Adaptation of livelihood strategies in light of rural change and development in Sarawak. A case study of Menuang.

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Abstract

Sarawak is a state where tradition and development converge. Economic growth in larger cities is stimulating rural to urban migration, mainly by the younger generation, causing significant demographic differences across State. At the same time, Malaysian history is full of examples where NCR have been neglected in favour of large-scale commercial agriculture and logging, and in a time where the demand for oil palm has exploded, it is an enticing opportunity for small rural communities to either start a plantation as a small-holder or via a state-sponsored joint venture. This case study is set in a small village of Menuang, and looks to answer how such external factors determine the livelihood strategies of the community. By the use of an interdisciplinary approach, focusing heavily on interviews with local population, and applying the Sustainable Livelihood Framework, the study has identified how both the community as a whole and individual households have adapted a large range of livelihood strategies by having access to off-farm income and newly developed infrastructure. At the same time, the community has been extremely challenged by negotiating the access of their land with oil palm developers as well as the two national parks established nearby.

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1 Introduction

Together with Thailand and the Philippines, Malaysia is considered a part of the second wave of the so-called East Asian Miracle. The country in the last couple of decades have managed to become one of the most developed states in East Asia (Williams, 2014, p. 300). In contrast to the colonial period, the manufacturing and service sectors now dominates the overall economy of the country, which decreased economic inequality in Malaysia (Shari, 2000). Much of the economic growth has not reached rural areas, which are still characterised by lower wages, fewer jobs and an ageing population. Furthermore, roads connecting urban areas to larger cities, such as Kuching, have a greater economic impact on rural regions than those to smaller cities (Windle and Cramb, 1997). Rural areas were therefore also able to benefit from economic development of Malaysia through better access to cities.

Apart from urbanisation and infrastructure improvements, price increases for cash crops such as rubber and pepper in the global market facilitated the rapid expansion of large-scale plantations, also supported by several development policies enabling private estate expansion (Cramb, 2013). Native Customary Rights (NCR) have been partially ignored by the post-colonial governments in favour of large-scale agriculture and resource extraction. Today, the expansion of the oil palm sector, on the one hand gives rise to conflicts between native landowners and private companies, but on the other hand also helps to improve the financial situation of many rural households (Ngidang, 2003, p. 70). This research project focuses on the livelihoods of a rural Iban population, who have traditionally cultivated the tropical rainforest in subsistence-based communities, for which they have developed sophisticated resource management systems (Sakai, 2016). The following in-depth case study is of great relevance, in order to determine if traditional livelihood strategies of the Iban are affected by the development patterns explained above. The foundation of this project is built on the hypothesis that certain external drivers have an impact on rural areas and that results in individual processes of livelihood adaptation to those drivers. Given that, the aim of this study is to answer the following research question:

How do external drivers determine
various livelihood strategies in Menuang?

To achieve this, Menuang population's livelihood strategies will be analysed in light of external factors of urban push-and pull factors, demographic

change, institutional cooperation and land rights conflicts as well as rural development of infrastructure and large-scale agriculture.

The report is based on a fieldwork carried out in a period of 12 days in Menuang. The data needed to answer the research question was obtained from primary sources including direct involvement through participant observations, focus-group and individual discussions and interviews. Our personal and professional experiences and understanding is supported by relevant secondary literature.

The report will be structured in the following way. The theoretical background chapter provides insights into relevant literature and introduces the *Sustainable Livelihood Framework (SLF)* which will be used to analyse the individual households featured in the case study. The third chapter discusses the interdisciplinary methodological approaches of the fieldwork. The fourth chapter is divided into three parts. The first part analyses the results on the community level, giving a comprehensive picture of the village including general characteristics, community structures and how the village interacts with external influences. The second part of the chapter elaborates on policies, institutions and processes, as a community level livelihood platform. Chapter 6 applies the SLF to identify and discuss different livelihood strategies in Menuang. The aim of this approach is to construct a portfolio of four different livelihood profiles. The fifth chapter will briefly summarize and discuss the final results in order to answer our research question. The report is concluded with a reflective chapter on research conducted.

2 Background

2.1 Sarawak and the Iban

Sarawak, located on the island of Borneo, is the largest state in Malaysia in terms of its land size and also one of the states that has the lowest population density, as half of the population was living in rural areas in 2010 (Department of Statistics Malaysia, 2011).

The 28 indigenous groups and subgroups living in those rural areas in Sarawak account for over 50% of the population and 30,3% of them are are Iban[1] (Yong and Pang, 2015, p.18). The Iban cultivate 69% of the total arable land in Sarawak on which they mostly practice shifting cultivation (Ngidang, 2003, p.62). Even though shifting cultivation has declined in recent decades, it continues to be a significant form of agriculture for the Iban who have adapted their practices to changing conditions in rural areas (Soda, 2001; Padoch et al., 2007).

Rural-to-rural migration describes a situation where whole villages relocate or individual households seasonally move to another village (Cramb and Sujang, 2011, p.15). This is a part of Iban livelihood strategy today, as well as it was historically, as it is related to wedding customs, swidden agriculture or as a response to natural resource shocks and scarcity. Urban migration in Sarawak started in the 1960's when the Iban men moved to the cities in search of better job opportunities. Two decades later this mobility pattern has become a significant element of livelihood strategies for both indigenous men and women (Cramb, 2007, p.15-16). This had a transforming effect on the region : in 1980, 18% of the population lived in cities, in 1990 the share has increased to 22% and 48% in 2000 (Cheng, 2007, p.1)[2]. Responding to urban development, studies now identify processes of *deagrianisation* in rural areas, which are slowly becoming depopulated (Williams, 2014). A study by Abdullah (2016) identifies what he calls *multi-local living* in Sarawak, in which households divide their time between urban and rural homes as a response to *deagrianisation*.

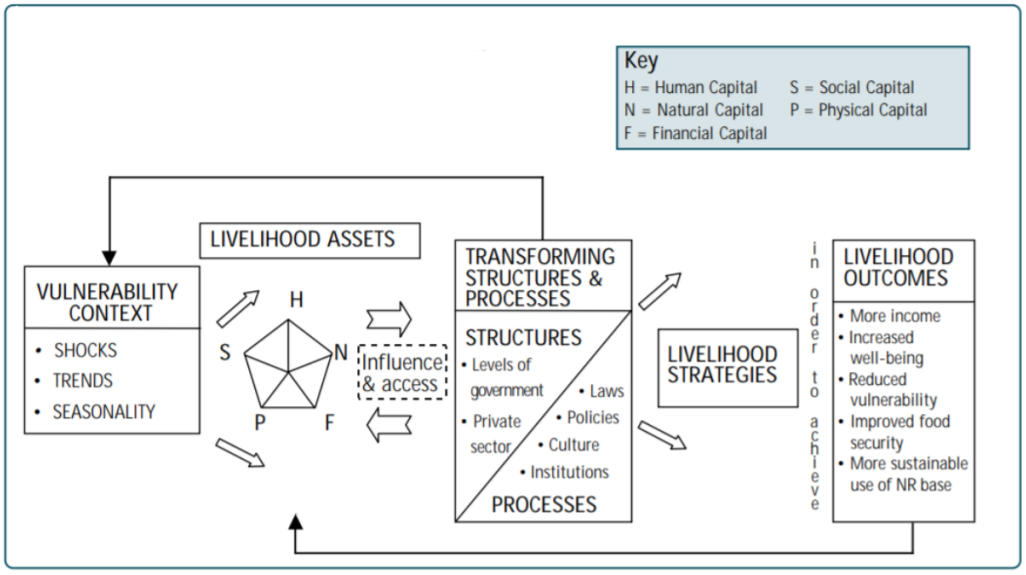
[1] Other ethnic groups are the Bidayuh, the Orang Ulu Dayak groups and Melanau in Sarawak.

[2] The total population of Sarawak in 2010 was 2,47 million, and 600.000 of the citizens lived in Kuching. Accordingly, the population of Kuching has expanded from 500.000 citizens in 2000 and further to more than 650.000 in 2014 (Hasan, 2015).

2.2 The Sustainable Livelihood Framework

The choice of the SLF has been guided by its anthropocentric focus. Moreover, the SLF is characterised by an approach which allows to connect the conducted micro-level research with a wider context of processes and structures, as well as the external factors which shape people's everyday life choices. Figure 1 below shows the complete framework as outlined by Department for International Development (1999).

Figure 1: The Sustainable Livelihood Framework



The *livelihood assets* constitute five capitals clockwise: human, natural, financial, physical and social. These assets show to which extent certain capitals are accessible for a household when pursuing specific livelihood strategies. The capitals of the SLF are used in a broader context of *transforming structures and processes* in a society where policies, institutions, organisations and culture inhibit or encourage different strategies and access to assets. They can either improve the access to livelihood assets, for instance through government policies and investment or restrict it through e.g. poorly defined property rights. Institutions and processes can also change the rate of asset accumulation, for instance through the welfare system. Furthermore, the capitals are vulnerable to pressures originating from the surrounding

environment, both in socioeconomic and natural contexts. The degree of vulnerability is highly dependent on the characteristics of the livelihood as a whole. The *vulnerability context* is a part of the framework that is mostly outside people's control. The sustainability of people's livelihood is dependent on the level of resilience to external factors, whether natural, economic or political. Interactions between internal assets, level of vulnerability and external factors form the basis of a household's livelihood strategy. The desired outcome of this strategy is dependent on the needs of the household and can therefore vary e.g. from increased income to reduced vulnerability (Department for International Development, 1999). The ability to "maintain or enhance its capabilities and assets both now and in the future, while not undermining the natural resource base" (Chambers and Conway, 1992) is the key of a sustainable livelihood strategy.

3 Methodological approach

The purpose of this chapter is to provide an overview of different methods applied during the fieldwork, together with their limitations, as well as the factors that could have influenced data generation processes. The majority of our research has been based on qualitative data. We have used methods originating both from social and natural sciences, including quantitative and qualitative data, which also allowed for triangulation, contributing to the higher reliability of the findings (Mikkelsen, 2005, p.96).

3.1 Qualitative interviews

The interviews conducted have become the main source of qualitative data for the project. The methods were applied with the help of interpreters and the cooperation with them was crucial in the preparation stages, as well as when interpreting the gathered data. Since there are several limitations and biases associated with qualitative interviews in the field, we consider them in our specific case in the chapter on reflections.

3.1.1 Semi-structured interviews

During our stay in Menuang 11 out of 23 households were present and a total amount of 9 semi-structured interviews have been conducted. Each interview was designed to represent a household and not an individual, even though the interviews were conducted individually. We aimed to interview as many households as possible in order to get a precise idea of the similarities and differences of livelihood strategies in the village. The interviewees representative for a household were not selected, instead the household could choose who was going to be interviewed, and this decision could therefore likely be based on who was available or influenced by hierarchical gender roles. The interview guideline was formulated with regards to the main principles of openness and flexibility of qualitative research. In order to keep a fluent conversation, invitations to present a personal narrative in the form of various stories were part of the interviews, but the interview also contained guided questions in order to ensure a structure of the interview (Casley and Kumar, 1988, p.14). The interviews were transcribed by at least two people during the conversation in form of field notes, which were later revised by the interpreters.

3.1.2 Informal conversations and participant observations

Informal conversations play an important role in our research because of the flexibility to freely choose a topic for a conversation. Even though the informality of many interviews left a lot of space, we acknowledged that some degree of control of the conversation is necessary (Casley and Kumar, 1988, p.11). We were also participating in walkabouts to the plantations and orchards, which provided us with participatory and observational opportunities to witness how people interact with their surroundings and participate in their daily activities (Strang, 2010, p.152).

3.1.3 Focus group

The advantage of a focus group is the possibility of comparing different perspectives on a certain topic, which in our case was the focus on mobility and land use. The focus group discussion was conducted with three women in Menuang. By observing the interactions within the group one can analyse the important elements of the conversation (Babbie, 2002, p.300). Moreover, interactions within the group often sparked an active exchange of opinions, which allowed us to gain insight into different perspectives.

3.2 Participatory Rural Appraisal methods

Participatory Rural Appraisal (PRA) is an umbrella term, describing a number of participatory approaches, aimed at enabling "local people to share, enhance and analyze their knowledge of life and conditions" (Chambers, 1994, p.1). In our research we have employed two types of PRA used in this project: participatory mapping and transect walks.

3.2.1 Participatory mapping

Participatory mapping aims to identify a social structure within the community by investigating the role of people in the village, their spatial distribution as well as their daily activities (Mikkelsen, 2005, p.107). The social map session was conducted with four women. In the first step of this exercise the participants were asked to help filling out a map of the village by adding names of households, describing their farming activities, how much the different villagers were present in Menuang and where and why some of them had stayed in other places. The second part of the session was based on the

same task as in the first map, but to reflect the village in the 1980's. The purpose of the exercise was to explore the history and development of the village and to gain basis for understanding the evolution of livelihood strategies based on changes in the village environment and community structure. PRA methods share an advantage of direct involvement of participants in the activities, however, the participation of some individuals in the participatory mapping exercise was limited, as some participants were more active than others. Even though we encouraged all participants to engage equally, they usually referred to the more dominant person.

3.2.2 Transect walks

Transect walks have the purpose of informing on people's historical and contemporary relationships to the surroundings (Strang, 2010, p.132-33). In our case, we were getting an overview of the "trail system" around the forest, the purpose of the trail and its frequency of use. Due to the reduced activity of the ageing population and the decreasing size of surrounding villages, forest trails are becoming less used. Hence, the reflections of the people guiding the walk were usually concerning the past, allowing us to learn about the history of the local area. Besides this, we were getting information on use of plants and trees, Iban rituals and customs as well as the past and present ownership of land.

3.3 Forest Resource Assessment

In order to understand the extent of land use, the forest was assessed by the natural science method, Forest Resource Assessment (FRA). The FRA exercise we conducted had the purpose of investigating vegetation to provide basis for discussion on the impact of extraction of forest resources by the Iban on the forest. The study relies on the simplifying assumption that in this case human presence in the forest is measured by the number of planted trees. To conduct the study, we used a moderated version of the transect line method by (Canfield, 1941, p.388-90).

Figure 2: The transect line method (adapted from (Canfield, 1941))

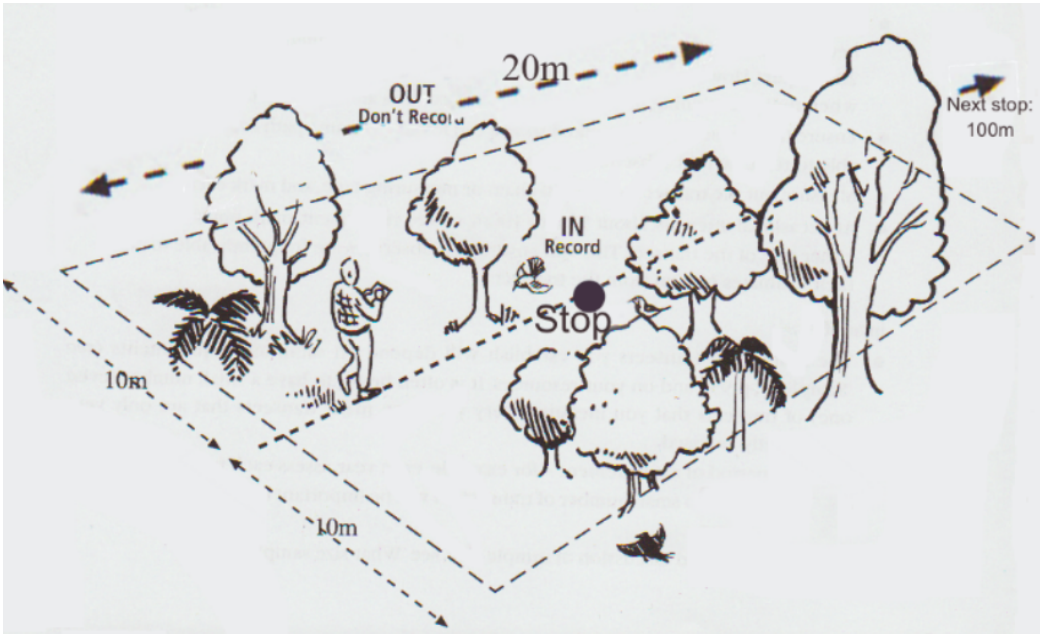
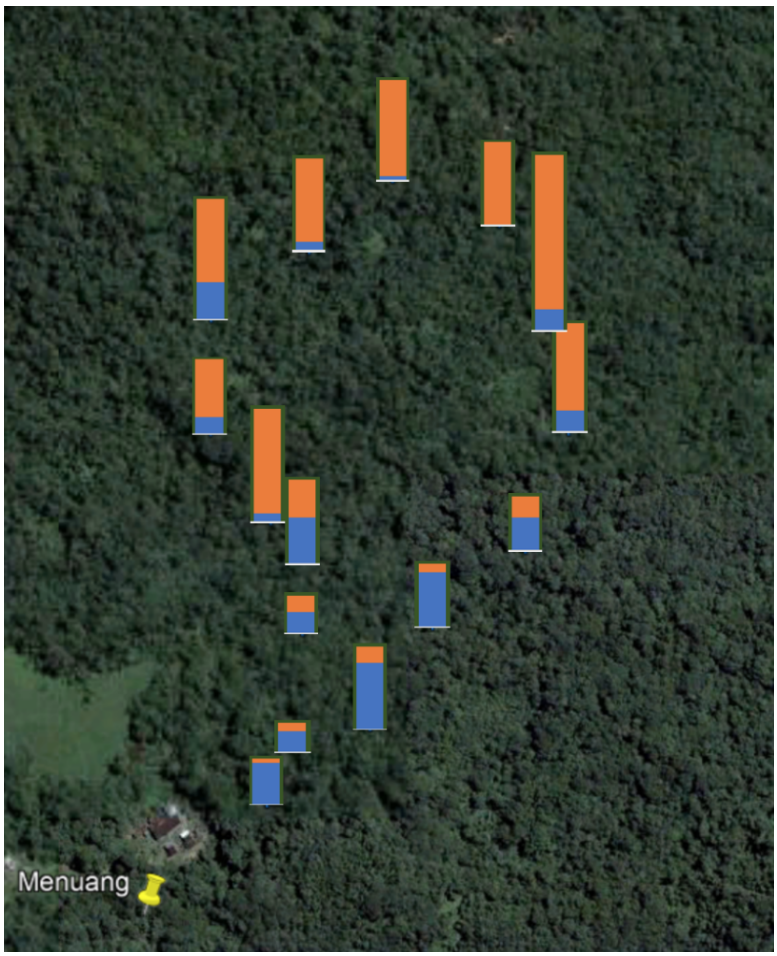


Figure 2 above shows a plot and points that represent the tree population of interest. The length of the total route for the FRA was approximately 2 km, making a loop back to the village after 1 km. Thus, the surrounding forest was assessed on two trails, leading away from the village.. The first important step is to decide on more or less stringent "rules" of measurement (Canfield, 1941, p.388-90). We chose a line plot, where with the help of a research assistant we counted and identified trees on both sides of the trail at every 100 metres (distance between waypoints measured with GPS). We went maximum 10 metres into the forest and 10 metres forward and backward from each waypoint. We have analysed 15 of such plots in which we identified the number of planted trees, which are fruit trees like Durian or forest product trees such as rubber.

Figure 3 below shows the route we have taken and the proportion of planted (blue) and natural (orange) trees in each plot.

Figure 3: FRA route (adapted from Google Earth)



Following Canfield (1941), the transect line should go straight through the chosen plot, but due to dense forest we were forced to follow the path shown above. Since we only observed the area around those chosen trails, it is difficult to generalize the results to the rest of the forest surrounding Menuang. Due to a matter of time and assistance, we were not able to assess the forest on further trails to improve the validation of the data.

4 Overview of livelihood in Menuang

In this chapter we focus on the collection of primary data on a local level providing contextual information on Menuang from several interviews, participant observations, PRA exercises and FRA, with some reference to secondary sources.

4.1 Community livelihood

4.1.1 Description of the community

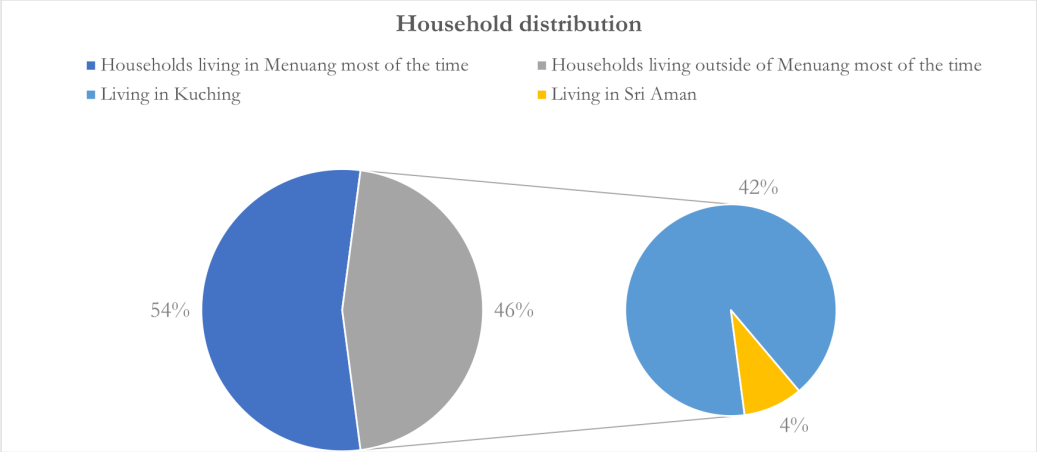
> *"Iban society is characterized by essentially autonomous households (bilek) voluntarily linked together under the leadership of a headman in politically independent longhouse communities." (Cramb, 1989, p.280)*

Menuang is situated in the Pantu area of Sarawak and lies beneath the mountain Gunung Lesong with an access to a small stream. The closest village, Langgir, is located approximately two kilometers away from Menuang and is connected by a forest path. Since 2003 all households in Menuang are covered by solar panels, which provide free electricity and there is no water scarcity due to the access to spring water from the mountain.

Menuang is as most of the Iban communities divided into Ulu with 18 households and Ili with 5 households[3] and is characterised by its small permanent resident size since only 13 households live permanently in the village (see figure below).

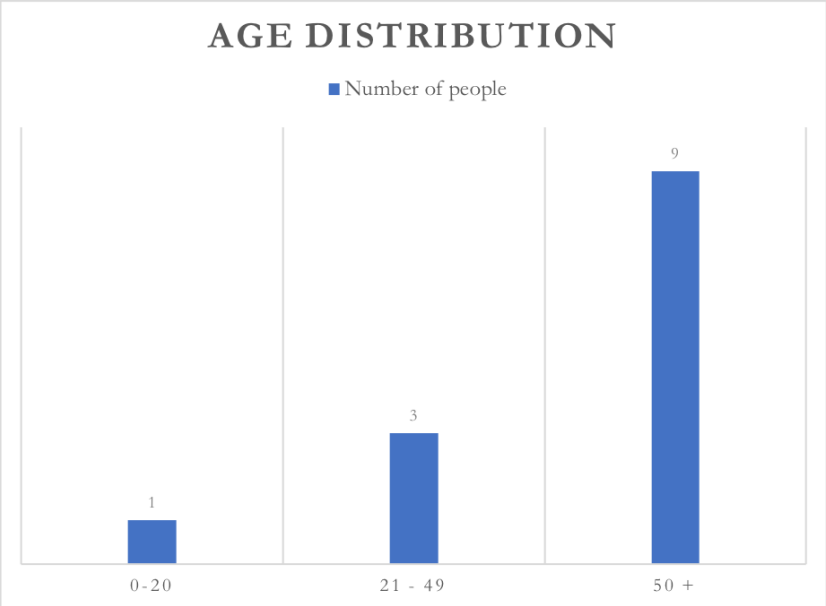
[3]Due to practical reasons regarding the analysis of this report and the fact that the longhouses were strongly related, we treat Menuang Ili and Ulu as one community.

Figure 4: Population of Menuang



According to the Iban customary law, one loses the rights to land which will be given back to the longhouse when moving to another village without transferring it to relatives. That is one of the reasons why the majority of the 10 households mainly residing in Kuching come regularly to Menuang to take care of their land and relatives. Those visits from relatives are limited to holidays and fruit season which implies that they do not provide any workforce in the village, yet often at these occasions bring money and physical goods. The exception is the construction of a longhouse which is being built with the help from relatives living in the city, where to keep their *bilek* (household) everyone has to put an equal weight of labour in the whole construction process. As the figure below indicates, Menuang's population is increasingly ageing and therefore highly dependent on relatives.

Figure 5: Age distribution in Menuang



The urban-migration of young labour had worsened this trend of an ageing rural population in Malaysia. Accordingly, the old age dependency ratio of Malaysia predicted to rise from 10,5 in 1970 to 15,7 in 2020 (Williams, 2014, p. 143). In addition, this dependency is more apparent in rural areas and affects women in a higher degree than men. This trend was observed during our field work and confirmed through interviews.

The villagers emphasize that the relatives living in the city are visiting more often since the beginning of the construction of the road in 2010. Before, transportation by river was not just much slower, it was also less flexible as one was dependent on timing due to the tides. The roads in the area are mostly poorly maintained logging roads. In 2014 the Goods & Services Tax has been introduced in 2014. This tax reform implies the removal of subsidies on fuel and essential goods, which does not provide an incentive to improve service delivery and poor infrastructure in rural communities (Narayanan, 2014). However, as informed by the headman, the road leading up to the village from Pantu is regularly repaired by the state authority, as long as the village provides the gravel necessary for maintenance.

4.1.2 Education and religion

Education was a crucial factor influencing mobility of indigenous people. (Bruner, 1961) refers to it as the *'golden plough'*: the opportunity to improve livelihood from working in the rice field and monotony of village life. While most of the women in Menuang finished primary school, men went up to secondary school. Illiteracy is a major issue in the village, since many people have not practiced any writing or reading since childhood. Moreover, many families have told us that they have lived in the city while their children went to school. Given that the newly built road has improved the access to school in the rural area, a decrease of illiteracy for the younger generation in the village can be expected. In the 1970s missionaries from Germany and Singapore had lived in Menuang. All of villagers have been baptised and in conversations villagers refer to themselves as Christian even though traditional Iban rituals and spirituality still play a significant role in the everyday life of the village.

4.1.3 The Iban *adat*

The Iban *adat* is an elaborate body of customs, norms, ritual interdictions and conventions which guides individual and collective behaviour in an Iban community (Cramb, 1989, p. 280). *Adat* customary law also defines community boundaries between longhouses, farming rules, social relationships and is the socio-cultural environment of the Iban for decision-making processes (Ngidang, 2005, p. 50).

Regarding this socio-cultural structure of the Iban, we observed a highly hierarchical system in Menuang where the headman is the main decision maker. Since he is the only one who can apply for infrastructure-related subsidies and projects concerning e.g. electricity, water or road access, in particular the latter has been mentioned often by the villagers as his success compared to former headmen of Menuang.

4.1.4 The *bedurok* exchange-system

Strong reliance on social relationships within the Iban community is a crucial element of the villagers' lives. According to the villagers, most of the work in the field is accomplished through mutual help among the households and knowledge sharing is an important part of the community life. This tendency is embedded within the traditional "labour-exchange system

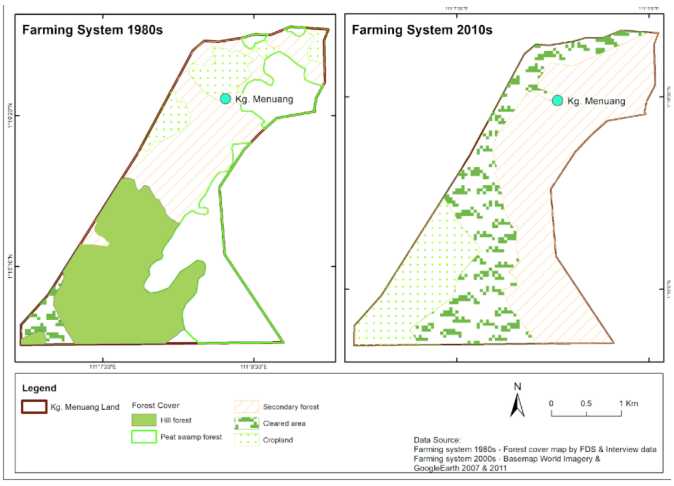
[...] based on strict reciprocity" (Freeman, 1955, p. 85) called *bedurok*. Its rules are widely recognised within the whole village and an integral part of any labour-intensive undertaking such as planting or harvesting crops, construction, as well as emergency situations. The Iban culture is not only characterized by strong cooperation in form of *bedurok*- solidarity and trust also play an important role for the communal well-being and is "more valued than individual success" (Sutlive Jr, p. 107). Moreover, the exchange of information between people regularly moving to the city is essential for the livelihoods of the villagers because they inform them about price changes of cash crops as well as selling opportunities in the city.

4.1.5 Land and agricultural activities

> *"Relations between [Iban] people and land are fundamentally cultural in nature. People are territorial by nature, and they relate to land in both formal and informal ways" (Ngidang, 2005, p. 50)*

Menuang has been moved in 1996 from one side of the stream to the other, which can be explained by the traditional Iban practice of pioneer shifting cultivation to secure land due to quality and fertility of the soil (Soda, 2001).

Figure 6: Farming systems in Menuang (adapted from Google Earth)



As figure 6 indicates that most of the peat swamp forest which originally was used for small-holder rice paddies in the 1980s has turned into secondary

forest within the last 30 years. This transformation can be explained by the deforestation of the hill- and secondary forest next to the peat swamp forest, drying out the surface of the peat swamp. In the 1980's cropland next to Menuang reflected the traditional Iban cultivation patterns, farming cash crops and other food for self-consumption, which has decreased ever since. Furthermore, the map shows the clearance of hill- and secondary forest on an area with the length of approximately 10km and a width of 1km for the construction of the road in 2003. The cleared land along the road is now also targeted for large-scale oil palm plantations, which we will elaborate on later in this paper.

Today, all of the villagers grow plants for self-consumption[4] in the village and there is no livestock besides poultry. Under *adat*, one owns the plants that they grow since there is no official division of plots as well as no limitation of the amount of plants one household can own within the village, however, there generally is an equal distribution of plots, which compromise a family asset and can be inherited by the next generations (Bawin, N., 2017). The figure below shows how NCR land belonging to Menuang is distributed among all inhabitants of the village.

[4]Those are among others include coconut, banana, pineapple, lemongrass, pepper, coffee and orange.

Figure 7: Distribution of plots Menuang

Plots in the forest are used for farming pepper and rubber, which have been an important cash crop for many years. However, the planted rubber trees in the forest have not been tapped recently due to fluctuation in prices. Similarly, even though pepper fields are still harvested today, the price decrease has been a serious obstacle in selling pepper. According to the villagers, prices for pepper have dropped from 50 MYR/kg in 2016 to 30 MYR/kg in 2017 to 9 MYR/kg in 2018. This trend shows that villagers allocate their time to different cash crops based on the current prices of produce and labour intensity required.

The figures below picture the mentioned trends in choice of cash crops and allow to see how many people in the village grow which crops in two time periods - before 1990 and in 2018.

Figure 8: Crops cultivated before 1990

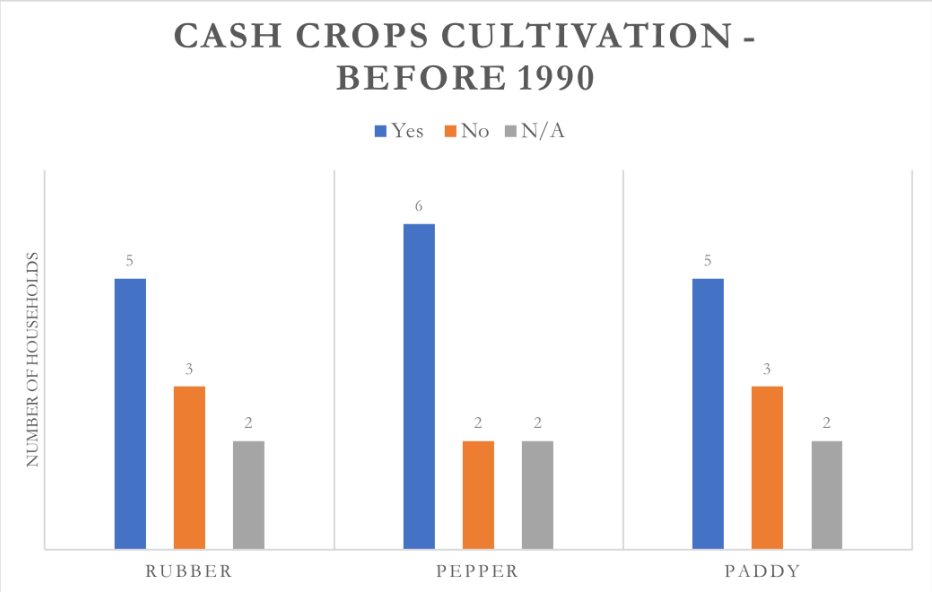
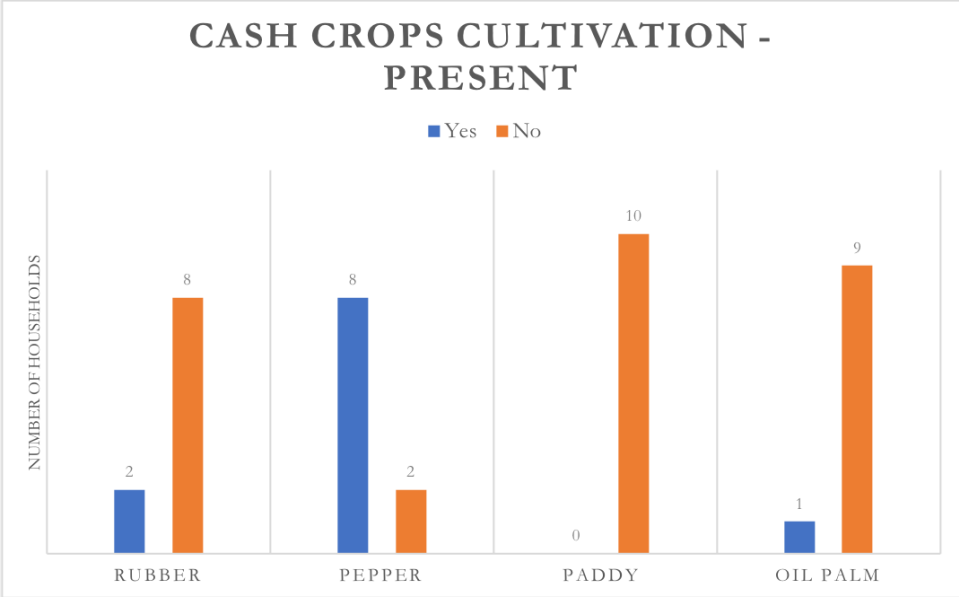


Figure 9: Crops cultivated today

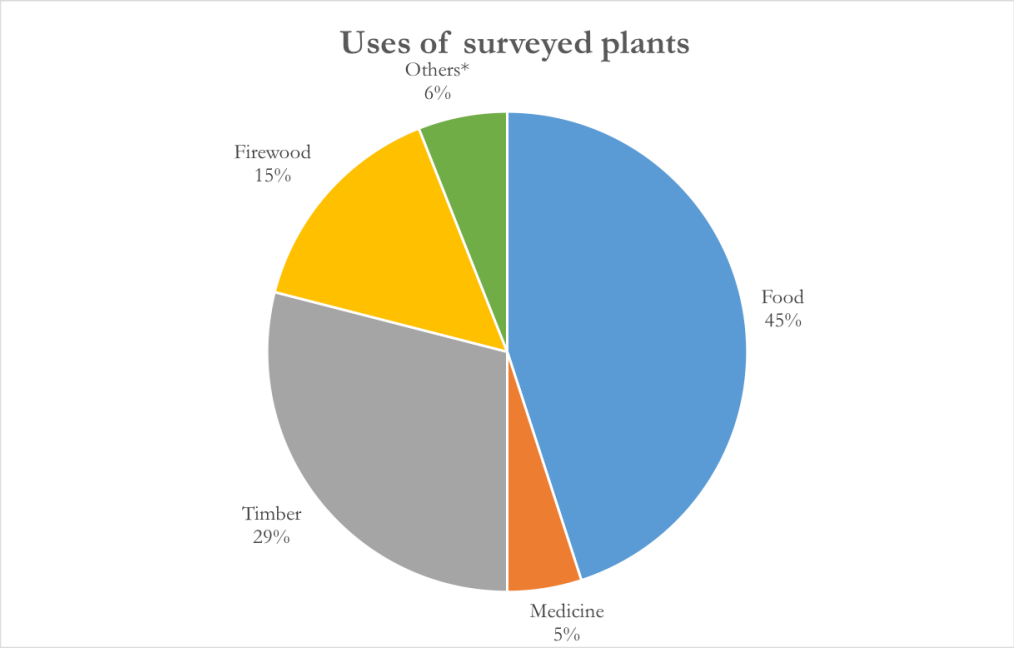


The graph illustrates that villagers have given up growing paddy completely and only two still maintain rubber trees. However, there has been an increase in interest in growing pepper - from six people in 1990 to eight people in 2018, which can be explained by the decreasing cultivation of rubber and abandonment of paddy. The current figure also shows the new small-holder oil palm, which is discussed later in chapter 5.

4.1.6 Forest resources

Foraging in the forest contributes to the daily diet of all households in Menuang. People collect fruits from planted trees such as durian or jackfruit, as well as roots, leaves and ferns from wild plants. Regarding the amount of food extracted from the forest, one can argue that foraging is a regular activity in Menuang. People extract plants from the forest for variety of different purposes, 52 plants have been surveyed in proximity of the village and classified according to their basic purpose (see figure 9).

Figure 10: Uses of forest resources

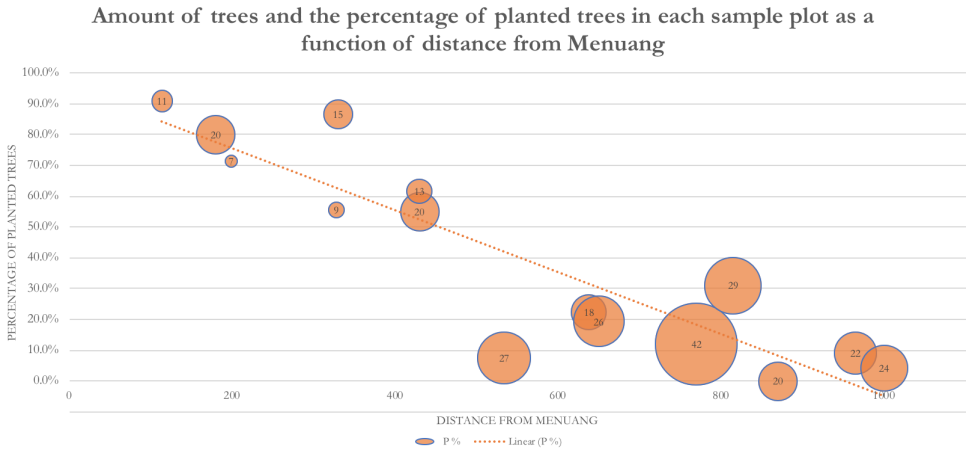


*Others include crops for handcraft, hygiene use and commercial use.

Land around Menuang is considered common property after the Iban "resource sharing concept [...] when cultivation rights and rights of access to land are vested in the community" (Ngidang, 2003, p. 604). However, foraging particularly from planted trees requires a permission from the owner of those trees. These are not considered common property, as planting them requires effort and time, hence establishes an own property. A few of the residents also supplement their income by selling timber to local villagers for house constructions.

The results of the FRA exercise (see figure below) strengthen the argument that the forest is of crucial importance for the livelihoods of the people in Menuang by providing answers to the extent of land use in the forest.

Figure 11: FRA results



The x-axis shows the distance of sample plots from the village in meters , the numbers in the bubbles are the number of trees that were counted in each sample plot, and the y-axis shows the percentage of planted trees within those plots. The dotted line represents a linear trend of decreasing number of planted trees as a percentage of all trees counted. As the figure indicates, the further one walks away from Menuang, the more natural trees and the less planted trees occur. This tendency confirms foraging activities since the villagers extract food from trees, which they need to grow close to the village. However, it is also important to mention the change in the number of trees when looking at the plot observed 500 meters away from Menuang. This plot was the shifting point where most of the planted fruit trees were replaced by

mainly rubber trees. This change in cultivation shows a general pattern of how the proximity of fruit trees were prioritised over the proximity of rubber and other trees that do not provide edible produce.

4.1.7 Income and welfare support

Since the average age of the people residing in Menuang permanently is over 50 years old (see figure 5) the village is lacking workforce. Thus, most of the villagers do not have any income and receive remittances from relatives who live in the city. According to Mertz et al. (2005) households receiving remittances in Malaysia have risen from 16% in 1970 to 37% in 2001 due to urbanisation trends. The villagers hope that becoming a part of an oil palm joint-venture company (JVC) will constitute a new source of income, a process that is explained in depth in the following subsection. Apart from remittances, welfare subsidies and subsidies in fertilizer and seedlings supply by the Ministry of Agriculture are of major importance for the people in Menuang. Two households in Menuang stated that they are receiving BR1M ("Bantuan Rakyat 1 Malaysia") which is a program giving financial support to low income households, meaning less than RM400 per month. Another household asked for support from a foundation called "Yayasan Budi Penyayang Malaysia" which provides assistance to people in need.

4.2 Policies, institutions and processes

"Individuals live and operate in a world of institutions. Our opportunities and prospects depend crucially on what institutions exist and how they function."(Sen, 1999, p.142)

Formal and informal institutions[5] influence the options available to rural communities through structural barriers or opportunities in particular regarding patterns of resource use (Garnett et al., 2007). Livelihoods are shaped by those institutions and a multitude of other forces and factors that are themselves constantly changing, which is why the following chapter addresses the community's engagement with and mediation by Native Customary Rights (NCR), National Park policies and joint-venture schemes.

[5]Institutions refer to formal constraints such as laws and constitutions as well as informal rules like customary law.

4.2.1 Native Customary Rights Land

In the Iban community the village's boundaries are defined by *"pemakai menoa* [which] is the territorial domain of a longhouse community where customary rights to land and other natural resources were acquired by pioneering ancestors" (Ngidang, 2003, p. 63).

NCR introduced by the British during the colonial rule have to some degree recognized customary land rights and laws of indigenous people. NCR regulates access and extraction of resources from the forest, determining land ownership rights based on ethnicity (Peluso and Vandergeest, 2001, p. 791). Even centuries after colonization, the state government follows most of the policies and legislation concerning NCR based on the Sarawak Land Code of 1958 (SLC). Despite several other policies in the 1990's the Land Code Amendment Bill in 2000 was the most important legislative change after independence. The bill deleted the clause of Section 5(2)(f) "any other lawful method" from the SLC which is crucial to NCR, integrating and codifying the Iban cultural practices (Ngidang, 2003, p. 64). This amendment empowered the government to abolish NCR to lands when indigenous landowners could not proof that they had been occupied and cultivated the land before 1 January 1958 (Yong and Pang, 2015, p. 23). The state freed large areas of fallow farmlands from customary rights, claiming it to be abandoned land because of the absence of written records and the fact that most of the older generations witnessing pioneering did not live anymore. This territorialisation involved transferring control from a decentralised system, based on community management, to one of a centralised state in order to facilitate the expropriation of land for oil palm development (Cramb and Sujang, 2011, p. 141). According to Yong and Pang (2015, p. 15) land acquisition for commercial agriculture activities by the state authorities is justified by being development projects with the aim of poverty eradication. Considering this potential threat for the livelihood strategies of the Iban, many people in Menuang are extremely vulnerable to those policies regarding their NCR land tenure.

4.2.2 National parks

In 2014, the Malaysian state established in Menuang area an almost 600ha large national park called Gunung Lesong (Gazette, 2014, p. 70). According to the Deputy Tourism Minister, this national park is planned to be de-

veloped as a prime tourist destination, aiming for an inclusive eco-tourism project with the Iban communities (Post, 2018). However, some villagers have been affected negatively by the establishment of the Gunung Lesong National Park. Parts of the land people are cultivating – especially where rubber trees grow – are within the boundaries of the national park, which imposed restrictions on their use of resources. According to The National Parks and Nature Reserves Ordinance (Gazette, 2014, p. 70-71), villagers are not allowed to grow crops which are used for sale or profit within a national park. In addition, hunter-gatherer activities are restricted according to the Wildlife Protection Ordinance of 1990 and 1998 (Ngidang, 2005, p. 64). Through the establishment of a national park and the implied land acquisition by the state, some of the total area of 1.5 million ha (Ngidang, 2005, p. 67). NCR land in Sarawak is being transformed to Reserved Land owned by the state. The people of Menuang facing disadvantages due to those new policies have not yet been offered any compensation by the state.

People without any cash crops within national park boundaries mostly support the initiative because they are interested in eco-tourism and the opportunity to host guests and guide tourists as a form of alternative income. As some of the villagers have already been in contact with tourists, the positive experience encourages them to take advantage of those new job opportunities. The establishment of a national park potentially brings more exposure to Menuang, by giving access to better basic amenities, such as electricity, water and improved road conditions. Most of the villagers also appreciate the conservation purpose of a national park, since the Iban culture has a strong relationship with the natural environment. Thus, the establishment of a national park is seen positively when protecting some of the necessary resources like the water catchment, but also wildlife.

The headman of Menuang has been part in the formation of the *Gunung Lesong Community Based Eco-Tourism committee* (GLCBET), together with other headmen from the villages around the national park. Cooperating with representatives of state bodies and WWF, they aim at protecting socio-cultural traditional and natural heritage resources within the national park. The committee is also the body to decide upon providing alternative income sources and territorial domains, as well as instill awareness on conservation of biodiversity and environment (Post, 2018). While the former share their interests in cultivating their ancestors lands, the latter aims to address awareness of the importance of conservation projects regarding biodiversity. By finding compromises and solutions to those contradicting interest, the GLC-

BET committee supports the dialogue between all parties.

The second national park planned for the region is called Ulu Sebuyau and will potentially cover Menuang land. This raises tension between state authorities and the headman of Menuang since part of the proposed JVC land cannot be cultivated with palm oil, if it becomes part of the national park. According to the headman of Menuang, he has been engaged in negotiations about the final boundaries of the national park because of the rejected JVC proposal on this potentially Reserved Land.

4.2.3 The Joint Venture proposal

The *Konsep Baru* ("new concept") land development policy from 1996 is a three-party joint-venture model involving a private company. This "new concept" was implemented by the Land Consolidation and Development Authority (LCDA) which encourages and facilitates landowners to lease their NCR land to JVC for 60 years (Cramb, 2013). In 2013, the headman applied to the LCDA for a JV for his NCR land , which is more than 2000 ha. Since large parts of the Menuang area consists of peat swamp forest and abandoned rice fields he is interested in using it for commercial agricultural activities in form of a large-scale oil palm estate. In 2014 a so-called "development area" was established by the LCDA. Generally, it is unusual that the landowner approaches the LCDA since in most cases it is the LCDA who acts as an intermediary and contacts NCR landowners, on behalf of interested private investors. In order to create an estate that is sufficient for large-scale production, the LCDA has to make as many local landowners as possible to sign individual deeds in which they accept to lease out their land to a JVC, in return for 30% of its equity. The remaining equity is divided so that the LCDA gets 10% of the dividends and the private-sector partner receives the remaining 60% (Cramb and Sujang, 2011, p. 144).

After several years, Menuang's JVC called Winsome Pelita established only one plantation about 300 ha out of the 2000 ha available land which is located close to the road. Considering the fact that LCDA ideally seeks to create a lease that is at least 5000 ha because smaller plantations are not viable for oil palm, it also makes sense why Menuang had to seek out LCDA and not the other way around (Potter, 2015).

After the headman started to suspect that another company was planning to develop other parts of his land independently and disregarding Menuang's NCR land claims, he decided to start negotiating with a new private company

in 2016 which recognizes his interests without the help of Pelita[6].

At this stage, the NCR land is planned to be leased to the private company in exchange of a fixed rent instead of dividends, since the headman expects higher and more stable income. According to several studies on JVCs, most of the native landowners do not receive dividends for many years (Ngidang, 2002; Cramb and Sujang, 2011; Colchester et al., 2007).The table below summarizes existing types of oil palm schemes, together with their main advantages and disadvantages.

Table 1: Oil palm scheme type assessment

	Private lease	Pelita JV	Smallholder
Advantages	Rented at fixed price and cheaper clearing costs	No capital costs	Keeping all income
Disadvantages	Clearing and preparation	Low dividend	Start-up costs clearing and seedlings)

Considering that "all forms of external intervention are mediated and transformed by the social actors and structures affected" (Ye et al., 2009, p. 176), the role of the villagers and the headman in this application process is crucial. Some villagers, including the headman, see several advantages and improvements to their livelihoods when joining a JV. They expect better infrastructure, concerning roads, water and electricity supply as well as job opportunities. Regarding the latter, JVC schemes are known for either hiring foreign labour or offering wages so low (Colchester et al., 2007). Thus, job opportunities on JVCs for rural communities are rare and people permanently residing in Menuang or their relatives who would consider relocating from the cities would most likely not benefit from employment opportunities on the proposed JVC.

Responding to incentives to encourage participation in commercial agriculture, the oil palm small-holder sector has rapidly increased in Sarawak (Unit, 2010). Regarding this general trend, most of the villagers in Menuang

[6]Pelita is the LCDA's corporate entity and the state's formal co-owner of JVCs.

claim that the proposed large-scale oil palm plantation should preferably be considered to be managed on a small-holder scale. Given that, once a JVC is established it becomes the registered proprietor and the NCR landowners cannot involve in any agricultural or development activities anymore (Fox et al., 2009, p. 316) which makes a small-holder plantation more attractive to most of the villagers of Menuang.

According to the JVC scheme, in theory, the landowner can apply for reclamation of the land after the expiration of the lease. However, NCR landowners are expected to apply to the Superintendent of Land and Survey to re-establish their land rights after 60 years (Jitab and Ritchie, 1992). Thus, in reality this land is "dead capital" since it is "neither legally recognised nor tradable outside local communities, usable as collateral for loans, or as shares against investments" (Gerstter et al., 2011, p. 8).

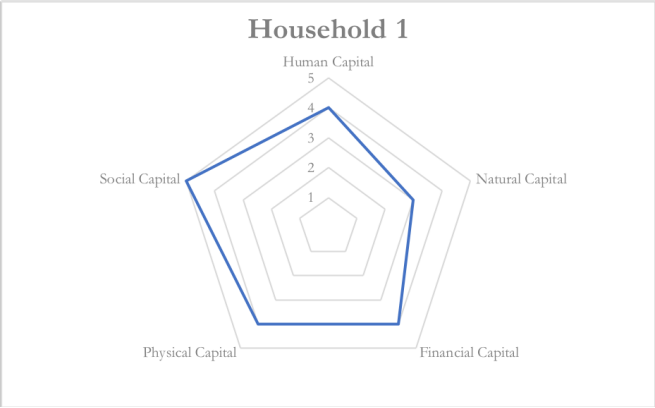
Moreover, the traditional Iban shifting cultivation does not cause any soil and forest degradation in contrast to the nutrition exploiting oil palm cultivation. Since authorities perceive forest-fallow land as undeveloped or abandoned land, as explained in the chapter on NCR land, the sustainable Iban forestry practices will be oppressed (Ngidang, 2005, p. 53).Even though the land is already cleared and deforestation is not the major issue, environmental degradation and pollution of the stream and air, however increase the vulnerability to natural shocks such as floods or extreme droughts (Yong and Pang, 2015, p. 30).

5 Assessment of household-level livelihood strategies

In this chapter, based on the knowledge of Menuang's current situation and development on the community level, we elaborate on the micro-level actors - the individual households and their livelihood strategies. As the background for our discussion we focus on the *livelihood assets, policies, institutions and processes and vulnerability* components of the SLF in order to visualise the widely different daily activities and relations to Menuang. We chose to focus our analysis on four households which are characterised by distinct livelihood strategies: the headman as the main authority, the only oil palm smallholder in the village, the youngest family of Menuang and the farmer.

5.1 Household no.1: the headman

Figure 12: Livelihoods Assets - Household no.1



The people in the headman's household are in their seventies and lived most of the life in Kuching, first taking care of their children and then grandchildren. At that time, they used to visit Menuang only for festivities, but after the headman's retirement from a cement factory in 2003 they have started visiting more frequently.

Now, they are permanently staying in Menuang, but often go to Kuching. Since the construction of the road the headman's household's physical capital

has improved significantly. Therefore it has become a determining influence on its livelihood strategies, by facilitating travel especially in relation to the headman's responsibilities. Despite his high position within the village and high relative income, the headman for his travels, as well as other activities depends on *bedurok* like everyone else in the community.

In an Iban community the headman is the main decision- maker and he performs a function of a political representative of the village. Similarly, in Menuang, the position is a big social capital asset. The headman (often with his family) travels a lot in relation to his duties, so the members of this household become a source of information on relevant news, the prices of crops, and the availability of social support.

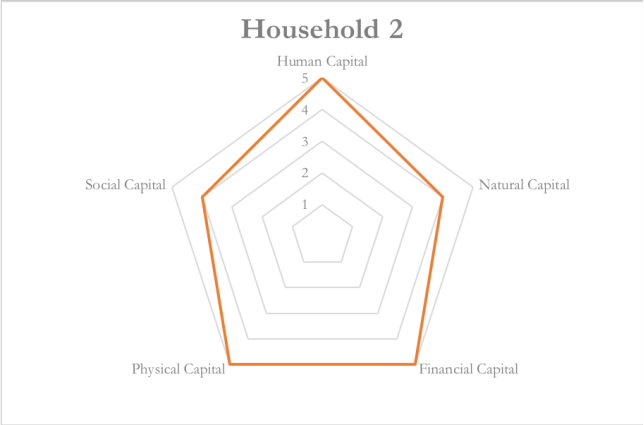
Moreover, the headman receives a lot of praise from the villagers for improvements in the road access, since it is up to him to apply for infrastructure-related subsidies and projects. It is possible that the current headman holds a higher status than the previous headmen of the village, who was said not to invest much into the infrastructure development in Menuang. Moreover, the headman's affiliation with the political party coalition *Barisan Nasional* ("The National Front")[7] extends his scope of influence and access to information and support through a broad social network. This strong connection to the leading political party, constitutes a high degree of social capital.

The household grows pepper in the forest and sells it to the middleman. In Menuang they have poultry, a vegetable garden and go foraging. Even though they have a high natural capital, they are not dependent on the income from pepper. The headman receives a remuneration of 1.000 RM/month which is supposed to cover the expenses for his service as a headman. Apart from that he gets a pension and the household receives remittances from children. Thus, he is not only the most powerful person in the village, he is also the wealthiest with the highest financial capital. Due to his financial support from remittances and pension, he is not only dependent on the remuneration of being a headman and therefore the least vulnerable person in the village.

[7]Described as a right-wing party, Barisan Nasional has held power since independence in 1957 and mainly represents the interests of the ethnic Malay population of Malaysia (Lee, 2007).

5.2 Household no.2: the oil palm small-holder

Figure 13: Livelihoods Assets - Household no.2



Members of household no. 2 are in their seventies and mostly living in Kuching but return to Menuang about once a month to maintain the land. The household owns a car, which allows them to drive to the plantation and back to Kuching independently, which is a special case compared to other villagers in Menuang. Since the 1960's Malaysia has experienced a dramatic decline in the rubber production due to a falling prices, which rapidly has been counterbalanced by an increase in oil palm plantations to meet the global demand (Talib and Darawi, 2002). Household no. 2 adapted its livelihood strategy in response those price changes and, as the only one so far in Menuang, took the opportunity to invest in a small-holder palm oil plantation. The plantation is of approximately 4 ha size, which accounts for approximately 560 trees. As most of the oil palm smallholders, the household considers palm oil as relatively easy work after the initial development years, compared to other annual or short term cash crops that can be more labour intensive. Labour is hired from another close village and the workers are daily wages for harvesting. Land clearance was accomplished through a no-cash exchange agreement with a logging company, reducing the high start-up costs of a small-holder oil palm plantation, as the household has not received any financial subsidies, seedlings or fertilisers. However, the man in the household receives training in growing and maintaining the oil palm plantation from the Malaysian Palm Oil Board, which also enables him to gain knowledge in sustainable resource use and management.

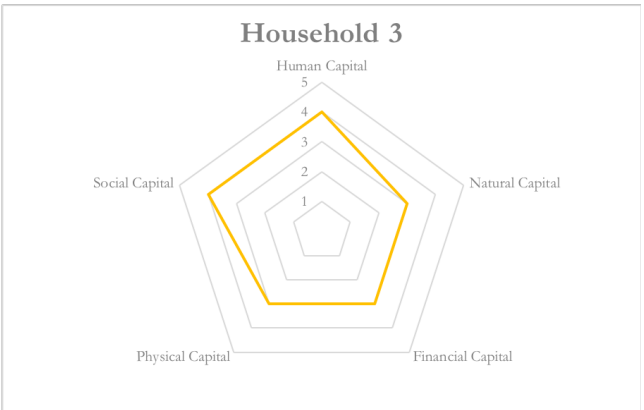
Apart from the income from sale of oil palm, he receives state pension as a former police officer. Therefore, the household has comparably more financial stability and thus a higher financial capital on the pentagon than other villages who mainly live from cash crops and remittances. Furthermore, household no. 2 provides remittance to two nieces, who are both in their sixties and do not have any other sources of income. So unlike other households discussed in this study, household no. 2 is a remittance provider, rather than a taker. Besides that, the household is not necessarily relying on the social network within the community, but has a large social network in the city.

All five children were born in Kuching and most of them still live there after pursuing higher education. The importance of education has been emphasised by the man of the household as a factor that allowed him to join police school in Kuching. This confirms a general trend that better education in the urban centers has been one important pull-factor for the Iban to leave rural areas (Soda, 2001, p. 98-102). Apart from the headman, the members of this household are the only one achieving a high level of education in their age group and having an off-farm employment experience, hence a high human capital score in the pentagon below. Smallholders in general are exposed to a high risk of failed investment (such as money spent on fertilisers and tools), and have no means of predicting their income fluctuations, as these are bound to the volatile market conditions. Therefore, this household is exposed to such external risk factors in connection with the oil palm plantation. Economic and natural crisis could cause significant losses, especially since the household does not receive any state support to run the operation. However, the current general trend of increasing international demand for oil palm provides some degree of certainty in profits.

The household has a diversified source of income due to the stable state pension, which reduces vulnerability of the risks concerning the oil palm plantation. All of the children in the household are well educated and starting a middle-to-high paying job, so in case of any crisis the children can support the older members of the household.

5.3 Household no.3: the young family

Figure 14: Livelihoods Assets - Household no.3



This household is made of a young married couple and two children, however since we were only able to conduct interviews with the woman of the household, this livelihood strategy encapsulates mostly her personal point of view.

The husband is Indonesian and works at an oil palm plantation during the harvesting season from November to February. During this time the whole family moves to the temporary base-camp for foreign workers known as *dampa* (Yong and Pang, 2015, p. 22), established close to the plantation.

The woman of household no. 3 is in her thirties and a mother of two children, a 9-year-old son in Kuching, that is being taken care of by his grandfather and attends school there, and a 4-year-old girl who lives in Menuang with her. The woman has divorced the father of the first child, who is not helping out financially, yet her brother is helping out in the upbringing of her son. The son comes to visit her in Menuang when other relatives or acquaintances are travelling for festivities. She has not visited Kuching in three years due to expensive transportation fees and her responsibility to take care of her second child. However, she has a close relation to Kuching, as she was born and schooled until grade 4 in Kuching and worked in a supermarket until 2011. Besides her mother tongue Iban, she speaks fluent Malay and knows basic Chinese, that she picked up in her employment.

Since her parents are both from Menuang, she has been granted the plot based on the rules of *adat*, where everyone who belongs to the local commu-

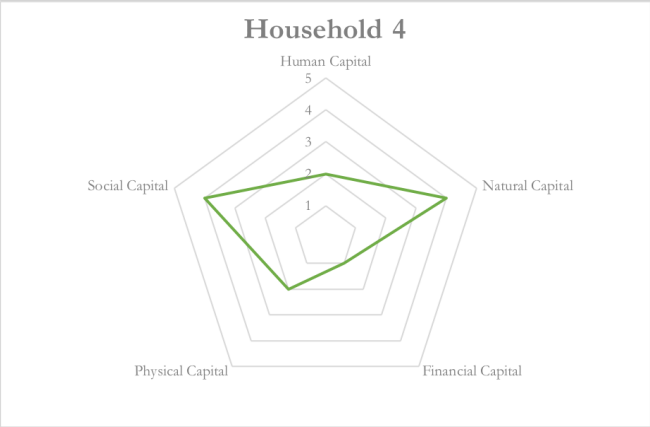
nity is allocated land for personal use. This has been a source of security since she could move back to Menuang with her new husband. The household no. 3 owns a pepper farm in the forest and sells pepper to the middleman. She has explicitly pointed towards the drop-in profitability due to a current low price of pepper. She has a vegetable garden and goes foraging for food but does not own any poultry of other livestock. The husband's job on the plantation is the only stable source of monetary income, apart from odd jobs performed by the husband for people in the village. Social security benefit B1RM is an additional source of income.

They are also in process of building a new house, which the husband is building with occasional help of the community. The family also owns a motorcycle, which the husband uses to go to Pantu to pick up shopping. Despite having several sources of income, they all are seasonal and carry certain uncertainty due to crop price fluctuations and demand for contract workers at the oil palm plantation. Moreover, she needs to apply for the governmental support BR1M annually, which makes her dependable to state support. Since her daughter needs to go to the hospital regularly, the family spends a lot of money on health care, as well as, transport to Pantu.

Members of household no. 3 are one of the youngest people in Menuang and the woman still has a lot of relatives living in Kuching. Therefore, in case of necessity the family could reallocate and look for jobs, which makes them more resilient compared to other people in the village, who cannot offer workforce anymore due to their age. The household is rather dependent on the social network and family relations, which is common in an Iban community and can generally be recognised as a factor reducing vulnerability to external pressures.

5.4 Household no.4: the farmer

Figure 15: Livelihoods Assets - Household no.4



Members of household no. 4 are in their sixties and have three children who are all married and live in different parts of the country. This household lives permanently in Menuang and only visits relatives occasionally. The man of the household used to be the headman of Menuang but was replaced by the current headman after not being chosen as a candidate for re-election. His position within the village is therefore special compared to the other villagers because he used to hold an authoritative role before.

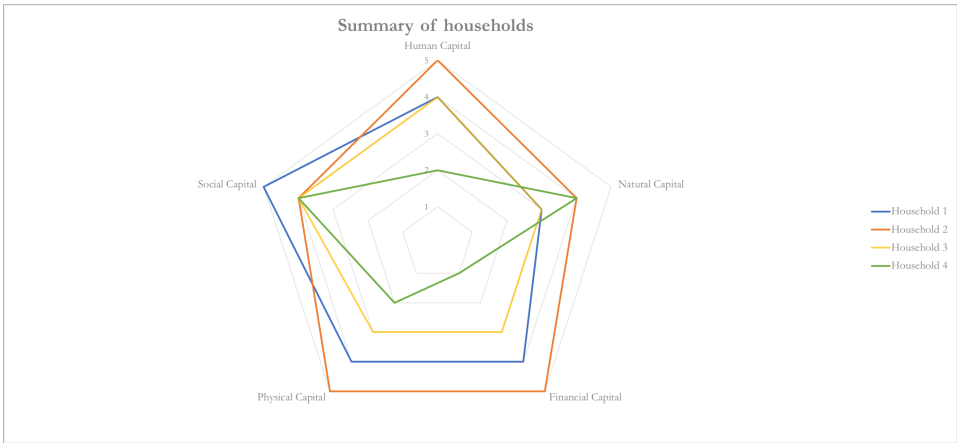
This household owns a pepper farm, some rubber trees, that are not currently tapped, and planted Durian trees on the land in the forest, which was inherited from ancestors. The household goes foraging in the forest, owns some planted vegetables and fruit orchards in the village as well as chicken. They harvest the pepper themselves because their children cannot help them as they are busy with their jobs and taking care of their own families. However, one of the daughters visits more regularly and she will be the one who inherits the farm because "it is common among the Iban to accord more cultivation rights and privileges to children who look after ageing parents than those who do not" (Ngidang, 2003, p. 63). The former headman spends 5 days a week on his pepper field in the forest during harvesting season and comes back only to sell pepper to the middleman. This allows him to avoid expensive travel costs to a marketplace, which is a significant expense, given his low financial capital. The household spends most of its money on health treatment.

The man in the household is able to communicate basic ideas in English, as he went to a primary school in a village near to Menuang run by missionaries where the lessons were conducted in English. He mentioned that the trip to school was challenging and required a journey by a boat. Those conditions have changed since the construction of the road and the establishment of boarding schools why most of the children today go to primary school.

Since the only income of household no. 4 is from selling the pepper nowadays, they are the most vulnerable to price fluctuations. However, the household does not receive remittances or subsidies, which makes them less resilient to economic shocks than other households.

5.5 Livelihood strategies summary

Figure 16: Livelihoods Assets - summary



The village, despite its small size contains a variety of livelihood strategies. We have attempted to create a visual depiction of those, summarised by a pentagon chart above. To avoid arbitrariness while creating the pentagons, we have cross-compared between the representative household, using our observations and interview results during the fieldwork as a benchmark. Moreover, in the spirit of SLF, we are viewing the capitals as "livelihood building blocks" (Department for International Development, 1999), focusing on access and potential, rather than shortages. The table below provides the reasoning behind the scores given to capitals across households.

Table 2: Households' Capitals Analysis

Household 1		
Human Capital	4	well-educated, experience in off-farm employment
Natural Capital	3	owns rubber trees, foraging
Financial Capital	4	remittances, income from being a headman, pension
Physical Capital	4	apartment in Kuching, own car, electricity from solar power and generator set
Social Capital	5	political party affiliation, headman position in the community
Household 2		
Human Capital	5	well-educated, experience in off-farm employment, own business, hires labour
Natural Capital	4	small-scale oil palm plantation
Financial Capital	5	income from oil palm sale, income from pension
Physical Capital	5	house in Kuching, own car, electronic appliances (camera)
Social Capital	4	strong social network through business activities and past employment, remittance provider
Household 3		
Human Capital	4	the youngest household, experience in off-farm employment, basic education
Natural Capital	3	pepper cultivation, foraging, vegetables and fruits for self-consumption
Financial Capital	3	remittances, income from oil palm plantation job, pepper sale , welfare support
Physical Capital	3	own motorcycle, electricity from solar power and a generator set
Social Capital	4	receives help through *bedurok* to build a house, big social network in Kuching
Household 4		
Human Capital	2	basic education,knowledge on agriculture
Natural Capital	4	intensive pepper cultivation, foraging, vegetables and fruits for self-consumption, owns rubber trees
Financial Capital	1	income from pepper selling, welfare support
Physical Capital	2	electricity from solar power, tools for cultivation
Social Capital	4	receives help through *bedurok*, man used to be a headman

6 Conclusion

The aim of this study was to analyse the external drivers affect the community of Menuang and answer a question of how do they shape individual livelihood strategies.

Economic development and urbanisation are often assumed to be inherently positive, unless case studies, as the one presented, investigate and expose influences and nuances on a micro-level. When discussing the impact of external factors on Menuang, it is important to consider what the villagers themselves define as positive or negative. Therefore, the SLF was applied in our case study in order to understand the complicated and highly differentiated needs of individual households.

Our research has shown that urbanisation patterns have a high degree of influence on the adaption of livelihood strategies in Menuang, since it has been been coupled with increasing mobility through the improvement of infrastructure. This means that villagers are still able to maintain cultural and livelihood- related linkages to Menuang, while having the opportunity to earn off-farm income and gain education in the city.

Another crucial factor identified is a change in demand for large-scale agricultural produce. Previously people in Menuang were able to sustain themselves selling rubber or pepper, yet now, the prices are too low to provide sufficient income for households. Moreover, the low benefit of subsistence farming further incentivises the youth to leave the village, where then workforce is missing. Due to this, the community has shown active interest in possibilities related to the cultivation of oil palm . Oil palm represents a significant change in traditional livelihood practices, which is mediated by a globally increasing palm oil demand and possible because of the development of rural infrastructure. However, the increasing oil palm industry has brought as many challenges as it has brought opportunities. Issues related to the recognition of NCR land are highlighted when large-scale agricultural industries seek to develop large swaths of land with unclear ownership status.

The recurring need to negotiate the borders of logging areas, oil palm plantations and even national parks, creates a high degree of uncertainty in land access. Given the importance of land in the culture of Iban, this creates a context of a deep-rooted lack of recognition of indigenous people's rights and demand in an increasingly capitalist society. Despite the fact that Menuang successfully re-negotiated most of the border conflicts, looking forward, it is clear that the empowerment of small community voices is going to be essential

in determining if the external drivers of change is Sarawak will facilitate an improvement or a worsening of livelihoods.

Reflections on research

What made the village of Menuang stand out from most other villages in the area was its small permanent population. This gave us some advantages in terms of gathering people for conducting interviews and quickly building up a social connection, however also poses a restriction on the ability to generalise on research about the village and to identify any trends, since statistical data is not as meaningful in such a small sample.

Furthermore, the headman provided us with information on different topics, showing us material as well as organizing meetings and guides. By requesting and welcoming his help, at times we gave him a position of control determining what we observe during our fieldwork. Moreover, interviews with both interpreters and fellow UNIMAS students on topics that involved (a potential critique of) the state, were at times challenging, due to their sensitive nature. This concerned interviews with the headman on the JVC and the national park, especially, where in both cases there was a conflict of some sort with the state.

Regarding the conducted interviews which were prepared in accordance with the interpreters, who have a better understanding of the Iban culture, the questions might still be criticised to be formulated from a Western perspective. Especially questions concerning individual livelihood strategies potentially show bias regarding our prioritization of certain aspects of livelihood, whereas the interviewees might have a different understanding.

By always working with the same interpreters, the villagers were able to relate to previous conversations which stimulated a fluent conversation. Besides the language, interpretation of meaning varies between different cultural contexts and generates additional challenges, which "might result in loss of meaning and thus loss of the validity of the qualitative study" (Van Nes et al., 2010, p. 314). Bearing that in mind, the interpreters took notes during the exercises to be able to explain us their interpretations, which might differ from our perception of the conducted interview.

Individual interviews have the advantage to gather a lot of information from one perspective, however, at times it was difficult to manage the interviews, as it was often agreed on conducting them in the common hall of the

longhouse. This setting would often invite other people to participate, which could remove the initial focus of the interview. Conducting interviews in a different cultural settings implies adapting to the way people normally have conversations, and we deduced that an open setting made the interviewees feel comfortable.

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Appendix

Methods applied in Menuang

#	SSI (x 9)	Focus group	Social mapping	FRA	Transect walk (x 2)	Foraging walkabout	Oil palm walkabout
Je.	x				x		x
Mr.	x						x
C.	x		x				
U.	x					x	
A.					x		
Ro.			x				
Ja.	x			x			
Ru.		x					
Po.		x					
T.		x					
Ln.		x					
N.	x						
Mc.	x						
W.				x	x		
WU.			x				
Pa.	x						
Ld.	x		x			x	

Appendix

Age distribution figure

Age range	No. of people	%
0-20	1	6
21 - 50 years old	6	35
51 years old and above	10	59
Sum	17	100

Appendix

Foraging transect walk GPS track

Appendix

Plant use figure

#	Local name	Use
1	Getah	Commercial
2	Rebung	Food
3	Rembai	Food
4	Rambutan	Food
5	Cempedak	Food
6	Daun sabong	Food
7	Petai hutan	Food
8	Daun lirik	Food
9	Lada daun besar	Food
10	Langir	Food/shampoo
11	Kacip fatimah	Medicine
12	Belian	Timber
13	Nyatoh	Timber
14	Melanti	Timber
15	Medang	Timber
16	Medang pawah	Timber
17	Ubah	Timber
18	Kelidan	Timber
19	Tampoi	Food
20	Piper sp1 (sireh)	Food
21	Kandis	Food
22	Parashorea	Timber
23	Leban	Firewood
24	Benuak	Firewood
25	Berbulan	Timber
26	Bintangor	
27	Bintawa	Timber/food
28	Piper poryphophylum	Medicine
29	Inggi burung	Firewood
30	Kumpang	
31	Legai	Fire wood
32	Medang Biasa	
33	Medang Kasap	Firewood
34	Medang kuning	Timber
35	Medang lesu	Timber
36	Medang sawah	Timber
37	Ngisadat	
38	Ngitopu	Firewood
39	Tekalong	
40	Timonius	Firewood
41	Pokok bawang hutan	Food
42	Akar meludam	Food
43	Uchong	Food
44	Kepayang	Food
45	Rembai	Food
46	Terap	Food
47	Cempadak	Food
48	Engkeranji	Food
49	Pokok asam	Food
50	Asam raba	Food
51	Buah lempaung	Food
52	Lidan	Food

Appendix

Interview guide and Synopsis (see next page)

Before the interview explain to the respondent the nature of questions asked (income, land issues, spiritual beliefs). Please, ensure that the respondent is aware they can refuse to answer questions, without providing a reason.

NAME:

HH ID:

1. Migration

Have you ever spent time outside of Menuang?
If yes:
Where?
Why?
Would still like to do it again?

If no: Would you like to do it?

How often do you see them? When the last time do you see them?

Do they still help you out with anything?

On the field?

In the household?

Bringing anything?

Do they help you out financially? Do they send remittances?

Would you travel alone (relatives, e.g. cousin or friend)? If no, who travelled together with you?

Are you married when you travelled?
Do you have any children?
How many of them?
Are they still studying during that time?

Do you travel back to your long house often or do you stay for an extended period outside?

Do you travel more often with the logging road?

Are you staying overnight or longer at the place you travelled to or back to Kpg Menuang on the same day?

2. Land use change

Do you grow pepper?

Do you grow paddy?

Do you tap/grow rubber?

Do your family members/relatives still practice/plant the crops in the land? How do they sell the crops? Are you sharing the same transport and bear the fees together?

Prices (Through which source you got the info on the market price?)

	Today	In the past
Pepper		
Paddy		
Rubber		

Why do you grow this crop? How frequent can you harvest the crops?

Is it decided by Tuai Rumah (Headman)? If no, how it is decided?

Do you sell anything? Do you get any other income?

Which crops you planted the most in the past? Why are you not practising now? (Explore)

Do you own any trees in the forest? Did you plant or inherit it?

How many times a week do you go foraging?

Would you like to be a part of the oil palm scheme?
Follow-up: Do you think your children or other relatives would work there?

3. Land access

Do you like that the National Park was created?
Follow-up: Ancestral land. Spiritual beliefs.

Do you think it will be good to have more people visiting Gunung Lesong?

Do you think you or your relatives could get extra income from the National Park?
(guides/hosts)

4. Kinship/Relationship

Do you get help from others with cropping? How many people? (Number)

How frequently do they help you? (in a month)

After they have helped you with food/crop collection, do you invite him/her for lunch/dinner?

Do you pay the person who has helped you?

How does the rural-urban relationship between Menuang and Kuching affect land- use and land cover in Menuang?

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Interdisciplinary Land Use and Natural Resource Management

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1 Introduction

The purpose of this synopsis is to present the research objectives of a study to be conducted during fieldwork in Menuang, Sarawak, Malaysia. The focus of this document is to elaborate on themes, theories and methodologies relevant to the research within local context, as well as to outline the problem, research questions and the schedule of application of methods.

During background research we have identified that rural-urban migration significantly affects the village of Menuang. We suspect that this results in a demographic change which has a direct effect on the land-use in our study site. In our research, we would like to explore this link by applying both natural- and social science methods and triangulating the findings. We are hoping, that the findings will become a point of inference on the phenomenon of rural-urban migration and general tendencies in its effect on land use change in the region of interest and other places sharing similar context.

This synopsis is structured as follows: In the first section, we describe the region of concern and literature relevant to the topic. The next section is dedicated to describing the methods that will be employed in the field. The document is supported with six appendices - one outlining major risk factors, the next one presenting the timeline of the research, followed by an example of a method of trend analysis, the fourth and the fifth appendices introducing questionnaire template and interview guidelines and the last one containing a data matrix of the study.

2 Background

2.1 Sarawak Region

According to reports from recent visits, Menuang, the village in the state of Sarawak on the Borneo island of Malaysia, is divided in two villages namely Menuang Ulu and Menuang Ili. The native Iban community in Menuang is the largest ethnic group in the region and more than half of the total arable land in Sarawak is cultivated by the Iban, giving them an important position in agriculture in Sarawak (Ngidang, 2003, p. 63). The native community traditionally lives in a longhouse, a narrow single-room building.

The indigenous community of Menuang requested to use their land for oil palm plantation as a joint venture which was, according to recent visits,

rejected. The dominant demographic of the 30 households of Menuang is the elderly, as most of the young people have moved to Kuching. The rural-urban migration and linkages is of great interest to us since it is a dominant trend in the area. Understanding the pull- and push factors causing migration and leaving the land behind are a crucial first step of our research. In the next step we are going to investigate the effects rural-urban migration and linkages have on the land use and on the socio-cultural structures in the village. Therefore, one of the goals of this research is to examine the household structure and the use of land, as well as, the features of the land resources. The second objective is to investigate the link between urbanisation and socio-economic factors that influence community life in Menuang.

The next section deals with the rural-urban migration in the region of Sarawak in recent times as well as the meaning of mobility in the Iban culture.

2.2 Land Use Change in Sarawak

The land-use of Sarawak has gone through several changes due to various stresses on its natural resources. The pressure to the forest areas was affected by the introduction of heavy machinery in the forestry sector, which moved the production of timber more inland in Sarawak in the 1960s (Kato, 2014). In the second half of the last century urbanisation of Kuching took off and begun affecting rural areas (Hill, 1995).

Transportation became relevant when the demand for palm oil started to increase in the 90's. Especially since, the harvest of oil palm had to be processed at oil palm mills within 24 hours of harvesting (Kato, 2014). The growth in oil palm industry had also an effect on agriculture. Despite the large growth in plantations encroaching on forest areas in Sarawak, some areas became abandoned, since off-farm income became more profitable than farming and labour became too expensive in remote areas without access to infrastructure and heavy machinery.

As Barbier et al. (2010) have pointed out, many countries go through a so-called 'forest transition' in which the amount of forest area increases after a long period of decline. As technology improves, some agricultural areas become unprofitable and will convert back to forest through a process of 'optimal allocation' of agricultural land. Likewise, the decline in demand for agricultural area can also be driven by the transition to off-farm job opportunities which weakens the demand for agricultural production (Rudel et al., 2005). Population growth can increase the demand for agricultural

area and specific institutional factors are also determined to have a big effect on the conversion of land (Barbier et al., 2010). Lastly, the demand for products like palm oil is on continuous increase. In the last three decades Malaysia has lost over 20% of its forest land, driven mainly by the expansion of palm oil plantations and the decrease of other types of permanent crop land since the early 1990's (Wicke et al., 2011).

In the next section those changes in the land-use is going to be elaborated on in depth.

2.3 Rural Urban Migration in Sarawak

The Iban people are have experienced a period of mobility to secure land for swidden agriculture, by combat and by a complicated relation to the British imperialists (Soda, 2001, p. 93). However, the traditional roots of mobility for the Iban people reach back to when they would use the word *bejalai* for job, and the job would be to go on journeys for "headhunting" or searching new frontiers. These were also rituals for men to reach adulthood, a rite of passage.

Today the word just implies working away from home. It is slowly being taken over by the culturally insignificant word *kerja*, meaning salaried regular employment. *Kerja* represents a growing belief, that Iban men see occupation as related to gaining cash income, *kerja*, and not to practicing subsistence agriculture. *Bejalai* is related to labor migration with the goal of delivering remittance and returning at some point, but these sojourns seem to extend (Soda, 2001, p. 99-102).

In the 1950's and 1960's the combination of the introduction of fertilizer, enabling nearby wetland farming, and a decreasing rubber production, allowed the Iban, in the 50's and 60's, to shift their focus from remote farming to spending more time in and around the longhouses (Soda, 2001, p. 98). In the wake of this change in activity, however, came a new mobility tendency from longhouses to the urban areas.

Since the economy of Sarawak is strongly export-oriented with mining and manufacturing covering about 48 % of the economic structure, many people in Sarawak have been looking for alternative sources of income apart from agriculture (which makes up to 11,4% of the GDP), such as remittances from wage employment in the cities. Accordingly, services (37,2 %) are also an important economic driver in the region (MARC, 2015, p. 3). "The diminished ability of rural people to sustain a decent livelihood in the face of

a shrinking natural resource base [...] have all contributed to the flight of the rural populace to the urban centers." (Sim, 2011, p. 595). The average income has risen from 16% in 1970 to 37% in 2001 (Wadley and Mertz, 2005). Since most of the people moving have been men seeking for jobs, the migration of rural women has started more recently in the late 1980's and early 1990's due to this income rise, affecting lifestyle changes and demand for various services in the city such as childcare and manufacturing (Sim, 2011, p. 604).

One positive effect of this development for the rural areas is that the money from remittances could be used to buy better agricultural products and ,therefore, help stabilize the farmer's production. Yet, research shows that many families have used the income from off-farm employment for luxury goods or children's education (Wadley and Mertz, 2005).

Due to the movement of young people most of the agricultural activities are left to a large extent to the elderly, affecting the patterns of conduct. For instance in the 1960's rubber trees dominated, and secondary forest left fallow was rare. This caused bad soil fertility and damaged the land which, in turn, led to a change towards reducing paddy cultivation and shifting to wet paddy farming in proximity of the longhouses (Sim, 2011, p. 104-106).

In the following section of this synopsis the main goal of our research and the research questions concerning our fieldwork in Menuang will be explained in detail.

3 Problem formulation and research question

As presented on the title page, the objective of the field research is to determine how does the rural-urban relationship between Menuang and Kuching affect land- use in Menuang. Our hypothesis is that migration leads to a higher degree of land, yet not necessarily land abandonment. This is due to the nature of Native Customary Rights, that ensure land tenure across generations for indigenous people of Sarawak. However, we do also take into account the possibility of causality going the reverse direction to the one anticipated e.g. due to the issue of a failed joint venture between Menuang and oil palm companies. One could contemplate the possibility of the community wanting to lease their land to generate higher income and since that opportunity has failed, they were pressured to migrate to urban areas in order to find higher wage potential.

Another crucial aspect of our analysis is the fact that we want to evaluate the situation over time in comparison to a significant moment in history as a reference point. From our initial research, an event that seems to be appropriate to serve as a baseline scenario is the construction of a road to Menuang in 2010, which could have contributed to higher degree of rural-urban movements. However, similarly to the causality issue, it is hard to establish the relevance of our assumptions. Hence, in both cases we will try to understand the perspective of the local population on rural-urban linkages dynamics and ask them to identify a significant event that, in their opinion, led to the outflow of the population.

Our research will focus on two thematic areas - rural-urban linkages and land-use change. The physical properties of land-use are presumed to have a reciprocal relationship with socio-economic changes related to migration patterns, urbanisation and demographics. The amount of natural resources in Borneo, including the amount of carbon stored in the trees, is an important area of concern due to a high degree of deforestation of the rainforest.

To explore this we will aim to answer the following research question and related sub-questions.

Research question: *How does the rural-urban relationship between Menuang and Kuching affect land- use and land cover in the field site?*

Sub-questions:

1. What is the nature of rural-urban migration patterns between Menuang and Kuching?
    (a) How does the urban migration affect local demographics?
    (b) How did the migration affect local demographics?
    (c) What are the livelihood strategies of people with social and economic ties between the two places?
    (d) How did the rural-urban linkages affect household economics?
    (e) What are the rights and obligations regarding land tenure under dominant land rights?
2. What are the features of land-use in Menuang?
    (a) What are the main crops and agricultural inputs?

(b) What are the issues concerning fallow and unused land?

(c) What are the physical characteristics of different kinds of forested areas?

(d) Are there any conflicts over land rights? How do they affect the land-use and vice versa?

4 Methodology

In this part of our synopsis, we discuss in more detail the nature of methods applied and reasoning behind their selection. To achieve the objective of our research, due to its interdisciplinary nature, we will use methods originating both from the social-and natural sciences.This approach allows us to gain an understanding of situations and livelihoods encountered, accounting both for characteristics that can be quantified and more intangible ones, such as personal motivations, cultural influences and beliefs.

Therefore, our approach can be described as holistic and based, in the tradition of hermeneutic circle (Gadamer, 1975), on continuous re-framing of knowledge gained from the literature when exposed to earlier unknown cultural, historical, and economic realities of Menuang. This stance allows us to gain higher, yet obviously still imperfect, level of objectivity as we continuously ensure to separate our findings from our own sociological and cultural background. We are planning to work hand-in hand with the students from UNIMAS and the interpreters, also in order to limit the bias we are facing due to our background.

Appendix F contains a data matrix which, in a more concise way, explains the logistic framework we aim to pursue in the course of our research and outlines the potential risks factors associated with employment of specific methods.

4.1 Participatory rural appraisal (PRA) methods

Participatory rural appraisal (PRA) methods (Chambers, 1994) in combination of different types of interviews will be applied to ensure that the views and knowledge of local people are accounted for in our research. One key informant is the headman of the village, who will be interviewed in a semi-structured manner, in order to get the authoritative point of view on

the village structure and the changes concerning land-use. We are also planning on interviewing a few households with a narrative interview who we will select, through the application of the snowballing technique once we know the village better.

Participant observations are going to be part of our daily life in Menuang, taking field notes while participating in social events but also everyday activities and household chores. Through observation we could get an interesting insight into power relations, gender issues and other socio-cultural patterns in the village.

To uncover the nature of drivers behind rural-urban migration we will use a matrix ranking method and narrative, as well as, semi-structured interviews[1], while employing a triangulation approach to increase the validity of data gathered (Rothbauer, 2008). Within the ranking matrix method we want to identify push- and pull-factors that relate to rural-urban linkages between Menuang and Kuching. To achieve this we will ask the respondents to list the relevant, in their opinion, push- and pull factors and rank them according to perceived importance.

Similarly, we will apply the PRA method of social mapping, supported by livelihood strategies determination, allowing to explore the personal motivations behind moving. The social mapping method will give us in depth insight into the village and the area around it by constructing a map with the help of the locals (Mikkelsen, 2005). In order to investigate the historical changes of rural-urban migration, we are planning to do a trend analysis of different events on a temporal spectrum (Selener et al., 1999). By combining the social mapping activity with a timeline we encourage the locals to draw the most important events on a timeline *e.g.* the construction of the road in 2010. An example of a trend analysis can be found in the Appendix C. Furthermore, to understand the particularities of local land-use from the population point of view we will arrange transcent walks with a local guide, supported by informal interviews along the walk in which the interviewee talks about the local history, ownership and land rights, ecological issues, natural resource use and management of the land.

Finally, a questionnaire will be devised, divided in two parts concerning – household demographics and Native Customary Rights. A first draft of the questionnaire for demographic information of the village can be found in the

[1] An interview guideline for the semi-structured interview can be found in the Appendix E of this synopsis.

Appendix D. All aspects of the research will be accompanied by observations, which will be discussed within the group (including Malaysian students and interpreters) and a person responsible for taking notes of the discussion will be chosen.

4.2 Natural Science Methods

GPS will be widely used to mark points of interests and tracks, especially when establishing the properties of local land-use and understanding the division of land under Native Customary Rights. The observations will be accompanied by photos and notes to include the spatial and geographical context of our research.

Forest Resource Assessment (FRA) methods will be especially important for understanding the transition from fallow land into secondary forest, due to potential land abandonment. By extrapolating collected data from several sample plots, FRA determines the characteristics of the trees, making it possible to determine the amount of above-ground biomass of a particular area. With the possible coexistence of fallow areas used in swidden agriculture, unused and, secondary forest used for logging and different forestry activities, as well as untouched primary forest, the FRA method will be able to make a quantitative distinction between different types of land-use. The FRA method is also able to estimate the amount of carbon stored in forested areas.

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A Appendix

Risk factors

- Our cultural background ("Western perspective") and the short adaptation time we have.
- How the native community perceives the students from Sarawak (Chinese, Malayan) and vice versa and the potential effects on our data.
- External factors influencing our research (e.g weather). This is especially risky in regard to the natural science methods.
- Incorrect phrasing of interview questions or too complicated questionnaire.
- Miscommunication with the interpreters.
- The different interests, that people from the village might have in hosting us and participating in our research and the bias this might have on their answers (Self-selection bias, tendency to over- or underestimate).
- Willingness of the local population to participate in the exercises.
- Menuang is a small village and many individuals are not permanent residents - sample size issues.
- Lack of knowledge on the more policy-relevant based topics among the interviewees.

B Appendix

27.02. Arrival in Kuching. Meeting the counterparts and discussing mutual ideas. Presenting synopses to each other and a walk through the methods timeline.

28.02. Discussing the questionnaire with the counterparts and interpreters. Correcting the questions based on local insights and suggestions.

1.03. Arrival in Menuang - identify village headman or another authority, ask for transcent walk next day. Open-ended interview and trying to identify people for further interviews and potential questionnaire respondents through snowballing. Organise a social event, to get to know the residents and enhance our knowledge on their culture and behaviours in a non-structured atmosphere. Invite people for PRA session on the 4.03.

2.03. Transcent walk - gathering GPS points and interviewing the guide, accompanied by note taking and photographs. Identifying a plot for FRA methods application. Group discussion of findings.

3.03. Walk to the mountain, understand local biodiversity and the relationship of Iban people with forest. Try to accompany rubber extraction, to understand the process behind this way of income generation.

4.03. Matrix ranking, social mapping exercises, timeline and trend analysis. Select people directly affected by rural-urban migration to participate in the livelihood strategy identification exercise.

5.03. Buffer day - revising the strategy, exchanging thoughts. Open-ended interviews.

6.03. Further questionnaire distribution. Initial findings analysis.

7.03. Livelihood strategy exercise.

8.03. Division into two groups - one conducting FRA exercises another one beginning distributing the questionnaire. Exchange findings in the evening.

9.03. Buffer day - photographing and arranging notes.

10.03. GPS mapping of areas important to understanding Native Customary Rights.

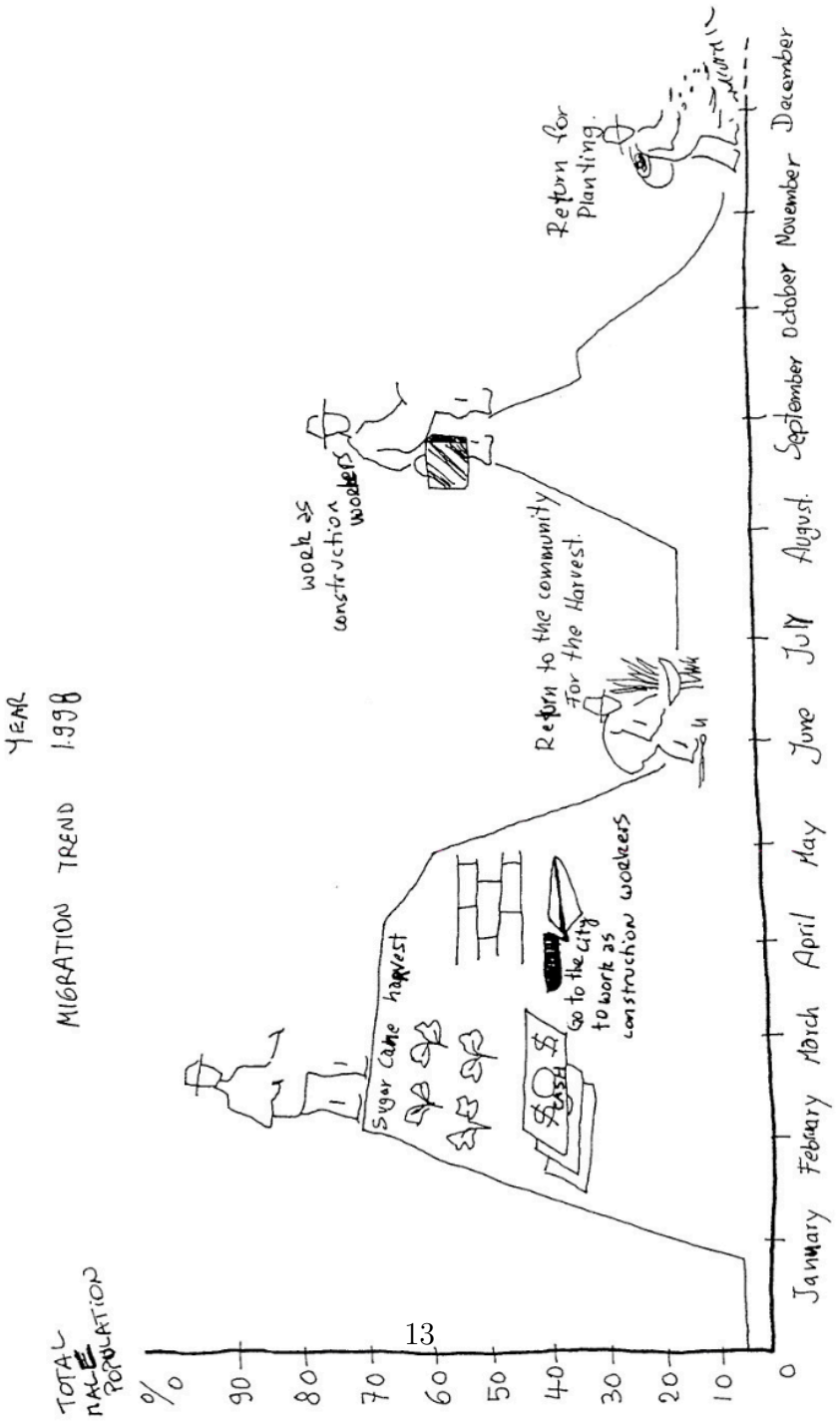
11.03. Semi-structured interviews and further questionnaire distribution.

12.03. Leaving Menuang.

13.03. Discussion of findings. Assessment of group-work.

C Appendix

Figure 1: Example of a trend analysis (Selener et al., 1999, p. 36)



D Appendix

Categories: (Age: Young, Middle-age or Elderly x Gender: Male or Female x Education: Primary, Secondary, Tertiary)
Target: one representative of each household

Questionnaire for demographics of Menuang

Name:	Age:
Family member (mother, father, etc.):	Gender:
Place of origin of (grand)parents:	Education:

Which farming activities is your household engaged in?

Who is living in your household?

What are their level of education?

How many people in your household are working in the field as their:
a) Main obligations?
b) Side obligation?
c) Not at all:

Does any (former) household members live in Kuching or other places?
a) Kuching:
b) Other:
c) No

How often do they return to Menuang?

Do they come back to help with farming or household chores?
a) Farming:
b) HH chores:
c) Other:

Has your income changed in the last few years?
a) Yes
b) No

If, yes, is it for better or for worse?

What is the main reason for the change in your income?

Is your household receiving remittances?

Is anyone in your household planning to move to Kuching or anywhere else?

E Appendix

1. Introduction, getting to know the respondent

Do you like living in Menuang? - Why? Why not?

Tell us about your household, what do you do for a living?

Tell us about a typical day
Have your days always been like this?
Tell us how daily life in the village has changed in the last decade?

2. Migration

Is there any family member who lives outside the community?
Relation to you

When did they move?
For which reasons did they move? (Employment? / Social/family? / Education? / Other (state answer))
What kind of job do people have in Kuching?

3. Current relationship to people in Kuching (R-U linkages)

Do you see them?
How often?
Where do you see them, in which context?

Do they still help you out with anything?
On the field?
In the household?
Bringing anything?
Do they help you out financially? Do they send remittances?

4. Changes and future predictions

What was life like when they were around?
Regarding work, household activities, socially?

Do you think they are considering coming back to Menuang or move to somewhere else than Kuching?

Do you know what your relatives' plans/dreams for the future are? If not, what do you think there are?
Describe Menuang in 10 years.
Describe what your relatives in Kuching are doing in 10 years.

5. Land use change

Which crops do you sell, and how much do they give at the market?
How has that changed throughout the years?

Which kind of crops did you use to grow in the past? 5 years ago? 10? 20?

How has agricultural practices changed throughout the years?
Traditional Iban practices – Do you use practices taught by previous generations?
Other

F Appendix

(see next page)

Overall objective	Research questions	Sub-questions	Sub- sub- questions	Methods	Risks
To determine how does the rural-urban relationship between Menuang and Kuching affect land-use and land cover in the field site.	1. What are the characteristics of the local rural-urban relationship between Menuang and Kuching?	1.1. What is the nature of rural-urban migration patterns between Menuang and Kuching?	1.1.1. Who migrates, when, how and to what degree?	Triangulation (matrix ranking, interviews and trend analysis)	Willingness to participate in the exercise. Perception bias. Behavioural effects – framing of questions could be affected by our background.
			1.1.2. What are the drivers behind the rural-urban migration and linkages?		
		1.2. How did the migration affect local demographics?	1.2.1. Age distribution.	Questionnaire, observations, trend analysis	Insufficient sample size.
			1.2.2. Gender ratio.		
			1.2.3. Household structure.		
		1.3. What are the livelihood strategies of people with social and economic ties between the two places?	1.3.1. In Menuang.	Social mapping and timeline, trend analysis, livelihood strategy determination, observation	Willingness to participate in the exercise.
			1.3.2. How do linkages to Menuang affect livelihoods in Kuching?		
		1.4. How did the rural-urban linkages affect household economics?	1.4.1. Income (stability, seasonality, resilience etc.).	Matrix ranking, interviews (semi-structured)	Questions may be complicated to understand and there can be an incentive to misrepresent reality.
			1.4.2. Remittances.		
		1.5. What are the rights and obligations regarding land tenure under dominant land rights?	1.5.1 Regarding NCR.	Questionnaire, interviews (semi-structured)	Questions may be complicated to understand.

	2. What are the features of the land-use in Menuang?	2.1. What are the main crops and agricultural inputs?	2.2.1. Rice, pepper.	GPS, transcent walk, observations, informal interviews	
			2.2.2. Oil palm.		
			2.2.3. Other (relating to natural resources).		
		2.2. What kind of Iban traditional agricultural activities exist and how have they changed?		Interviews (semi-structured), social mapping	
		2.3. What are the issues concerning fallow and unused land?	2.2.1. The extent and quality.	GPS, transcent walk, informal interviews	
			2.2.2. Connection to the failed joint venture and land regulations.	Interviews (semi-structured)	Issues with measurements and accuracy.
			2.2.3. Future plans for fallow and unused land?	FRA, Interviews (semi-structured)	Lack of knowledge on the topic among the interviewees.
		2.4. What are the physical characteristics of different kinds of forested areas?	2.3.1 Biomass, carbon content, physical traits.	FRA, transcent walk	
		2.5. Are there any conflicts over land rights? If so, how do they affect the land-use and vice versa?	2.4.1 Regarding NCR.	Interviews (semi-structured)	Lack of knowledge on the topic among the interviewees.
			2.4.2 Regarding the national park.		Could be considered a delicate issue.