

Impacts on livelihood strategies and economical sustainability, without governmental assistance, in Kampong Subang, Sarawak, Malaysia



Submitted By:

Ahmad Sarfraz, ADK05046, KVL.
Johanna Lundell, SLU02018, SLU/KVL.
Maj Brit Jensen, EM05150, RUC.

Supervisors:

Andreas de Neergaard, KVL.
Torben Birch-Thomsen, IGUC.

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Abstract

The report presents the findings of the study carried out in the Kampong Subang, Malaysia. The main objective of the study was to know about the livelihood strategies and sustainability of the village without government assistance. People are involved with four major activities IADP, own agriculture, work outside the village and FELCRA. The report explains the complete analysis of these four main activities. IADP and FELCRA are governmental projects; playing an important role in the livelihood strategies of the villagers. The possibility for the villagers' to have their own land and perform their own agricultural production have shown to be an important reason for staying in the village and not migrate to urban areas. The government provides different kinds of assistance in the form of subsidies to the farmers. Despite the assistance and support by the government the village can not sustain their economical stability without governmental assistance.

Table of contents

1. Introduction	4
1.1 Objectives.....	4
1.2 Research questions.....	4
1.3 Working questions	4
2. Kampong Subang in focus.....	5
2.1 Own Agriculture	9
2.2 IADP – vision, objective, plans	9
2.3 FELCRA	10
3. Methods	11
3.1 Questionnaires.....	12
3.2 Specific semi-structured interviews.....	13
3.3 Key informants.....	13
3.4 Spontaneous interviews.....	13
3.5 Transect walks, random walks and guided tour	13
3.6 Own investigations	13
3.7 Participatory mapping	14
3.8 Historical timeline.....	14
3.9 Seasonal calendar	14
3.10 Ranking of crops	14
3.11 GPS mapping of the land use, natural resources and households in the village.....	15
3.12 Soil sampling	15
3.13 Water sampling.....	15
4. Analysis and discussion of results.....	15
4.1 The FELCRA oil palm plantation project in Kpg. Subang.....	15
4.2 The IADP subsidised agricultural productions.....	16
4.2.1 <i>Mission of IADP and economic aspects</i>	16
4.2.2 <i>Land</i>	16
4.2.3 <i>Subsidies</i>	17
4.2.4 <i>Market</i>	18
4.2.5 <i>Dependency and sustainability</i>	19
4.2.6 <i>Partial conclusions</i>	19
4.3 The villagers' own agricultural production	20
4.3.1 <i>Market</i>	21
4.3.2 <i>Farmers' ranking of their agricultural crops</i>	22
4.3.3 <i>Soil and plant nutrients</i>	22
4.3.4 <i>Own agriculture and future</i>	23
4.3.5 <i>Partial conclusions</i>	23
4.4 Working outside the village.....	24
4.5 <i>Partial conclusion</i>	24
5. Discussion and conclusion.....	25
5.1 Discussion	25

5.2 Biases, reliability and validity.....	26
5.3 Conclusion.....	27
6. Acknowledgement	28
7. References.....	29
8. Appendices	30
Appendix 1 Synopsis.....	30
Appendix 2 Activities	44
Appendix 3 <i>Ranking of crops</i>	48
Appendix 4 Specific interviews wife of headman, headman, Sylvester, old man and young girl	49
Appendix 5 Specific interview with IADP office.....	55
Appendix 6 Interview with FELCRA.....	59
Appendix 7 Specific semi-structured interviews with households.....	60
Appendix 8 Household survey form.....	75
Appendix 9 Soil sampling.....	76

1. Introduction

The main task with this report is to evaluate which activities that are of importance for the livelihood strategies of the villagers in Kampong (Kpg.) Subang, with an economic perspective. The livelihood definition in the report is: *the way the household maintains its existence*. The kind of livelihood strategies people choose depends on their assets and traditions, and the structures and processes in their society. They will choose the livelihood strategies that will provide them the best outcome (Cahn, 2002). Recently two new activities were introduced to the villagers in Kpg. Subang, in form of Federal Land Consolidation and Rehabilitation Authority (FELCRA) and Integrated Agricultural Development Project (IADP), which have affects the livelihood strategies. By activity means: *performance of a work leading to an output, such as income or products*. Additionally, *own agriculture* and *work outside the village* are also important activities for the livelihood strategies. Own agriculture has been a part of the village from the beginning, while work outside the village occurred later on in relation to the extension of the roads. The four mentioned activities are the main activities in Kpg. Subang that have been investigated in relation to an economic perspective. The investigation of the different activities importance, due to the income level, can indicate which of the activities that have the main impact for the economical sustainability. This can indicate the importance of the governmental assistance in form of the IADP and FELCRA projects for Kpg. Subang.

1.1 Objectives

The objective with this assignment is to assess the livelihood strategies among the villagers in Kampong Subang in Sarawak, Malaysia, and the economical sustainability of the households without governmental assistance. The objectives can be reached by investigating the main drivers of livelihood, which are the specific activities leading to income.

1.2 Research questions

The main research questions are: What are the livelihood strategies of the villagers' in Kampong Subang and are these economically sustainable for the households and the village, without governmental assistance?

1.3 Working questions

- A) What is the importance of the own agriculture for the livelihood?
- B) What is the importance of the FELCRA oil palm project for the livelihood?
- C) What is the importance of the work outside the village for the livelihood?
- D) What is the importance of the IADP for the livelihood?
- E) To what extent are the increasing population and shortage of accessible land of importance for the livelihood?
- F) How does the governmental assistance affect the sustainability?

2. Kampong Subang in focus

Kpg. Subang was established in 1925 by people out-migrating from Kpg. Gayu. In the beginning people lived in longhouses, around 50 doors in total, but in the early 1990'ies they started to build new individual houses due to the increasing population and low health conditions. The villagers began to build the main road in 1960 and in the 1980'ies the roads were improved with stones. Again in 1998 the roads were improved, but this time with asphalt. Around 1950 the water pipe system consisting of bamboo pipes from the river to the households was established. In 1960 they reconstructed the water pipe system in order to avoid polluted water by leading the water directly from the spring through bamboo pipes to the households. In 1980 the bamboo pipes were replaced with galvanized iron pipes and now they are starting to use pipes made of plastic instead as the iron pipes has begun to leak. The primary school was build as late as in 1958 and later on in 1992 a kindergarten was established. A lot of projects started or were carried out in the 1990'ies, as already mentioned, the rebuilding of the roads, moving to individual houses, building the kindergarten, but also other things happened like starting the project with FELCRA in 1997 and building the community hall in 1999. In year 2000 the electricity was installed and an extension of the main road to Kpg. Pesang was maid, plus the road to FELCRA was asphalted. IADP came to the village in 2001 starting phase I and already in 2002 phase II began. Today the population consist of around 680 living in about 110 households. It means that the number of households have doubled since the starting point of Kpg. Subang (Box 1.).

Box 1. Timeline showing the event from the start of Kpg. Subang and until now.

Year	Event
1901	Out migration from Kampong Gayu, villagers spread and separated into 10 villages, due to fear of headhunters.
1909	Registration for identity cards by the local White Rajah, Rajah Roger Brooke, which also stated the law banning headhunting.
1925	Kampong Subang was established, and named after the Subang river that today passing near the church, Our Lady of Grace. The first longhouse consisted of 50 doors, built with bamboo, sago palm leaves and "rotan" (the very strong liana) ropes to tie the house together. Shifting cultivation was performed and the villagers started to cut down the largest trees in the forest. They cultivated paddy rice, jackfruit, durian, rambutan, langsung, cucumber and other vegetables.
1930	Mr. Sasim was appointed by the Brooke Administration (Charles W. Brook) as the headman of Kampong Subang. When Mr. Sasim died, Mr. Lineai replaced him temporarily until Mr. Sembon ak Sajap was appointed as headman.
1935-1960	Hunting traps of "rotan" were used in the forest to catch deer, fox, wild boar and other animals.
1940	Population was still around 50 households.
1950	Fallow period in the shifting cultivation was more than 10 years. The areas used for paddy rice cultivation was larger than today (2006). Hand weeding in cultivations, but the crops suffered from competition from weeds and took longer time to grow. No fertilizer used. Water was transported in bamboo pipes from the river to the longhouse.
1958	The primary school was built, with level 1-4. The higher classes (primary 5-6) were a 5 km walk away, to which very few villagers went.
1960	The villagers started to build roads where the main road was the first to be built and all villagers joined the digging. No stones were used and the road became very muddy.

	<p>Logs, tree stems and stones were then placed as ground layer for stabilization. With the road the villagers' educational level increased, and the ability to study in secondary school at the Dragon school.</p> <p>The longhouse consisted of 18 plus 18 doors, and was located on a slope.</p> <p>The first dam was build in the center of the village around the spring, which was called "the mouth of the dragon" since it never dried out.</p> <p>A water pipe system was build, using split bamboo pipes to transport water to the longhouse and each door from the spring.</p>
1960-1970	<p>Spring water was used for cooking, while river water was used for washing of clothes and bathing.</p> <p>Toilets were built and placed outside the households, and neighbors had to share. Cages were made for the domestic animals, and no more pigs were held in the village.</p> <p>Introduction of intercropping. Still no use of pesticides.</p>
1965	Mr. Lunoi ak Go'os was appointed as headman.
1980	<p>Implementation of community water supply using gravity transport system, using galvanized iron pipes.</p> <p>The second dam for water supply was constructed, higher up than the first dam.</p> <p>Started to grow and sell banana, papaya, pepper and chili. They learned how to earn money. Introduction of sweet corn and Asian eggplant, which is very sour.</p> <p>The headman saw the papaya variety Azotica at the city market, understood the potential for the village and completed the first papaya plantation in the area. First fertilizer was used, for the young trees. The introduction of fertilizer has significantly increased the cultivation time for all kinds of crops.</p>
1980'ies	<p>Roads were improved with stones.</p> <p>The forest animals were hunted with weapons and not trap anymore.</p>
1982	Mr. Nobert Nuom was appointed as headman.
1988	<p>Christians came to the village and most of the villagers became Christians. Before they were practicing animisms.</p> <p>Kpg. Subang had 4 longhouses with 100 doors in total.</p>
1989	Australian company made a survey in Kampong Subang for gold mining potential around the river junction.
1990	The galvanized iron pipes for water supply were replaced by PVC pipes.
Early 1990'ies	<p>The villagers started to move out from the longhouses and to new individual houses, due to increasing population, low health conditions and peoples need for larger own areas. This also prevented the risks of spreading of fires. The rests of the longhouses were used as individual houses.</p> <p>Villagers need more ready money and increase their agricultural production to sell more products at the market. Money is needed for children particularly their education.</p>
1992	Excellent Family and Children Development Center (PPKKC) were established and a kindergarten was build.
1996	Village Security and Development Committee (JKKK) was formed to help the headman in managing the village. The committee was divided into 5 zones.
1997	FELCRA started the oil palm plantation project with 450 ha of land, and about 100 families are involved in the scheme.
1998	The roads towards the village centre were improved with asphalt by the government.
1999	The community hall was build. The costs was 75.000 RM.
2000	<p>Electricity was installed in Kampong Subang.</p> <p>Bitumen road was build with a distance of 4 km starting from Kampong Pesang.</p> <p>FELCRA built and prolonged the road from the village centre to their plantation, but which has been destroyed by the heavy FELCRA trucks.</p>
2001	Integrated Agriculture Development Project (IADP) started with phase 1 consisting of 26 ha of land, which was planted banana, and later on with papaya.
2002	<p>Mr. Albert Sakum ak Rigit was appointed as headman.</p> <p>The former headman, Mr. Nobert Nuom was appointed as the Penghulu of Pinyawa-</p>

	Simpos area. IADP phase 2 started with around 49 ha of land, planted with papaya and sweet lemon.
2006	Fallow period in the shifting cultivations is 5-6 years, which decrease with time due to increasing population. Otherwise the villagers' have to find land for their paddy rice very far away. Around 110 households in the village with a population around 680 persons.

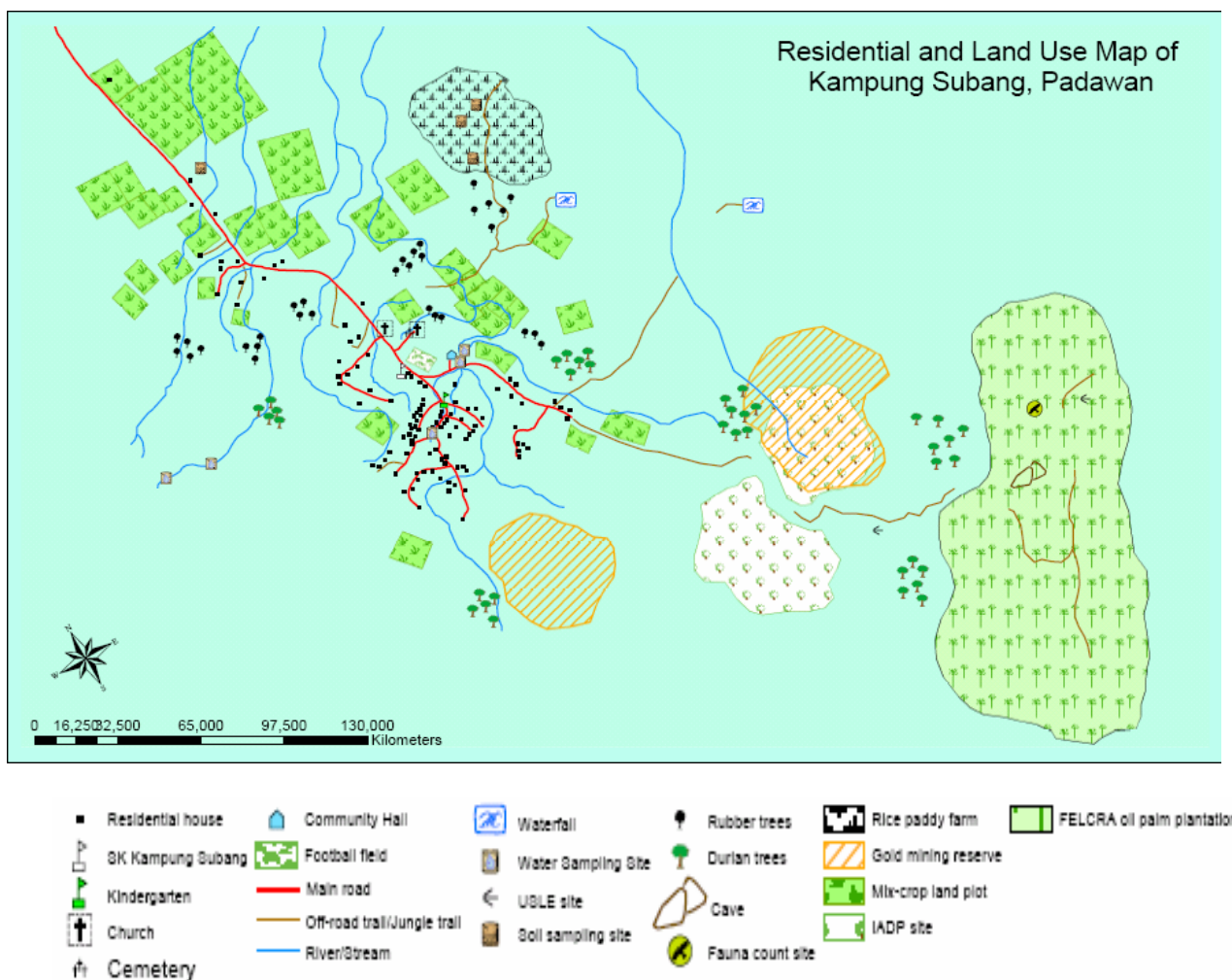


Figure 1. A sketch map of the households, main roads and land resources in Kampong Subang.

The map shows roughly the location of the households, some of the agricultural and IADP sites and the FELCRA plantation. The road to FELCRA from the village is about 5 km and along the way on both sides of the road, are some of the IADP plantations located.

The four main activities in Kpg. Subang are indicated in figure 2 showing their distribution. More than 75% is working with own agriculture while 42% is involved in IADP. The work outside and FELCRA have the lowest number of people in these

activities, just around 30%. About 5% is working with other things, e.g. in the small shops in the village.

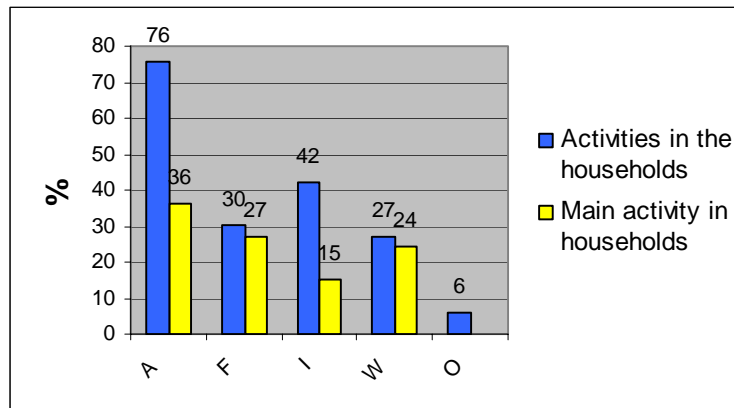


Figure 2. The distribution of the major activities giving income in the households and the main income giving activity in the households (A=own agriculture; F=FELCRA; I=IADP; W= work outside the village; and O=other work).

Figure 3 shows the income levels in each main activity, e.g. the income level for FELCRA lies between 250-500 RM in 55% of the cases and between 501-1000 RM in 45% of the cases. Around 40% of the households having own agriculture as their main activity, earns less than 250 RM per month. Work outside is the only main activity with four income levels including the high income level on 1501-2000 RM.

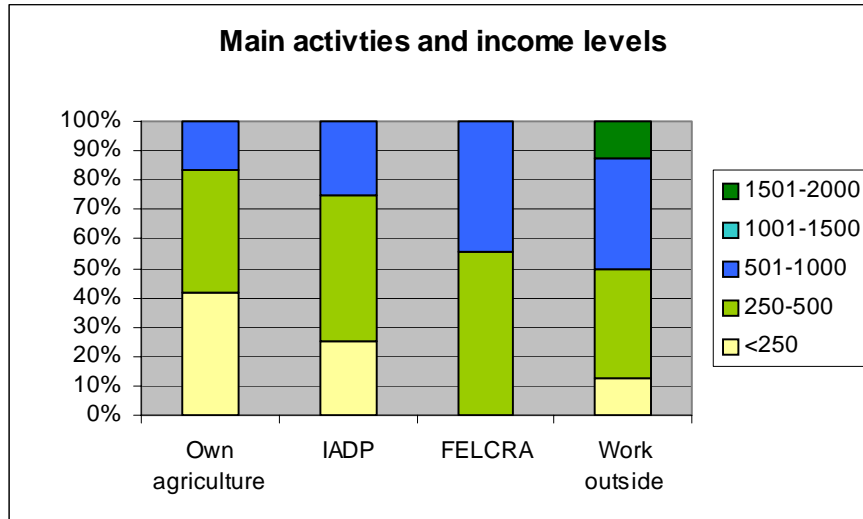


Figure 3. The main activities and income levels.

Other factors are also influencing the amount of income such as number of activities in one household (fig. 3.) and the number of people working in the household (fig. 3). The number of individuals in the households has shown to vary greatly, but the most common number of persons working in the households is 2 to 3 people (fig. 4).

The average salary for a worker in oil palm plantations in Sarawak is between 100 to 250 RM per month, which is much lower compared with other occupations (Aaina, 2000).

The villagers in Kpg. Subang earn around 300 to 400 RM per month working in the oil palm plantation (app. 6), which is more than the average salary compared to the whole Sarawak area. The Yearbook of Statistics Sarawak (1999) shows the average wage of different occupations:

Bus transport in 1996 – 796.32 RM/month

Taxi transport in 1994 – 403.84 RM/month

Road haulage in 1996 – 849.03 RM/month

These salaries from 1994 and 1996 are still higher than today salaries at FELCRA in Kpg. Subang. However the salary in Kpg. Subang as a worker in the oil palm plantation is higher than the average salary as a plantation worker in Sarawak.

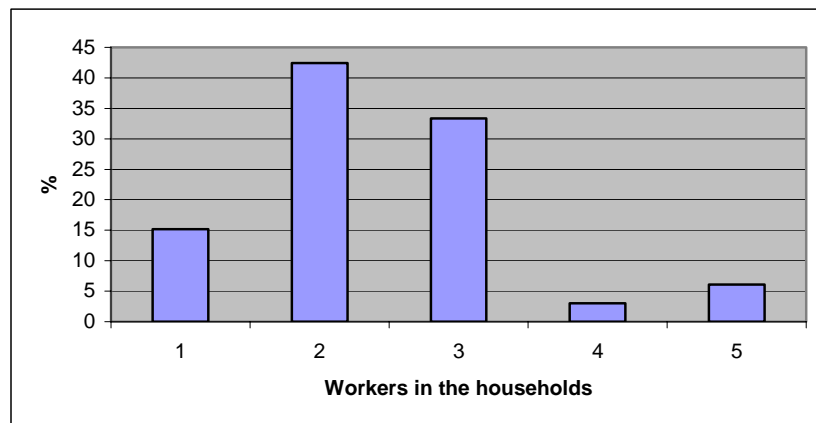


Figure 4. The percentage of working people in the household.

2.1 Own Agriculture

The people in Kpg. Subang have always performed agricultural activities producing food crops for their own consumption. The paddy rice has been and is still the most important crop and staple food for the villagers (fig. 5; app. 3). The rice is mainly produced for own consumption. From the arise and establishment of the village in 1925, shifting cultivation have been performed, clearing and burning down forest areas for cultivation of paddy rice (box 1).

2.2 IADP – vision, objective, plans

Integrated Agricultural Development Project (IADP) is the agricultural division of the Integrated Rural Development (IRD) (app. 1). The vision of IADP is to become one of the main food producers and suppliers in Sarawak, make the area self sufficient in food and thereby decrease the import of food (app. 5). The vision is accomplished by supporting the farmers in the area to produce more cash crops and at higher yields. The crops are meant to be sold at the market and provide the farmer's an income. IADP support in the sense of subsidising plant material, such as seeds or seedlings, fertiliser to the first fruit set of the crop, pesticides against the occurring pests, weeds and diseases, and plant hormones for the pineapples. The subsidies are based on the number of plants cultivated. Today IADP follow two plans, the 8th and 9th Malaysian plan for their projects, these have different directions. The 8th Malaysian plan focus on large scale,

communal monocrop plantations with a group of participating farmers' and where IADP decide the crop to produce, while the 9th Malaysian plan focus on individual crop productions, where the farmer can chose between several different crops. The group projects (8th plan) started in Sarawak in 2000, while individual projects have started earlier, in 1986 (app. 5).

Today IADP have started two group projects in Kpg Subang, phase I (2001) and II (2002), and involves around 100 villagers (app. 4). The village was initially asked about what crops that were suitable for the area, the answer was banana and papaya (app.4). Seeds of exotic papaya varieties from Peninsular Malaysia was offered and planted at the start. The price was 3000 RM per kg seed, which the village had to pay for. However, a large part of the seeds did not germinate and some of the plants did not develop properly, and the villagers asked for seedlings instead. The phase 1 project, with the banana and papaya plantation, consists of a 26 ha land area located close to the entrance of the village and towards the community hall, with around 30 participating villagers that started to produce bananas (app. 4; app. 7; fig.1). The phase 2 project started with a land area of 49 ha and is located from the centre of the village (community hall) and up towards the FELCRA plantation, with around 60 villagers participating and producing papaya and lemon (honey and sweet lemons). The lemon plantation is not successful yet according to the farmers', the Headman Albert and the former IADP responsible Sylvester. For the future a 3rd phase is planned with tapioca as crop. Several of the villagers have also individual agreements with IADP (app. 5).

2.3 FELCRA

The Federal Land Consolidation and Rehabilitation Authority (FELCRA) was formed in 1966, with the task of developing rural sectors and assisting the community in contributing towards national economic activities, while improving their quality and standards of living. The goal is to help the poor families in the rural communities to have promising jobs that could generate enough income to raise above the poverty level. After a certain period of time, normally twenty years, the families would get the title to the land, but the land cannot be bought or sold, without the permission of the Federal Government or the agencies involved (Sabran). The Sarawak Land Code was implemented in 1958. Under this code, land in which native customary rights (NCR) had lawfully been created in 1958 is termed Native Customary Land (NCL) (Extinguishing Native Land Rights, 2002).

The villagers of Kpg. Subang made a request to FELCRA to start a project in their village in 1996. FELCRA made a survey of the area checking the soil quality, water supply and suitable sites in Kpg. Subang, before making the decision of starting a project. It is the first time FELCRA are producing oil palm trees in a hilly area, and FELCRA selected Kpg Subang because they wanted to test if an oil palm plantation is suitable on sloping land, since their other oil palm projects are located in the flat land of Peninsular Malaysia. The villagers having their land in the chosen areas are automatically participating by leasing their land to FELCRA. In return the participants get a yearly dividend from the production depending on the size of their land involved in the project and the size of the profit that year. In 2005 the profit from the oil palm production was 157,156.72 RM, which paid each participant 400.71 RM/ha. Currently 125 people in

Kpg. Subang are involved in the project, either by leasing out their land or/and work in the plantation. The total area planted is 364.5 hectare. The agreement with FELCRA is 25 years (the fruit yielding period of the oil palm tree), but the contract can be extended if the village decides to continue the cooperation. If the village decides to continue with FELCRA, phase II will begin. The plans for phase II has already started, and FELCRA is thinking about extending the area for the oil palm plantation (app. 6).

3. Methods

During the field course participatory rural appraisal (PRA) methods were used, and both qualitative and quantitative data were collected with the purpose to get the information needed to answer the main task (Mikkelsen, 2005). All the methods used are listed below in box 2 and 3.

Box 2. Qualitative and quantitative methods (Mikkelsen, 2005).

Methods	Reasons	Outcome
Questionnaires	Overview of activities	<ul style="list-style-type: none"> • Indication about the distribution of activities and income level in Kpg. Subang
Specific semi-structured interviews with the households	In-depth information about the four main activities	<ul style="list-style-type: none"> • The economic importance of the different activities • Villagers opinion about their main activity
Specific semi-structured interviews	In-depth information from other sources than the villagers, about village history, activities, and health status of villagers	<ul style="list-style-type: none"> • More specific information about FELCRA, IADP and the villages history
Participatory mapping	<ul style="list-style-type: none"> • Quick overview of agricultural land • Peoples view of their village • Village leaders view of community and land use and natural resource utilization 	<ul style="list-style-type: none"> • Two maps: • Young boys view of Kpg Subang • Leaders view of the natural resources in and around Kpg Subang
Seasonal calendar	Information about the agricultural activities	<ul style="list-style-type: none"> • Time of year for harvesting different kinds of crops
Ranking of crops	Information about the crops of importance and reasons	<ul style="list-style-type: none"> • Preference of crops due to own consumption and marketing
Timeline	Historical view of the development and activities of the	<ul style="list-style-type: none"> • Historical events of Kpg Subang

	village	
Transect walk	Information about the village and land resources	<ul style="list-style-type: none"> • An overview of the village and the land resources' position

Box 3. Qualitative and quantitative methods (Mikkelsen, 2005).

Methods	Reasons	Site
Soil analysis	Indicative information of fertility and suitability of agricultural land	<ul style="list-style-type: none"> • Paddy field • Homegarden
Water analysis	Indicative information about the village activities affecting water quality and the villagers health	<ul style="list-style-type: none"> • Water dams (3 and 4) • Household tap water • Stream near plantation • Stream in centre of village, passing rubbish dump
GPS mapping of village and agricultural land	Overview of distribution of houses, land use and natural resources for further spatial analyses	In and around the village

3.1 Questionnaires

To get a general view of the different activities carried out in Kampong Subang, a short questionnaire with closed-ended answers was performed. The households were selected by systematic sampling interviewing every second household in the village. The quantitative data, which is received from the close-ended answers, is easy to compare by using statistics. Analysing the quantitative data by using statistics, can give an indication of the households' income and which activities that are economically important for the households. This information was also used to choose households for the semi-structured interviews. Before making the questionnaires, it is important to define what a household is, to get comparable data. In this case the definition of a household is *people living in the house*, but does not include relatives visiting once in a while. In this case it can be difficult to estimate the households' economic situation. While performing the task, it became obvious that the household definition was important in relation to gain a true estimate of the families' economic situation. It mattered a great deal excluding relatives not living in the house, as they could contribute to the total income by sending money and in some cases the contribution could be the main or only income. Therefore the household definition, has excluded a relevant income source. In other case studies this information could be of great importance, but in this case the accurate figures of income are not necessary in solving the main task. However the relevance of this subject also depends on if it is a common fact that the households get contribution from relatives. If almost every household gets contribution from relatives it could very well mean a lack of economic sustainability in the village. After all this was not the general impression in relation to the information we got from the villagers.

3.2 Specific semi-structured interviews

The purpose by making the semi-structured interviews with specific households, with focus on the main activity giving the main income, was to gain knowledge about the economical importance of the different activities. This information can indicate how the activities affect the livelihood. Compared to the questionnaires, these interviews contributed with more specific and in-depth information about the villagers due to the open-ended questions and the opportunity to let the interviewees tell what they think is important. In this way relevant information can be acquired and cover what the prepared questions left out.

The semi-structured interviews used for the households were divided into four main activities; 1) *work outside Kpg. Subang*, 2) *own agriculture*, 3) *FELCRA* and 4) *IADP*. Dividing the activities made it possible to get more detailed information about each specific activity.

3.3 Key informants

To get more information and comparable data from other sources than the villagers, interviews with the two representatives from Kpg. Subang and also from FELCRA and IADP were performed. The two representatives from the village are the headman representing FELCRA and Sylvester as the former IADP responsible.

3.4 Spontaneous interviews

Beside the specific interviews, some spontaneous and informal interviews were performed. They occurred more like a conversation than a structured interview, it seemed like a good way to practice before making the timeline and participatory mapping. The difficult thing about performing semi-structured and spontaneous interviews is to make it as a natural conversation. The language barrier is the main problem as much of the information have been filtered and maybe affected by translation by the interpreter, which easily makes the conversation awkward instead of fluently and natural.

3.5 Transect walks, random walks and guided tour

Observing and investigating the village and the area around were performed through transect and random walks with a local informant. The walks opened the possibility for discussions, and a chance to register the abilities and problems of the area (Mikkelsen, 2005). Some of the walks were more like guided tours to a certain place without any information e.g. to the waterfall guided by some young boys from the village, and another guided tour where two young men showed the way to their rice field where the soil sampling later on took place. Three transect walks were made together with Sylvester, one through the village also showing the first and second dam, another walk to all the water sources while taking water samples, and the third walk to a rice field in the hills. Together with the headman the transect walk (actually a transect drive) along the way to the oil palm plantation making stops at his fishpond, sweet lime tree and banana plantations.

3.6 Own investigations

Not all walks needs a guide a lot of information can be gathered by doing own observations. Just by walking to the different households during the performance of the

questionnaires gave an overview of the village and its people. Making the soil samples in the rice field gave an opportunity to investigate the area and talk to the workers in the field about their cultivation. Another walk went to the Sunday market in Kuching where the farmers sell their products.

3.7 Participatory mapping

Doing the participatory mapping together with different groups of people from the village did not only result in a map, but also a lot of information during the process of drawing the map. The first map was made by a group of young boys drawing how they see the village, but they were very shy which limited the amount of information during the mapping. The leaders of the village performed the second map. For this mapping some criteria was stated before the drawing: the map should include information on natural resources e.g. agricultural land, water sources and forestry. The intention was to involve Sylvester, the Penghulu, the headman and his uncle, but the headman and Sylvester dominated the process as they already have done a map of the village not long ago needed for the IADP and FELCRA projects. Even though the process went really fast, the information received was useful.

3.8 Historical timeline

The idea was to get a rough overview of events of significance for the village history and use it to understand the present situation in relation to the activities. The timeline shows the changes over time, which also demonstrates the process in the village, and maybe gives an idea of the nearest future. The timeline was made with the same persons as the participatory mapping. Making the timeline, one of the interviewers was asking the questions and noting the events on a sketched time line and another was making more detailed notes. It is necessary for more than one taking notes, to keep a natural dialog otherwise it is easy to *kill* the conversation in order to note everything down. Actually more than two persons could be a good idea to be able to divide the tasks among the interviewers.

3.9 Seasonal calendar

The households' agricultural activities during the year are drawing a seasonal calendar. It is important to know the annual variations of the crop production, as it indicates when the harvested crops are available for own consumption. It means spending less money on buying food and the possibility for selling the products with resulting income. Some periods of the year the income is maybe lower or higher due to the size and time of harvest. Some periods with a high working load may demand the household to work fulltime in the field. Other periods the agricultural production may be less demanding and other activities can be included in the everyday life. This difference in the yearly income is important to include in the estimation of the agricultural sustainability within the village.

3.10 Ranking of crops

The exercise can indicate the farmers' preferences of crops due to their own consumption and their income by selling the crops. In that way the importance of different crops is defined and the reasons for their importance. The scheme performed can be used to compare the villagers' preferences with the present production of crop.

3.11 GPS mapping of the land use, natural resources and households in the village

The GPS mapping of the land and households was made with reference to link it with the household survey and semi-structured interviews. The GPS map was of advantage during the investigations in the village and also for the analysis of the data. It may be possible to relate the data from the household survey with the map of the households to see if there is any spatial distribution of the activities of importance or incomes.

3.12 Soil sampling

Two soil tests were made, in a rice field (box 9) and the other in a home garden. The sampling spots were chosen in relation to the households, where the semi-structured interview about own agriculture and IADP took place. Making soil samples at one time and at few places in a field can only give a rough indication of the soil quality in the chosen area. Tests can also be necessary to take throughout the year since the nutrient content can differ in relation to the weather, fertilizer applications, the different crops cultivated and the management of the soil. Even though a spot test is insufficient, the different kind of soil types and conditions found can indicate what kind of crops that is suitable to grow, and maybe give information about the soil's nutritional status.

3.13 Water sampling

The water sampling was carried out in the water dams', the stream near the oil palm plantation, the stream in the centre of the village passing a rubbish dump, and in a household's tap water. The task was to get information about the water quality, and how the FELCRA oil palm plantation, agricultural activities and households' waste disposal affects the water quality. The results are maybe only indicative but still they can be related to the villagers' health and agricultural production in the fields located in the low land of the village.

4. Analysis and discussion of results

4.1 The FELCRA oil palm plantation project in Kpg. Subang

The FELCRA project in Kpg. Subang is running well according to the headman who is the village responsible for the project. For the villagers there are different reasons to choose working for FELCRA. Some of them are the health insurance, a retirement payment, the working place close to their home, lack of education and nice working hours (app. 6). None of the interviewees have mentioned the salary as a reason working for FELCRA, which could indicate a low average salary. From box 4 the daily payment from the different kinds of labour is shown and as mention earlier the salary is between 300 to 400 RM. which is low compared to the different kinds of work outside the village. The working time is from 8 to 14, which makes it possible for the workers to manage more than one activity. This is a big advantage as more than 75% of the villagers have own agriculture (fig. 2). Furthermore the workers are paid extra if they work overtime (app. 7).

Labour	Payment
Fertilizer application	RM13 per day
Lorry driver	RM17 per day
Weeding	RM 35 per day
Contract work	19 cents per bunch
Bunch collector	19 cents per bunch
Assistant supervisor	RM15 per day

Box 4. Income from different kind of activities in FELCRA (app. 6: interview with FELCRA).

The villagers leasing their land out to FELCRA gets the dividends from the annual crop profit. This can be an advantage for the villagers, as they can have a fulltime job and beside that receive money from FELCRA. One of the interviewee with work outside as the main activity explained that participating with FELCRA was the reason for staying in Kpg. Subang and not move closer to the job. Although the villagers think that there are a lot of advantages working for FELCRA, they also find the job very hard and not everybody has the strength to carry on (app. 7). The general view about FELCRA is after all positive as the work is in the village and there is good working agreements regarding to sickness benefits, healthcare insurance and a retirement payment. None of the interviewee knew that much about phase II, but anyway they were all interested continuing the cooperation with FELCRA. In phase II it will also be possible to include more villagers into the project either as workers or leasing out land.

4.2 The IADP subsidised agricultural productions

4.2.1 Mission of IADP and economic aspects

The households' incomes have increased since the participation in the IADP subsidised agricultural productions according to the headman (app. 4), which was confirmed in the interviews with the villagers (app 7). The household survey showed that 42% of the households are involved in an IADP project and 15% rely on the subsidised production as their main activity and income source (fig. 3). The mission of IADP is to improve the farmers' socio-economical standard, increase their income with at least 1500 RM per month within three to four years, and make them independent of their subsidies for their production within the five year long agreement period. The participating households' total monthly income is far below the 1500 RM, and it will be difficult to raise to this level in such a short time. Even though the income question was a sensitive issue and it was difficult to get an exact answer, the household data give a proper idea about their situation. All the households involved in IADP, except one, rely on more than one income source (between 2 and 4) (fig. 3; fig 2) which says something about how low the incomes are from the production.

4.2.2 Land

To be able to participate in an IADP production the farmer has to have their own land plot (app. 5). IADP decide the land area for the group projects due to suitability of site for the specific crop, such as soil quality and water availability (fig. 1). Since it is not a decision by the farmer, the villagers with field plots outside the area cannot join the group projects or receive the subsidies (app. 7). Still the farmer can participate in an individual

project with IADP with own agreement. However, it was clearly shown that not all farmers' have knowledge about this possibility.

4.2.3 Subsidies

The subsidies are based on the number of plants cultivated and the demands by the crop during the cultivation. The given quantity to the farmer should be enough to support the crop until the first fruit set (papaya, banana and lemon) (app. 7). However, the amount and quality of fertiliser delivered by the IADP have shown to vary between the farmers, also the number of deliveries, the timing of delivery and if the farmers' have to pay or get the fertiliser, pesticides or plant material for free (box 5).

Box 5. Farmer commenting on subsidies and expenditures

Initially, the farmer received 2 bags mineral fertiliser à 50 kg and 5-20 kg dried chicken manure, and pesticides together with the 300 papaya seedlings. The organic manure was supplied to increase the organic matter in the soil and build up the fertility. The fertilisers were not fully subsidized and the farmer had to pay 50 cent per bag of chicken manure and 4 RM for each bag of mineral fertiliser. The money goes to the village fond.

In the second delivery, the amount and quality of the organic fertiliser was significantly reduced (wet raw chicken manure) and the farmer did not have to pay for it. The third promised supply failed to come. Unexpectedly, the farmer had to buy more fertiliser to be able to fulfill the crop demands, sustain the quality and secure the harvest. The farmer concluded that the government has economical problems and reduce the subsidies that were promised in the agreement.

According to the IADP informant, the major benefit for the farmers' joining the IADP is that they have no expenditures in the beginning of the project, since no payment to the IADP is required, except for seeds or seedlings at very large plantation projects (app. 5). This is contradictory to some of the farmers' which reported that they have to pay for plant material, fertiliser or pesticides (box 5). Additionally, according to the former responsible for IADP in the village, are the fertiliser and seedlings fully subsidized by IADP to the farmers, while the pesticides are partly subsidised (app. 4). Generally, the fertiliser and pesticides initially delivered to the farmer is the only subsidy given. If the amount is not sufficient, the farmer has to stand for the costs, which depends on the farmer's economy if this is possible (box 6).

Box 6. Economic approximation of fertiliser and pesticides in the headman's sweet citrus production

In 2003, the headman Albert planted 500 sweet citrus trees in a plantation area of one hectare in an individual agreement with IADP. The trees started to give fruit the second year and will continue fruiting for 15 years. IADP supported with 25 bags à 50 kg of fertiliser, which is not enough for the production and he bought additionally 25 bags à 60 RM (1500 RM). The fertiliser is applied three times per year, and the amount depends on how much he can afford. Herbicide is applied two times per year and nine litres per application, which costs 80 RM for nine litres (160 RM). The total expenditure for fertiliser and herbicides per year is 3160 RM, if he buys all the fertiliser and no costs for labour hours are included.

According to the statistics of the Department of agriculture Peninsular Malaysia (DOA, 2006), the production of sweet citrus was 1,07 ton per hectareage (area production in crop hectareage equivalent, CHE) in 2001. The headman said that he earns around 2,5 RM per kg sweet citrus. An approximate calculation, with the 1,07 ton per CHE, the total income is 2665 RM per year. The cost exceeds the income by 495 RM.

Another benefit from IADP is the skill training and advice for their production. But this seems to vary in quantity and quality between the farmers', where some have been informed about and are able to practice every step in the cultivation, while others are disappointed because they have not received any applicable information, e.g. only been shortly briefed about papaya production. The farmer's production is evaluated in within the five year project period.

4.2.4 Market

The IADP is a market gardening project where all harvest is expected to be sold at the market, providing the farmer an income. The farmer is responsible for the marketing of their harvested products (box 7; app. 5).

The marketability of the harvested crop from the group projects has not been economically successful for the farmers' involved. Because all the farmers' involved have to produce the same kind of fruit, which have resulted in competition on the market between the farmers' and falling prices.

Box 7. Discussion with the IADP office about implementation of their mission

IADP: In the communal plantations (according to the 8th Malaysian plan), all the farmers participating have to grow the same crop, chosen by IADP.

Interviewer: The products are sold by the farmers' on the market. Since IADP do not help the farmers' to market the products, does this not lead to competition on the local market, and the market will be saturated? Is the mission of IADP really implemented in this way, by letting the farmers compete out each other and with falling prices at the market as consequence?

IADP: The farmers can export their products.

Interviewer: How will the farmers get access to the export market with their products? How will the farmers' products reach this market?

IADP: In the 8th M. plan the focus was not to help the farmers' to market or sell their products.

Interviewer: How is the households' socio-economical situation improved then? The mission of IADP is not implemented.

IADP: In the 9th M. plan the focus is on the individual farmer and the mission is better implemented, which actually focus and improve the socio-economics of each household. The marketing will also be supported in some way. Assistance (theoretical) will be provided for the harvest, and the incomes from the plantation should go back and be invested in following production to cover the expenditures (when growing the same crop again the farmer have to provide for their production costs). When growing a new crop, IADP provide support and assists until the first fruit set.

4.2.5 Dependency and sustainability

Generally, the farmers' have a positive opinion about participation in future projects, because the IADP production results in higher yields than their own agriculture and increased incomes. However, all the farmers', except one, clearly expressed that they are not able to continue the production to the same extent without the subsidies from IADP (app. 7). To invest and buy own fertiliser and pesticides required to sustain the production seems economically difficult. Despite the increased incomes the farmers' have not been able to save enough money for their own production and become independent of IADP. Additionally, many do not have enough confidence in the payback from the crop. Supported by IADP, the farmers' give the impression of being confident in the sense that they are not posed to the same risk of failure and becoming ruined. The IADP have no responsibility for the farmers' success, which are obligated to follow the recommendations from IADP to receive the support (app. 5).

4.2.6 Partial conclusions

The IADP have succeeded to increase the participating farmers' incomes and possibly their socio-economical standard to some degree, but not to the expected levels. Nor the IADP office or the all farmers' are fully satisfied with the results after five years of group

projects. The communication between IADP and the villagers have not been optimal, since it is clearly shown that not all farmers' know about all the possibilities with IADP, such as the individual agreements. Even though IADP is an important driver of some agricultural activities in Kpg. Subang, and also valuable for the economical situation for many of the villagers, the farmers' are not able to sustain their production to the same extent without the support from IADP. The reason for the low increase in income could be due to the mission with the group projects, where all farmers' have been forced to produce the same crop, which is not economically shrewd. Further, the farmers' are not confident in the payback from their investments and feel secure when IADP takes all the risks. If the government ends their projects in the village and stops subsidising the farmers' productions many will have to return to former income giving activities, such as own low input agricultural productions and collecting natural forest products to sell at the market, which today are supplementary income sources. Other farmers' will try to find new job.

4.3 The villagers' own agricultural production

Today as much as 76% of the villagers, estimated value from the household survey, have their own agricultural production, and 36% rely on their agriculture as their main activity and income source (fig. 3). The incomes from this activity are the lowest among the activities occupying the villagers. The own agricultural production have shown to be of very high importance for the households, even though the villagers have other work and income sources they continue this activity (fig 2). The main reason and advantage seems to be the own supply of food, resulting in lower expenditures for purchase of foodstuff, and the marketability of the most important crops also gives an appreciated extra income (fig. 5; app. 3). The possibility for the villagers' to have their own land and perform their own agricultural production have also shown to be an important reason for staying in the village and not migrate to urban areas (app.7). The reasons have shown to be of both economic and personal character, such as lower expenditures, inherited land, own house, and family.

Box 8. The agricultural production and activities of a household in Kpg. Subang

The whole family of is involved in the agricultural production. The mother, daughters and sons work in the cultivation, so does also the father and head of household but he also work outside the village. The products are sold by the mother of the household at the Sunday market Satok, she has also the best contacts, which is important to get the best price and sell most. The grandmother sells the vegetable bunches, from which they earn 2 RM per bunch.

Their production consists of paddy rice, fruits and vegetables in the homegarden, paddy rice in another paddy field, fruits in the orchard beside the paddy field, tapioca and papaya (IADP) in another field located 1km from the house through the jungle. Additionally, they collect natural forest products to sell at Satok. Except for the rice cultivation that is very labour intensive during planting and harvest, most of their crops are not seasonal and thereby the household can spread the working load and yields through out the year and can sell some of their harvest due to the demand on the market.

They get the best price for their products when the crop is sold as "whole harvest" and not per kilogram. They try to harvest each crop when as much as possible is ripe and sell it as the whole harvest. They apply fertiliser to the fruit orchard, tapioca field and the corn, which is planted directly in the rice field after harvest. Manual weeding is highly important for many of their crops, even though it is labour intensive and they cannot afford to buy pesticides. They also protect their jackfruits by placing a bag around the fruit to prevent pests laying their eggs inside it. The bananas harvested while still green to prolong the storability and marketability.

4.3.1 Market

The common market is the Sunday market Satok in Kuching, where the farmers in the province sell their agricultural products, fish, and natural forest products. The harvest can also be bought up by wholesalers, which do not come regularly but buys up all the available products in the village that can be sold (also not fully ripen fruits). The wholesaler buys the products to a lower price than the price at market, which is often the double. But the own marketing is time consuming, the transport is expensive and a market fee has to be paid (between 96 and 200 RM per year at Satok) (app. 7). Thereby, it can be advantageous for the farmers' to sell to the middlemen. Apart from when the middlemen come to the market and claim a fee of 1 RM per kg fruit from the farmers' in addition to the market fee.

Box 9. The farmers' work in their rice field, where soil samples were taken

The family cultivate three varieties of paddy rice which differ in softness, taste and grain size. The land is inherited and has been cultivated continuously for many years; despite this the family is satisfied with the soil conditions and quality. In October they plant wet paddy rice in the field near the river, which is prepared with a simple terrace system to control the water levels, and the dry paddy on the adjacent hillside. The rice harvest starts in March. The harvesting technique vary due to how urgent the rice has to be harvested, hand picking of the rice grain is faster than cutting of the whole or upper part of the straw, which has to be treated by stamping to separate the grain from the straw, when drying on the home terrace. After harvest in April they plant a corn crop that is harvested after 30 days. In August they clear the field by cutting down the straw and burn it by controlled fire. They do not till the soil and no fertiliser is applied to the crop. During the most intensive periods the whole family work in the field from 8 to 17 every day, except Sunday.

4.3.2 Farmers' ranking of their agricultural crops

The ranking of crops showed that rice is highly important for the farming family's food consumption but is less valuable for the market and requires large labour input. The low marketability of rice is probably for the reason that many people grow their own rice or acquire it from their relatives in the rural area. Banana and durian scored the highest totals because of their high storability, marketability and that these give good incomes. Additionally, these fruits are often consumed and the cultivations do not require so much work, particularly for the banana. The tapioca is also considered an appreciated crop, and is regularly used in the village cuisine, both in the form of leaves and tuber. When relating the labour input with income from and storability of the pineapple the return is small. The result from the ranking could have been even more interesting if the level of production of each crop had been identified.

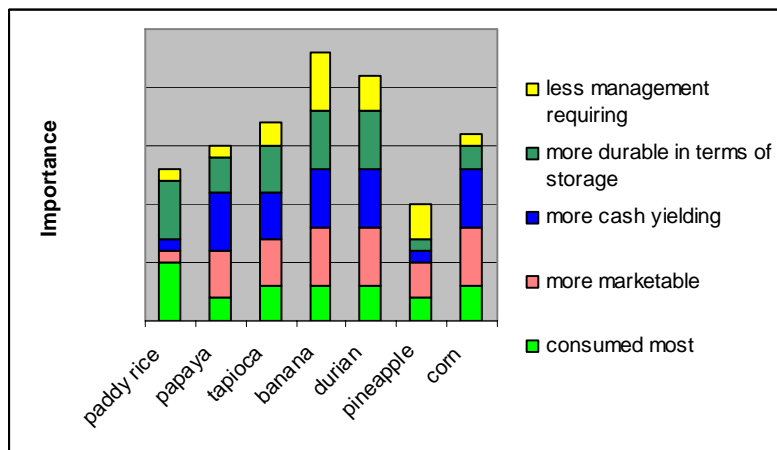


Figure 5. Statistical analysis of the ranking of seven important crops for due to their importance of specific qualities (App. X. ranking of crops)

4.3.3 Soil and plant nutrients

The own agricultural productions in the village are low input cultivations where fertilizer or pesticides are seldom used, since the costs for these are often considered un-affordable (app. 7). The soil of the village has been told to be fertile or even very fertile, however, it has been difficult to answer or prove this statement that requires further analyses, which has not been performed during the time in the village. Soil samples were taken in two areas, in one homegarden and one rice field (box 9), which are both so-called own agricultural productions. The answers from the analysis have not yet arrived from UNIMAS (University Malaysia Sarawak). By own observations of the crops cultivated in the village, it could be registered that many plants had yellowish and chlorotic appearance of their lower leaves, such as most of the papaya trees, and stunted in growth at some sites. These signs could be due to nutrient deficiencies, such as nitrogen deficiency. It was also observed that the applied fertilizer was in granule form and placed at the soil surface around the plant, and not really able to reach the plant roots. Since the fertilizer granules were not incorporated into the soil they were highly exposed to be brought away with the heavy rains and eroding soil, particularly because many crops were planted at more or less sloping land. Even if the soils have been fertile, the

continuous cultivation with short or no fallow periods, the common burning of fields after harvest leading to low input of organic material, the degradation of soil fertility should be a fact. Further if the application method of fertilizer, when applied, is not accurate the cultivated plants may suffer from deficiencies and give lower yields.

4.3.4 Own agriculture and future

Many of the households (36%) are involved in both own agriculture and the IADP subsidized agricultural projects, which can be considered as an efficient combination concerning the work load and incomes (box 8; app. 7). It is also profitable to be able to offer many products at the market. The future agricultural production in the village is insecure. There is much to suggest that it will decrease if the yields in the own agricultural productions are not increased, since the need for ready money increase and the villagers have to focus on income giving activities. A decreased production may also be caused by out migration by the young generation, drawn by education, higher job possibilities or another lifestyle in the city. Nonetheless, people believe in their village future, see many advantages by living and working there (app. 7; box 10).

Box 10. Young woman about her future

The young woman sees a positive future for her, both in and outside the village. After further studies, probably in business management in Kuching, she wants to have her own business. In the village an own agricultural production, growing all kinds of vegetables, herbs and medicinal plants, such as the widely used *Eurycoma longifolia*, combined with aquaculture producing fish and prawns to sell at the market. She strongly believes that she can create a high yielding production without governmental support. But she does not want to be a farmer all her life. Her second vision in life is a catering business that focuses on the village specialties and delicatessens and using her own harvested products at the start. The future also includes a house in Kuching, since life is better there, and thereby she can live here life both in the village and in the city.

4.3.5 Partial conclusions

The own agriculture is hard work and not always high yielding, which could be due to the low inputs and eventually low soil fertility after years of continuous cultivation. The size of the agricultural production in the village has decreased by time, but still 76% of the villagers have their own agriculture and the rice production is highly important, just as the production of banana, durian and tapioca. Some of the villagers, often with no other income source, consider their own agricultural production as necessary for their survival, both for food and as income source. Other villagers, with more than one income such as work outside the village, additionally consider their own land and agricultural production as an advantage, which is not available or possible if they would move closer to their work, maybe in Kuching. However, cash is king and some villagers have to direct their work on more income giving activities

4.4 Working outside the village

In Kpg. Subang, just above a fourth (27%) of the households have a family member that works outside the village and almost just as many (24%) households rely on this work as their main income source (fig. 2). The income levels from the work outside the village are spread, but together with incomes from FELCRA they are generally higher than incomes from the other working activities within the village (fig 3). The reasons for working outside the village vary between the villagers, where one household stated the higher salary as an important reason (app. 4), which supports the statistical analysis of the household survey. Another reason for working outside is the lack of job possibilities in the village (app. 4), even though governmental projects have started and give many of the villagers job, and it is not enough. The reasons could cause an increased percentage of villagers choosing to work outside the village. Many of the villagers in the younger generation can think of working in Kuching in the future and maybe also move from the village (app. 4). The different kinds of job possibilities in Kuching are better compared to the choices in the village, which are still very few and considered to be very hard and give low salaries and incomes. In addition, the main working activities are within some kind of crop production, which does not seem to be the highest dream for the young generation. The educational level has increased with time in Kpg. Subang, first with the building of roads and now many young people have student accommodation at the secondary school. To study at higher educational levels seems to become more popular, since it gives them more job possibilities and also more money which are highly important since many in the young generation dream about a better life (App. X sssi). The higher educational levels or skills also drive people to work somewhere else because the need for stimulation in their job. A driving licence is enough to get a job with higher salary in a nearby city. However, more and higher educated villagers, just as higher salaries from their work, are beneficial for the village development.

Working outside the village, is not something new, some of the interviewees have been working in Kuching for 20 to 28 years (app. 4). When the question comes to the reason for staying in Kpg. Subang and not move closer to the job, the answer involves the higher expenditures for living in Kuching. One of the interviewed families has tried to live in Kuching for six years, but was forced to move back because of the too high living costs (app. 4). Not all of the villagers working outside the village wishes to move away, e.g. one interviewee stays because of the participation in FELCRA by leasing out one hectare land to the project, which gives an additional income to the household. Other villagers are staying because they are involved in IADP or have own agricultural production and work in their cultivation in their spare time.

4.5 Partial conclusion

The main reasons for working outside the village are higher educational level or skills and more varying job possibilities with higher incomes in the cities. The village can still mainly offer hard work in the agricultural sector at low salaries. The young generation will choose to work even more in the cities than their parents, and many will move at least temporarily. The villagers with their main income from work outside the village benefit from living in the village and commute to their work, instead of moving out. Even though the transport costs are high, in some cases more than one third of the salary (app.

4), it is cheaper to live in the village, than in the cities. In the village they often have their inherited land, own house, they can grow their own rice, vegetables and fruits (both for own consumption and for additional income) and they do not have to pay for their water consumption.

The main reasons for working outside the village are higher educational level or skills and more varying job possibilities with higher incomes in the cities. The villagers with their main income from work outside the village benefit from living in the village and commute to their work, instead of moving out.

5. Discussion and conclusion

5.1 Discussion

The four main activities influence on the villagers' livelihood strategies have been the focus for the investigation, where the economical consequences and the governmental impact have been approached. In the village of today the most important drivers of the livelihood strategies have been identified as income yielding activities, while in the genesis of Kpg. Subang the most valuable activities yielded food. Presently and here these two outcomes from the livelihood strategies are fundamental and interactive. Own agriculture can be considered as the oldest and still most common activity, and the IADP subsidized agriculture is increasing in importance since the activity yields the two basal outcomes, food and ready money. The development of the village, in terms of education, infrastructure and technology drives an increasing demand and need of the villagers', resulting in changed livelihood strategies towards even more income yielding activities. Both the FELCRA project and work outside the village are providers of salary, though the salaries from FELCRA are low and the job is hard, while the labour market outside the village have more possibilities. The need of more and higher incomes can be reflected in the number of activities that each household in the village are occupied in, where 55 % of the households are involved in more than one income giving activity. In general, the more activities a household are involved in the higher the total income. The main activity does not always result in the highest income since it is the total income presented including all the sources, but the main activity may contribute to the higher income level. Villagers with more than one income source such as own agriculture and work outside the village, consider their own land and agricultural production as an advantage, which is not available or possible if they would move closer to their work, e.g. Kuching. However, cash is king and some villagers have to direct their work on more income giving activities. To work outside the village with the home, family and agricultural production in the village has shown to be an advantageous and preferable combination. The location of Kpg. Subang near larger roads and the cities Serian and Kuching, provide the village an optimal position. The future development of the village is thus promising. In addition, more sustainable solutions and more jobs have to be created to support the villagers' and the village future development, formed by the village itself without governmental assistance.

Both the FELCRA and IADP choose the location for their group projects and the villagers' owning the land, in the sense of NCL, has a greater possibility to improve their economical situation compared to villagers with no land. By leasing out their land to the FELCRA project the villagers' can receive the dividend from the annual profit, which have shown to result in a consequential difference in their economy. The chosen land for the IADP group projects gives the farmers' the possibility to produce cash-crops which are initially supported by the IADP. The larger and more land area a household have the higher the chances to receive more and higher income. Villagers with field plots outside the areas can not join the projects or receive subsidies, which may cause a substantial economical difference between the IADP producers and the own agricultural farmers'. There is a small but clear economical difference between the farmers involved in the projects and the farmers relying on their own agriculture. 42% of the farmers relying on their own agriculture as main income source have an income less than 250 RM per month, while 25% of the IADP farmers have this income (fig. 3). However, this have still not occurred since the income differences are not significant and these activities are commonly performed by the same households'. The IADP subsidies have increased the majority of the participating farmers' incomes, although not to any consequential level of such importance that the farmers' have been able to save money for future production expenditures. Thereby they are not able to sustain their production to the same extent without the subsidies, and the project just as their own production can be considered unsustainable. The future may show a larger difference between the groups IADP and own agriculture, confirming that there is a payback from the investments. The future with IADP is more promising due to the vision of the 9th Malaysian plan which emphasis is to create individual entrepreneurs, which can increase the motivation of the farmers'.

5.2 Biases, reliability and validity

In the data from the household survey, some houses have the same number, which shows the difficulties during the surveying to define the right house number since more than one number was given for the house. The family gave one number which resembled with one of the following notes on the house: the yellow paper on the main door of the house gave one number, the white paper on the same door gave another number and the sign on the house gave an additional number, e.g. there are three houses with the number 13, and two of them are located at the same lane. However, the houses with the same numbers are not the same, since different families live in them, and the information from the households' is correct.

The main activity is defined as the most performed activity and on which the household rely for their main income. In the income specified, in the household survey, all sources of income contribute not only the main income source.

The question in specific semi-structured interview to the households, with FELCRA as main activity giving income, about bonus every year was not clear and did not give the type answer we wanted. The question was misunderstood by the one interviewer team that thought the bonus was from the work at the plantation. A question should have been posed before that one about how the family was involved in the FELCRA project, as

employed or participants leasing out their land to the project or both. If the answer was participating by leasing out land then the following question about the bonus should have been posed.

During translation when interviewing the villagers, the interpreter “coloured” the answers from the interviewee by picking out and deciding what he thought was the most important parts for us, particularly at the long answers.

The facts from different individuals may cause bias or might be a bias. Since we have not talked consequently to the head, or any another specific person, of the household, but to different individuals in the household (man, woman, child) giving different information and versions about activities and income. If there is a difference in the answers it is not necessarily due to difference between households, but maybe due to the individual person asked.

5.3 Conclusion

IADP have improved the economical situation for many of the villagers at least to some extent, but the farmers’ are not able to sustain their production without the support from IADP. One explanation could be the mission of the group projects, where all farmers’ involved was forced to produce the same crop, which resulted in competition on the market between the farmers’ and falling prices. Further, the farmers’ are not confident in the payback from their investments and feel secure when IADP takes all the risks. The support from IADP differs between farmers’ and is not considered as reliable. Though, skills from the IADP cultivations can be of advantageous for their own agricultural productions. The own agricultural production have shown to be of very high importance for the all the households. The work is hard and production is not high yielding, which could be due to the low inputs and eventually low soil fertility after years of continuous cultivation. The incomes from this activity are the lowest among the activities occupying the villagers. The main reason and advantage for the production seems to be the own supply of food, resulting in lower expenditures for purchasing of foodstuff, and the marketability of the most important crops also gives an appreciated extra income. The possibility for the villagers’ to have their own land and perform their own agricultural production have also shown to be an important reason for staying in the village and not migrate to urban areas. Some of the villagers, often with no other income source, consider their own agricultural production as necessary for their survival, both for food and as income source. The general attitude to FELCRA is positive due to their creating of jobs in the village. The benefits are many for the workers but the work is hard and salary low. For the participants leasing out their land to the project the annual dividends received is an important income source. The main reasons for working outside the village are higher educational level or skills and more varying job possibilities with higher incomes in the cities. The villagers with their main income from work outside the village benefit from living in the village and commute to their work, instead of moving out.

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Hasenah Abdul Rahim	Dharmaraj Dorairaj
Syed Hashim Endut	Victor James Noik
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8. Appendices

Appendix 1 Synopsis

Den Kongelige Veterinær og Landbohøjskole
Københavns Universitet, Institut for Geografi
Roskilde Universitetscenter

ILUNRM, spring 2006

Synopsis

Impacts on livelihood strategies and economical sustainability, without governmental assistance, in Kampong Subang, Sarawak, Malaysia



Group members:
Maj Brit Jensen, EM05150, RUC
Johanna Lundell, SLU02018, SLU/KVL
Ahmad Sarfraz, ADK05046, KVL

Supervisors:
Torben Birch-Thomsen, IGUC
Andreas de Neergaard, KVL

Table of Contents

1 Introduction	3
1.1 Background	3
1.2 Objectives	3
1.2.1 <i>Research questions</i>	3
1.3 Hypothesis	4
1.4 Relevant literature	4
1.4.1 <i>Relevant internet sites</i>	5
2 Methodologies	5
2.1 Methods	5
2.1.1 <i>Time line (PRA)</i>	6
2.1.2 <i>Participatory mapping (PRA)</i>	6
2.1.3 <i>Seasonal calendar (PRA)</i>	6
2.1.4 <i>Transect walk (PRA)</i>	6
2.1.5 <i>Specific interviews</i>	6
2.1.6 <i>Questionnaires and semi-structured interviews</i>	7
2.1.7 <i>Sampling, measurements and analyses</i>	7
2.1.8 <i>Own observations</i>	7
2.2 Materials	7
2.3 Time schedule	7
2.3.1 <i>Planned collaboration with counterparts</i>	8
3 References	8
Appendices	10

A Questionnaire and semi-structured interview

B Specific interviews

C Mind map of assignment

1 Introduction

1.1 Background

Kampong Subang is a Bidayuh village of more than 100 households, situated one hour drive South-East of Kuching. The village is also connected by the road networks system to many nearby Bidayuh villages. The Bidayuh, formerly known as Land Dayak, is one of the main indigenous ethnic groups in Sarawak, consisting of 8 % of the population, and are settled in the southeast area of Sarawak. Facilities of electricity, water supply and telephone lines and also services of mobile phone are available. There is also primary school, Kindergarten, a community hall and a church in Kampong Subang.

The main agricultural activity of the villagers is market-gardening and their main products are papaya, banana and oranges. These products are produced under an Integrated Agricultural Development Project (IADP) scheme. IADP is the agricultural part of the Integrated Rural Development (IRD) strategy which is presented by FAO (FAO, 1978). The strategy includes natural resources or land development, basic economic infrastructure and social services and facilities, the provision of agricultural support services such as credit, marketing, research, extension, farm inputs, and development of non-agricultural rural components like rural industries, rural public works and community development projects. Thirty people in the village are working for the FELCRA oil palm plantation, which is a governmental project.

Most of the land held by the community is classified as Native Customary Land (NCL) and is not titled. However, some of the land under FELCRA and IADP scheme are surveyed but for most cases, the land titles are yet to be issued.

The villagers also grow vegetables which they market either in Serian or Kuching. The soil in and around Kampong Subang are known to be of good agricultural capability, but it has also appeared that in many cases poor management had resulted in severe degradation. The population increases and there is a shortage of accessible land, which makes the villagers feel “squeezed”.

A large part of the villagers of Kampong Subang works outside the village in Kuching or Serian, making the village quite empty during the day.

1.2 Objectives

The objective with this assignment is to assess the livelihood strategies among the villagers in Kampong Subang in Sarawak, Malaysia, and the economical sustainability of the households without governmental assistance. The objectives can be reached by investigating the main drivers of livelihood, the specific activities leading to income and the impact of the drivers on these activities.

1.2.1 Research questions

The main research questions are: What are the livelihood strategies of the villagers' in Kampong Subang and are these economically sustainable for the households and village, without government assistance?

The working questions investigated through field work are:

- A) What is the importance of agriculture/market-gardening for the livelihood?
- B) What is the importance of the FELCRA oil palm project for the livelihood?
- C) What is the importance of the work outside the village for the livelihood?
- D) To what extent are the increasing population and shortage of accessible land of importance for the livelihood?
- E) How does the governmental assistance affect the sustainability?

1.3 Hypothesis

A) *The main agricultural activity is market-gardening, where fruits are produced under the IADP scheme. Another income is the production of vegetables. These agricultural activities can be an important income source for the village. Therefore a decrease in access to land for agricultural activities, could affect the villages economical sustainability in a negative way.*

B) Less than 30 villagers work for the FELCRA oil palm project, providing them an income. The amount of villagers involved in the oil palm project, may not be of high importance for the community economy since the village consists of more than one hundred households.

C) Many people from Kampong Subang are working in other villages providing the households and the village with probably a large percentage of the total income. An explanation for why many of the villagers are working outside the village could be due to the shortage of accessible land combined with the increasing population. The shortage of accessible land can also mean a smaller agricultural production and incomes provided for the villagers.

D) With increasing population pressure the size of the village also have to increase, but because of the shortage of accessible land it may not be possible. This may lead to less unit area land per person and perhaps a forced migrating to other villages or cities. However, the increased population could have a positive affect, in the sense that the village have larger labour force.

E) The assistance from the government may concern credit, subsidies, technical support, infrastructure and education to the farmers. The support from the government could be important in periods with a poor crop production, high unemployment rates or for the development of the village.

1.4 Relevant literature

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1.4.1 Relevant Internet sites

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2 Methodologies

2.1 Methods

The methods, selected for this field investigation, are lined up below to give an overview. With these different methods it is possible to cross-check data, named as triangulation. The methods are shortly explained in the following text.

Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA)

- Time line

- Participatory mapping
- Seasonal calendar
- Transect walk alternatively guided tour

Interviews

- Specific interviews
- Household survey - questionnaires and semi-structured interviews

Other

- Own observations

Natural scientific methods

- Soil samples
- Water samples
- GPS mapping

Description of Rapid Rural Appraisal (RRA) and Participatory Rural Appraisal (PRA)
PRA have evolved from RRA and comprise a number of methods and techniques for interaction with community members, with the aim to gather and analyse information from the local knowledge where the community members evaluate their own situation and share the information (World Bank, 2003). Both RRA and PRA are emphasized on qualitative methods and involve flexibility, optimal ignorance due to an approach of efficiency, and triangulation, where information from different sources or techniques is combined when investigating a topic. The methods can be both verbal and visual.

2.1.1 Time line (PRA)

The timeline can be used as a descriptive tool giving a historical perspective and knowledge about changes with time in the livelihood strategies and economical situation of Kampong Subang. The timeline can also give more detailed information. The history will give an understanding for the situation today and possible future development. The villagers (older people) and the headman, divided in 2-3 groups with 2-3 persons in each, are asked to draw a time line including historical data, for the latest 20-30 years. The intension of the time line is to receive information about social differentiation, governmental role, land availability, use, ownership and tenure rights seen in a time perspective.

2.1.2 Participatory mapping (PRA)

The participatory mapping exercise by the community members is a visioning technique, where the village or community is drawn (World Bank, 2005). The mapping can provide more information about the community than only the physical characteristics, since it also reveals socio-economic situations and conditions, and what the members consider to be of importance in the community.

Villagers of Kampong Subang will be divided into two groups (3-10 persons in each), one with men and one with women, and be asked to draw the village map that includes the agricultural activities, the FELCRA oil palm project, clean water resources and other priorities. By dividing the groups by gender, different factors of importance for the women and men respectively will be shown. The mapping can also give important information about priorities of the villagers, boundaries, resources, land access and use.

2.1.3 Seasonal calendar (PRA)

Seasonal calendars discussed and drawn by the community members can generate information about seasonal trends of activities and identify important periods of stress and vulnerability (World Bank, 2005). Ranking of the activities and drawing of line graphs, showing increases and decreases, can be used as an overview complement. The seasonal calendar will be a descriptive indicator of the activities that occupies the villagers, the sources of income and food, and which activities are of importance for the village and/or households.

2.1.4 Transect walk (PRA)

A guided walk takes place with a selected group of local people, to understand and explore the specific differences in land use, vegetation, soils, cultural practices, water availability etc, in an area. The guided walk gives an ability to question the things observed and the local people are able to enlighten and complete things outsiders are likely to miss (World Bank, 2003).

2.1.5 Specific interviews

The specific interviews are directed to key informant people related to certain areas or topic. The respondent can reply with open-ended and in-depth answers, such as in semi-structured interviews, and allow the respondent to give non-expected information.

- Interview with headman: a first general meeting with presentation, and interview, including a walk in/around the village.
- Interview with responsible persons: about the governmental projects and impact on the household activities, land aspects, and economy of the community.

2.1.6 Questionnaire and semi-structured interview

Questionnaires can give an overview and show the correlations between the social and physical categories. A semi-structured interview will be carried out in combination with the questionnaires, with the purpose of gathering complementary information.

The main purpose of the questionnaires in this case is to receive information and knowledge about the livelihood drivers among the villagers, activities leading to income and their ranking, economical situation of the households and village, land accessibility and use. The questionnaires will be designed with few questions (10-15) with the purpose to interview many people (20-?). The households for the interviews will be chosen randomly to give a statistically correct data not influenced by known information or factors.

2.1.7 Sampling, measurements and analyses

Detailed analyses of the agricultural soils (pH, N, P, K, S, soil type, soil structure/texture, organic matter, %C, salinity, EC) and water quality (pH, EC, O, bacteria, rests of pesticides, fertiliser, heavy metals), will give an indicative information which is useful in combination with the other results from the questionnaires, interviews, transect walk, and own observations etc. By analysing the soil information about soil fertility and environmental aspects may be given. Analyses of the water quality will give information

about the access to clean water. The sampling will be performed after the other data gathering methods, as these can give certain information about where to do the samples.

2.1.8 Own observations

It is important to get a general overview of the community and village areas, land use and the approaching activities. Own observations can further give an impression and understanding of relevant issues and factors.

The agricultural activities are investigated to estimate the importance of the agricultural production and income for the villagers. Own observations, of the agricultural land, topography, water resources, product quality, deficiency symptoms, input/output etc, could additionally be done together with a villager with knowledge about the specific activities. By studying the fields before performing the interviews, new relevant questions may be enlightened, which could not have been foreseen. It is also important to perform informal conversations with the villagers and other people met.

2.2 Materials

Soil analysis kit

Water analysis kit

GPS

Digital camera

2.3 Time schedule

<i>Saturday 4th March</i>	<i>Arrival at Kuching</i>
<i>Sunday 5th March</i>	<i>Meeting with the counterpart and preparation work</i>
<i>Monday 6th March</i>	<i>Transport to Kampong Subang, first meeting with headman and villagers.</i>
<i>Tuesday 7th March</i>	<i>Mapping and timeline, and own observations</i>
<i>Wednesday 8th March</i>	<i>Presentation of common research project</i>
<i>Thursday 9th March</i>	<i>Own observations, transect walk, Interviews and questionnaires</i>
<i>Friday 10th March</i>	<i>Interviews and questionnaires</i>
<i>Saturday 11th March</i>	<i>Interviews and questionnaires</i>
<i>Sunday 12th March</i>	<i>Midterm evaluation. Group discussion, evaluation of interview, questionnaire data</i>
<i>Monday 13th March</i>	<i>Day off</i>
<i>Tuesday 14th March</i>	<i>Field work and research</i>

<i>Wednesday 15th March</i>	<i>Field work and research. Specific interviews and questionnaires</i>
<i>Thursday 16th March</i>	<i>Group work at home, arrange the collected data</i>
<i>Friday 17th March</i>	<i>Preparation of briefing, debriefing and presentation of results</i>
<i>Saturday 18th March</i>	<i>Transport to Kuching, farewell party</i>
<i>Sunday 19th March</i>	<i>End of field course</i>

2.3.1 Planned collaboration with counterparts

Before departure from Denmark the synopsis will be mailed to our counterparts in Malaysia to give them the ability to be prepared for our first meeting. At the meeting, the groups will introduce the synopses, present and share their ideas about the coming field work, which we are looking forward to.

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Appendix A: *Questionnaire and semi-structured interview*

Presentation

Introduction and explanation of the purpose for the questionnaire.

General information

Name

Age

Gender

Number of people in the household (age, gender, working force)

Income

Which activities are your household involved in, and what is the main activity?

How many people are involved in these activities?

What is the annual income of the/these activities to the household?

Agriculture

Oil palm project

Work outside

Other

Agriculture

1. Who is the owner of the land you cultivate? How long time have you cultivated the land?

- Own land
- Native customary land (NCL)
- Reserved land (belonging to the state, such as national park)
- Interior area land (belonging to the state can be rented out to natives)
- Mixed zone land (everybody can buy or rent the land)

2. Where is it located?
3. How large is your cultivation area? Do you need more land for subsistence and/ or income of your household?
4. Is it your own cultivation or are you involved in a agricultural project?
5. What cultivation method/management do you practice?
6. What kind of crops do you cultivate?
7. How large is the yield of your crops?
8. Which crop is most profitable to produce?
9. Do you cultivate the same crop each year or do you practice crop rotation?
10. What are the inputs? (pesticides, fertilizer, manure)
11. Is there any negative environmental impact from the surroundings on your cultivation?
 - Erosion
 - Pollution
 - Leaching
 - Other
12. Do you get support or services from the government or any NGO? (what and how much?)
13. Please draw your seasonal calendar, including labour input, management practices, what crops and when.

Livestock

1. Do you have livestock?
2. What species?

Work outside village

1. What is your work?
2. Where is it located?
2. Why are you working outside the village?
 - a) Education?
 - b) No work inside the village?
 - c) Economy?
3. How many years have you been working outside the village?
4. How much time do you spend on your work?
 - a) Part time or full time?
 - b) Whole year or season?
5. Do you spend money on transportation to your work and how much? Stay overnight?
6. How did you get the job? (Family, tradition, application)

Oil palm production

1. How long have you been working at the FELCRA oil palm project?
2. Is the work full time or seasonal?
3. How did you get the job? (family relations, application form)
4. Have the project given you education or training for the work?
5. Are there any advantages/disadvantages for a worker at the project?

Forest

1. Do you have access to forest land?
2. What are the benefits from the forest?
 - Gathering of natural resources
 - Hunting
 - Agroforestry
 - Water sources
 - Cultural importance
 - Other
3. Have your use of the forest changed (in 10-30 years)? Why?

Other

1. If not one of the above work activities, then what do you work with?
2. Is it full time or seasonal?

General questions

1. What does the future look like, due to income possibilities?
2. Draw a time line of the households' activities for the last 10 years.

Appendix B: *Specific interviews*

Interview with headman

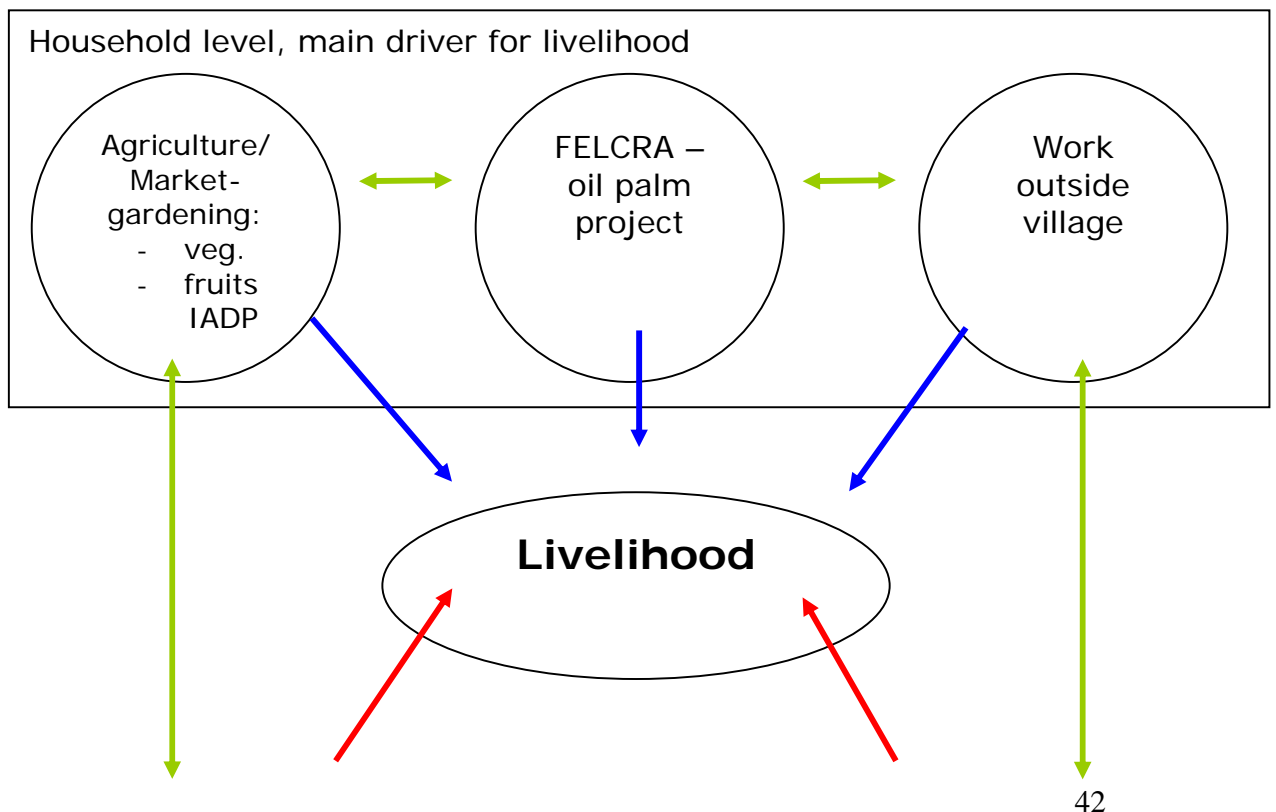
1. Presentation of us and our assignment
2. Responsibilities as headman
3. Information about the village:
4. History of village
5. Development of village
6. Facilities in village and when was it built?
 - Kindergarten
 - Primary school
 - Church and religion/-s
 - Ethnicity and culture
 - Health care
 - Modern facilities
 - Infrastructure
7. Area of community and village
8. How large is the population and what is the amount of households
9. Population and household increase
10. Age/gender division
11. Activities, distribution of work in percentage
12. How many works outside the village?
13. Start of governmental projects (Integrated Agricultural Development Project IADP and Federal Land Consolidation and Rehabilitation Authority FELCRA)
14. How many of the villagers are involved in the projects? Are other people involved?

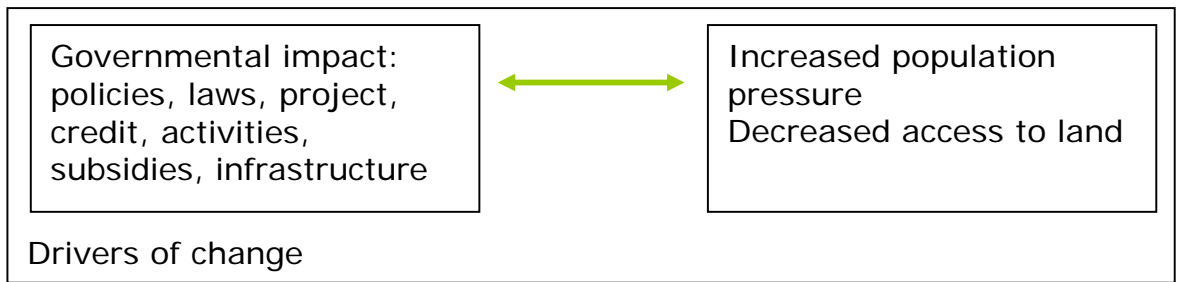
15. Impact and role of governmental projects on community?
16. Future plans for the area by the government?
17. Define the problems in the village?
18. Future expectations

Interview with governmental (FELCRA, IADP): responsible/employer

1. Presentation of us and our assignment
2. Responsibilities of the government for/in the area?
3. Information about the governmental projects/scheme
 - Purpose of the project?
 - Which and how many people are involved?
 - How large land area do the project occupy?
 - Where is it located?
 - How did the project get access to this land?
 - How much money is invested in the project?
 - What is the annual turnover?
 - Impact and role of governmental projects on community?
4. Managemental practices?
5. Inputs of pesticides and fertiliser into the plantation and agriculture?
6. Are the goals of the project fulfilled?
7. Future plans and expectations for the area by the project/government?

Appendix C: Mind map of assignment





Appendix 2 Activities

Ahmad's diary

Day & Date	Day-time	Evening-time
1 st March Wednesday	Interview with the FELCRA management	Specific semi-structure interviews
3 rd March Friday	Arrival in the Kuching	
16 th March Thursday	Interview with IADP management	We were invited for dinner given by member of parliament in Teng Bukap
4 th March Saturday	Visiting the Kuching city	
7 th March Friday	Typing the data into the computer	Preparation of final presentation
8 th March Saturday	Meeting with the Malaysian students Final presentation	Visit the Sadir village, in the night join the Farwell party given by headman.
10 th March Sunday	Cleaning of home and leaving for Kuching Departure to the Kampung Subang.	
11 th March Monday	We been to the Kampung subang around 12. Joined the welcome party given by the headman and villagers.	Some discussion about the kampong subang with the headman and with Sylvester (Member of health committe).
7 th March Tuesday	Transit walk of the village. Some general discussion with the villagers. Trying to get some information about the livelihood strategies in the villagers. And also have some discussion with the Malaysian student about the assignment; how we will continue our assignment.	In the evening combining of information got from the village in the morning. And preparation of presentation.
8 th March Wednesday	Presentation of our proposal.	In the evening visit the FELCRA place with the headman and Dr.Torben was with us. In the Way we visited Headman personal Fishing farm and Also visited his personal land where he growing banana and lemon. In the night group discussion about the tomorrow plan.
9 th March Thursday	Making a household survey form Under the supervision of Dr.Torben. And Dr. john made some interviews.	Continue Working on household survey form and making interviews.
10 th March Friday	Making appointment with different person and continue interviews	Interview of those people who are not available at day time. And in the night group discussion about work and next day plan.
11 th March Saturday	Interview with the Sylvester about the health care system in the village(member of health committee)	In the afternoon we been to rice filed for soil sampling and in the evening some. Interviews (systematic sampling interviews)
12 th March Sunday	Specific Semi-structure interviews (IADP,FELCRA)	In the evening Specific Semi-structure interview, we invited headman and pangulu for dinner, Discussion about history of village, development in the village.
13 th March Monday	Transit walk of the village with guide.	We came back late in the evening from transit walk.
14 th March Tuesday	In the morning, typed the data until we have got. And one interview	In the evening transit walk with Johanna and Maj Brit

Johanna's diary

Day	Activities
04-03-06 Saturday	Arrival to Kuching.
05-03-06 Sunday	Floating trip on jungle river. Meeting our Malaysian counterparts. First group meeting.
06-03-06 Monday	Arrival at Kpg. Subang. Welcome ceremony with leaders of the village and villagers. Packing up. Group meeting and walk in the village. Guided walk to waterfall and through village. Discussion and work with group proposal and synopsis.
07-03-06 Tuesday	Interview with young girl and old man. Interviews with headman Albert, wife of headman. Preparation of synopsis and for presentation of group proposal. Making questionnaire for household survey.
08-03-06 Wednesday	Conference with group presentations. Visiting Raj's family in Kuching. Transect walk (drive) towards FELCRA project, via IADP plantations and fish pond.
09-03-06 Thursday	Made work schedule. Dividing in to small working groups. Test of household survey on two households. Back for group evaluation and improvements. Visiting Sylvester (former responsible of IADP) to arrange interviews and transect walks. Household surveying.
10-03-06 Friday	Household surveying. Typing in survey answers and interviews with Headman and Sylvester to computer. Group discussion.
11-03-06 Saturday	Identifying sites for soil sampling, homegarden and rice field. Preparing questions for specific semi-structured interviews. Soil sampling with Prof Wan Sulaiman and Andreas de Neergaard. Continuing household survey. Plotting in data from survey. Group meeting.
12-03-06 Sunday	Specific semi-structured interviews in the morning, evaluation and improvements. Semi-structured interviews from afternoon to evening. Interview and creation of historical timeline and participatory mapping of village with Penghulu, Headman, Headman's uncle, and Sylvester. BBQ dinner. Late group discussion.
13-03-06 Monday	Plotting in household survey data. Random walk in village with the young girl Esse. Transect walk with Sylvester through the village, to the first and second dam, longhouses and to barokk the old ceremonial house where a scull is hanging. Group meeting.
14-03-06 Tuesday	Preparing interview questions for meeting with key informant from IADP. Plotting in data. Random walk through village. Specific semi-structured interviews. Evening ceremony at community hall, thanking former IADP representative and welcoming the new.
15-03-06 Wednesday	Plotting in data. Transect walk and water sampling at third and fourth dam up in the hill forest, together with Sylvester and laboratory assistants from UNIMAS. Visited Semenggoh Orangutan rehabilitation center with our Danu friends Christoffer and Signe, and then to Plaman Nyabet. In evening we practiced the traditional Bidayhu dance with Esse.
16-03-06 Thursday	Specific interview with key informant at IADP office. Drive through UNIMAS campus. Visiting and swimming in Danu. Nice BBQ and karaoke party in the evening with live band and full moon, at parliament member's home.
17-03-06 Friday	Plotting in data. Practiced dancing with Esse. Summing up all our results and preparing presentation.
18-03-06 Saturday	Conference with final group presentations. Trip to the Sunday market Satok in Kuching where the farmers' sell their products. Farwell party in Kpg. Subang with all the villagers, and our performance of the Bidayhu dance in

	traditional dresses.
19-03-06 Sunday	Cleaning up and leaving Kpg. Subang. Arrival to Kuching. Farewell dinner and party with the all groups and supervisors.
20-03-06 Monday	Own time starts, among other things we enjoyed the fantastic nature at Bako national park.

Maj Brit's diary

Day	Activities
04-03-06 Saturday	Arrival to Kuching.
05-03-06 Sunday	First meeting with the Malaysian counter partners.
06-03-06 Monday	Went to Kpg. Subang where the headman and some villagers welcomed us in the Community hall. We went to the house where we should stay during the field course. Some young boys showed us a waterfall near the village. In the evening we interviewed Sylvester, the former IADP responsible.
07-03-06 Tuesday	The two groups presented their synopsis. Made spontaneous interviews with an old man and two young girls. The afternoon and evening we prepared the power point presentation that consisted of a joint synopsis.
08-03-06 Wednesday	Presentation of our joint synopsis. In the afternoon we visited Raj's family. Back in Kpg. Subang we drove with the headman to the oil palm plantation making stops along the way nearby a fishpond and sweet lime/banana plantations under IADP.
09-03-06 Thursday	Made a working plan for the rest of the field course. Visited Sylvester to arrange appointments for transect walks/guided tours. Prepared and pre-tested the questionnaires.
10-03-06 Friday	Started to write interviews into the computer. Went with Dr. John and Ahmad to make questionnaires.
11-03-06 Saturday	Johanna and I visited one rice field and a homegarden from two different households to inspect the area for making soil samples. Later on Prof. Wan Sulaiman and Andreas went with us to the selected fields to make the soil samples. In the afternoon more questionnaires were performed and during the evening we typed data into the computer and prepared historical timeline and participatory mapping.
12-03-06 Sunday	Started with the semi-structured interviews for the households. Made some changes in the semi-structured interviews and carried on interviewing households in the afternoon. In the evening Johanna and I interviewed the headman and his uncle, Sylvester and the Penghulu by making the historical timeline and participatory mapping. Afterwards we enjoyed a nice barbeque.
13-03-06 Monday	The morning was used for typing in data and waiting for reply from FELCRA and IADP about a meeting today. In the afternoon Johanna and I went for a walk in the village together with a girl called Esse. Later Sylvester took us all for a transect walk through the village and to the water ponds.
14-03-06 Tuesday	Typing more data and writing diary for the last 5 days. Prepared specific interview with the FELCRA representative. Went for a walk in and outside the village together with Johanna and Ahmad trying to find another waterfall nearby the village. In the evening we went to an IADP meeting for the villagers, but it was all in Malay....
15-03-06 Wednesday	Typing data in the morning. Ahmad and I made an interview with the representative from FELCRA. In the afternoon Signe and Christoffer took us to Semenggoh National park with orang-utans. After the national park the tour went to Plaman Nyabet. In the evening Johanna and I practiced the Bidayhu –dance that we had promised to perform at the farewell party the last night in the community hall. Ahmad and I performed the last semi-

	structured interview in relation to “work outside”.
16-03-06 Thursday	Interview with an IADP representative. Ahmad, Johanna, Kamil and I went to Danu to visit our Danish friends. Went directly from Danu to the party in the evening.
17-03-06 Friday	Typed in data. Some of us went with Sylvester to the rice field up the hill. The view was fantastic! Practised the Bidayhu-dance together with Esse. Used the rest of the day preparing the final presentation.
18-03-06 Saturday	Final presentation. Went to the Sunday market. Farewell party in the community hall.
19-03-06 Sunday	Cleaned the house and packed our things. Left Kpg. Subang and went to Kuching. Farewell dinner for the Malaysian and Danish counterparts.
20-03-06 Monday	The end of the field course. The beginning of four days hard-earned vacation ☺

Appendix 3 Ranking of crops

The members of the large household participated in a ranking of their produced crops, from their own agriculture and the IADP supported papaya production. The crops were ranked in relation to their importance of some stated attributes, with increasing scoring from one to five with rising quality.

Ranking of crops from 1 to 5 with increasing quality

Attribute/Crop	paddy rice	lemon grass	papaya	coconut	sugarcane	tapioca	pineapple	star fruit	corn	banana	durian	langsat	mango-steen
consumed most	5	3	2	3	1	3	2	1	3	3	3	2	3
more marketable	1	3	4	4	2	4	3	1	5	5	5	3	3
more cash yielding	1	4	5	4	1	4	1	1	5	5	5	3	3
more durable in terms of storage	5	2	3	3	2	4	1	1	2	5	5	2	2
less management requiring	1	5	1	5	4	2	3	4	1	5	3	3	3
Total score	13	17	15	19	10	17	10	8	16	23	21	13	14

Some of the most important vegetable and fruit crops produced in Kpg. Subang

Crop	Scientific name
Tapioca	<i>Manihot esculenta</i> Crantz
Corn	<i>Zea mays</i> L.
Banana	<i>Musa</i> spp. L.
Lemon grass	<i>Cymbopogon flexuosus</i> (Nees ex Steudel) J. F. Watson
Coconut	<i>Cocos nucifera</i> L.
Papaya	<i>Carica papaya</i> L.
Mangosteen	<i>Garcinia mangostana</i> L.
Pineapple	<i>Ananas</i> P. Mill.
Durian	<i>Durio zibethinus</i> Murray
Yam	<i>Dioscorea</i> spp. L.
Pepper	<i>Piper nigrum</i> L.
Eggplant	<i>Solanum melongena</i> L.
Langsat	<i>Lansium domesticum</i> Correa

Appendix 4 Specific interviews wife of headman, headman, Sylvester, old man and young girl

1. Maney, wife of headman

The villagers receive compensation for the land leased out to the FELCRA plantation. FELCRA chose the land they found suitable for the plantation. The village had a meeting before the start of the project and agreed upon that FELCRA could choose where they wanted to locate the plantation. The people think that there are more positive things with the project than negative, since the plantation gives job opportunities and income, the leasing out of land gives a bonus, FELCRA have improved the infrastructure by extending the roads to the plantation area. However when FELCRA transport fertiliser on large trucks all the roads are damaged. In 2000-2001 the governmental project responsible for roads, Jabatan Keaja Raya (JKR), asphalted the main road of the village, and the main road was repaired again in 2004 while the lorongs (lanes) were improved in 2005.

IADP is a market gardening project and wholesalers sometimes come to the village and buy up all the produced papaya and banana (ripe or not). The yields increase every year. The villagers also grow own agricultural products for own consumption or sell at the market (the Sunday market Satok)

2. Headman Albert

Personal information

The headman Albert is the village responsible for the FELCRA project. He was born in the early 1960-ies and has no education after primary school. When he was young he worked in Kuching harbour and came later back to Kpg Subang.

The villagers claim the land as far as their eyes can see and the borders of the village are natural boundaries, such as rivers, mountains and land marks.

FELCRA

The FELCRA oil palm plantation was planted in 1996 at 400 ha and located around 5 km from the village centre. The land owners leasing out land to the FELCRA oil palm project receive 265 RM pr ha and year. The oil palm trees gave the first harvest after three years and will yield fruits for 25 years. From the village 33 persons are employed, the work is hard and many of them are uneducated. The working day for the villagers in the plantation is between 07.00 and 13.00, six days a week, with the Sunday free for rest and the church. One person can cut 150 fruit bunches a day and earn 19 cents per bunch. FELCRA provides the working insurance and EPF (employees' provident funds). Harvest occurs all year around, with two harvest per month and three. August to December is the high yielding period, while January to July gives lower harvest (dry period). The oil palm trees are planted at different times and thereby can the harvest be carried out every day throughout the year. When the oil palms were recently planted not giving any harvest, the workers could use the inter-row space for own crop production such as paddy rice. Two Indonesian workers are employed in the plantation for the loading of fruit bunches onto the trucks, their working day is longer. The fruit yield

increase every year. In 2004 the 100 villagers participating by leasing out their land to the project, received and shared a bonus of 140.000 RM, which was 160.000 RM in 2005. It is the first time FELCRA are producing oil palm trees in a hilly area, and FELCRA selected Kpg Subang because they wanted to test if an oil palm plantation is suitable on sloping land, since their other oil palm projects are located in the flat land of Peninsular Malaysia. The harvested oil palm yields are still higher in the lowland areas. Fertiliser is applied 3-4 times per year. The FELCRA project is a 25 year old agreement, due to the oil palm trees life span of 25 years and after that the area can be replanted. Another suggestion for the future is to make the land bordered and titled, the people will be asked what they want with their land and FELCRA is asked to grow another area. Later the headman said that the plantation of today of 400 ha is probably going to be replanted with oil palms and that an additional area of 400 ha is going to be cleaned and planted with oil palms. The village considers the plantation and the yields to be economically positive for the village and would like to continue to grow oil palms, by receiving the seeds from FELCRA and produce seedlings in their own nursery for out plantation. Hunting animals (fox, deer, squirrel, wild boar, and birds) occurs in the forests and plantation. The headman is responsible for the transport of the harvest to Serian. Today the leased out land by the villagers is their in the context of the native customary rights (NCR). The suggestion for the future is to title the land to the 100 villagers, participating in the project by leasing out their land, after 2021.

IADP

Around 100 villagers are involved in the IADP, group project. Several of the villagers have also individual agreement and receive subsidies from the IADP. The project has started in two phases. The phase 1 is located close to the entrance of the village and towards the community hall, with around 30 participating villagers that started to produce bananas. The phase 2 project is located from the community hall and up towards the FELCRA plantation, with around 60 villagers participating and producing papaya and lemons (honey and sweet lemons). For the future a 3rd phase is planned with tapioca as crop.

Own IADP plantation

In 2003, 500 sweet citrus trees were planted in the plantation of 1 ha, these started to give fruits the second year and will continue fruiting for 15 years. Pesticides against the weeds are applied every 6 month, and the labour costs for this is 20 RM per day. The pesticides costs 40 RM per gallon (one gallon contain ca 4,5 L) and 2 gallons are applied per time. Fertiliser is applied 3 times per year, and the amount depends on what the headman can afford, the subsidised fertiliser by IADP is not enough. 25 bags of fertiliser are subsidised and every bag contains 50 kg. Additionally to this he buys 25 bags per year. Each bag cost 60 RM. Earn 2-3 RM per kg fruits.

Work outside the village

Many of the villagers work outside the village or have migrated (to Serian, Kuching or Peninsular Malaysia), in the private sector, in the government or with own business. Other villagers are also educated outside the village. The higher knowledge and incomes are positive for the village. Most of the villagers with governmental commission are

members of the JKKK (Village Security and Development Committee) of Kpg Subang, which is the committee established to help the headman govern the village.

Economy

The economy of the village is stable and enough for the villagers' survival, today nobody is very poor. Both the FELCRA and IADP are important income sources for the village, and the villagers incomes have increased since the participation in the projects. If the government ends their projects in the village and stop their subsidies to the villagers, the villagers will try to sustain their economy by collecting and selling natural forestry products (bamboo shoots, fern shoots and mushrooms) and their agricultural products at the market place Satok in Kuching.

Tourism

Kpg Subang has a potential for tourism, because of the caves with bird nests (which is far away and a car is needed for the transport), waterfalls (recreation) and the barukk. Yet, the government has not investigated this possibility for the village.

Own fishpond

Fishpond of around 1,5*10*12 m large, with 5 fish types. All the fish in the pond is harvested once a year, where the water is emptied from the pond and released out to the citrus field. The fish is sold on the market.

3. Sylvester Nuul Anak Hungor

Date 6/3-06

Personal information

Sylvester is the health responsible person in Kampong Subang. He was born in 1963, stopped school in 1983. In 1983 to 1989 Sylvester worked on board a sailing ship, which sailed all over the world and he has harbored Thailand to Brazil and was the first person in the village working in foreign countries on board a ship. In 1989 an Australian company made a survey in Kpg Subang for gold mining around the river junction. Sylvester worked for them mining gold between 1989 and 1996. The area is declared to be a gold reserve, and the stone type "Goshan" contains gold.

History of Kampong Subang

The Kpg Subang originated from Kpg Gayu, from were the people out migrated in 1908 and spread and divided into 10 villages in the mountainous area. They migrated due to the fear of the headhunters in the former area. In 1909 the local White Rajah (Rajah Roger Brooke) started registration of the people for identity cards, and stated the law banning headhunting. The new law made some people to migrate to Kpg Kerian and then further move to the area with the river Subang (Sungai Subang), the Kpg Subang was populated. The people used to live in longhouses, with about 100 doors, and started to build and live in own separate houses in the 1990-ies.

In the 1980-ies, visitors from Australia saw that the villagers' health condition was poor and concluded that the animals which were freely roaming all over the village were the

cause. The villagers followed their suggestion to keep the animals enclosed and give them water and fodder, and the villagers' health was consequently increased. In the village ceremony house on high poles, Barukk, an old scull is hanging, a memory from the time with head hunters.

Water supply

In the 1960-ies, the villagers made a well from the spring from the ground in the middle of the village and used the water for drinking and hygiene (today it is not more used for drinking, only for fishes). The well has had cultural importance for the villagers, were the elder people used to pray at the well, especially for the rice season. During this time the water in the spring never dried out, not even in the dry season. The Dayak's considered the spring to be as a mouth of a dragon (Naga, Nabao), and the story was told by the older people. In the 1980-ies the village expanded uphill and built a second dam with attached pipes, of split and linked bamboo stems, as a gravity transport system for the water down to the village. The bamboo pipes were exchanged by water pipes of galvanized iron, five pipes to the five blocks of the village, which become rusty and got incrustations and could not be used anymore. In 1990 the third dam was built above the second and plastic pipes replaced the iron pipes.

IADP project

All the villagers are not satisfied about the project. IADP only assists in the plantation projects with banana and papaya; the sweet lemons are not successful yet. The supports the villagers receive are pesticides, which are herbicides that are partly subsidized, and fertilizer and seedlings that are fully subsidized. The IADP assist in the agricultural productions not in building or improving the roads. IADP have promised to improve the roads in the village, but have not done that. In 1991 FELCRA built new roads to the oil palm project area. IADP started to present their products and subsidized all material and products needed to the villagers. The villagers that were interested, had land area and wanted to join was helped and given all things needed. The villagers with no interest or land were left outside the project and subsidies. The IADP asked the village about what crops that was best to plant, i.e. suitable for the area (banana and papaya). Seeds of exotic papaya varieties from Peninsular Malaysia was offered and planted at the start. The price was 3000 RM/kg seed. However, the seeds did not germinate or the plants did not develop, and the villagers asked for seedlings instead. The Malaysian Agricultural Research and Development Institute (MARDI, www.mardi.my) planted the papaya seeds in their nursery, raised the seedlings that the villagers received for planting. Papaya seedlings are sensitive and are difficult to plant during the rainy period (due to too cold soil) since they easily die. Out of 300 seedlings planted only 180 survived, when the seedlings arrived at a wrong time of the year. Many of the plantations are on steep slopes. The dry period is the best suitable time for planting of papaya seedlings. During the latest years the climate has changed and the dry season dislocated, due to global warming. Right now it is normally the dry season but it is still very rainy.

FELCRA project

Totally 33 persons of the villagers work in the FELCRA project and two foreign Indonesian workers load the Lorries with the harvested fruit bunches. The upper level of

management of the project is performed by people from Peninsular Malaysia and some people from Sarawak are concerned in the administration work. The workers are paid due to task:

- sprayers are paid per area of 20-30 RM/plot, between the time 8.00 and 14.00
- fresh fruit bunch cutters and collectors are paid 20 cents/fruit bunch
- lorry loaders are paid 6 RM/ton loaded – resulting in 900 RM/month for the Indonesian workers
- fertilizer spreading, where the women are paid 3-5 RM/bag of fertilizer applied, 30-40 bags/6 persons

The villagers work between 9.00 and 14.00 and earn less per month than the Indonesian workers that work longer days between 8.00 and 19.00. The villagers are satisfied due to the short working day with the heavy work.

Is the water quality affected by the FELCRA plantations? The older people say that the water is severely affected. The social or health department has tested water in the dry season, and not in the wet season, and has reported that the water quality is ok. However, no spraying is done during the wet season, resulting in low or no pollution. Since the water quality is ok and the fish in the dams do not die, everything is fine.

4. Rini ak Duai

The 78 year old Bidayuh man is a widower and still hard working. Rini cut down bamboo and built our terrace on the back side of the house. He has no education and is illiterate, but he understands some English. He has nine children of which one have past away, none of them have completed school. The household consists of Rini, two children and one grandchild. The family lives in Lorong (lane) 5 in a detached house. Rini produce fruits with subsidies from IADP (fertiliser), where he grow papaya and banana and sell it to wholesalers who come to the village now and then. The production gives the family some income but it is not enough. The price of banana to the wholesaler is 20 cent/kg and 50-60 cent/kg papaya. He also grow rice paddy in a small field. In Bidayuh papaya mean pisang and banana berakk, while in Malay banana mean pisang and papaya is bate.

5. Rozainiti anak Lebang

She is 18 years old and has completed her secondary school and is looking for a job in Kuching. During our stay in Kpg Subang she was one of our cooks. Her father works in Kuching as a lorry driver and her mother works at the FELCRA oil palm plantation. Her smaller sister is 17 years old. She wants to study further, probably business management in Kuching, which is “not far from home”. In the future she wants to have her own business in the village with agriculture, produce all kinds of vegetables, herbs and medicinal plants to sell at the market, and aquaculture, producing fish and prawns. The plant *Eurycoma longifolia* is widely used, where the leaves are used in bath and the roots have medicinal qualities and are used in traditional medicine. But she do not want to grow paddy since to many people already grow that for selling. She will continue to produce agricultural products even though the governmental projects will stop subsidize with fertiliser, pesticides and plants. However, Rozainiti do not want to work with

agricultural production all her life, and her plan for the future is a catering business focusing on the village specialties and delicatessens, because she likes to cook (and she is really good at it!). She wants to have a family by her own – “if God will”. In the future she wants to have a house in Kpg Subang and in Kuching, the life is better in Kuching but she does not want to leave the village, and she can have her business in both places.

The Kpg Subang have high tourism potential since it have many interesting and beautiful things to see and experience, such as the waterfall, the cave in the oil palm plantation with its bird nests, the old longhouses, the barukk which is the old house where the skulls were kept (one is still there), the old rocks that looks like humans.

Many of the young people in the village, all boys and maybe half of the girls, do not see a working future in the village and want to go out and work in the city (Kuching). Other reasons for working outside the village, is that the school is considered boring, the family cannot afford the education and family problems for the young women. Pregnancy before marriage is a shame for the person and the school, and the girls are asked (forced) to stop their education and move away. The born child is often given away to relatives and the girls have to leave the village and start to work in Kuching. The young women get paranoid of the shame and cannot stay in the village.

Primary school is paid by the government and the secondary school, where the students living at the school do not pay anything but the students that travel back and forth to the school have to pay some fee. These students live close to the school or are expelled from the student home at the school. For higher education the students are provided a loan by the government. Institutional educations for vocational training also exist, such as the agricultural institute. The students receive information about educations and jobs by consultants in the secondary school.

Appendix 5 Specific interview with IADP office

We talked to Lucyana, e-mail address: d_lucy@hotmail.com

16-03-06

1a) *Organisation chart*

b) *Vision*

To become one of the main food producers and suppliers in Sarawak

c) *Mission*

To improve the farmer's socio-economical standard

2. *Objectives*

- Increase the national food production and develop food crops
- Prepare, maintain and upgrade infrastructure such as farm roads and drainage systems
- Increase farmer's income to at least RM 1500/month during the five year project period. The farmer's will have a revenue in 3-4 years after planting and become independent of support from IADP

3. *Describe the 8th and 9th Malaysian Plan.*

The 8th Malaysian plan focused on large scale communal monocrop plantations with a group of farmers' participating where IADP decide the crop, while the 9th Malaysian plan focus on individual crop productions, where the farmer can chose between several different crops. The group project (8th plan) started in Sarawak in 2000, while individual projects have started earlier in 1986.

4. *What and how many IADP projects are there in Samarahan division, Sarawak?*

Following projects are on-going, where each unit is based on commodity:

Project Management Unit (PMU)

- Management and project monitoring
- Human resource development
- Building and quarters maintenance
- Transportation
- Assets (harta modal = property capital)
- Land survey and payment

Agricultural Component

- Pineapple development project
- Fruits development project – citrus, mango, papaya, coconut, watermelon and melon
- Short term crops – banana, corn, tapioca, yam, potato, ginger and vegetables
- Downstream projects with secondary products – new project that is not yet started

Drainage and Irrigation Department (DID)

- Drainage system at Kampung Mang, phase III
- Beliong area
- Repairing farm roads

- Infrastructure maintenance

5. *What is the total area of the IADP projects in Samarahan division, Sarawak?*

The in Samarahan division is 86,170 ha. Since two years the division is divided into commodity units.

6. *What is the rationale for IADP choosing Kampong Subang? How do you choose the land area? Does it depend on the quality of the land and soil?*

The farmer has to have their own land plot, and have the possibility to participate individually or in a group (however, IADP choose the land for the group projects and it is not a decision by the farmer). The crops are chosen due to the suitability of the site and water availability. The crops produced are meant to be sold at the market and provide the farmers' an income. A form is sent out to the farmers' with all the kinds of crops that IADP support, and the farmer can decide what to cultivate (in the individual agreement of the 9th Malaysian plan, while the 8th Malaysian plan were group projects where IADP decided which crop to produce). The farmers' can inform IADP about their needs and IADP check their land and define what is suitable to cultivate and support. IADP evaluate the farmers' production after a certain period and decide if the farmer is going to receive further support.

7. *What is the total number of IADP participants in Kpg Subang?*

No answer.

8. *What is the plantation area and the number of trees planted?*

No answer.

9. *Do the participants receive any training, is there a training schedule?*

The farmers' acquire:

- Hands-on training, where IADP representative show and describe, and the farmers' follow and practice on their farms: planting, pruning, harvest, pest/disease control
- Briefing
- Training on treatment techniques and methods at different crop stages

IADP decide when and how much training the farmer get, and may differ.

10. *What are the types of subsidies (fertiliser, pesticides, plant material)?*

They subsidise with the basic fertilisers, pesticides for the occurring pests and diseases, seeds or seedlings, and plant hormones for the pineapples. The word subsidise generally involve money, but IADP only give material for production.

11. *Is the quantity of the subsidy related to the planting season?*

The subsidies are based on crop needs during the cultivation and calculated for the specific amount of plants cultivated. IADP base the crop needs on a list produced by the Agricultural Department ("Packaged technology").

12. *What is the expected duration for the projects in Kpg Subang? Do IADP have long term or future plan for Kpg Subang?*

The long term plan is the new 9th Malaysian plan. It depends on the farmers' interests and wishes. IADP also give the farmers' advice with a long term business plan for the nearest five years, since the main mission of IADP is to improve the socio-economic situation for the farmers' and make them independent. The farmers' incomes should not only be used up by their own consumption, but improve their economy, by savings and investments for their future independent agricultural production.

The long term plan for Malaysia by IADP also involves grazing areas for cattle/livestock. Malaysia still import high amounts of meat but want to be self sufficient, thereby the plan is to increase the meat production in the country. It is the producers market where they decide the price.

13. *Have IADP any plans to improve the infrastructure in Kpg Subang?*

Drainage and Irrigation Department (DID) assess and evaluate the roads and water availability, and give their recommendations to IADP that perform what is needed. There are no plans for Kpg Subang.

14. *Is land title or Native Customary Right (NCR) to the land a requirement for participation in the IADP?*

The farmer need to have own land for the production.

15. *What are the benefits for the farmer in being supported by IADP?*

The only benefit is the input provided. The farmers have no costs in the beginning of the project, since no payment to the IADP is required, except for the seeds or seedlings at very large plantation projects. In the individual projects the farmer clear their land and receive fertiliser from IADP for their cultivation, while for the group projects (communal planting) IADP clear the land, create drainage system and give subsidies (plant material, fertiliser, pesticides) to the farmers'.

16. *What is the governmental allocation for the projects? Is it increasing or decreasing, what are the reasons for this?*

The allocation by the government is based on a five year period of build up of each farmer's economy, where evaluations are made after the first 2 years and after the following 3 years. The farmer's status and the costs also important factors, i.e. is the project a replanting or an inception. The summarized evaluations underlie the allocation. The allocation for the plans are RM 48 000 000 (8th plan) and RM 60 000 000 (9th plan). The criteria for evaluating the farmers production includes successfulness of the farming activities; farmer's commitment in the training practice with IADP (the farmer have to join); how the practices and production are performed by the farmer.

17. *Is the project sustainable if/when the subsidies and other support are withdrawn? Can the farmers' afford to buy their own fertilisers and pesticides, and sustain the same production?*

The farmers' are not confident to stake in their own agricultural production. The farmers' are obligated to follow the recommendations from IADP to receive the support

and have a successful production, such as planting distance, application rates of fertiliser and pesticides, marketing of harvested crop, economic savings. If there are any mistakes or non-followed recommendations the responsibility is not IADP's. The vision of the 9th Malaysian plan is to create individual entrepreneurs, which increase the motivation of the farmers'.

The expected expenditures for the production depends on the size of the land area planted and number of plants, for the group projects a communal budgeting is made by IADP officers, while for the individual projects the expenditures for inputs are estimated by the IADP.

18. Continuing open questions and discussion

Answer: In the communal plantations (according to the 8th Malaysian plan), all the farmers participating have to grow the same crop, chosen by IADP.

Reply: The products are sold by the farmers' on the market. IADP do not help the farmers' to market the products. This leads to competition on the local market, and the market will be saturated. Is the mission of IADP really implemented in this way, by letting the farmers compete out each other and with falling prices at the market as consequence?

Answer: The farmers can export their products.

Reply: How will the farmers get access to the export market with their products? How will the farmers' products reach this market?

Answer: In the 8th M. plan the focus was not to help the farmers' to market or sell their products.

Reply: How is the households' socio-economical situation improved then? The mission of IADP is not implemented.

Answer: In the 9th M. plan the focus is on the individual farmer and the mission is better implemented, which actually focus and improve the socio-economics of each household. The marketing will also be supported in some way. Assistance (theoretical) will be provided for the harvest, and the incomes from the plantation should go back and be invested in following production to cover the expenditures (when growing the same crop again the farmer have to provide for their production costs). When growing a new crop, IADP provide support and assists until the first fruit set.

Appendix 6 Interview with FELCRA

Respondent: Abang Mohamadin Sapuan.

FELCRA is under the ministry of development and economic.

1. Organization chart, vision and mission

Mission:

To hold the philosophy "Peserta bersyukur No 1" participant grateful to be no 1 and evolved with them due to growth with equity beside managing, to take care of and to hold the important equity of the target group.

Implementation of obligation social programme and rebuilt of plantation to the profitable sector.

- to make of various profitable activities; to planing and implementation of programme of the export activities.

Vision:

To maintain as no 1 plantation house and evolve the related activities with the other activity.

2. Objectives of FELCRA.

To develop the land to get the profit.

- to increase the quality of life of the target group.
- to increase the level of productivity

3. How many FELCRA projects are there in the Padawan area and how much land is used?

Padawan has 9 projects with 2467 ha in total.

4. How much land is given to the FELCRA project in Kampong Subang?

The total land area given to FELCRA is 430 ha, but only 392,2 ha is developed, and again 364,5 ha of the area is planted. The reason is, that some of the areas are too steep to plant oil palm trees on.

5. How is the decision made whether FELCRA should start a project in Kampong Subang?

More than 50 % of the villagers must agree upon making the FELCRA project before the headman can ask FELCRA for help. FELCRA then has to ask the state government who will make the decision concerning if the village is suitable or not. They will look at the village's soil quality, water supply and a suitable area, before making the decision.

6. How many participants are there in Kampong Subang?

125 villagers are involved in the FELCRA project. FELCRA divide the money/profit from the crop production between the participants.

7. Total number of oil palm trees in Kampong Subang.

They plant 129 trees per ha and 47109 oil palm trees in total.

8. Are there any training schedule for the participants?

FELCRA and the participants work together in the beginning to teach them the work in an oil palm plantation. FELCRA will hire a contractor that will help clearing the area and plant the oil palm trees. Then FELCRA will take over and help the villagers by spraying the different kinds of fertilizer and pesticides. They spray two times a year and use 1 kg pr time.

9. What are the future plans for Kampong Subang working with FELCRA?

The villagers decide if they would like to corporate and work with FELCRA in the future.

10. What are the roles for the participants renting out land to FELCRA, if they want to quit before time?

If one of the participants doesn't want to be a part of the FELCRA project anymore, they need a good reason to stop. Otherwise they must follow as long as FELCRA are in Kampong Subang.

11. How are the workers paid monthly or daily?

The workers who fertilize gets 13RM pr day.

The workers weeding get 35RM pr ha.

The driver gets 17RM pr day

Contract work two times pr year harvesting: 28RM pr tons or 19 cent pr bunch. (the salary have increased from 15-19 cent pr bunch).

The salary will be paid in the end of the month.

12. How much have the government put into this project in Kampong Subang?

The government have put 3.9 mill RM into the FELCRA project in Subang. The development costs are 6.1 mill RM and are given by FELCRA. This is the amount of money Kampong Subang have received since 1996 and until now.

Appendix 7 Specific semi-structured interviews with households
Households selected due to their main activity giving income

Own agriculture

Lorong: main road

House number: 70

Head of household: Jinos

1. Where is your land located?

Homegarden around the house, fruit orchard south of the churches with durian and other fruits, also a field with IADP production 1 km from the house through the jungle North-East. The location of their house with homegarden is the first on the main road after the portal into the Kampong Subang. The family moved from Kpg Kaaru to Kpg Subang 1998. They have inherited the land from their uncle. The whole family is involved in the agricultural productions.

2. Draw a map of your field

Three drawings were made: 1) homegarden, 2) padi fields and orchard, 3) papaya (IADP) and tapioca (own agriculture).

3. What crops do you cultivate? Why, when? Yields?

1) Homegarden: lemongrass, sabi (bitter leaves), coconut, sugarcane, pineapple, padi rice, corn, starfruit, banana (IADP), yam, papaya

2) Padi fields and orchard: padi rice, durian, langsung, jackfruit and mangosteen

3) Papaya and tapioca (leaves and tuber)

Papaya (the queen of fruits) was chosen due to its suitability to the soil at the specific field. The orchard was suitable for the site because of the lower temperature caused by the surrounding forest, giving shade and shelter and close river. The water from the river is used for the paddy rice field, forced by created stream. After the padi rice harvest, both in the homegarden and the other field, they cultivate corn and if the yield was satisfying and the weather conditions are suitable they plant a second corn crop. The corn has a cultivation time of 30 days. Most of their crops are not seasonal, thereby the household can spread the working load and yields through out the year and can sell some of their harvest due to the demand on the market. The best price for their products is received when the crop is sold as "whole harvest" and not per kilogram. They try to harvest each crop when as much as possible is ripe and sell it as the whole harvest. The family consider the producer that rule the market more than the consumer. Fertiliser is bought by the family and used in the orchard, and the fields with tapioca, while fertiliser is only bought and applied to the corn in the homegarden. The IADP subsidise fertiliser for the papaya production, but not any longer for the bananas since they are only giving fertiliser until the plant is yielding fruits. Manual weeding is highly important for many of their crops, even though it is labour intensive and they cannot afford to buy pesticides. They also protect their jackfruits by placing a bag around the fruit to prevent pests laying their eggs inside it. The banana is harvested while still green to prolong the storability and marketability. The durian fruit (the king of fruits) is highly storable and the fruit can be

preserved further by salting. The pineapple and starfruit has to be consumed directly after harvest. The corn is dried to prolong storability.

4. How are the products marketed, who sells them and were? Any middlemen involved?
The lemongrass, tapioca (leaves) and sabi (bitter leaves) are sold in bunches at the market together with bamboo shoots, young bamboo and fern shoots from the forest. For one bunch they receive 2 RM. The grandmother sells these vegetable bunches. The other products are sold by the mother of the household at the Sunday market, Satok in Kuching. The mother has the best contacts, which is important to get the best price and sell most. The family use their own car for the transport of their products to the market. The market fee is around 200 RM per year.

Lorong: 7

House number: 87

Head of household: Jeha

1. Where is your land located?

It is her grandmother's land that is located in another village. If the family want to grow crops in the village they can borrow field land form a neighbour.

3. What crops do you cultivate? Why, when? Yields?

Eusabin dayak is a very good crop and produced in higher quantities, if not attacked by pests or disease. Have leaf disease problems (could also be nutrient deficiency) where the plants die. It takes 30 days from planting to harvest. It is easily managed, gives good yields and the price on the market is good. Eusabin dayak is often produced and sold once a month, tapioca once a year. It depends on when the crops are harvested (some are seasonal crops while others are not) and how much the harvest gives. The family mainly produce for own consumption but sell when they have excess.

4. Draw a seasonal calendar. Describe the management, inputs and times of stress and vulnerability.

If eusabin grow well, the family will produce the crop directly again. The family have tried with fertiliser and pesticides, but nothing seems to work and solve their problems. Eusabin is difficult to plant due to the climate. In the dry season, the "sun makes the leaves become yellow". In the wet season, the leaves may drop.

The field is located on a very steep slope, and there is a risk to fall down.

They practice shifting cultivation. Before planting the field is burned and left for one week. No ploughing or preparation of the soil is done. After harvest the field is left for a fallow period of 5 years. They move to a new field every year.

Their problems can be due to nutrient deficiencies, where the lower part of plant often becomes yellow or the leaves are tipping/hanging down. The fertiliser is in granule form and applied on the soil around the crop – according to adviser from IADP, i.e. not incorporated into the soil.

IADP

Lorong: 2
House number: 41
Head of household: Kanon

1. How long time have you joined the IADP?

The family have joined the IADP as an individual farmer since 1994, and started with banana. Now they mainly produce papaya, with the phase 2 project since 2002.

2. Have you been involved in both phase 1 and 2?

Yes

3. What is the difference between phase 1 and 2?

Phase 1 is banana, and phase 2 is papaya and lemon.

4. Do you get your subsidies (fertiliser and pesticides) on plant or area basis (how much)?

The subsidies are based on the number of plants.

5-6. How many times have IADP provided fertiliser and pesticides?

Until the plants bear fruits.

7. What is your opinion about phase 3?

They have not been informed about phase 3, but they are interested if IADP will suggest another crop. They are positive to IADP because they provide fertilizer and inform them about how to perform their production. Additionally, their economy is improved if they get good yields.

8. Are you able to continue your production in the same way without the IADP subsidies?

No, they could not afford to grow bananas or papaya, due to the high costs for fertiliser and pesticides. However, they will try to continue if IADP lowered the subsidies.

9. Improvement in the household economy with IADP subsidies?

Their economic situation has been improved a little, but they are not able to save money for future inputs to their production and become independent of IADP.

10. Are there any problems with IADP?

Not really, they are satisfied with IADP. They are satisfied and receive fertiliser and pesticides in right time and amount.

11. Have you received any skill training from IADP?

Some persons from the Kpg Subang went on a short IADP course, came back and informed the farmers. They got one day of information about the planting. It also depends on the stage of production they are in. When their trees are high and need to be pruned down, IADP will come and show them how to do it etc.

12. How are the products marketed, who sells them and were? Any middlemen involved?

For the last two years their production does not yield enough fruits to sell at the market, and they have only for their own consumption. Earlier, the household sold products for around 160 RM/week or 40 RM/sale. They sometimes sold via wholesaler and sometimes directly at the Sunday market, Satok, in Kuching. The wholesaler takes a higher price and they earn less on their produce, however, by selling their own products at the market is time consuming, the transport is expensive and they also have to pay a fee to sell at the market. Thereby, it is sometimes good for them to sell to the middlemen. Additionally the wholesalers do not come regularly, and when they come they buy all the products in the village that can be sold (also not fully ripen fruits).

Lorong: 2
House number: 83
Head of household: Luchus

1. *How long time have you joined the IADP?*

5 years in IADP

2. *Have you been involved in both phase 1 and 2?*

Yes

3. *What is the difference between phase 1 and 2?*

Phase 1: planting papaya and banana

Phase 2: planting more papaya near the village, and started to produce lemon, but the production was not that good. They planted 200 lemon trees and 400 papaya trees.

It is their own land they use for the three different crops.

4. *Do you get your subsidies (fertiliser and pesticides) on plant or area basis (how much)?*

They get 4 bags of fertilizer per year. (50kg per. bag = 60 RM). Once a year they apply fertiliser to the soils. They buy more fertiliser if they need it.

IADP gives one bottle of herbicides per year (4L per bottle), which is not enough. They have to buy one bottle more. They spray with herbicides three times a year (one bottle cost 40 RM).

IADP gives two bottles of pesticides. They have to spray four times a year. One bottle contains 1 kg of pesticides. It costs 8 RM pr bottle. They have to buy three extra bottles.

5-6. *How many times have IADP provided fertiliser and pesticides?*

-

7. *Opinion about phase 3.*

They would like to join the 3rd phase.

8. *Are you able to continue your production in the same way without the IADP subsidies?*

They still need the subsidies to continue the production.

Besides the IADP production they also have a padi field (20 bags * 50 kg pr bag – good; 10 bags * 50 kg pr bag – bad). Before IADP they produced more padi rice and banana as the only fruit.

IADP is good because they also supply seeds to the production.

9. *Improvement in the household economy with IADP subsidies?*

It is not a big increase in the income for the household.

10. *Are there any problems with IADP?*

-

11. Have you received any skill training from IADP?

-

12. How are the products marketed, who sells them and were? Any middlemen involved?

They sell the fruit themselves in Kuching at the Sunday market. They transport the fruit on the village lorry. They sell the banana to a middleman, who brings the banana to the market. They get 50 cent per kg banana. Selling bananas through a middleman is not good because they earn less money. They sell papaya and lemon on the market without the middleman. When they are going with all the fruit, they also take the banana to the market – no middleman. But if they only have banana to sell, they will use the middleman.

13. Other.

Work is divided by weeks – one week with each fruit and concentrate on rice in the harvesting period. IADP offered all in the village to join.

Lorong: Main road

House number: 70

Head of household: Jinos

1. How long time have you joined the IADP?

The household produce banana with subsidies from IADP since many years back with an individual agreement with IADP, and they have recently planted papaya trees which have not set fruits yet.

So, one year in phase 2.

2. Have you been involved in both phase 1 and 2?

Only in phase 2 and individual agreement outside the phases, which are group based projects.

3. What is the difference between phase 1 and 2?

First phase involved banana production and second phase was with papaya.

4. Do you get your subsidies (fertiliser and pesticides) on plant or area basis (how much)?

They receive fertiliser and pesticides, skill training and information at a one week education. The amount is based on the number of plants. For their 300 trees they received 2 bags mineral fertiliser à 50 kg and 5-20 kg organic chicken manure, which amount have differed between supplies. The organic manure was supplied to increase the organic matter in the soil, to build up the fertility.

However, the fertiliser is not fully subsidised and they have to pay 50 cent per bag of chicken manure and 4 RM for each bag of mineral fertiliser. The money goes to the village fund.

5-6. How many times have IADP provided fertiliser and pesticides?

Fertiliser and pesticides were given initially at one main occasion when the seedlings were supplied and they have only received a little more. The amount was maybe supposed to be sufficient for the whole period until the trees set fruit.

7. Opinion about phase 3.

No, they have not received any information about it. The IADP seldom inform the farmers about anything. However, the project gives lot of benefits for the villagers and the family would like to join the next phase also.

8. Are you able to continue your production in the same way without IADP subsidies?

No, not to the same extent

9. Improvement in the household economy after IADP subsidies?

Yes, the subsidies have improved their economical situation, which is good.

10. Are there any problems with IADP?

The fertiliser and pesticides given initially to the farmer until fruiting season are supposed to cover the first whole period. If the amount is not sufficient the farmer has to purchase it by them selves. Since the fertiliser and pesticides are not given continuously and not in sufficient amounts, it depends on the farmers' economy if they can invest in these necessities for the cultivation. Initially the household received fertiliser, pesticides and the papaya seedlings. The second time fertiliser was given by IADP the amount and quality was significantly reduced and the third promised supply has failed to come. Unexpectedly they had to buy the fertiliser to be able to sustain the crop needs and quality. They have only received pesticides once, initially.

Additionally, the first supply the organic manure was of good quality dry chicken manure, but only half a bag. The second supply the chicken manure was of lower quality since it was wet and they did not have to pay for it.

The government has economical problems and reduce the subsidies promised from the first agreement.

The villagers with field plots outside the area chosen by the IADP for their group projects can not join and are left outside. IADP chose also the crop to grow and start up new projects when they want and not according to the needs of the village or villagers.

11. Skill training from IADP?

When starting to join the second phase the IADP came to the village and briefed all the farmers about papaya production.

12. How are the products marketed, who sells them and were? Any middlemen involved?

Sometimes (not so often) middlemen come and buy all papaya in the village, ripe and unripe fruits. The farmer is paid 40 cents per kg fruit. The family have often chosen to market their products by them selves since they can earn more money by that, but sometimes the middlemen come to the market and claim a fee of 1 RM per kg fruit from the farmer additionally to the market fee, which is not so pleasant.

13. Other

How is the working load divided during the year?

It is always uncertain. Now in March they are occupied with weeding and pesticide application. They harvest continuously all through the year, but no harvest from the IADP plantation to sell yet at the market.

Lorong: main road

House number: 50

Head of household: Billie

1. How long time have you joined the IADP?

They joined the IADP four years ago, in 2002.

2. Have you been involved in both phase 1 and 2?

They are only involved in phase 2, growing papaya and lemon.

3. What is the difference between phase 1 and 2?

In phase 1 only banana is grown, and phase 2 papaya and lemon are produced.

4. Do you get your subsidies (fertiliser and pesticides) on plant or area basis (how much)?

First IADP sent seedlings and then fertilizer. IADP have representatives in the village (responsible person for IADP), which is the contact person between the farmers' and IADP. The representative makes a survey of the farmer's field and production, and sees through that IADP provide the fertilizer and pesticides.

5-6. How many times have IADP provided fertiliser and pesticides?

It depends on the growth of the plants. They don't remember exactly how many times and how much.

7. Opinion about phase 3.

They would like to join the 3rd phase, but they do not know so much about it.

8. Are you able to continue your production in the same way without the IADP subsidies?

They will continue their production and buy some fertiliser.

9. Improvement in the household economy with IADP subsidies?

Yes, they have improved in their economy by the production. Middleman buys the fruits (1 RM/kg), and sometimes they sell at the market in Kuching.

10. Are there any problems with IADP?

No, they don't have any problems with IADP. They like IADP because they give them free fertilizer and advices.

11. Have you received any skill training from IADP?

IADP sends a person for their training, but it depends on the growth stage of the plants.

12. How are the products marketed, who sells them and were? Any middlemen involved?

Sometimes middleman buys the fruits and sometimes they go to the Kuching market.

Lorong: main road

House number: 97

Head of household: Dawod

1. How long have you joined the IADP?

They joined the IADP in 2003.

2. Have you been involved in both phase 1 and 2?

They have been involved in both phases.

3. What is the difference between phase 1 and 2?

For phase 1 the crop is banana, and for phase 2 the crops are papaya and sweet lemon.

Currently they have only 200 trees of papaya, no banana plants or lemon trees.

4. Do you get your subsidies (fertiliser and pesticides) on plant or area basis (how much)?

IADP send it to them. In phase 1 they received two bags of fertiliser à 50 kg, and the same in phase 2. The amount of fertiliser provided is based on the number of trees.

5. How much pesticides have been provided by IADP?

For the banana production in phase 1 they received two bottles of pesticides à four litres. In phase 2 they received and used three bottles.

6. How much fertiliser has been provided by IADP?

For the banana production in phase 1 they received two bags à 50 kg per year and totally six bags for the whole phase 1. In phase 2 they received one bag. If they need more fertiliser or pesticides they have to buy it themselves.

7. Opinion about phase 3.

Maybe they will participate; it is up to the farmer.

8. Are you able to continue your production in the same way without IADP subsidies?

No, they will not be able to continue. They are not prepared to spend money fertiliser or pesticides, since they are not confident in the return from such investments.

9. Improvement in the household economy from IADP subsidies?

Their economy has been improved by their participation in the IADP.

10. Are there any problems with IADP?

-

11. Skill training from IADP?

One morning of training with IADP, concerning application of fertiliser and pesticide.

12. How are the products marketed, who sells them and were? Any middlemen involved?

They market and sell their products (banana, papaya and lemon) at the market in Kuching. The market fee is 8 RM per month.

13. Other

They are positive to the IADP because of the subsidies, which increase their yields.

FELCRA

Lorong: 4

House number: 33

Head of household: Bujang

1. Is the work a full time or part time job?

Full time

2. How much are you earning on this work?

325 RM per month

4. Bonus from FELCRA each year.

The family have 2 ha land in the FELCRA project. The bonus depends on the fruit yield and differs from year to year; they receive 500 RM/year for a good year and 300 RM for a year with lower harvest yield.

5. Why are you working at the FELCRA project?

Insurance, if/when an accident occurs at the plantation FELCRA pays for the health care and hospital costs. The employees can get their job back even if they have to spend longer time at a hospital.

6. How did you get the job?

The contract company (FELCRA) look for anyone that wants to work for them. They offer very good benefits such as insurance, salary and safety, also working clothes and equipment. The job contract last as long as the FELCRA project. If FELCRA would notice an employee they would give 13 RM/day for 2 years.

The participation in giving land to the project does not have any impact on the employment.

8. Advantages and disadvantages for the workers.

One advantage is that they can plant what ever they want in the plantation at any non-planted area (open spaces and when the oil palm trees are small).

No direct disadvantages, but the work is hard. The women carry the very heavy fertiliser bags.

9. Is there any FELCRA pension scheme?

No

10. General view about FELCRA?

It is a good company to work for. They provide equipment, clothes, shoes and hat to the workers. No education or training before starting at the work. "Everybody likes FELCRA."

11. Are you informed about phase 2? Will you participate in phase 2?

The phase 2 is not confirmed yet. The family will join it if it starts, and they have also land for it.

12. Own questions

How is the work divided due to gender?

Women prune and cut the trees, apply fertiliser and pesticides

Men cut down the fruit bunches and carry them to the lorry.

They do not have the same salary. Women generally get 13 RM/day and for the fertiliser application it is 10 RM/bag, 6 bags day for 6 women. Men are paid per fruit bunch.

Lorong: 7

House number: 23

Head of household: Alex

1. Is the work a full time or part time job?

Full time, between 08.00 and 14.00, six days a week

2. How much are you earning on this work?

He earns 19 cents per bunch and almost every day he cuts 150 bunches. The income is on daily basis. After 14.00 the work is overtime, sometimes he works overtime and earns some extra money for it. If the trees are high then the income per bunch will be higher, and then he will get 20 cents per bunch.

3. Any increments in the salary?

He has no increment in his salary.

4. Any bonus from FELCRA each year?

No bonus

5. Why are you working at the FELCRA project?

Before he was working with an oil company, and when he got married he decided work near the home, and he also has to take care of his mother.

6. How did you get the job?

He got job in 1997 by references from his friend.

7. Do you know anyone that has worked for FELCRA? Why the person left the job?

He knows one person; his cousin worked for FELCRA, and left the job because salary is low and job is hard.

8. Advantages and disadvantages for the workers.

Yes, there are some advantages. When he will get 56 years old he will stop working and get a lump sum from FELCRA, and if he gets sick he receives money from FELCRA. No direct disadvantages, but the work is hard. The women carry the very heavy fertiliser bags.

9. Is there any FELCRA pension scheme?

He will get a lump sum when he retires from his job.

10. General view about FELCRA?

Good improvement for the village and he is happy because he has a job in the village. He wants to have the job near the home.

11. Are you informed about phase 2? Will you participate in phase 2?

He knows about the phase 2 but not in detail, only that they are planning to start phase 2. He would like to participate in phase 2. He said it would be good for the villagers for the job point of view and the people will participate leasing out their land because they get some money as dividends.

Lorong: main road

House number: 50

Head of household: Billie

1. Is the work a full time or part time job?

He is working full time as a driver for FELCRA.

2. How much are you earning on this work?

He is earning 17 RM per day and work from 8.00 to 14.00. For overtime work he gets 2 RM per hour, if he works on Sunday and public holiday he will get 34 RM per day.

3. Any increments in the salary?

He has no increment in his salary.

4. Any bonus from FELCRA each year?

He gets bonus money for his work at FELCRA. It depends on the weight of fruit that he carries by his lorry. If he carries more weight than normally then he will get some extra money as a bonus.

5. Why are you working at the FELCRA project?

He is doing this job because of lack of education, so he can not find good job outside the village. First he was working in the FELCRA plantation. Then he tried to learn to drive the tractor and did very well. His supervisor saw that he could drive well and gave him the job as a driver. But he has no driving licence.

6. How did you get the job?

He found this job by the reference of village committee (JKKK). Committee makes the registration and then recommend the person for a job.

7. Do you know anyone that has worked for FELCRA? Why the person left the job?

He knows one person that left the job because of getting older.

8. Advantages and disadvantages for the workers.

He has the advantage that he can get some money from FELCRA as a loan, which will be drawn from his salary, and there is no interest in this loan. He has a problem with the work at FELCRA because it is a big tension. When IADP came, he thought that the FELCRA job is good because he can take care of his own land in the evenings. They get subsidies from IADP. In the daytime his wife works in their land and in the evening he helps her.

9. Is there any FELCRA pension scheme?

He has no pension scheme in FELCRA, but he will get lump sum of money when he retires.

10. General view about FELCRA?

FELCRA is very good for the development of the village. People are get job in the village, and there is no need to go outside the village for work. In the evenings they can do other things, such as part time job in the village and take care of their own land.

11. Are you informed about phase 2? Will you participate in phase 2?

He does not know about the phase 2, but if FELCRA start a phase2 it will be a good improvement for the village, and people will participate.

Lorong: main road

House number: 77

Head of household: Jinut

1. Is the work a full time or part time job?

He is working full time as a driver for FELCRA.

2. How much are you earning on this work?

He is earning 17 RM per day and work from 8.00 to 14.00. For overtime work he gets 2 RM per hour, if he works on Sunday and public holiday he will get 34 RM per day.

3. Any increments in the salary?

He has no increment in his salary.

4. Any bonus from FELCRA each year?

He is participating leasing out land to FELCRA and gets some money as dividends, which depend on the yields. He is also get bonus on daily basis for his work. If he carries more weight by his lorry then he will get some extra money from FELCRA as a bonus.

5. Why are you working at the FELCRA project?

He gets a daily income, if he carries more weight of fruit by his lorry then he will get some extra money as a bonus, the time of the work is good and in the evening he can help his wife in the field, because they are involved in the IADP. He likes this job and doing well.

6. How did you get the job?

He is the first person in the village who got a driving license. FELCRA said to the supervisor to find a person who has a driving license and asked him, and he accepted this job.

7. *Do you know anyone that has worked for FELCRA? Why the person left the job?*

-

8. *Advantages and disadvantages for the workers.*

He can get sick, up to 16 days a year, and still receive some money from FELCRA. He gets daily income and also the bonus. He also works overtime in his job and gets money for it. The biggest advantage for him is the job timing and that his job is in the village, since he can also take care of his land. He has been doing this job for a long time. There are no disadvantages. He is happy with this job.

9. *Is there any FELCRA pension scheme?*

There is no pension scheme, but he will get lump sum of money at the time of his retirement.

10. *General view about FELCRA?*

The project is a good improvement for Kpg Subang, the people can get a job earning money in their village and they don't need to go outside the village for a job.

11. *Are you informed about phase 2? Will you participate in phase 2?*

He knows little bit about phase 2, but it will be a good improvement and people will participate. They have full commitment with the FELCRA. But if people from other villages will get work here then they will have some social problems like thief's etc.

Work outside the village

Lorong: 8

House number: 106

Head of household: Lebang

1. *What is your work?*

Working as a driver in a private company

2. *Where is it located?*

Kuching

3. *Why are you working outside?*

He earns more working outside than in the village. He gets 500 RM per month.

4. *How many years have you been working outside the village?*

7 years

5. *How much time do you spend on your work?*

Full time from 6:00- 20:00 every day, Sunday is free

6. *Do you spend money on transportation to your work and how much? Stay overnight?*

He travels every day from morning to evening, and goes there by his motorcycle and sometimes brings his own food. The travel expenses are 200 RM per month.

7. *How did you get the job? (Family, tradition, application)*

From his friend.

8. *Why don't you live in Kuching?*

The family stays in Subang because of the work with FELCRA, which both he and his wife are involved in.

9. Other

His wife has been involved in IADP for 5 years with banana, papaya and lemon. Every Friday a lorry brings the fruit to the market. Kpg Subang has 2-3 lorries. Their income has increased only a little after joining IADP. No problem with IADP. Participate in FELCRA by leasing out 1 ha of their land.

Lorong: 7

House number: 35

Head of household: Dol

1. What is your work?

Working for a private company

2. Where is it located?

Kuching

3. Why are you working outside?

Because there is no work in the village. Before he worked with coco palm production, but this is not something they do anymore.

4. How many years have you been working outside the village?

Worked 20 years outside the village for the same company, part time (25 hours/week).

5. How much time do you spend on your work?

From 6:00 – 19:00

6. Do you spend money on transportation to your work and how much? Stay overnight?

Going by motor cycle. Spend 100 RM per month on fuel.

7. How did you get the job? (Family, tradition, application)

A contractor came to the village offering people a job in Kuching.

8. Why don't you live in Kuching?

He lives in Subang, because he can't afford to pay a house rent in Kuching.

9. Other

The price for rice is very high – therefore he produces his own rice, and the reason for why he only works part time. He is also involved in IADP, producing papaya and lemon (phase 1 and 2 for four years), the lemon has just started to give fruit. In the beginning the papaya trees produced more fruit, but only the first years. That is why he continued his work in Kuching. He gives land to FELCRA.

Lorong: 1

House number: 79

Head of household: Naong

1. What is your work?

Lorry-driver for a private company

2. *Where is it located?*

7 miles from Kpg Subang

3. *Why are you working outside?*

He likes the job and earns 600-700 RM pr month.

4. *How many years have you been working outside the village?*

He has been working outside Kpg Subang for 28 years and as a driver for 17 years. He worked with other things in Kuching before he took a drivers licence and started to work as a driver.

5. *How much time do you spend on your work?*

Full time from 8:00-17:00, working six days per week

6. *Do you spend money on transportation to your work and how much? Stay overnight?*

Almost 100 RM per month

7. *How did you get the job? (Family, tradition, application)*

He has a friend in the company, and the owner of the company gave him a test to see if he was suitable for the job and he passed.

8. *Why don't you live in Kuching?*

They tried to live in Kuching when the wife was pregnant the first time. They stayed in Kuching for six years, and then moved back to Kpg Subang in 2000. The house rent and food in Kuching was too expensive compared to a house in the village, and they can plant their own fruit and vegetables.

9. *Other*

The family has a side income producing and selling vegetables and fruits.

They started to build their house in 1993 before moving from Kuching, and price for the house was around 30.000 RM.

Appendix 8 Household survey form

HOUSEHOLD SURVEY FORM

1. Name of the head of the household:

No.	2. Names of occupants	3. Age	4. Sex	5. Education level / duration	6. Activities involved	7. Relationship	8. Ethnic Group
2.1							
2.2							
2.3							
2.4							
2.5							
2.6							
2.7							
2.8							
2.9							
2.10							

8a. Do you practice any form of livestock farming? YES / NO

8b. If YES, how much do you earn?

9. (If activities of family members differ):
What is the major activity of the family?

10. What is your estimated monthly family income?

- < RM250.00
- RM251.00 – RM500.00
- RM501.00 – RM1,000.00
- RM1,001.00 – RM2,000.00
- > RM2,000.00

11. Which activity is your major income generator & How much?

12. Do you earn any supplementary income? YES / NO

13. (If Yes), What type of activity, and how much?

Appendix 9 Soil sampling

Sarawak has tropical equatorial climate, hot and humid all around the year with two monsoonal changes. The North-East Monsoon with heavy rains between November to February, and the milder South-West Monsoon from June to October. The average daily temperature is around 32°C and the annual rainfall varies between 3300mm and 4600 mm. The Samarahan Division terrain is mainly alluvial costal plain, with mountainous interior. Shifting cultivation is still a common practice for the paddy production, with a fallow between seven and ten years.

Transect sampling from the river in wet paddy field, in which a construction of terraces has been created for control of water levels, in hill paddy field and homegarden in Kpg Subang. Hand auger was used for the sampling.

Data from extended soil analysis have not yet been sent from our Malaysian counterparts.

Sample 1 in wet paddy field

- 0-20 cm, brown, fine textured fertile soil and free from coarser particles. Good structure and drainage. Some clay content, which increase with depth.
- 20-40 cm, dark brown, well aggregated soil, wet, high clay content and coarser particles present.

Sample 2 in wet paddy field

- 0-20 cm, high clay content and several colours of soil
- 20-40 cm, light coloured soil, clay mixed with coarser particles of gravel size (maybe eroded from the surrounding hills).

Sample 3 in hill paddy field

- 0-20 cm, dark brown, fine textured soil with coarser particles present. More dry soil than in the paddy field. Between 0 and 5 cm the soil is fertile (humus), but fertility appears to decrease with depth.
- 20-40 cm, Laterite soil with iron and aluminium oxide minerals (due to weathering of parent rock under conditions of high rainfall and elevated temperatures causing dissolution of minerals). Parts of the field are intercropped with papaya.

Sample 4, multi-intercropped agricultural production in homegarden

- 0-20 cm, origin soil is entisol, now mixed soil with high content of gravel (eroded down from hills or from digging of dam) and of low fertility.
- 20-40 cm, high clay content, iron oxides are shown spot wise (anoxic soil),

Table X. Result from soil analysis of pH and conductivity

No.	Sampling Site	Sampling Depth (cm)	pH	Conductivity $\mu\text{S/cm}$
1	Wet Paddy	0 – 20	6.02	60
2	Wet Paddy	20 – 40	6.18	10
3	Wet Paddy	0 – 20	6.03	20
4	Wet Paddy	20 – 40	6.19	20
5	Hill Paddy	0 – 20	5.52	10
6	Hill Paddy	20 – 40	5.42	<10
7	Homegarden	0 – 20	5.97	10
8	Homegarden	20 – 40	5.85	10

