

Land Use Changes and Livelihood Strategies in Kampung Plaman Nyabet Sarawak



FINAL REPORT

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Abstract

In this report we investigated different livelihood strategies and agricultural and land use changes in the village Plaman Nyabet. The objective of our report is to answer what is the contribution of agricultural activities to the villagers' livelihood and what are the changes in agricultural practices and land. To do this we analyzed the livelihood strategies, including migration, and evaluated the importance of agriculture in the villagers' life. Impact of villagers on the river and the relation between soil quality and crops cultivated were also investigated. Livelihood strategies in this village can be categorized into agricultural and non agricultural activities, the first being mainly practiced for home consumption while the second for cash income creation to satisfy households' needs. Younger generations migrate from the village for different reasons mainly to find non agricultural employment, for which there is no possibility in the village, and to earn higher income. This migration has both a negative and a positive effect on village life: lack of labor will eventually lead to increased lease of land to development schemes, displacing traditional agriculture. On the other hand remittances and return migration lead to higher standards of living and might create future employment opportunities for young people.

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The headman and the villagers of Plaman Nyabet should not be forgotten. Without their hospitality and openness the field study would have been impossible. Thank you for receiving us!

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Introduction

Our field site is Kampong Plaman Nyabet which is a Bidayuh village of 76 households located in the Serian district about an hour and a half drive from Kuching. Kuching is the capital city of the autonomous state of Sarawak at the Malaysian island Borneo. The road leading to Serian and Kuching is a good tar sealed road, as well as the roads within the village. The majority of houses are big and constructed from bricks and every household owns a motorbike and most people (individuals) a cell phone.

The area of Kampong Plaman Nyabet is Native Customary Land which means that the villagers have no titles, but possess an eternal access (NCR¹) to their land. The only areas that have land titles are presently being used by the SALCRA palm oil plantation. SALCRA started its operation in Kampong Plaman Nyabet about four years ago, replacing the cocoa plantation that was introduced in 1984.

Livelihood strategies and changes in agricultural practices and land use in kampong Plaman Nyabet is the theme of our field study. The word livelihood can be used in many different ways. The following definition captures the broad notion of livelihoods; a livelihood comprises the capabilities, assets (including both material and social resources) and activities required for a means of living (DFID, adapted from Chambers, R. and G. Conway, 1992). There are three options of livelihood strategies for rural people. They can diversify, migrate or increase their gains from agriculture either by intensification (increase output per unit area) or intensification (cultivate more land) (Scoones 1998:9).

Problem statement

Southeast Asia is often categorized as a region where farmers dominate the human landscape and where farming remains the pre-eminent occupation (Rigg 1998). Kampong Plaman Nyabet is no exception and the physical landscape of the village is dominated by rice fields and forest gardens. We hence found it interesting to *explore the different livelihood strategies in the village and how agricultural activities contribute to the livelihood of the villagers, and how agricultural practices have changed*. Another characteristic of the village is that it appears to be mainly comprised by elderly people. We therefore assumed that younger generations migrate to the urban areas, and decided to *assess the nature and impact of migration as a livelihood strategy*. Subsequently we narrowed down these problems by designing the following research questions and hypotheses.

¹ NCR / Native Customary Rights

Research questions

- How have the agricultural practices changed during the last 40 years?
- How do agricultural activities contribute to rural livelihood?
- How does out-migration affect the agricultural activities?
- What are the possibilities for the youth in sustaining a livelihood?

Hypotheses

- Subsistence farming is important for food security
- Temporary employment is an important livelihood strategy
- Lack of labor is a significant constraint for agricultural activities
- Youth do not see farming as a viable livelihood strategy

In this report we start by presenting the methods we have applied to create the data making our analysis possible (chapter 2; Methodology). Chapter 3 (Results and Analysis) is divided into three parts; continuity and change, livelihood strategies, and migration, reflecting our research questions. In chapter 4 we discuss elected results and methods and finally, in chapter 5, we offer our analytical conclusions and discuss their perspectives.

1. Field work challenges

In this chapter we mention some of the challenges that have been decisive for the outcome of our field study and comment on how we met these challenges.

1.1. Change of synopsis

We arrived at Borneo with a synopsis focusing on the 'role of home gardens in the sustaining of rural livelihood'. Upon meeting our Malaysian counterparts it became clear to us that our synopsis was too specific compared to theirs, thence both groups decided to discard their synopsis and design a common project proposal (see appendix VI)

1.2. Interpretation

We did not have an official interpreter who could translate from Bidayuh to English or from Malay to English. This was a constraint to us international students as well as to our Malaysian counterpart. We partly overcame the problem by dividing into groups of Malay student + international student, but in certain situations we all lacked a Bidayuh interpreter. During some interviews we international students decided to observe while the Malay student carried out the interview since the constant interpreting was an exhausting task to the Malay students. We all made as good use as possible of some local youth who willingly assisted, but didn't speak English too well. In one case we managed to hire a young local woman who was in the village on holidays.

1.3. Group work and tools

Group work is indeed a challenge, more so in an intercultural and interdisciplinary setting, but though group discussions and misunderstandings are time consuming, it is the group that made this study and its extent possible. We were eleven people split into five groups when we carried out household questionnaires, meaning that the group made it possible to do at least four times as much as otherwise. Also transect walks could be carried out simultaneously in different areas as could interviews and observations. Necessary tools for sharing data were the log book in which we collected transcribed interviews, and the walls on which we hang posters of our activity program, research questions, village map etc.

1.4. Ethics

Some of the ethical issues which arose during our field work concerned the use of informants. We had established contact with some young men in the village who spoke some English and found it interesting to talk with us. Chats were often commenced by them and would besides issues directly relevant for our study also concern off-village issues. It therefore came as a surprise to our group when a teacher asked for how long we had hired these young men and emphasized that we could only hire them for a few days due to a limited budget. A heated discussion arose since we all felt uncomfortable suddenly putting informants and social relations on the pay role and then having to cut off contact afterwards when money was up. The use of informants as representing their own views and their village/social group becomes somewhat blurred when they are being paid. They go from being individual informants to being paid informers and the relation between researcher and informant changes.

2. Methodology

In this chapter we present a chart introducing the various methods that we have applied in order to create different kind of data. The chart reflects our considerations in choosing methods; what kind of data do we want to create? (purpose); what kind of method(s) can we use in order to create that data? (method); who can give us this data? (informant); and last a summary of the data actually created (outcome).

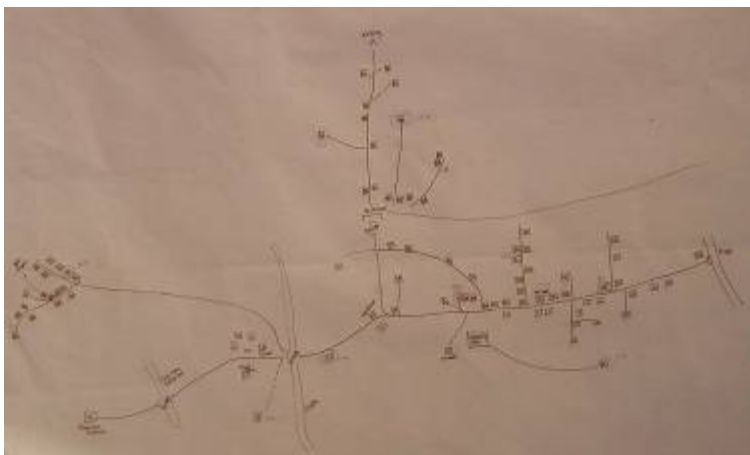
Following the chart we explain how we applied the different methods.

Purpose	Method	Informant	Outcome
Obtain an overview of village activities and agricultural practices	Preliminary interview	<ul style="list-style-type: none"> ▪ Headman ▪ Deputy 	<ul style="list-style-type: none"> ▪ List of activities ▪ List of crops ▪ Land use
Create overall view on livelihood activities from villagers' perspective	Transect walk (PRA)	<ul style="list-style-type: none"> ▪ Farmers ▪ Young women guiding and translating 	<ul style="list-style-type: none"> ▪ Knowledge on agricultural practices and tools ▪ <i>Opportunity to interview farmers in the fields</i>
Detailed information on agricultural practices	Informal interview	Farmers	Knowledge on <ul style="list-style-type: none"> ▪ paddy practices ▪ forest gardens ▪ land tenure
Create a map of the village	Create village map	SLUSE students	Map with roads and households
Identify households for household questionnaires	Household sampling	SLUSE students	31 households identified
Create quantifiable data on households	General household questionnaire	31 household heads	Spreadsheet data: <ul style="list-style-type: none"> ▪ On HH members ▪ Migration ▪ Land use, finance, SALCRA

Purpose	Method	Informant	Outcome
Create quantifiable data on youth aspirations and opinions about village/farming	Youth questionnaire	21 youth	Spreadsheet data: <ul style="list-style-type: none"> ▪ Personal data ▪ Ambitions ▪ Views on farming ▪ Life in village
Obtain data on important dates and changes in practices	<ul style="list-style-type: none"> ▪ Semi-structured interview (focus) ▪ Village time line 	<ul style="list-style-type: none"> ▪ Deputy ▪ 2 old men ▪ 2 old women² 	Dates and Changes: <ul style="list-style-type: none"> ▪ Develop. schemes ▪ Road, school etc. ▪ Land use ▪ Agricultural practices
Make groups of villagers answer and discuss our research questions	Focus group discussion	4 groups organized in relation to question	<ul style="list-style-type: none"> ▪ Different opinions were expressed ▪ <i>Opportunity to rank livelihood strategies</i>
Rank of livelihood strategies	Ranking (PRA)	Focus group 1	<ul style="list-style-type: none"> ▪ Importance of activities in terms of labor and income
Hands on experience of agric. activities and social activities Create social relations	Participant observation	SLUSE students	Impression of <ul style="list-style-type: none"> ▪ Some of the farming hardships ▪ Use of the river ▪ Social relations ▪ Funeral attendance
Know village and surrounding areas in order to ask relevant questions	Direct observation	SLUSE students	<ul style="list-style-type: none"> ▪ When answers didn't correspond our observations we could follow up on the issue
Documentation and remembrance	Photography	SLUSE students	<ul style="list-style-type: none"> ▪ Photos of activities, tools and events ▪ For presentations and report
Create a visual image of a village family and its migrated members	Kinship chart (family tree)	Family in village	<ul style="list-style-type: none"> ▪ Drawing of 3 generations ▪ how members are connected ▪ who has stayed/migrated
Hear opinions from parents and children on ambitions and migration, land tenure and farming	Family focus group discussion	Family in village	Opinions on: <ul style="list-style-type: none"> ▪ Ambitions ▪ Migration vs. village ▪ Land divisions ▪ Fertilizers to poor ▪ Develop. schemes
Analyze the effect of the village activities on the river. Analyze tap water quality	<ul style="list-style-type: none"> ▪ Water sampling ▪ Water analysis 	SLUSE students	<ul style="list-style-type: none"> ▪ Village activities have negative effect on the river ▪ Tap water is from Serian and clean
Ask further questions raised from interviews and observations	Follow-up interview	Key informants	Answers on: <ul style="list-style-type: none"> ▪ NCR request ▪ SALCRA ▪ Household head def
Gain details on rice-processor; function, prices, income etc.	Topic-focused interview	Owner of rice-processor	<ul style="list-style-type: none"> ▪ Details on rice-processor and function
Identify annual crop cycle and activities	Crop and activity calendar	5 household heads	Knowledge about when crops are sown and harvested, social activities etc.
Rank of livelihood strategies in terms of income and food security	Pairwise ranking of identified livelihood strategies	5 household heads	Some activities were ranked. The exercise was too long and confusing for the villagers ³ .

2.1. Village map, household questionnaire and sampling

When we first arrived to the village we had no geographical map nor did we know the specific number of households. We considered visiting various institutions that might have such a map but agreed that this method would be too time consuming and uncertain⁴. Therefore we decided to take matter into our own hands and profit from working in a group by doing the map ourselves.



We split the town and our group into four and went out to draw roads, households and distance measured in steps. In the process we asked about name of household head, and found out that 78/86 houses were occupied. Back in the community hall we put the four maps together and drew a big map (see photo) on which we numbered all the households.

Subsequently we decided to acquire a general impression of the village and the activities of the villagers using a questionnaire. This would ask the same questions to every informant and thus provide both a general impression and quantifiable and comparable data (Casley and Kumar 1988:55). We designed a questionnaire on household members (age, occupation, residence and remittances), land use (size, cultivation and produce) and finance (sales, SALCRA and market expenditures) (Appendix I).

We used our village map to sample households by dividing the village into parts and calculate a number of households in each to make sure that each part was proportionally represented.

2.2. Interviews

Upon arrival to the village we carried out preliminary interviews of the headman and his deputy focusing on the agricultural and social activities in the village. The interviews provided us general information such as number of households, lists of agricultural and social activities, cultivated crops, development schemes, subsidies etc.

Subsequently we carried out informal interviews without interview guide and very few notes taken of farmers we met on our transect walks, giving us more detailed information on wet rice production, forest garden practice and produce, and land tenure (Adat). Moreover we continuously interviewed (informally) the young men hanging around and speaking some English about their perceptions on village life and migration etc.

In order to learn about development of Plaman Nyabet and changes in agricultural practices we considered elderly people to be special resource persons due to their high

age. We decided to interview two men and two women and the deputy⁵. These interviews were semi-structured with a clear question guide⁶ to begin with and open-ended and free space to end with (Casley and Kumar 1988:13). Included was a time line exercise asking for important dates such as the road construction, school, development schemes, hybrid seeds etc. We soon learned that to ask a question reaching back forty years makes no sense to the informant unless it is pinned to some event. We therefore modified our questions in the interview situation to use the events the informant mentioned, or simply asking about lifetime memories.

We used topic-focused interviews to explore the dynamics of specific livelihood strategies i.e. the owner of a rice-processor and a household with big fishponds. In these interviews we asked more detailed questions about motives, expenditures and income generation (Ibid).

2.3. Observation, transect walk and photographs

Already the second day of our stay in the village we split into groups and went in different directions to cover the village area. One group followed an old man on his way through the rice fields to his forest garden ending up where his nephew was cultivating the old man's land through Adat. The transect walk thereby showed and taught us about rice farming practices, drainage systems, rubber, cocoa, forest garden practices, Adat system and a lot more that we would never had known about without observing and asking questions on the spot. During the transect we stopped to observe and participate in the activities of the farmers. We had some group members in charge of taking photos for later reference, remembrance and illustration. Other members were in charge of interpreting and others of asking questions and taking notes.

2.4. Water sampling and analysis

We identified three water sampling sites; upstream, middle stream and down stream in order to analyze the quality of the water where the villagers use the river, and the impact of the village activities on the river water quality. We included a fourth element in our analysis namely the tap water to examine its level of microbial. The samples were then analyzed by the Malay students and we received the results when back in Denmark. The physical and chemical parameters include: temperatures, pH value, DO, BOD, COD, TSS, Turbidity, Ammonia, Phosphate and Nitrate, and Microbial content – TCC and FCC.

2.5. Soil sampling

Our objectives of soil sampling were confined to the following purposes:

- To determine the current status of the soil in relation to different types of agricultural land use and practice
- To determine the limit of nutrient contents

- To determine the soil capability in terms of crop-soil suitability

To carry out this analysis, six soil sampling points sites were located based on various crops cultivated in Plaman Nyabet. They include:

SAMPLING POINT

Sampling Point	Sites
Point 1	Cocoa Garden (without fertilizer)
Point 2	Pepper Garden
Point 3	Wet Paddy (without fertilizer)
Point 4	Wet Paddy (applied fertilizer)
Point 5	Cocoa Garden (applied fertilizer)
Point 6	Hill Paddy

To carry out our analysis, we decided to develop a parameter which includes:

- Soil organic matter
- pH value
- Soil structure

The sampling points are located in farm lands for the major agricultural crops cultivated in the area which includes cocoa, pepper, wet paddy, and hill rice. Our aim of choosing these locations is to see the relationship between the crop and the soil in order for us to find out crop soil suitability and adaptability.

After this presentation of our methods and how we used them, we will in the following chapter analyze the data which will answer our research questions.

3. Results and analysis

This chapter is divided in three sub-chapters: continuity and change, livelihood strategies, and migration. In each of these sub-chapters we analyze and discuss our results linked to the respective research question.

3.1. Continuity and change

In this chapter we will introduce the agricultural activities carried out by farmers in Plaman Nyabet: we will give an overview of such activities (the discussion on which will be continued in the next paragraphs) starting from the tools adopted for the cultivation of the most traditional one, rice, to the implementation of cash crops that occurred by the middle of the last century. The focus is on their evolution through time, in order to answer our research question:

How have the agricultural practices changed during the last 40 years?

An example of land tenancy and management change is given by the succession ADAT-NCR-SALCRA, which will be treated in the final part of the paragraph.

Our hypothesis during the study was the following:

- *Lack of labor is a significant constraint for agricultural activities*

In order to find out the answer to the research question we thought it would be relevant to look at how agriculture is practiced now through direct observation and transect walks and relate what we had seen to the tradition or the innovation using additional methods.

During a transect walk we observed the different instruments used for agricultural practices asking the farmers whether that was the same instrument their parents used to have and taking photos for reference.



1. *Ajok*



2. *Tampi*



3. *Bari*



4. *Bari - inside*

1. '*Ajok*' is the tool used to make a hole in the topsoil before planting the seeds 2. '*Tampi*', used to do manually the threshing 3. '*Bari*', field shed used by farmers to dry padi at the sun, store tools, preliminary process the padi, eating and resting 4. Inside the '*bari*': stored tools and padi bags waiting to be carried to the village 5. Village storage houses in the back of the community hall

3.1.1. Tools through the time

The *Ajok* (picture 1) is a hard wooden stick used to make a hole in the topsoil in order to sow seeds and plant seedlings. This work is usually done by a farmer and his wife; after the man has made the hole the woman put seeds into it and they move together through the field. A *Tampi* (picture 2) is a wooden structure used by the villagers to separate the seeds from the rest of the plant by hitting a bunch of plants against the metal surface causing the grains to fall down on the other side on a canvas posed on the ground. Afterwards the grains are stored in the field shed called *Bari* (picture 3 and 4) which every household possess.



Padi or rice?

The villagers refer to rice as padi as long as it is in the husks. Once the padi is de-husked it is called rice. To avoid any confusion we use only the term rice in this report.

Farmers use *Bari* as storage place for rice and tools, and it is here they rest and eat during the day when they work in the field. The *Bari* is made of bamboo and palm leaves. Picture 3 and 4 also show *Kipas*, the mechanical mill which is made of wood and zink and is used to separate the grains which are filled from the ones that are empty and light. Most of the tools (picture 4) are made from natural materials like rattan, bamboo, wood, etc. These tools are original tools which the villagers tell haven't changed. Picture 5 shows the wooden storage located in the village. Each rice cultivating household produces about 20-40 bags of rice which are utilize at rate which depends on the family size. The rice is de-husked with the rice processor just when it is going to be consumed in order to preserve its organoleptic quality and to make it less vulnerable to pests and little animals.

Our elderly key informants referred that the electric rice processor did not exist in their childhood, so we considered it as a change in the processing practice.

During an in depth interview with the owner of this device we were told that it was bought by him in 1986 when he retired from army. He mentioned that the reason for investing his money in this way was to give a service to the villagers and also to make a long term investment. This example of return migration will be further treated in chapter 3.



Rice processor:

This machine separates grains from the husks. Grinded husks (leftover material) are sold as feed for ducks. We noticed that this machine breaks the rice, but this is not considered a problem since this rice is for home consumption, while the rice for sale is sold to a middle man still in the husks.

3.1.2. Evolution in crops adoption

Rice (*Oryza sativa*)

Rice cultivation is a traditional agricultural practice in the village; it can either be cultivated under the form of hill rice or wet rice, but the last one is the most adopted form in the village. In our questionnaires only 4 households report to cultivate hill rice compared to 27 cultivating wet rice. This is due to the fact that hill rice is more labor demanding, which is a constraint in a village where the labor force is lacking due to migration (see section 3.3). Moreover, fertilizer, which is provided for wet rice by government, makes this last form of cultivation more attractive to the farmers.

Hill rice

During informal interviews we have been told that hill rice farming is practiced as a shifting cultivation method: farmers clear and burn part of the forest and sow the seeds directly in the land. It is a rain fed system and they do not use any fertilizer and/or pesticide in their lands in this kind of cultivation: this makes its production more challenging. The seeds used for hill rice are traditional varieties which, according to villagers, taste better but yield less and therefore are only used for home consumption. So the cultivation method for hill rice has not changed through the years.

Wet rice

During the last 40 years wet rice has been the main crop cultivated by the villagers. The headman has informed us that the government provides hybrid seeds and fertilizer for the wet rice through a rice scheme. To get the subsidized hybrid seeds and fertilizer a form must be filled and submitted on time to the headman or his deputy; the final decision on which households are going to get the subsidy is taken by a governmental officer, who decides based on his impression on the household economical situation. Last year the quantity of fertilizer provided to the approved households has been reduced from 12 to 6 bags (1 bag=50 kg) causing complaint among villagers.

Rubber(*Hevea brasiliensis*), pepper (*Piper nigrum*), cocoa (*Theobroma cacao*)

While the cultivation of rice is a very old practice, rubber, pepper and cocoa have been introduced during the last century for commercial purpose. They were introduced through development schemes which provided the farmers with seeds, seedlings and/or fertilizers. At the present time these schemes still influence the decision of farmers to dedicate to one crop rather than the other, like it will be further treated in section 3.2.2.

The headman informed us that the subsidy for pepper plantation is given to 1 out of 3-4 applicants, while for the other two cash crops the procedure is not even clear to the farmers.

Even for these crops the amount of fertilizer provided to each household has decreased during the last years.

Among innovation grafting must be mentioned: this technique is widely utilized for cocoa cultivation in order to enhance the production of cocoa. In fact it takes 3 years for a new seedling to bear fruit, while through grafting time can be economized.

3.1.3. Evolution in Land tenure and management

Adat

Adat is a non-monetary traditional system of land tenure that integrates with the more recently introduced cash-economy based on cultivation of cash crops and concession of land to governmental development schemes like SALCRA.

Under ADAT land can be lent (no rent is paid) to familiars or other members of the community for an undefined number of years, but the land owner should receive something from his land tenant (usually a few bags of the crop cultivated in his land) in order to underline and not lose his status of possessor. An example of this custom in the village was found in an old man whom only son lives in Kuching: he lent his land to his nephew who cultivates the land and gives him some of the harvested crops. Another example is given by a family that moved in the village three years ago: the half acre of land the woman⁷ owns is given to SALCRA in order to get a monetary income, while for household food production the family has borrowed some land through Adat from another villager.

NCR

NCR (Native Customary Right) was decreed in 1959 when indigenous people's claim for land usage was surveyed and registered. Native customary rights are applicable to those lands cleared and cultivated before 1st January 1958. NCR renders eternal usage and land cannot be sold or taken over. But often the villagers are scared that outsiders will not respect their rights and take their property away. The expert explained to us, land titling is not always beneficial to the villagers since it actually means a 60 years lease with the state. This lease will have to be renewed after 55 years, a necessity that the villager might not know about or be able to afford financially. An additional problematic is that nobody knows what will happen in 60 years (some villagers believe that the 60-

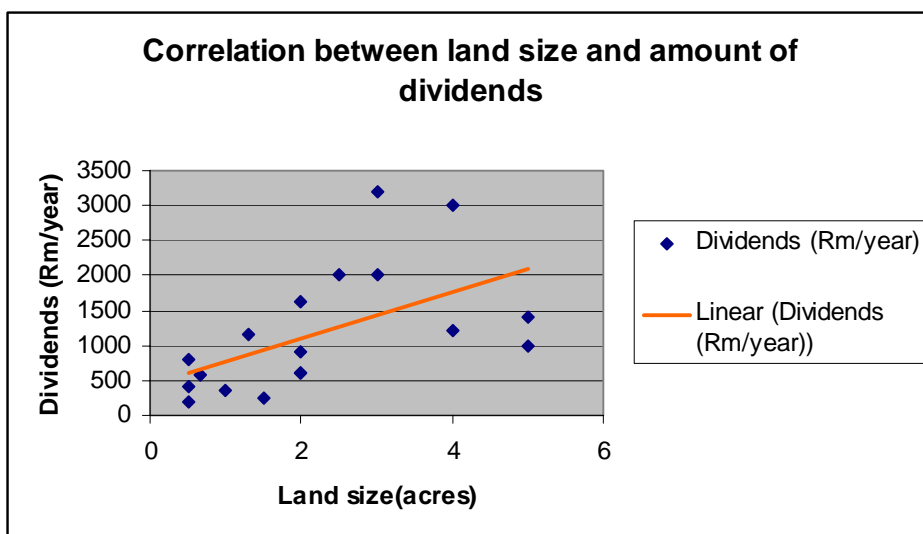
years lease does not apply to NCR land), so while the villagers hope for security and protection land titling might in the worst case bring the opposite.

SALCRA (Sarawak Land Consolidation and Rehabilitation Authority)

Rural development has been the core focus of the Malaysian economic policy since the independence in 1957 and through the 1990s (rural development model in Malaysia, 1997).

SALCRA’s tasks were mainly (i) the rehabilitation of unsuccessful state managed Schemes, (ii) the consolidation of unused government land fringing villages for the purpose of providing additional land to small farmers so as to enable them to possess economic size land holdings, (iii) youth land development program to develop unused marginal government land to provide land to unemployed rural youths and (iv) in situ development project (rural development model in Malaysia, 1997).

Only few households (2 out of 31) are involved in SALCRA as laborer, in fact we have been told that working in SALCRA is hard and the wage is low (see 3.2.3), while 18 out of 31 receive dividends from SALCRA. The dividends, as it is shown by the regression line in the chart below, are positively correlated to the land size.



In the discussion at the funeral gathering (see chapter 2) the family members expressed that they wished all of their land titled and developed by state projects such as SALCRA. Their explanation is that the agricultural practices of today are primitive and financially unsustainable and that a thorough modernization is needed. They wish to lease their lands and receive dividends while working in the city, returning to the village for special events and upon retirement.

They also commented that SALCRA choose only the best plots. According to them, the state only titles the land they want to include in a development scheme, leaving rocky, slope or hard accessible lands un-titled.

3.1.4. Concluding remarks

From our observations on the field and the interviews, we found out that the main changes occurred in agricultural practices during the last 40 years are: introduction of fertilizers, pesticides, hybrid seeds and the evolution in land tenure. Farmers still use the same tools for hoeing, planting and harvesting. All the work related to cultivation is done manually except for the process of de-husking, for which a machine with engine is used. Since NCR was introduced villagers started to be concerned about land tenure, willing their land to be titled. Since this can be achieved leasing the land to SALCRA it is likely that in the future more and more land will be allocated in that direction.

3.2. Livelihood strategies

Every community contains various livelihood strategies which correspond with its natural and social assets. Rural communities maintain or enhance their livelihood through diversification. Diversification means having a wide variety of on-farm and/or off-farm work activities for subsistence as well as income generation in order to survive or improve standards of living. It is a strategy undertaken to reduce risks by spreading out the options of activities to make a living of (Hussein and Nelson, 1998:3f). Having this in mind we investigate

- *How [do] agricultural activities contribute to the rural livelihood in Plaman Nyabet?*

And test our hypotheses:

- *Subsistence farming is important for food security*
- *Temporary employment is an important livelihood strategy*

In the end of this chapter we will assess the quality of the river water recognizing that the river is a natural asset determining for the natural and social livelihood.

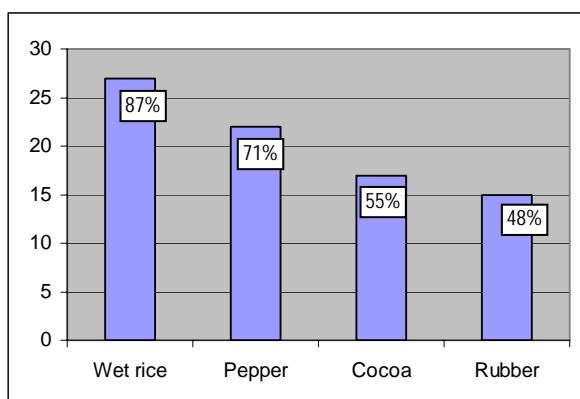
Initially we listed the different livelihood strategies to be found in the village. This data was gained through different methods such as interviews and household questionnaires.

Then we assessed their main purpose and divided them into two categories accordingly:

Main livelihood activities among Plaman Nyabet villagers:		
<u>Home consumption</u>	<u>Income generation</u>	
Wet rice	Cocoa	SALCRA dividends
Hill rice	Pepper	Off-village employments
NTFP	Rubber	Remittances
Forest garden	Fruit trees	Other
Fruit trees	SALCRA labor	

3.2.1. Agricultural production for home consumption

According to our questionnaire 27/30 households cultivate wet rice making this the most common agricultural activity in Plaman Nyabet followed by pepper, cocoa and rubber. Hill rice is cultivated as well but only for home consumption, and villagers inform that yields are low since no fertilizer and pesticides are added.



Number of households involved in the cultivation of the different crops

The cultivation of wet rice is mainly for home consumption and is processed in the village. The size of the rice fields cultivated by each household varies between 1 and 3 acres. The production is very time and labor consuming, which is reflected in the respect that the villagers show toward this cereal: rice cannot be thrown away even if it is old and without starch; it must be used or saved because it is the result of the hard work of the family, and even past generations. The cultural significance of rice is expressed in a prayer celebration before sowing and a thanksgiving festival after harvest, both being social festivities.

NTFP, forest gardens and fruit trees

Villagers, mainly women, collect NTFP⁸ in the form of wild berries, ferns, mushrooms and bamboo shoots, in the forest and along the fields surrounding the village. Most villagers also have home gardens surrounding the house and forest gardens in which for instance tapioca, sweet potatoes and pineapple are cultivated side by side cash crop trees as cacao and rubber and several kinds of fruit trees like durian, langsat, coconut and

banana. These products constitute a significant part of the villagers' food security and were often mentioned as the reason to which they didn't have to spend much money at the market.

Visiting a pepper plantation we were explained and shown how the farmer chose to apply the fertilizer he received for his cocoa plantation on to his pepper plantation instead since he considered this to be the better investment.

3.2.2. Agricultural production for commercial purposes

Villagers allocate their investment of labor and resources on the cocoa, pepper and rubber plantations depending on price fluctuations and government incentives. This means that the farmer's attention is directed to those plantations which are more remunerative. During a focus group discussion a farmer said that he would like to change cocoa with rubber because the latter is more resistant to diseases. But since he cannot get any subsidy for rubber he will keep the cocoa plantation in order to receive subsidies and plant the rubber trees in between. We experienced this same phenomenon when visiting a pepper plantation where the farmer would use the subsidized cocoa fertilizers on his pepper trees, explaining this as being a better investment.

Rice

Rice exceeding home consumption needs is sold to a middleman and the price depends on the rice variety⁹. Villagers don't consider rice to be their main source of income. As mentioned earlier farmers also receive a sales subsidy.

Cocoa

When cocoa as a cash crop was introduced in 1975 the sales price was very good and many villagers started producing. But by 1978 the price began to decrease. Due to low sales prices many producers have therefore abandoned or reduced their activities in the cocoa farm.



Pepper and cocoa seeds drying in the sun

The seeds are collected by hand and dried in the sun before being sold to a middleman who carries out the additional processing.

The 1975 price of cocoa was 10 RM/kg

The present price of cocoa is 3.6 RM/kg

The price of black pepper is 4.5 RM/kg and

the price of white pepper is 7.5RM/kg.



Pepper vines on dead support

Pepper is cultivated on hills.

The production of white pepper requires extra work because the seeds need to be soaked in water for a week.

Pepper was introduced in this area after the Second World War for commercial purpose.

In a household follow up interview we were explained that when farmers buy the fertilizer and pesticides themselves they don't make much profit, but they keep cultivating the crop hoping for prices to increase. Or they do as mentioned above; apply the fertilizers subsidized another crop.

Rubber

Rubber tapping is also a common practice. We have been told in informal interviews that since the price of rubber has lately increased some villagers who had abandoned the practice have begun to tap their rubber trees again. The present price of rubber is 4.8-5 RM/kilo. This example illustrates how the importance of various cash crops may change over time due to price fluctuations.

Fruit trees

Especially durian is cultivated for income generating purposes, but also banana, pine apple and other fruits are sold at nearby markets.

3.2.3. Other livelihood strategies in the village

Remittances

One of the income sources for people in Plaman Nyabet is the remittances from their children living and working in city. According to the information from the household questionnaire more than half (18/30) the households receive remittances ranging from 50 to 900 RM/month. There is also some financial assistance from the children in terms of providing grocery and food. (For elaboration on the significance of remittances see 3.3.6)

Off-village employment

Other livelihood strategies in the village involve different kinds of off-village employments. These can be permanent jobs in a nearby town allowing for the person to keep living in Plaman Nyabet, or temporary jobs taken in periods with less agricultural work load. We have been informed of some men working permanently as security guards, but the majority works temporarily as un-skilled carpenters or construction laborers in city. These jobs are considered as dangerous and villagers are not happy to do them, but would prefer farming if this could meet all their expenses. Since it often cannot, many see these jobs as unavoidable.

SALCRA oil palm plantation is another livelihood strategy both in terms of dividends from leasing their land or working as labor. From the data of the household questionnaire only two persons are employed in SALCRA. The reason villagers give for this is that the job is physically very hard and the wage as low as 14 RM/day which is less than half of the wage they can earn in city employments.

Most villagers are content leasing some land to SALCRA and are now counting on the dividends they receive although they consider them to be very low. Within the younger generation and migrated villagers, people would like to lease even more of their land to SALCRA in order to receive more dividends as that they have no current plans of farming that land anyhow.

Other strategies

As mentioned earlier, two people in the village own a rice processor. During a topic focused interview with one of the owners we were told that he earns roughly 250-300 RM/month and that his investment in the processor was covered many years ago. Another source of food and income is represented by the fish ponds. The biggest establishment is composed by four big ponds (each approx. 15x25m) connected to two rivers respectively serving as source of new water and natural sewage for grey water. The fish ponds are both for home consumption and income generation; fish is sold at the

price of 5 RM/kg. During Christmas time this household earns 500 RM from the sales of the fish.

Risong River and its contribution to rural livelihood of Plaman Nyambet

Water is a source of life and a basic necessity for human existence. In Plaman Nyabet the villagers rely on the river for many activities i.e. laundry, refreshing baths, fishing, and to flood the rice fields. An informant also told that the water authorities in Serian sometimes ration the water supply to the village, especially during the dry season. In these periods the villagers have to rely on the river for drinking water. We therefore decided to analyze the water quality.

The main objectives of our water quality analysis were:

- To determine the status of river water quality at three different locations as it stretches through the village
- To compare the water samples from downstream (WS2 & WS3) and upstream before the river flows through the village (WS1)
- To relate the variation in water quality to household activities (e.g. washing or sewage system)
- To determine whether the river is fit for the various activities
- Analyze the tap water to determine the level of microbial.

Water sampling results:

Microbial Content(CFU in 100 ml of water)	WS1	WS2	WS3	WS4
TCC (CFU)	1160 - 1240	1270 - 1300	1150 - 1160	0
FCC (CFU)	570 - 780	1220 - 1635	3000 - 3630	0

In the above diagram, TCC represent Total Coliform Count, while FCC represents Fecal Coliform Count. The quantity of these organism present in the water indicate if this has been in contact with feces or waste. CFU means 'Colony Forming Unit'. The result of our analysis on each of the 3 sampling points along the river indicates that the water quality decreases (microbial content increases) as it goes downstream. This proves that the surrounding households and agricultural activities have adverse impact on the river quality. Our data show that FCC increases from approximately 570-780 in WS1 to 1220-1635 in WS2 and finally 3000-3630 in WS3. The increase in TCC and FCC shows that the village has a negative impact on the water quality. Even if the water analysis showed that the level of TCC and FCC attested over the limits given by the WHO there is no sign of illness among the villagers. The analysis of tap water (WS 4), instead, demonstrated that this source of water is safe to drink in fact the amount of TCC and FCC stands under the limit posed by WHO of 0 CFU/100 ml.

Soil

Soil plays a very vital role in agriculture. The structure and quality of the soil determines the kind of crops to be planted. Since the main livelihood activity of the people in Plaman Nyabet is agriculture, we decided to identify the soil types in relation to the cultivated crops.

Based on our findings, we discover that particular crops are planted in areas where the soil is suitable for its adaptability, for instance wet rice grow well in mineral soils or clays that have a good water retention capacity in contrast to pepper which requires good internal drainage to avoid root diseases. Thus most pepper farms are located in areas with sandy soil to enhance good drainage and a high groundwater table that is naturally associated with the floodplains. Cocoa and rubber farms are also located in areas with both red-yellow podzolic and alluvial soil types. Lots of organic matter (litter from cocoa and rubber) can be observed as such giving the surface soil a dark and beautiful structure not very sticky but loose. Digging down about 20 cm a different type of soil (yellowish clay) with gravel was also found.

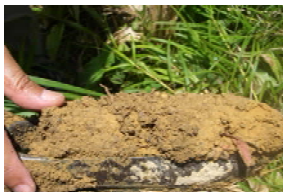
THE SOIL GROUP

No.	Soil Group	Family
1.	Red Yellow Podzolic Soil	Merit Family
2.	Alluvial Soil	Seduuau Family
3.	Gley Soil	Bijat Family

The three types of soil found in Plaman Nyabet.

Red yellow podzolic and alluvial soils are associated with crops like cocoa, rubber, and hill rice, while gley soil is associated with wet rice.

RED YELLOW PODZOLIC SOIL



ALLUVIAL SOIL



GLEY SOIL



The soil samples are being analyzed by our Malaysian counterpart and the results are lamentably not available yet.

But we can make the preliminary conclusion that crops are cultivated in areas where the soil structure and content is suitable for the crop's adaptability and growth.

3.2.4. Concluding remarks

The economy in Plaman Nyabet is based on agriculture and remittances and people choose within different available livelihood strategies to meet their financial and non financial necessities. The most important livelihood activity in terms of food security is rice cultivation. NTFP, forest garden produce and fruit trees also provide important foodstuffs and lower market expenditures. Cash crops like pepper, cocoa and rubber are cultivated to produce cash income, and people in the village have a dynamic and flexible strategy of focusing on different cash crops according to price fluctuations and government incentives. Non-agricultural activities including remittances and off-village employment are carried out to generate a higher cash income for the household, assuring material goods and financial security that the farming can no longer offer. Risong River acts as a facilitator to support livelihood activities in Plaman Nyabet. The river is used for flooding the wet rice fields through the formation of trenches, fishing, occasionally drinking and cooking to support life. Finally the river also has cultural and recreational significance.

3.3. Migration

In this chapter we will assess the significance of out-migration as well as return-migration by asking

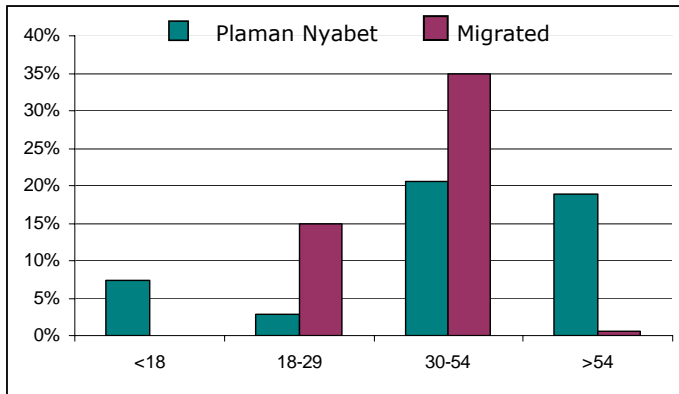
- *How does migration affect the current and future agricultural activities? and*
- *What are the possibilities for the youth in sustaining a livelihood?*

These research questions have together with the following working hypotheses guided our study of migration in Plaman Nyabet.

- *Lack of labor is a significant constraint for agricultural activities*
- *Youth do not see farming as a viable livelihood strategy*

3.3.1. The extent of migration and the meaning of home

From our 28 household questionnaires representing 175 people from two generations ranging from 8-85 years we had learned that one half of the population has migrated from Plaman Nyabet.



The table shows the percentage within each age group living in Plaman Nyabet and the percentage within each age group who has migrated. This reveals that the half who has migrated is between 18-54 years while people from the age of 55 live in Plaman Nyabet. Youth younger than 18 years is considered to live 'at home' even though they actually study at a boarding school.

In a family all the members were gathered in Plaman Nyabet¹⁰ after attending a funeral and we used this situation to have four brothers in their forties and their family members help us draw their family tree (see Appendix V). Using the tree we pointed to each name and asked where he/she was living. To our surprise this exercise revealed that almost none of them live in Plaman Nyabet although the informants had earlier referred to the village as the home of them all. We asked how this could be, so they explained to us that Plaman Nyabet is their *home*, the place where they have their ancestral land and their family's house(s) while Kuching, Serian, or Miri, is the place where they work and *make their living*. It is very important for them to come back to the village at least twice a year; at Christmas and for the Gawai rice festival in June. This method made us ask questions to perceptions that we were hitherto unaware of, confirmed our questionnaire data on migration and made the extent of migration within this particular family visual to us.

3.3.2. The impact of migration on agricultural activities

Our household questionnaires show that one half of the households consist of elderly parents living alone in Plaman Nyabet while their grown up children have migrated. Elderly informants lamented that there was nobody to farm the land upon their retirement since their children lived elsewhere. And some middle aged informants told us that they had abandoned their pepper, cocoa and rubber farms because the financial outcome was too low compared to a job as security guard or carpenter in town. It is possible though, that people return to their agricultural activities like some migrants return to Plaman Nyabet upon retirement and take up the farming of their land. Also some young men expressed wishes of returning after retirement to take up farming; this will be further elaborated in 3.3.5

We did not observe or hear about shortage of land, only about a shortage of hands.

We only met one family with as little land as ½ acre, which was leased to SALCRA. In order to farm they had to rent additional land through Adat¹¹. This household did not complain about the land shortage, but commented upon the workload since their migrated daughters did not assist them in farming.

According to a focus group the shortage of hands are met by the application of fertilizer and pesticides, the argument being that in old times people could farm without applying fertilizer and pesticides because the entire family was involved in farming, while nowadays it is necessary to apply fertilizer and pesticides because it requires less manpower.

3.3.3. The youth

In order to answer the research question *what are the possibilities (for the youth) of sustaining a livelihood?* and challenge our working hypotheses *Youth do not see farming as a viable livelihood strategy* we interviewed the 21 youth we could find in the village¹² on their ambitions for the future. We found out that one half of each gender group would prefer to live in Plaman Nyabet. What is really interesting, though, is that their professional ambitions do not point toward farming, but toward occupations not found in the village

such as; police officer, factory supervisor, mechanic, government officer, teacher¹³, doctor, nurse, business man, and fire fighter captain¹⁴. Recognizing the need of migration, all the youth expressed wishes of returning to Plaman Nyabet upon retirement, the young men to take up farming. To us that sounded very physically demanding and raised questions concerning physical strength and inherited knowledge, such as 'how can you be a rice farmer at 55¹⁵ if you have spent your life sitting in an air-conditioned office, and 'how can you know how to do if you have never tried?'. To this the young men laughed and admitted that they would probably just come back to live, and not to farm, since farming is physically hard. To farm while being young was a

livelihood strategy that 4/9 boys and none of the girls would consider. The rest described farming as being *backwards* in the sense of old fashioned and primitive, too low in income generation, and as being an activity for old people.

As before mentioned, today several men are retired from the army and have taken up farming upon their return to the village. But it should be considered if this has been possible because they had built up a physical strength and inherited knowledge on farming practices while young which the youth of today have not to the same degree. None of the young men were helping their parents harvesting beyond carrying some rice sacks for them on their motor bikes. Instead they were watching TV and waiting for the five o'clock soccer match while young women were rearing nieces and nephews.

3.3.4. Their parents

Knowing the children's ambitions we decided to include the parents' ambitions on behalf of their children by raising the issue during a family focus discussion. In this discussion parents and children in the age of 15-28 took part. The parents did not express any wishes of their children becoming farmers, but rather get a good education and choose the line of work that will make them happy, whether that means living in Plaman Nyabet or elsewhere – as long as they don't forget their roots in Plaman Nyabet which is where they will always have their *home*. The children agreed on the importance of Plaman Nyabet as home and of not forgetting their roots and ancestors. Likewise, when we take another look at the household questionnaires we can see that only 6/84 migrated persons are as far away as Peninsula Malaysia or Sabah which can indicate that people choose to stay as close to their *home* as possible. In interviews with a newly finished teacher, a nurse and a government official all waiting to receive placement, they expressed wishes to go to Serian or Kuching and *not too far away*.

3.3.5. Return migration

To return to Plaman Nyabet after retirement are for the youth a wish for the future while for other villagers it is now reality. Some of these retired people are now farming, as the deputy, or farming part time, as the owner of the rice-processor. To the young men this initiative serves as inspiration and example of migration as a source of money and innovation that can facilitate an improvement of living standards in the village. Two young men explains us that the new processor brought competition and lower prices to the village where the owner of the only rice processor could charge what he wanted. They explain that a cheaper service can be offered because the owner subsequently can count on more clients. The owner of the old processor does not compete because he is old fashioned and doesn't understand the 'market forces'. These same young men would like to study agriculture at the university, work for years in big scale farming projects, and then return to develop and modernize Plaman Nyabet and bring higher living standards.

3.3.6. Remittances

Another outcome of migration is remittances. According to the headman 30/80 households are mainly sustained by remittances from migrated family members. We experienced it as a difficult task to assess the extent and significance of remittances as here illustrated: One household reported to receive only 50 RM/month from a daughter working at a market in Kuching, but when we asked about the TV, the stereo, and other electronic luxury goods, we were told that they were given to them by their son in law in Kuching. Another household proudly told that they don't need to receive anything from their migrated children. But they also told us that when they go to the market their children pay the groceries (50-200 RM) thus not including this money as remittances. We got a more general response to the significance of migration in one of our focus group discussions where it was argued that migration generate a higher income to the household in Plaman Nyabet since migrated children can send money. So even though it is difficult to assess the extent of remittances we can from our data conclude that remittances is a significant outcome of migration.

3.3.7. Concluding remarks

Migration is guided by dialectic of push and pull. People are pushed from the village by low economic expectations and hard physical work and pulled to the urban areas by notions of modernity, an easier living and economic security. But they are also pulled back by their perception of the village as *home* and desires of developing their place of belonging and improving the local living standard.

For the sake of perspective we emphasize that migration is an increasing trend, not a new one. Within the Bidayuh cultures women have often migrated to their husband's village upon marriage. Likewise, since the Native Customary Land Code of 1959 when community land was surveyed and prevented further territorial expansion, some sons have had to migrate in order not to divide the family land into plots so small that no one in the family would benefit. This was explained to us by the deputy and a family. It should also be kept in mind that this village was settled in the beginning of the previous century by a group of pioneers from Kampung Kakeng searching for a new territory of their own with more and good agricultural land.

4. Discussion of methods

In this chapter we follow up on some of the methods that we have referred to in this report and discuss the type of data they have created and the significance these data have for our analysis.

Focus group discussions

Saturday evening we had invited the villagers to come to the community hall where we served crackers and tea. We divided the arriving villagers into four groups according to our research questions so that research question 2 was discussed by middle aged persons and research question 4 by young persons¹⁶. Unfortunately fewer people than anticipated showed up scattered through the course of the evening (and hardly any women) but we managed to start the groups as people arrived. It was impossible to facilitate a discussion so the method worked more as a group interview, which also provided fruitful data answering our research questions. The method moreover served to create rapport and make our project and study objectives known to more villagers. Since it was impossible to make people discuss our questions, and we later tried the same method with more success within a family which discussed lively but always very politely, it is worth considering if a method like focus group *discussion* is equally useful in all cultures. - Or if it should rather be named focus group *interview*.

Kinship chart

After attending a funeral we used the family setting to create a kinship chart to which a great number of family members participated. Since the family was big a common memory was used to remember names and sequence. A lot was learned from this exercise¹⁷ but especially the generational difference towards migration as a livelihood strategy was made visual and helped us understand the extent of migration within this family. The method and the questions we asked to the drawing afterwards, revealed to us their perception of *home*. First they had told us that they all lived in Plaman Nyabet, but when we pointed to each person on the chart and asked where they lived the answer was Kuching or another city. This was a big surprise that led us to ask further questions on this subject and taught us that even though families live for years in Kuching, they still count Plaman Nyabet as their *home*; the place where they have their ancestral land and their family head quarter, where they will make sure to come twice a year and where they wish to return to upon retirement; and Kuching as the place they make their living.

4.1.1. Triangulation of quantitative and qualitative data

Quantitative data have a high degree of reliability since they include a great number of people, in our case 31/78 households (40%), and are easily compared due to the format of the questionnaires being the same for all respondents. On the contrary, qualitative

data have a high degree of validity since they are more sensitive to particular settings and circumstances as questions can be open ended and follow the informant (Babbie 2002).

Since quantitative data are more reliable but less valid, and qualitative data are more valid but less reliable, a triangulation of methods within these two categories offers a higher degree of reliability and validity than otherwise.

In order to illustrate this dynamic we will present two examples with different outcomes; one in which more valid data was created and one questioning data.

Example 1: In order to assess changes in agricultural practices we used several overlapping methods. The question was included in our household questionnaire and was always answered 'no changes, only that now we have fertilizer and pesticides'. We then carried out a focus group discussion with five male farmers and semi-structured interviews including village time line with special resource persons; the deputy and two old women and two old men. The focus group discussion and the interviews confirmed that many practices haven't changed; many tools and methods are still the same, besides the use of fertilizer and pesticides. But in these interviews the introduction of hybrid seeds as well as changes in land use and various development schemes was added. Added to this is also direct observation which helped us know which questions to ask. This shows that by applying more qualitative methods the openness can create more elaborated answers and thereby additional data.

Example 2: In our household questionnaires we ask the household head "do you own any land?" and if 'yes'; "how much?". People were very responsive and we got answers ranging from ½ acre to a 100 acre. Later, during a transect walk, we learned about a family consisting of four siblings sharing land through a system of rotation; they would interchange plots of uneven size every five years. Further, during the family focus group discussion, we were made aware that the members spoke of 'my' land and 'our' (family) land without any clear distinction causing great confusion to us. These two events raise numerous questions to the validity of the outcome of our household questionnaires since we were not open to different perceptions of individual and collective ownership. The answers that we have gotten might all answer in terms of individual lands, but our qualitative data shows us that we can not know this for sure. Were we to repeat this field study we would now be able to formulate the questions in a manner more open to local perceptions of land ownership.

It has become clear to us how different methods create different data and subsequently how important it is to triangulate data.

5. Conclusion

In Plaman Nyabet the agricultural practices can be placed within a continuum of change and continuity ranging from no change of original practices to entirely new practices, themselves to new situations and innovations and learn to rely (or even depend) on them, as they do now on fertilizers, pesticides and subsidized hybrid rice.

When it comes to livelihood strategies in Plaman Nyabet our analysis shows that people prove a high degree of agency within the structural limits they live under i.e. by receiving fertilizer from one subsidized crop and decide to apply this to another not-subsidized crop giving a higher financial output. Or by deciding to plant rubber trees in between cocoa trees (as a long term investment) so that the cocoa fertilizer serves the rubber trees as well.

These two examples illustrate how farmer's decisions and every-day practices can have as strong implications for land use strategies as political decision making (Banerjee and Bojsen 2005).

Since there is high probability that out migration will continue most likely increase we believe that small scale agriculture will be less and less important over time and will be replaced by big scale development schemes such as SALCRA.

To stay and farm in the village is perceived as backwards and primitive as opposed to an educated life in the city and younger villagers are thereby pushed away from this rural backwardness and pulled into the urban modernity. But unless their 'present mind-set' is changed permanently, these migrants might feel so bound to their 'roots and history' and not least their perception of *home* and belonging that they will be pulled back to the rural village again, before or after retirement and the knowledge gained in the city could be used to create job opportunities for younger generations in the village. This development would definitely change the nature of Plaman Nyabet of today, as the Plaman Nyabet of forty years ago was also changed.

6. Perspectives on development

Embodied in the notion of change is the notion of development bringing modernization. The calculus can be illustrated like this: primitive society + development => modern society. A means to development is a directed action based on a particular understanding of 'modern' often inspired by Western societies such as the USA or Europe. In a SALCRA statement the overall aim of SALCRA is "the reduction of poverty among backwards communities" through "raising the long term productivity and optimum utilization of ... land" (Jitab et al. 1989 in Ayob et al. 1990 quoted in Banerjee and Bojsen 2005). In addition, a SALCRA report states that "Root, socio-cultural factors and history have

powerful influence on [the participants'] *present* mindset" (SALCRA/Sarawak Plantation Services, undated, quoted in Banerjee and Bojsen 2005, emphasis added). Thence, in Sarawak the land development policies are not merely an issue of creating growth through natural resources, but also of what is conceived as being primitive and backwards. Consequently, when farmers negotiate land use strategies they also negotiate the position given to them within the Sarawak policies as well as within their own understanding (Ibid: 20).

This dynamic is also influence people's choice of alternative livelihood strategies such as off-farm employment and migration. To stay and farm in the village is perceived as backwards and primitive as opposed to an educated life in the city and younger villagers are thereby pushed away from this rural backwardness and pulled into the urban modernity. But unless their 'present mind-set' is changed permanently, these migrants might feel so bound to their 'roots and history' and not least their perception of *home* and belonging that they will be pulled back to the rural village again, before or after retirement. This development would definitely change the nature of Plaman Nyabet of today, as the Plaman Nyabet of forty years ago was also changed. It is reasonable to imagine a village without private farmers since young land inheritors wish to have their land titled and developed by schemes while they work in the city and receive the dividends. The question is how many can work in the cities, doing what, and how SALCRA will get the laborers they need in order to produce.

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Appendices

Appendix I

Questionnaire for Villagers

Name of Interviewers:

Date / Time:

A. Respondent Particulars

Name: House No:

Age:

Occupation:

How long have you been staying in this village?

.....

B. Household Questionnaire

Household members (by title)	Age	Highest Education Level 1=None 2=Primary 3=Secondary 6=Higher	Occupation 1=Employer 2=Employee 3=Self Employed 4=Housewife 5=Farmer 6=Unemployed	Place of Residence	Remittances

C. Land Tenure and Land Use Issue

1. Do you own any land?

Yes: (.....acre/ha) No:

2. That land is used for (area in acre/ha):

No.	Farming activities	Acre/ha	Bags/Kg
1	Hill Padi		
2	Wet Padi		
3	Rubber		
4	Pepper		
5	Poultry		
6	Cocoa		
7	Others (specify) i.		
	ii.		
	iii.		

3. a. Do you work in SALCRA? Y / N

b. Do you have any land leased to SALCRA? Y / N

c. How much land did you lease to SALCRA? acres

d. Do you receive any dividends from SALCRA? Y / N (RM)

4. What do you do with the rest of the land?

.....

5. How long have you worked on your farm?

a.	< 10 years
b.	10 – 15 years
c.	16 – 20 years
d.	> 20 years

6. How did your parents practice agriculture?

.....

7. Are you still doing the same practice now? Y / N

.....

8. If no, how did you change? (crops, fertilizer use, etc.)

.....

9. How often do you go the market?

Appendix II

Crop Calendar

Month/Crop	Hill paddy	Wet paddy	Pepper	Cocoa	Rubber
January					
February	Harvesting	Harvesting			
March	Harvesting	Harvesting			
April			Harvesting	Spraying of cocoa with pesticides	
May			Harvesting	Fertilizer is applied	
June	Preparation for planting begins				Rubber tapping
July	Planting preparation continues	Preparation of land for planting and nursery		Fertilizer is applied for the 2nd time	Tapping
August	Sowing	Transplanting commences		Harvesting starts	Tapping continues
September				Harvesting continues	Tapping continues
October		Weeding		Harvesting continues	Tapping continues
November		Weeding		Peak time Harvesting	Tapping continues
December					Tapping continues-ends

Appendix III

Individual Time Schedules

Farzaneh Kazemi Yazdin (Iran)

Monday 6/03/06	Arrive to the village on 11:30. Informal interview with the headman at his house. Unstructured interview with headman and his deputy in the community hall.
Tuesday 7/03/06	Divided into 3 groups with Malaysian counterparts for transect walk. In my group, towards SALCRA. On the way visiting hill rice farm, pepper garden and SALCRA. On the way back we visited a wet paddy farm and an informal interview with farmers at the field.
Wednesday 8/03/06	Presentation of the joined synopsis with Malaysian counterparts in Padawan municipal hall.
Thursday 9/03/06	Making the map of the village. Making the household questionnaire, crop and activity calendar.
Friday 10/03/06	Choosing the 31 sample households. Transcribing some of the interviews into the computer. Dividing to 5 groups to carry out household questionnaire. In my group carry out 2 questionnaires.
Saturday 11/03/06	My group identified 2 old women for semi structured interview. Making youth questionnaire. Arranged football match to get an opportunity to talk to youth. Conducting some youth questionnaires with young girls. Community meeting with villagers. Divided into 4 groups according to the research questions and made 4 focus groups to discuss the research questions. In my group with Oyo and Richard discussing research question 4 with youth.
Sunday 12/03/06	Day off
Monday 13/03/06	My group with the headman deputy as our guide went to identify water and soil sampling points. I did participant observation in the rice field. Continued the household questionnaire in my group
Tuesday 14/03/06	My group walked with a young village woman and her nephew (a boy of 7 years old) to her parent's rice farm. Transect walk with 2 young village women to the fish pond and pepper garden. In my group we Finished the household questionnaire.
Wednesday 15/03/06	Transcribing the transect walk on the second day and computerizing the questionnaires conducted by me. Making the guideline questions for the follow up interviews and topic focus interview on the rice processor.
Thursday 16/03/06	Transcribing interviews. Attending the funeral of an old lady passed away the day before. Discussion with the family of the passed away lady and making their family tree
Friday 17/03/06	Working on the presentation of the next day on our findings. I returned to Copenhagen.

Gaia Luziatelli (Italy)

Saturday 4/03/06	Arrival in Kuching at 7pm. Dinner with the rest of the students and teachers from Denmark
Sunday 5/03/06	Morning free. First meeting with Malaysian group in our hotel at 2pm. It is necessary to modify our synopsis that focused on homegardens and design a common project proposal based on our preliminary findings in Plaman Nyabet.
Monday 6/03/06	Arrived in the village at 11:30. Informal interview with the headman at his house. Unstructured interview with headman and his deputy in the community hall.
Tuesday 7/03/06	Divided into 3 groups with Malaysian counterparts for transect walk. My group visited 'forest gardens' and rice fields. Participant Observation in the field shed..
Wednesday 8/03/06	Presentation of the joined synopsis with Malaysian counterparts in Padawan municipal hall.
Thursday 9/03/06	Creating the map of the village: divided in 3 groups and starting from the community hall, I mapped the area on the left hand side of the street that leads to the river. Prepared household questionnaire, crop and activity calendar.
Friday 10/03/06	Choosing the 31 sample households. Transcribing some of the interviews into the computer. Divided in 5 groups we carried out household questionnaires. In my group we could carry out 1 questionnaire.
Saturday 11/03/06	Making youth questionnaire. Arranged football match to get an opportunity to talk to the youth. Conducting some youth questionnaires with young girls. Community meeting with villagers. Divided into 4 groups according to the research questions and made 4 focus groups to discuss the research questions. In my group discussing how does agricultural activities contribute to the livelihood of the people in Plaman Nyabet?
Sunday 12/03/06	Day off
Monday 13/03/06	Semi structured interview with an old lady to make the time line of the village. Continued the household questionnaire in my group
Tuesday 14/03/06	My group walked with a young village woman and her nephew (a boy of 7 years old) to her parent's rice farm. Transect walk with 2 young village women to the fish pond and pepper garden. In my group we Finished the household questionnaire.
Wednesday 15/03/06	Transcribing the interviews and computerizing the questionnaires conducted by me. Making the guideline questions for the follow up interviews and topic focus interview on the rice processor.
Thursday 16/03/06	Transcribing interviews. Attending the funeral of an old lady passed away the day before. Discussion with the family of the passed away lady and making their family tree
Friday 17/03/06	Working on the presentation of the next day on our findings.
Saturday 18/03/06	Presenting the results of the field study

Jude Emmanuel Kebuma (Cameroon)

Wednesday 8/03/06	Arrived at Plaman Nyambet, (10:30pm) informal briefing from Andreas and the Malaysian counterparts (Boys)
Thursday 9/03/06	Village walk in a group with an aim of having an overview of the village for drawing a village map. Carried out some preliminary interviews with six different household head. Making of the household questionnaire, crop and activity calendar
Friday 10/03/06	Choosing of the households to be used as samples for our questionnaires. Transcribing some of the interviews into the computer. Dividing to 5 groups to carry out household questionnaire. In my group carry out 2 questionnaires
Saturday 11/03/06	Making youth questionnaire. Arranged football match to get an opportunity to talk to youth. Conducting some youth questionnaires with young boys. Community meeting with villagers. Divided into 4 groups according to the research questions and made 4 focus groups to discuss the research questions. I was in group 2 together with Millaa and Silla we focus on agricultural change within the last 40years
Sunday 12/03/06	Day off
Monday 13/03/06	Transcribing information gotten from the focus group meeting to the computer with millaa, We were also assigned to carry out semi structural interview with an old lady, but unfortunately she wasn't in. I did participant observation in the Palm plantation and rice field. Continued the household questionnaire in my group
Tuesday 14/03/06	Transcribing of information to the computer gotten from the household questionnaires together with Milla and Salmah they both thought me how to use SPSS to analyze data. Carried out water analysis together with Malaysian students. Did the last interviews for the household questionnaires with my group members.
Wednesday 15/03/06	Transcribing information from the water sampling and working with SPSS and simultaneously Imputing data from the questionnaires conducted by us.
Thursday 16/03/06	Took part in the Soil sampling together with the Malaysian students, Creating an SPSS data base for household questionnaires for our subsequent analysis together with Millaa and Salmah.
Friday 17/03/06	Creating a data base for our youth Questionnaires and imputing the data in SPSS with Millaa and working on graphs for our presentation the next next day. Final farewell dinner with the villagers, made a small speech to show our appreciation.
Saturday 18/3	We presented our findings to our facilitators and the three other groups (final presentation). Joined the Danu group in their farewell party
Sunday 19/3	Attended a farewell dinner for all in Kutching and delivered a short speech to show our appreciation and a big THANK YOU to our facilitators.
Monday 20/3	Return to Copenhagen

Maria Nielsen (Denmark)

Saturday 4	Arrival at Kuching
Sunday 5	Pre-fieldwork briefing, first meeting with Malaysian group. We decided to discard synopsis and design a common project proposal based on our preliminary findings in Plaman Nyabet
Monday 6	Arrival at Plaman Nyabet. Official welcome in community hall. Preliminary interview of headman by female students. Group evening meeting. My group interviewed deputy headman. Common round up of interviews and first day's impressions
Tuesday 7	Transect walk in group going to wet rice fields and forest gardens with 2 informants. Informal interview with school head master and farmers harvesting rice. After lunch meeting to prepare common project proposal and presentation.
Wednesday 8	Presentation of common project proposal, Padawan Council
Thursday 9	Morning group meeting, coaching by Dr. Siti. Draw village map, my group went to the school and church area; informal interview with school head master. Designed household questionnaire (HHQ) and ranking of livelihood strategies.
Friday 10	I transcribed data from transect walk and interviews. We finished questionnaire and decided sampling strategy. We divided into 5 groups for HHQ interviewing and took off. My group interviewed 2 HH. Evening round-up meeting.
Saturday 11	Prepared for soccer match at 5 pm and community meeting at 8 pm. Lecture on sampling by prof. Torben. Design of group activity calendar. Designed youth questionnaires. Soccer match and youth interviews, I interviewed 4 girls. Community meeting with focus group on research question, in my group question 3.
Sunday 12	Day off. Late evening meeting with professors
Monday 13	Presentation of data from focus groups. I interviewed Mr. Robert on NCR and land titling issues. Split into groups, my group designed interview guides for interviews with elderly people and elected informants. Interviewed an old lady. Did 3 HHQ. Transcribed interviews
Tuesday 14	Transect to rice fields with a young woman; informal interviews with farmers. After lunch my group went to fish ponds and pepper farm. Did 3 HHQ. Transcribed interviews and questionnaires.
Wednesday 15	Transcribed HHQ answers. Designed follow-up interviews with specially elected people. We are informed that an old lady has died and we go to pay our respect. 24 hours of mourning, taboo to leave village. Follow-up interview of the owner of the rice-processor. Attends and evening birthday.
Thursday 16	Attend old lady's funeral and subsequent family gathering. We do family tree and family focus discussion. Last HHQ. Interview transcription. Evening gathering for all groups in MP's house.
Friday 17	It is my birthday and my group has cake and presents for me. Prepare next day's presentation; transcribe HHQ and analyze data. Villagers come at 8 pm for a small diner and thanksgiving. We all gave speeches and had a nice evening. We could not celebrate because of the morning period.
Saturday 18	Presentation of preliminary findings, Padawan Council. Gayia and I spend the evening celebrating in Sadir

Appendix IV

Water sampling results

Sampling point	Observation
WS1	1. River flows slowly. 2. Width: 6m. 3. Open area. 4. Depth: 3'
WS2	1. River flows slowly. 2. Width: 6m. 3. Open area. 4. Depth: 3'
WS3	1. River flows slowly. 2. Width: 6m. 3. Shaded by bamboos and small trees. 4. Depth: 3'

In-situ tests

Sample point		pH	Conductivity	Dissolved Oxygen (D.O)	Temperature °C
WS1	Surface	6.00	55 μ s	6.41	27.7
	Bottom	5.85	54 μ s	6.31	28.1
WS2	Surface	6.06	58 μ s	6.85	27.7
	Bottom	5.48	57 μ s	6.65	27.7
WS3	Surface	5.11	59 μ s	6.80	27.7
	Bottom	5.11	58 μ s	6.69	27.6

Turbidity

Sample point	1 st reading (FTU)	2 nd reading (FTU)
WS1	5.95	5.86
WS2	10.67	10.36
WS3	5.70	5.98

Remarks

- Media used for TCC - M-Endo, FCC - M-FC.
- For control - 100 ml of tap water - TCC & FCC.
- 100 ml sterilized water - TCC & FCC.
- Incubation period - start: 1.45 pm. TCC - 37° C
- end: 6.00 a.m. FCC - 44° C

COD (Chemical Oxygen Demand) mg/l

Sample	1 st reading (mg/l) 5 minutes	2 nd reading (mg/l) 6 minutes	3 rd reading (mg/l) 8 minute	4 th reading (mg/l)
Blank	0	0	0	0
WS1	2	3	1	0
WS2	1	2	1	0
WS3	1	2	1	0

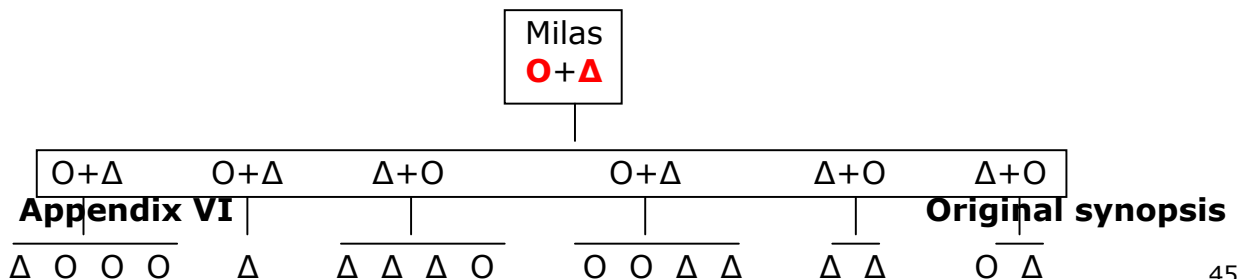
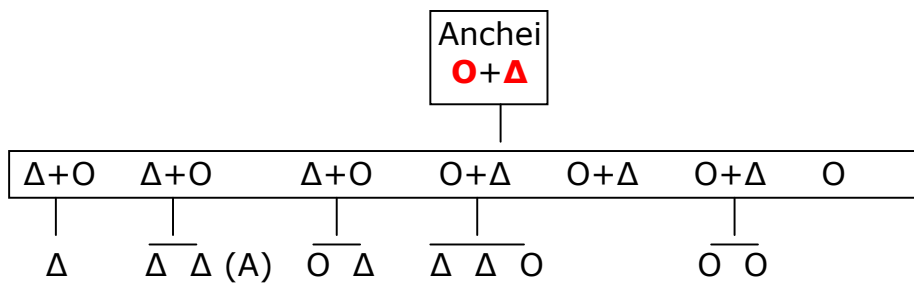
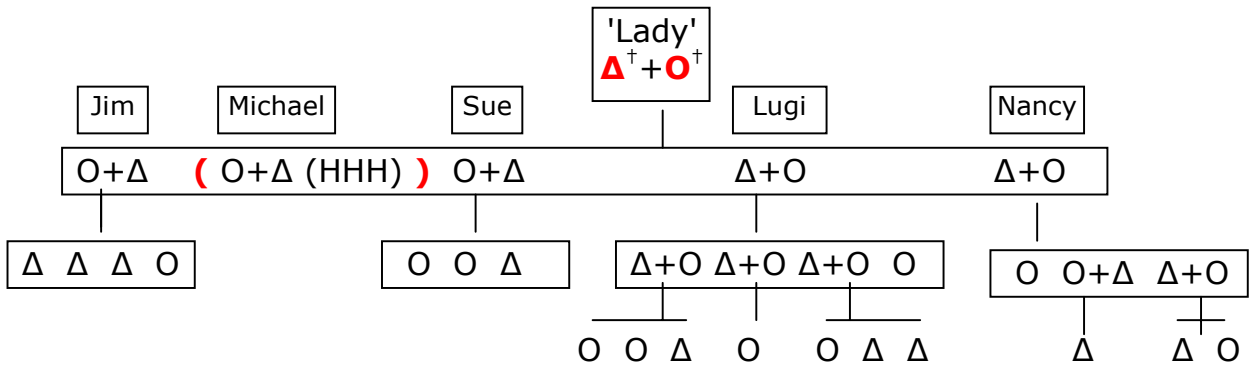
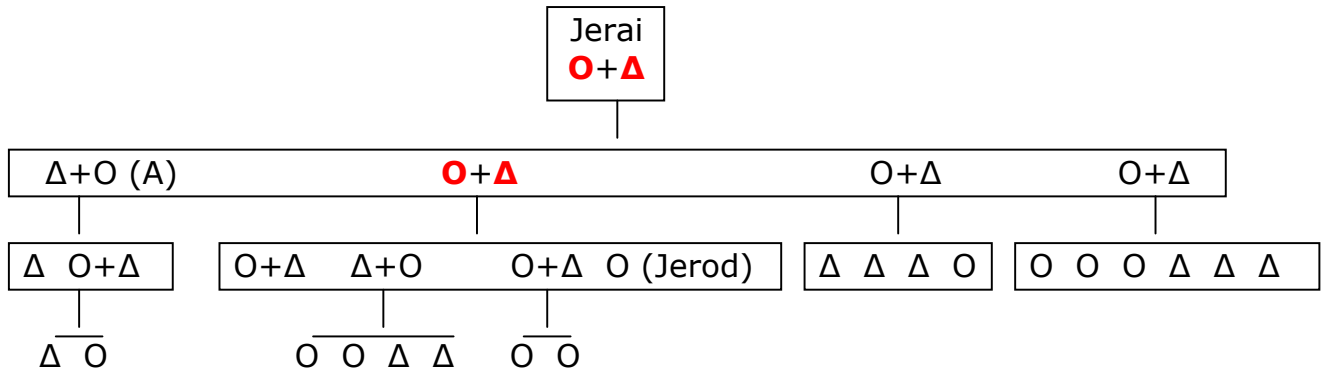
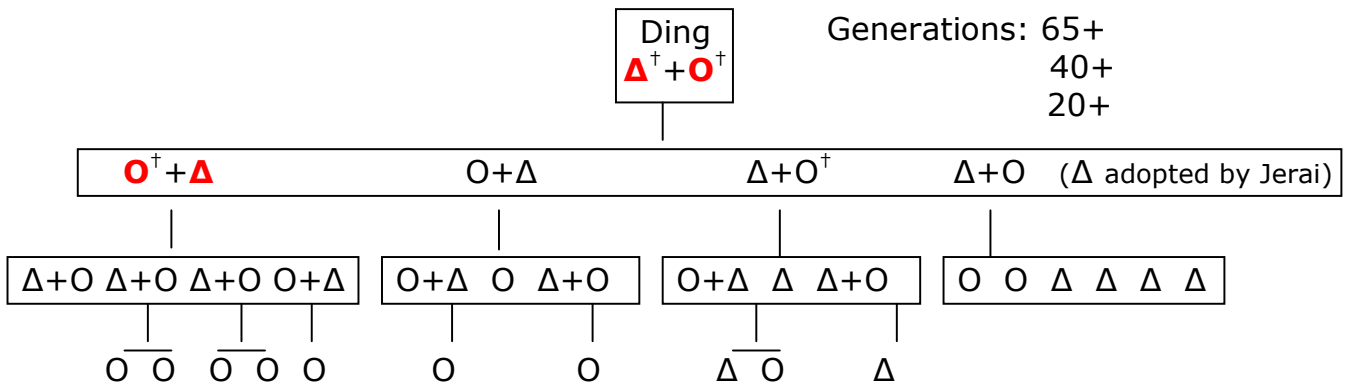
Nutrient Content mg/l

Sample	Nitrogen, Ammonia (NH ₃ -N)	Phosphorus Reactive (PO ₄ ³⁻)	Nitrate (NO ₃)
WS1	0.0366 mg/l	0.1467 mg/l	0.088 mg/l
WS2	0.0488 mg/l	0.07498 mg/l	0.264 mg/l
WS3	0.0366 mg/l	0.20538 mg/l	0.044 mg/l
WS4	0.00 mg/l	0.07824 mg/l	0.088 mg/l

TSS (Total Suspended Solid) mg/0.5 l

Sample	Berat membrane filter (g)
WS1	0.0790 g
WS2	0.0808 g
WS3	0.0806 g
WS4	0.0826 g

Parameters	WS1	WS2	WS3	WS4
Physical Properties				
pH value	5.93	5.77	5.11	N/A
Temperature (°C)	27.9	27.7	27.7	N/A
Turbidity (FTU)	5.91	10.52	5.84	N/A
Conductivity (μs)	54.5	57.5	58.5	N/A
TSS	N/A	N/A	N/A	N/A
Chemical Properties				
D.O.	6.36	6.75	6.75	N/A
B.O.D.	N/A	N/A	N/A	N/A
Ammonia (mg/l)	0.0366	0.0488	0.0366	0.0000
Phosphate (mg/l)	0.14670	0.07480	0.20538	0.07824
Nitrate (mg/l)	0.088	0.264	0.044	0.088
C.O.D. (mg/l)				
1st reading (mg/l) after 5 minutes	2	1	1	0
2nd Reading (mg/l) after 11 minutes	3	2	2	0
3rd Reading (mg/l) after 19 minutes	1	1	1	0
4th Reading (mg/l) after 30 minutes	1	1	1	0
Microbial Content				
TCC (c.f.u.)	1160-1240	1270 - 1300	1150 - 1160	0
FCC (c.f.u.)	570 - 780	1220 - 1635	3000 - 3630	0



The father of these 5 came from another village, so this chart is based on the mothering line

The role of 'homegardens' in the sustaining of livelihood in rural village Plaman Nyabet



Synopsis, hand in March 1, 2006

By: Maria Louise Nielsen (KU), Farzaneh Kazemi Yazdi (KVL)
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Introduction to Kampung Plaman Nyabet

We will be carrying out our field study in Kampong (village) Plaman Nyabet. The village consists of about 80 households and is situated in the Padawan area south of Kuching in the autonomous region of Sarawak at the Malaysian island Borneo. The villagers of Kampong Plaman Nyabet belong to the ethnic group 'Bidayuh' and settled the village some time before 1940. Traditionally the Bidayuh have depended on forest resources, and there are still patches of old secondary forests within the village territory where they occasionally extract non-timber forest products (NTFP) and wildlife resources.

Today many young people migrate to the urban areas looking for employment while the elder generation is mainly subsistence farmers who occasionally market their agricultural surplus produce in the nearby bazaars. The SALCRA palm oil plantation seems to be of little attraction since merely five households participate in the scheme. Other villagers receive yearly dividends for surrendering their land to SALCRA. The remaining land is under Native Customary Rights (NCR), meaning that the villagers do not have land titles.

Introduction to study area

In Southeast Asia homegardens represent one of the world's classical agricultural systems and is still widely used. The term homegarden implies a system that ideally combines the ecological functions of forests with those of providing economic needs of the people. (Soemarwoto and Soemarwoto,1984). As all Asian farming systems, homegardens are to be found in a continuum between pure commercialization and family sustenance (McConnell 1992:iii). Therefore, the application of profit maximization approach and comparisons with the technical success of modern Western agriculture, implicitly or explicitly conclude that Asian farms are backward and inefficient. Contrary to this, the success of a farm based should be assessed based on a wide range of performance criteria, among which the commercial return may be a dominant factor or hardly relevant, and as a dynamic system within a particular socio-cultural-technical context. From this approach the Asian small farm can often be seen to exhibit several long-term advantages over plantation-style farms designed for higher short-term profits (Ibid:iv).

Research question and working questions

Prior to introducing our research question we find it crucial to emphasize that one of the main challenges and advantages of the SLUSE program is the use of interdisciplinary approaches in field course and research. Different individuals have different backgrounds and hence different resources that should be mobilized appropriately (Traynor 2005:5). In our group we have decided to recognize this by approaching our research question from three analytical optics grounded in our academic backgrounds (as students of agricultural development, economics, and social anthropology) and expressed through our technical working questions.

Research question

Seeing homegardens as constituents of the overall agricultural system, we will

assess the role of 'homegardens' in the sustaining of livelihood in rural village Plaman Nyabet

Working questions

How does the produce of the homegarden contribute to the alimentation of the household?

- What is cultivated in the homegarden?
- What is the total yield of the homegarden? (annual)
- What is the consumption need of the household? (according to 'basic basket'⁴⁾)
- What proportion of the yield is consumed within the household?
- How does the management of the homegarden affect the yield?

How does the homegarden affect the household economy?

- What is invested in terms of labor (time)?
- What is invested in terms of money (seeds, fertilizers, tools)?
- Which crops are sold or exchanged?
- What proportion of the household income do the revenues represent?

What is the social and cultural significance of the homegarden and its plants?

- Which plants are grown for traditional, medicinal and religious reasons?
- What was the traditional use of the homegarden and how has this changed?
- How is gender and generational relations expressed in the managing of the homegarden? (decision making, financial investment, labor intensity)
- How do the homegardens reflect the social status of the household?

Analytical framework

A **homegarden** is a clearly bounded piece of land cultivated with a diverse mixture of annual and perennial crops, and on which a house is built (Karyono 1990). The major functions of homegardens, especially in rural areas, are subsistence production and income generation (Soemarwoto and Conway 1992). In times of scarcity, homegardens, with their diverse products available year-round, contribute to food security (Christanty et al. 1986; Karyono 1990). They also fulfil many social, cultural and ecological functions. A similar term, *forestgarden*, usually refers to a village garden which is similar to a homegarden but is larger, less densely planted (especially in the ground layer), and not so well tended. Forest gardens generally have taller trees and more spontaneously occurring herbs and lianas (Michon 1983).

We are aware that in the village we might face a reality that cannot be easily included in any of these categories; therefore the exact subject of our research will be redefined more specifically upon arrival in order to be addressed to the reality of the land use.

Livelihood is defined by Chambers and Conway (1992) as: "a means of living, and the capabilities, assets and activities required for it." And "the sum of all the different activities that people are doing in the context of their livelihood." We shall focus on activities related to the gardens and on the role of the gardens in the household's ways of earning a living.

Sustainability is a systemic concept, relating to the continuity of economic, social, institutional and environmental aspects of human society. It is intended to be a means of configuring civilization and human activity so that society, its members and its economies are able to meet their needs and express their greatest potential in the present, while preserving biodiversity and natural ecosystems, and planning and acting for the ability to maintain these ideals indefinitely. There are different frameworks to assess sustainability but this is not the focus of our assignment.

It is very difficult to define a **household** unit since it has many forms throughout the world and sometimes even depend on shifting contexts. For our study we will define the 'household' unit in accordance with the use in the village.

Methodological framework

In recent years there has been a positive shift in the focus of rural development from the former 'top-down' approaches towards more participatory approaches. Participatory research is a methodology to create alternative systems of knowledge and thus to counteract monopoly in knowledge creation. In participatory research it is "through actual experience of something that we intuitively apprehend the essence; we feel, enjoy and understand [it] as reality" (Fals-Borda in Traynor 2005:20-21)

In this chapter we will present the methods that we will use in our field investigation and explain the process structure that we have planned. In doing so, an interdisciplinary approach will be used in order to obtain diverse kind of data, which is needed to answer our research question. This interdisciplinary approach also gives the research greater validity, since it made triangulation possible (Mikkelsen, 1995).

Meeting Malaysian group

Before going to the field site Kampung Plaman Nyabet we will meet with our Malaysian counterpart student group in order to discuss and define our final synopsis. While being in Kuching we will find out if there is a map of Kampong Plaman Nyabet. A map will give us an expression of the village and the location of the households, and homegardens.

Observation

Upon arrival in Plaman Nyabet we will introduce ourselves and our study to the headman and his family. Then we will go for a walk in the village in order to make and discuss observations leading to relevant and better qualified questions.

Observation is furthermore a qualitative method that will be used throughout the study. Important tools for observation are notebooks, pens and to some extent digital cameras.

Preliminary semi-structured interview

After a de-briefing in our group, we will carry out a preliminary semi-structured interview of the headman asking grand tour questions about the existence, use, and role of home gardens in the village. (See Appendix 1)

Mapping and transect walk (PRA)

During the interview we will ask the headman to create a map showing houses, roads, rivers, fields and gardens. The headman can then help us to relate households with social

status and gardens. The map could be made during or after a transect walk during which village borders and important roads (etc.) can be 'GPS'd

Stratified sampling

Based on the data created from this interview (incl. transect and map) and own observations we will carry out a stratified sampling of the households of the village from which we will choose nine (?) focus households representing three categories determined from relevant indicators. We will select some extra households in case some do not wish to participate. (For a list of assumed indicators, see Appendix 2)

First contact

It is very important to present ourselves and explain the objectives of our study in order to achieve the consent and participation of our sampled households. We will explain why we will be taking notes and pictures and that they can participate anonymouslyⁱⁱ. In this first meeting we will arrange for the next activity so that we know that we follow the natural schedule of the informant(s).

We will try out three different methods within our three different categories in order to create different kinds of data and become familiar with these differences. One household from each category will be asked to present their home garden through a *semi-structured interview*, one household from each category by leading us in a *transect walk* (below), and one household from each category by letting us carry out *participant observation* (below) working with them in the garden. For inspiration and focus we have designed a question guide, but the gardener will be able to lead the dialogue in the direction that he/she finds relevant as long as it concerns our research question. This method does most likely not create data that is easily compared, but serves to create an open awareness on themes relevant to the gardener. (See Appendix 3)

Transect walk (PRA)

The transect walk will let the gardener present the garden seen through his/her eyes. To begin with the gardener will present the home garden while the fieldworker will just listen and ask additional questions. After this first 'round' the field worker will go back and ask questions about things that were not mentioned and the questions that we have designed.

Participant observation (qualitative method)

After appointment with the gardener the fieldworker will participate in the garden work. This will give the field worker a 'hands on' experience of the type of work carried out and some of the techniques applied (Tonkin 1984). During this activity the fieldworker can carry out an intensive observation (and ask the designed questions). This method can be used to some extent without an interpreter.

Structured interview

Based on our observations, experiences, and data collected from the above mentioned methods we will carry out a second round of interviews. The objective is to provide us with specific details and in-depth understanding of issues found to be of particular importance with an overall goal of creating a more comparable data. (See Appendix 4)

We have now carried out an observation of the village, and a preliminary semi-structured interview with the headman including a transect walk and a (social) mapping of the village. Hereafter we met the sampled households for either semi-structured interview, transect walk of participant observation. And finally, semi-structured follow-up interviews with all the sampled households.

The methods introduced henceforth do not follow a clear structure in time, but will be based on the fieldworkers' intuitionⁱⁱⁱ, and identified needs.

Garden mapping (PRA)

We will ask some informants to draw their garden. The gardener can then show on the drawing which parts has the best soil and explain why particular crops are grown in particular places. The maps will for us serve to recognize patterns of cultivation practices – and to tell the gardens apart.

Ranking of use and value of products (PRA)

On one side of the matrix we write the garden products and on the other side we write the different uses (sales, consumption, fodder, exchange, medicines etc.) all based on the uses the gardeners have presented to us. This exercise can tell us the different uses of garden products and i.e. which products generate an income. Further, it helps in creating an interactive dialogue and to organize our data. Whether the exercise will be carried out on paper or on the ground will be decided on the spot. (See Appendix 5)

Questionnaires (quantitative method)

Based on the first days' impressions we will carry out a thorough debriefing and refine the interview guides for our structured interviews (questionnaires). The questions will be comparable and concern home garden productivity; management, financial investment, who spends time in the garden, makes decision etc. (See Appendix 6)

- GPS in order to map the area of the village and register our sampled homegardens and households
- A forestry/geographical tool set to measure the height of the trees in the homegardens
- Digital camera, cable to upload photos
- Notebooks and pencils

Time plan

Data & Day	Activities
4 Saturday	Arrival, sight seeing, buying sandals at the market
5 Sunday	Meeting Malaysian group
6 Monday	Going to Kampong Plaman Nyabet – Present ourselves to headman
7 Tuesday	More meeting with Malaysian group - Synopsis
8 Wednesday	Presentation of common research project (Jude arrives in Kuching)
9 Thursday	Arrival of Jude! Welcome dinner...
10 Friday	Fieldwork begins. Intro-multi-methods (Annex 3)
11 Saturday	Intro-multi-methods continue... Start design of structured interview
12 Sunday	Day off – church, beach?
13 Monday	Finish designing structured interview. Carry out interviews.
14 Tuesday	Garden mapping and rankings
15 Wednesday	Questionnaires
16 Thursday	Follow-ups, discuss, preliminary analysis, prepare presentation
17 Friday	Maria's birthday! Everyone for dinner! Farzaneh leaves for Denmark. De-briefing and presentation of results
18 Saturday	Transport to Kuching – farewell party
19 Sunday	Maria returns
20 Monday	Group returns

Appendices

'Grand Tour' semi-structured interview of the headman

1. Presentation of group, investigation and purpose – create a good rapport, bring gifts, take photos etc.
2. Headman presents himself – how long has he been the headman, background, family etc.
3. We ask mister headman to walk a transect with us and draw a geo-social map with us while he introduces us to the village
4. We ask mister headman to connect households and gardens on the map and comment on socio-economic aspects such as financial status etc.
5. A loose chat on the role of home gardens as the headman feels like presenting it

After the interview we will meet in the group to debrief the interpreter and discuss impressions and decide on household sampling strategy based on the headman's social map.

List of assumed indicators for stratified homegarden sampling

Garden size
Managerial state of garden
Variation of crops
Location
Household's social status (according to headman)
Perceived soil quality (according to headman)

Methods question guide plan

We will carry out participant observation and transect walks in the morning when it is not too hot, according to the gardener's usual schedule. The interviews will thus be carried out in the afternoon.

In order for each of us to carry out all of the methods in different homegarden categories we have worked out this plan:

		Transect walk	Participant Observation	Semi-structured interviews
Garden type 3	G 31	Jude Farzi		
	G 32		Gaia	
	G 33			Maria
Garden type 2	G 21		Jude, Maria	
	G 22			Farzi
	G 23	Maria		
Garden type 1	G 11			Jude, Gaia
	G 12		Farzi	
	G 13	Gaia		

Since this is the first encounter with the gardener, who we believe might be a woman we have planned for our male fieldworker (Jude) to be accompanied by a female fieldworker. This can be changed in the field if it appears to be an unnecessary consideration.

Semi-structured question guide

The purpose of this question guide is to start conversations with the informant about the homegarden. The last questions are meant to inspire to storytelling (anecdotes). Note taking will be very extensive.

Name of informant: _____

Who is the main responsible for the homegarden?

Why do you have a homegarden? (different reasons)

What is cultivated in the homegarden?

- What is the purpose of the cultivated crops?
- What do you do with the garden produce? Consumption, sell, exchange etc.
- (Do some plants have religious, medicinal, etc. value?)

How is the garden managed?

- Do you use fertilizer?
- How do you get the seeds?

Who manages (and works in) the garden?

How does the management of the garden affect the yield?

The use of the homegarden 'before' and 'now'?

Structured interview – second round of interviews

In this interview we interview the person who was assigned at the main responsible for the homegarden in the first interview round.

Introduction:

We are a group of students from KVL Copenhagen University and UNIMAS participating in the course Interdisciplinary Land Use and Natural Resource Management. The objective of this interview is to gain an understanding of homegarden and how it can contribute in the sustaining of rural households. We are asking these questions because we are interested in your experiences and points of view on the topic. If you have additional comments to the formulated questions below that you think is important for our objective, please feel free to tell us.

The data will be used anonymously unless you prefer to be mentioned by name.

Date: _____ Interviewer(s): _____

Informant:

1. Name:		3. Age
2. Gender:	4. Household:	
5. Profession/ education/ occupation:		
6. Who is responsible for the household?		

Yes/No

1. Is the homegarden owned by the people who live in the household?

2. Do they have other home gardens belonging to the household?
If yes; how many, where, and why?

3. Does the household have any other land apart from the home garden?
If yes, how is that land used?

4. List other sources of food for household consumption apart from the homegarden

5. List other foods for consumption not coming from the homegarden

6. For how long does the household rely on produce from the home garden?

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Beans	x	x	x									
	x	x	x	x	x	x						

Orange												
Cabbage												
Papaya												

First line indicates production period. Second line indicates storage period

(By this exercise we can know something about food security and reliance on own garden production)

7. Does the household have alternative sources of income? If so, please state them?

8. Do you have any access to loans? Or government support.

9. Do you have any kind of insurance? (public or private)

10. Who works in (relation to) the homegarden?

11. For approximately how many hours each?

12. Further comments - chat

Thank you for your time and answers! Best regards, Maria Louise Nielsen (KU), Farzaneh Kazemi Yazdi (KVL) Gaia Luziatelli (KVL), and Jude Emmanuel Kebuma Tita (KVL)

Ranking of use and value of garden products (PRA)

These PRA methods are for learning about local people's categories, criteria, choices, and priorities. For pairwise ranking, items of interest are compared pair by pair; informants are asked which of the two they prefer, and why. Matrix scoring takes criteria for the rows in a matrix and items for columns, and people complete the boxes row by row. The items may be ordered for each of the criteria (e.g., for six trees, indicate from best to worst for fuel wood, fodder, erosion control, and fruit supply); or participants may put stones, seeds, or berries into piles for relative scoring. (FAO, 1997)

Matrix scoring and ranking for cultivated crops

In this PRA method with the crops the farmer has in the garden we make a matrix with some criteria which we discussed before with the farmer.

For each crop we ask the farmer to put some scores for the criteria mentioned in the matrix.

At the end we add all the scores for each crop and rank them according to their score.

(Fielding, Riley, Oyejola 1998:35)

Crop \ Criteria	Beans	Onions	Orange	Mango	Maize	Papaya	Pineapple	Cabbage	Cassava	Garlic
Sales										
Consumption										
Exchange										
Fodder										
Medicine										
Rituals (religion)										
Low labor required										
Easy to harvest										
Others										

Pair wise ranking

In this PRA method we compare different crops in the garden with each other.

We ask the farmer to choose between the two crops which one s/he prefers according to certain criteria for example market. Then we count how many times certain crop appears in the matrix and then we rank them according to their numbers. (Ibid)

1 \ 2								
	Beans	Onions	Orange	Mango	Maize	Papaya	Pineapple	Cabbage
Beans								
Onions								
Orange								
Mango								
Maize								
Papaya								
Pineapple								
Cabbage								

Questionnaire

Household (number/name): _____

1. Column 2: What is the total yield of the homegarden? (Crop wise, annual)
2. Column 3: How much of the yield is (estimated to be) consumed by the household?
3. Column 4: What is the total consumption need of the household?
4. What do you do with the homegarden's surplus? (column 5/7)
5. What do you do if/when the homegarden does not produce enough? (column 6/7)

Crops	Harvest (amount)	Use of harvest (share)				
		Consumption	Consump. need	Sell	Buy	Exchange

<i>Beans</i>	<i>20 sacks</i>	<i>20 Sacks</i>	<i>30 Sacks</i>		<i>10 sacks</i>	

1. What are the various sources of household income?

2. How much do you spend on the garden (seeds, fertilizer, tools, hired help)

Type of expenditures	Cost

Thank you for your time and co-operation!

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www.bidayuh.com to follow discussions of the Bidayuh peoples

ⁱ We believe that Malaysia has defined a 'basic basket' in order to calculate the needs of an average household

ⁱⁱ Ethical issues should always be taken into consideration by the researcher/fieldworker. Some informants are shy and do not want too much attention, others can be scared of neighbors and local officials and might therefore insist on or prefer anonymity, and yet others will refuse to participate if not mentioned by name preferably accompanied by a photo. To grant informants anonymity is thus a matter of rights, convenience, and data creation and decisions on the matter should rely both on ethical discussions and intuition.

ⁱⁱⁱ COWI consultant Søren Dreyer confirms that *intuition* is a necessary field-researcher's tool in especially short-term field research. (SLUSE lecture at KVL February 27, 2006)