance childrens' education?
7. What do you think is SPG's role as an institution in helping people make the best use of their land? And are they living up to this? What could they improve?

10.5. Appendix D: Synopsis

Draft Synopsis – Ban Khlong Bong Pattana Group

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Introduction

A general trend in the modern development of societies has been the move from an agriculture-based economy towards industrial expansion. Similarly, in Thailand over the last decades there has been a decline in agricultural areas in favour of both industry, and nature reserves and national parks (Asian Development Bank, 2015; Chankrajang, T., 2015). Yet, in the village of Ban Khlong Bong Pattana, located in the north-east of Thailand (province of Nakhon Ratchasima), a reversed trend has been observed. Specifically, a major land redistribution intervention in 2008 by the government seems to suggest an overall aim to maintain an agrarian society in the area.

However, recent development research has found that rural societies depend increasingly on other livelihood strategies than just agriculture, putting into question the feasibility and authenticity of the above trend (Barrett et al., 2001). Consequently, understanding the various factors shaping rural livelihoods requires a broader investigation of the various assets, capabilities and activities influencing people's livelihoods. The Sustainable Livelihood Framework (SLF), put forward by Ellis (2000) provides such a framework. Furthermore, a key component of this approach is the focus on mediating factors like institutions, shocks and trends in people's access to crucial assets (Ellis, 2000).

Nevertheless, a common critique of the SLF is that in its practical application, the role of institutions in shaping rural livelihoods has been neglected (Jakimow, 2013; Agrawal, 2010). This research will therefore consider this limitation of the SLF and will attempt to study rural livelihoods while considering the impact of (formal and informal) institutions on people's livelihood outcomes. Having such an *institutionalist* approach is crucial not only because it strengthens one's analytical lens, but because understanding the role of these factors can influence the outcome of policy interventions.

The governments cancellation of the major illegal land sale and redistributing 5000 rai to the inhabitants of village, Ban Khlong Bong Pattana underwent significant changes in land use (SLUSE, 2019). Besides giving access to small plots to some villagers, the land redistribution also resulted in the creation of community plots and communal forests, while maintaining and perhaps transforming already existing private lands. The fact that such a unique land redistribution happened in Ban Khlong Bong Pattana indicates the important role of institutions in shaping rural livelihoods in the area. However, it is also important to keep in mind that markets, urban migration and other trends can have similar or even larger roles.

This research therefore seeks to understand the impact of such a land redistribution on the livelihood of the inhabitants of Ban Khlong Bong Pattana. In doing so, we aim to shed light on why such a land redistribution scheme occured in this particular village by looking at the role of institutions, underlying political and economic philosophies, and other factors like market mechanisms. Land tenure, as a crucial institution, will play a central role in the research.

This synopsis is divided into four sections. Section one situates the research in a broader theoretical context. Section two moves on to present the context of Thailand and its complex

institutional environment. Section three presents the case study of Ban Khlong Bong Pattana and introduces the specific questions this research will seek to answer. Finally, section four introduces the main methods that will be used during the fieldwork.

A broader theoretical context

According to Cornwall (2010), most terms used in development practice are 'essentially contested concepts' – words whose abstract meaning there is general agreement on, but whose practical application is open to various interpretations (p.2). *Rural livelihoods*, or the way of life for people living in rural areas is one such term, and one that has gone through various changes over the last decades. Early and simplistic development notions regarded rural livelihoods as a static category and had little regard for their changing and varied nature (Ellis, 2000).

One key feature of these perceptions was that rural people depend primarily on agriculture for their livelihoods - consequently promoting interventions targeting agricultural development. However, Barrett et al. (2001) point out that rural households can derive as much as 60 percent of their income from non-farm activities, suggesting that these previous policies neglected a large portion of people in these areas.

In his Sustainable Livelihoods Framework (SLF), Ellis (2000) argues that getting a complete and holistic understanding of rural livelihoods requires an in-depth analysis of the various assets people own (within the categories of physical, natural, environmental, human and financial); the various informal and formal institutions affecting their access to them (i.e. gender, ethnicity, NGOs, land tenure, government); and the broader trends and shocks creating a context around their livelihoods (i.e. conflict, climate change, migration).

The SLF has gained huge prominence since its introduction and has become a key tool for development practitioners since. Yet, a common critique of the framework is that its practical applicability in terms of analysing assets, has 'diluted its theoretical essence' and has in particular led to the neglect of the role institutions play in shaping rural livelihoods (Jakimow, 2013; Agrawal, 2010). Such a Critical Institutionalist approach advocates that development strategies that do not have a proper understanding of relevant institutions, will inevitably create faulty and misguided interventions.

Furthermore, an important point within Critical Institutionalism is that in addition to acknowledging the role of institutions, one must also broaden perceptions of them beyond formal arrangements like land tenure or water management, and include informal social institutions like gender, ethnicity, race, or traditional laws regulating resource-use (Agrawal, 2010). The interplay of both formal and informal institutional arrangements, as well as their constantly changing nature in often turbulent political and economic environments are crucial factors to take into consideration when assessing rural livelihoods: doing so assures adequate and informed policy interventions

Thailand

Over the past half century, Thailand's history of economic development has been very successful. In 2011, the country achieved the status of an upper-middle income country after more than twenty years as a lower-middle income country (Asian Development Bank, 2015). Despite this successful story, Thailand has gone through a range of institutional changes creating political instability within the country. The political arena has been continuously changing between authoritarianism, democratic regimes and military control (Kaosa-ard, M., 1998). Several actors, including the King and the royal family of Thailand, the military, the civilian bureaucracy and a number of political parties, have been engaged in the political system and thus shaped the political life in Thailand (Siriprachai, S.,2009).

The political instability along with a number of structural changes, neglecting the agricultural sector in favour of the industrial sector, has created a larger gap between the poorer rural- and the richer urban regions, and as a consequent affected rural livelihoods (Asian Development Bank, 2015; Siriprachai, S., 2009). According to Siriprachai (2009), rural poverty has increased after the 1980s, and as a result, so did inequality – this is mainly due to governmental intervention or lack of intervention in the agricultural sector through a range of different adjustment programs and policies.

The political chaos in Thailand has resulted in an inconsistency in the national land tenure system (Kaosa-ard, M., 1998). Through the 1980s, a number of areas were designated as national forest reserves, however, many of these areas were already inhabited by local farmers, who were subsequently perceived as illegal landholders (Chankrajang, T., 2015). Many farmers were relocated to other areas, which led to strong protest and major conflicts between the government and the farmers. According to Chankrajang, T. (2015), as a consequence, the government started to distribute partial land rights (SPK4-01) vigorously to farmers during the 1990s. Until then only few of these land rights had been distributed, even though the land titling system was already introduced with the land reform in 1975. However, despite farmers' rights to the land, the titling system is strictly controlled by the government, who decides how land rights are distributed, and who are qualified and not qualified as landholders (Chankrajang, T., 2015).

In addition to the political instabilities, rural livelihoods are also affected by different trends. Rigg et al. (2008) argue that rural livelihoods around Asia are changing and decreasingly dependant on farming. They note that rural livelihoods are increasingly diversifying, and that off-farm income is gaining in popularity. A reason for this change could be that since the 1960's Thai farmers have followed the Green revolution. Therefore, they started using chemical inputs and started to grow cash crops in monocultures (Choenkwan & Fisher, 2018; Rigg et al. 2008). Such changes have led, in the long term, to problems such as a decrease in land fertility, forcing the farmers to diversify their livelihood.

In addition, Thailand is known for its important rural-urban internal migration history (Amare et al., 2012). Between 2012-2016 internal migration increased and rural to urban migration accounted for 41,9% of the total internal migration in Thailand (Kumar et al., 2018). Such migration constitutes a "labor-diversification-based livelihood strategy" as the migrants send remittances to their family (Amare et al., 2012, p.57; Kumar et al. 2018). Paris et al. (2009) found that in some instances, remittances could account for up to 38% of the income of the

families of the migrant. Therefore, one can see that Thai rural livelihoods undergo constant change.

Specific research area

Preliminary information about Ban Khlong Bong Pattana in Thailand's Wang Nam Khieo District suggests that many of the factors outlined previously are present in the village and can indeed impact the livelihoods of the rural residents. Agriculture is one of the main activities, where among others, cassava, rice, corn, and sugar cane are cultivated. However, it is likely that villagers depend on a variety of other income sources as well, such as wage labour or remittances.

Beyond a diversified livelihood strategy based on a variety of physical, natural, financial, human and social capital, there are indications that institutions also play a major role in shaping local life. For instance, the institutional complexity described in the previous section is evident in the Wang Nam Khieo District, where land tenure can officially fall under the jurisdiction of up to three different departments: The Department of National Parks and Wildlife and Plant Conservation, the Royal Forest Department, and the Agricultural Land Reform Office. A major consequence of this is that there are overlapping claims for land ownership and 'confusion between the official land classification system and the actual use of land' (SLUSE, 2019).

Furthermore, in 2008 the Land Reformative Committee prevented the sale of over 5000 rai of land to an individual buyer, and subsequently redistributed the land among local households, each receiving 2 rai. This event has also changed the land use of the village by creating a communal forest area and a community plot, suggesting that both informal and formal institutions played a role in how this event took place. Additionally, the village also seems to face a number of trends that can have an impact on the way villagers' livelihoods are shaped. There are signs of declining soil fertility and increasing water scarcity for some households; as well as migration patterns potentially affecting the human capital of villagers. Nearby villages have developed tourism-focused industries, which through market mechanisms can also impact people's livelihood choices.

The 2008 land redistribution is seemingly central to the village's varied livelihoods. Therefore, the objective of this research is to understand to what extent this land redistribution impacted villagers' livelihoods in Ban Khlong Bong Pattana as opposed to other factor and trends. We will do so by answering the following questions.

1. How has the 2008 land redistribution impacted rural livelihoods in Ban Khlong Bong Pattana?

    1.1. Why did the land redistribution happen in this village (political, economic trends), and what sort of decision-making processes were at the root of these outcomes?

    1.2. Who received land and who didn't?

    1.3. What kind of land types emerged (e.g. individual- and communal plots) and how?

1.4. What are people producing on their land and is it for subsistence or cash?

1.5. How do people depend on off-farm activities (NTFP, wage labour, etc.)?

1.6. Who is affected by water scarcity and soil fertility decrease and because of which processes?

Methodology

**a detailed data matrix and time-schedule is attached as Appendix I & II*

Social science methods

SSI (Semi-structured interviews):

We will use SSIs with the village Headman at first to gain general information of the village. We will ask about plot size and land use change of the village since the land redistribution, information on land distribution, such as how many villagers received land and how many did not, how much land did they receive, how the land is divided and if villagers are well-informed of the contract/agreement. This information will help us understand better the governance structure of the village.

We will use SSIs once with 2-3 villagers including those who received land and those who did not, to know how the livelihood strategies of the villagers have changed since the land redistribution and their attitudes towards it. We will ask about their income, what they produce on their land, whether it is subsistence- or cash crop and what kinds of off-farm activities (e.g. working in nearby tourism villages) they depend on. We will also ask whether the respondents are affected by water scarcity and soil fertility, and how this has impacted their livelihood. This data will help us understand the effects of the land redistribution in relation to other factors and trends.

Questionnaire:

The questionnaire will be used to investigate the respondents' livelihood changes with a specific focus on assets, land use, off-farm activities and income sources, and the influence of water scarcity and soil fertility. In terms of assets we will look at physical- (e.g. machinery, agricultural inputs, technology), human- (e.g. gender, education, age), natural- (e.g. plot size, livestock, crops), financial- (e.g. income) and social assets (e.g. relationship to influential people, hierarchy). The questionnaire will be done through systematic sampling of 30 households of the village.

PRA (Participatory Rural Appraisal):

PRA, with groups of up to 8 people, will be used to collect information on the village and residents' livelihood responses to the land redistribution. PRA tools will be used in the village as follows: (i) the village map with resources relevant to participants will be completed in order to understand the status and history of the village resource distribution (ii) timeline will be completed by the villagers' memories in order to master the change of the assets in the village

(iii) 24-hour daily work map and seasons calendar will be used with different groups who work on different kinds of economic activities to describe their daily living and working arrangements.

Participatory observation:

Participatory observation is a way to (i) participate in daily activities in order to establish a relationship between the villagers and us, and (ii) perhaps combine PRA and SSIs (if there is a lack time). This method will help us observe some of the underlying structural, hierarchical and institutional processes at play in the community.

Natural science methods

GIS:

We will use GIS to create a more accurate map about different types of land use. Using GIS can also give historical information about land use change and plot size change since the land redistribution in the village (e.g. using remote sensing). It could also be useful to see how water scarcity and soil fertility is related to the geographical position of plots.

Others

Archives:

The village archive about distribution records can help us get information about how/who/why the villagers received their land and what kind of land types (e.g. individual and communal plots) emerged.

References

Agrawal, A. (2010). Local institutions and adaptation to climate change. *Social dimensions of climate change: Equity and vulnerability in a warming world*, *2*, pp.173-178.

Asian Development Bank (2015). Thailand Industrialization and Economic Catch-Up. Country diagnostic study. Mandaluyong City, Philippines: Asian Development Bank. 1-77

Barrett, C.B., Reardon, T. and Webb, P. (2001). Nonfarm income diversification and household livelihood strategies in rural Africa: concepts, dynamics, and policy implications. *Food policy*, *26*(4), pp.315-331.

Chankrajang, T. (2015). Partial land rights and agricultural outcomes: evidence from Thailand. *Land Economics*, *91*(1), 126-148.

Choenkwan, S., & Fisher, M. R. (2018). Introduction to the special section: Agrarian transformation in Thailand - Commodities, landscapes, and livelihoods. *Forest and Society*, *2*(2), 112. http://doi.org/10.24259/fs.v2i2.5356

Ellis, F. (2000). *Rural livelihoods and diversity in developing countries*. Oxford university press.

IRP, UNDP, UNISDR. (2010). Guidance note on recovery: livelihood. *International recovery platform, United nation development programme, United nations office disaster risk reduction.* Retrieved February 15 2019, from https://www.preventionweb.net/publications/view/16771

Jakimow, T. (2013). Unlocking the black box of institutions in livelihoods analysis: Case study from Andhra Pradesh, India. *Oxford Development Studies*, *41*(4), pp.493-516.

Kaosa-ard, M. (1998). Economic development and institutional failures in Thailand. *TDRI Quarterly Review*, *13*(1), 3-11.

Kumar, A. X., Tresise, C. B., Compas, C., Murphy, A. M. (2018). Overview of Internal Migration in Thailand *part of* Internal Migration in Southeast Asia: Towards Better Inclusion of Internal Migrants. *UNESCO, UNDP, IOM, UN-Habitat*.

Paris, T.R., Rola-Rubzen, M.F., Luis, J., Chi, T., Wongsanum, C. and Villanueva, D. (2009), 'Labour Out Migration on Rice Farming Households and Gender Roles: Synthesis of Findings in Thailand, the Philippines and Vietnam.' Paper presented at the FAO-IFAD-ILO Workshop on Gaps, trends and current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty. Rome, 31 March - 2 April 2009.

Reda, M. A., Hohfeld, L., Jitsuchon, S., & Waibel, H. (2012). Rural-Urban Migration and Employment Quality: A Case Study from Thailand. *SSRN Electronic Journal*. http://doi.org/10.2139/ssrn.2103965

Rigg, J., Veeravongs, S., Veeravongs, L., & Rohitarachoon, P. (2008). Reconfiguring rural spaces and remaking rural lives in central Thailand. *Journal of Southeast Asian Studies*, *39*(03). http://doi.org/10.1017/s0022463408000350

Siriprachai, S. (2009). The Thai economy: Structural changes and challenges ahead. *Thammasat Economic Journal*, *27*(1), 148-228.

Appendix I

Data matrix

Overall objective To understand to what extent the land redistribution in 2008 impacted villagers' livelihoods in Ban Khlong Bong Pattana as opposed to other factor and trends.			
Research question	**Sub-questions**	**Data required/output**	**Methods**
How has the 2008 land redistribution impacted rural livelihoods in Ban Khlong Bong Pattana?	1.1. Why did the land redistribution happen in this village (political, economic trends), and what sort of decision-making processes were at the root of these outcomes?	Policy changes; Underlying political philosophy; Distribution records; Governance structures;	Literature review; Semi-structured interview with Headman; Archive;
	1.2. Who received land and who didn't?	Plot size changes; Land use change; Distribution records; Demographic data;	Semi-structured interview with Headman; GIS; Household survey (questionnaires); Archive;
	1.3. What kind of land types emerged (e.g. individual- and communal plots) and how?	Land use change; Relevant institutions;	Semi-structured interview with Headman; GIS; PRA (mapping);

			Participatory observation;
	1.4. What are people producing on their land and is it for subsistence or cash and how?	Land use (crops); Physical assets (e.g. framing machinery, agricultural input); Location of water sources compared to households; Financial income from products; Market access;	Household survey (questionnaires); Semi-structured interview with 2-3 villagers; PRA and GIS: mapping area for water sources; Participatory observation;
	1.5. How do people depend on off-farm activities (NTFP, wage labour, etc.)?	Assets: • Physical • Natural *(forest access)* • Human *(education, health, labour)* • Social (ties with the Headman, government, part of a village organization?) • Financial *(wages, pension, remittances, governmental support)*	Questionnaire; Semi-structured interview with 2-3 villagers;
	1.6. Who is affected by water scarcity and soil fertility decrease and because of which processes?	Location of water sources and households; Yield change;	Questionnaire; Semi-structured interview with 2-3 villagers;

		Agricultural practices;	GIS;

Appendix II

Time-schedule

Days	Morning meeting	Morning	Afternoon	Late afternoon	Evening
28th February (Thursday)	-	-	Socialising with TC on busride	Discuss research with TC and interpreter	Reflections
1st March (Friday)	Plan the day	Try to talk to Headman (SSI) and see the village to get overall picture; ask about best time to interview villagers; ask about archives (take USB)	Finalise draft questionnaire	Try out draft questionnaire (ourselves, with interpreter, TC and one or two villagers)	Enter data and reflect
2nd March (Saturday)	Plan the day	GPS walk (land sizes)	Questionnaire	Evaluating questionnaire	Enter data and reflect
3rd March (Sunday)	Plan the day	Questionnaire	Questionnaire	Questionnaire	Enter data and reflect
4th March (Monday)	Plan the day	Questionnaire & Archives	Questionnaire	PRA	Enter data and reflect
5th March (Tuesday)	Plan the day	Questionnaire	Questionnaire (and select 3 villagers for SSI)	GPS walk (water sources)	Enter data and reflect
6th March (Wednesday)	Plan the day	SSI	SSI	PRA	Enter data and reflect
7th March (Thursday)	Plan the day	SSI	tbc	tbc	Enter data and reflect
8th March (Friday)	Plan the day	Questionnaire	tbc	tbc	Enter data and reflect
9th March (Saturday)	Plan the day	PRA	tbc	-	Enter data and reflect

10th March (Sunday)	-	Leave	-	-	-