

# **Changes in Livelihood Strategies and Land Use Practices in Rural Areas in Relation to Upgraded Infrastructure**

**-A Case Study from Kampung Gumbang**

Bau Team  
Subgroup 4

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**Abstract**

*This paper is written as a part of the SLUSE Joint Basic Course. The overall interest is on the influence of changed access to markets, by improved infrastructure, on the livelihood strategies and land use practices in a small village in Sarawak, Malaysia. The paper consists of two parts. In the first part the project design and methods are presented and discussed. The overall method of the project is RRA, with LFA as inspiration for the formulation of objectives and timeframes. The tools used is mainly semi-structured interviews. In the second part of the paper our findings from the field survey are presented and discussed in relation to the influence of the changed market access. Our main finding is that the road is only one out of many factors influencing economical and agricultural development.*

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## **1 Introduction**

### **1.1 Presentation**

This project is formed around an interest of how infrastructure influences the land use practices and the livelihood strategies of rural people. Our interest concerns how improved access to markets changes the everyday life of the people in an until recently very isolated village in Sarawak, part of Borneo, Malaysia. We have selected the small village of Gumbang, which only one and a half year ago was connected to a road. Before that it took about four hours to walk through the jungle to reach the nearest road. This report deals with the changes in production systems and livelihood strategies, and with the possible causes for this change.

The report is written within the SLUSE Joint Basic Course, and focus will also be on the tools and methods used.

### **1.2 Objectives**

On the basis of our interest, we have formulated an overall objective of the report, and a number of specific objectives to meet the overall objective.

**Overall objective:**

*To investigate the changes in livelihood strategies and land use practices in Kpg. Gumbang, as a village where to a road recently has been build, in order to discuss the significance of the road in these changes.*

**Specific Objectives:**

- 1. To give a brief overview of the politically formulated intentions and objectives of upgrading the infrastructure in rural areas in Bau District.*
- 2. To analyse to what degree the upgraded infrastructure has changed access to markets in e.g. Bau and Kuching.*
- 3. To examine if there has been any changes in the land use practices in the village area.*
- 4. To investigate changes in the extent of external and internal employment in the village.*

**1.3 Delimitations**

Due to the limited extent of this report and the high emphasis on methods and tools, many aspects that could have been interesting to include have been left out. The report only focuses on structural aspects, namely the road and (the agricultural schemes) as explanations for the changes in the village. We do not include the more latent influences such as changes in religion and cultural values and the influence of the media. In line with this, we acknowledge that it would have been interesting to look at the changes in attitudes and values of the villagers. Neither do we investigate how the villagers conceive the ongoing changes. The changes in household economy is left out, mainly due to the difficulties in measuring it. We will primarily focus on the changes that has happened immediately before and after the road was build.

**1.4 Outline of report**

The first part of the report, chapter two and three, is a presentation and evaluation of methods applied in the survey. Chapter two describes the of different aspects in the project design and the methods used in the survey are outlined in chapter three as well as a presentation and evaluation of the various tools. Chapter four is the second part of the report includes which is a presentation and discussion of our findings. The fifth and final chapter is the conclusion on method and objectives.

## **2 Project design**

The process and the different factors in designing the project is described in this chapter. Further, as the paper is part of a methodology course, the process of formulating our objectives is examined.

### ***2.1 Introduction***

Our group was formed around a vague interest of an analysis of the effects of political interventions on natural resource management. During the last three weeks before the field trip we discussed different research areas. One problem that soon arose was the terminology and methodology of making a project formulation. We study at different universities, have different academic backgrounds, Human Geography, Forestry and Public Administration, and we all have our own way of making projects. We ended up using parts of the framework from the Logical Framework Approach (LFA) such as designing a problem tree, formulating overall and specific objectives and activities. This was believed to be beneficial, as objectives can be more specific and easy to work with considering the limited extent and time for the project.

### ***2.2 Specifying the objectives***

We had to narrow our interests down to a set of objectives, around which we could agree on building our project. A number of factors were to be considered in doing so:

- 1) Our different academic backgrounds and interests
- 2) The short time for preparation and for conducting the research
- 3) The limited amount of information available about the area
- 4) Logistics (Structural difficulties such as language problems and transportation)

#### **2.2.1 Different academic backgrounds and interests**

One thing we had to take into consideration was on what academic stand, we should base our research. At one point of time we had an idea of making investigations within our different areas, and then combine the investigations. This idea was soon discarded, as we saw it as

### ***2.3 Selecting the survey site***

The village where the survey should take place was pointed out using maps and information about the infrastructure provided by lectures and students at UNIMAS. Due to our limited time frame we only chose one village. The village was selected according to the following criteria:

- Infrastructure-status
- Distance to nearest market

As we wanted to examine how the change in market access would influence the land use, we wanted to conduct our survey in a village where a road just recently had been built. We expected the changes to be greater if the village was situated far away from existing roads and markets. The village of Gumbang was chosen as it was first connected to a road in 1996 and therefore fulfilled the criteria. Before that, the villagers had to walk for about four hours to the nearest village, from where a road was leading to the larger market in Bau.

### **3 METHODS**

In this chapter the reasons for using Rapid Rural Appraisal (RRA) and the ways the different tools have been used in our survey are accounted for. The background and principles of RRA are briefly reviewed, and the method is evaluated on basis of experience from our survey.

#### ***3.1 Background and principles***

The RRA method is, like the Participatory Rural Appraisal (PRA) method, developed in the context of the Rapid Appraisal (RA) methodology. The RA methodology deals with the ways in which different factors interact and influences a system, and the connection of these interactors. In exploring and explaining the different interlinkages it applies a range of tools to be used in connection. The RA methodology includes different tools through which information can be obtained from locals (Mikkelsen, 1995). It can be used as an alternative to the traditional quantitative approach, yet, a combination of quantitative and qualitative methods can be considered beneficiary (Chambers, 1992).

#### ***3.2 Reasons for using RRA***

In our work with examining the importance of upgraded infrastructure for local people, we found that the best approach would be to gather information amongst the local users of the road. They are the key to primary information about the current situation and about how the upgraded infrastructure has influenced land use practices and market dependency.

When choosing RA methods, then either PRA or RRA are possible options, as they include indigenous knowledge and emphasises the importance of co-operation with local people. Chambers (1992) describes RRA as a way of enabling outsiders to gain information and insight from and about rural people and rural conditions in a cost-effective and timely manner. Information is taken away from the site and analysed by the investigator. This is the main difference between RRA and PRA. In PRA the outsider becomes facilitator and the information is shared, owned and evaluated by the local people.

As the time frame for our field survey was too limited for extensive testing, sharing and evaluation, RRA was chosen as our overall method. It can be discussed whether it is relevant to speak of RRA with only 12 days in the field. We have had to compromise with some central elements of RRA in order to fit it into the limited time frame. The LFA-inspired approach with descriptive objectives and time-frames is not quite in line with the participatory elements of RRA. The tools and the overall approach of RRA was nevertheless seen as the most beneficial in fulfilling our assignment.

### ***3.3 RRA tools used in the survey***

In order to fulfil our objectives, the survey site was selected and the investigation was carried out using the following techniques and tools: Semi-structured interviews, direct observation, participatory mapping and triangulation. Other tools like ranking and matrix-designing were also very attractive, but as the core of our survey began to form, we realised, that they would not be needed. For instance, we did not know how many cash crops they grew, and saw ranking as a way of determining which crops would be relevant to investigate. When we arrived there it turned out that only three major cash crops were interesting. The only quantitative tool used was the GPS (Global Positioning System).

The tool used the most was the interview. We did not get into analysing written sources such as official documents and other written materials as these were not easily accessible or open to the public. The discussion of the political aspects is therefore mainly based upon our interviews.

#### **3.3.1 Semi-structured interviews**

Semi-structured interviews are designed beforehand but still leave room for adjusting the questions along the way. Irrelevant questions can be dropped and new questions can be formulated during an interview. Effort should be put into making the questions direct, relevant and qualitative.

We chose to work with semi-structured instead of structured interviews for several reasons. Semi-structured interviews are in line with the objectives of RRA, giving the respondent the possibility of structuring the information and formulating the problems. Though semi-



structured interviews open up for improvisation, a comparison of the interviews is still possible.

In order to gather information about the consequences of the upgraded infrastructure, land use practices, market dependency etc., semi-structured interviews were carried out with the District Officer and the Public Work Department, with the village leaders and with villagers. Our first idea was to interview about 25% (20 hh) of all the households in the village. However, we soon realised that the interviews were quite time-consuming. Moreover, we found it relevant to use time besides the actual interviewing, to gather information in more informal ways. By staying in the village one night and by talking to people, we hoped that the villagers would become somewhat familiar with us. We found this more important than carrying out as many interviews as possible, without having adequate time to investigate and triangulate the answers given. Hoping to obtain confidence from the locals and triangulate the information given in only 12 days might seem optimistic. We did of course not gain complete confidence from the locals, but we felt well accepted and the responses were positive.

The interviews carried out with the households were based upon open-ended questionnaires. In open-ended questionnaires the answers are given with the respondents own words instead of using predetermined answer-possibilities. Informal discussions are encouraged and valuable information and nuances can be obtained. The open-ended questionnaire was created on the basis of our limited literature studies. We had no 'trial' village, and the testing of the questionnaire was therefore carried out within Kpg. Gumbang. Some of the questions were misunderstood, some were irrelevant and some topics were not covered sufficiently, and adjustments were made (See appendix 1).

The questions asked during the interviews with the District Officer, Public Work Department and the village leaders, were based upon a check list worked out before hand. From these interviews we wanted background information such as number of inhabitants, village history, overall infrastructural policies etc..

The interviews in the village were carried out on a household basis. The households were selected from different parts of the village, and we selected houses of different appearance. We did not make a grouping of the households, as it would be difficult to distinguish between

different interest groups, when examining the impacts on e.g. land use, from improved infrastructure, especially given the limited information available.

The semi-structured interviews with the households fulfilled their objectives quite well though not all questions were well understood. Especially the questions concerning market dependency (see appendix 1) was troublesome. It was only the school teacher and the respondent working at Telang Usan Hotel in Kuching, from whom we succeeded in getting meaningful answers to these questions, and after a while we stopped asking them. Instead we encouraged informal discussions concerning dependency of the market after the interviews were conducted.

Our empirical work is primarily based on interviews. This is mainly due to the very limited amount of written material concerning our objectives. Some remarks as to the limitations of this might be relevant here. When making interviews one is highly dependent on the reliability of the respondent. Respondents can have strategic considerations when answering questions and personal agendas that influences the answer. This can especially be true for government officials, whom besides themselves also represent a government apparatus with certain opinions and interest. Given the limited time we have had to take these underlying strategies into consideration, we have been forced to take most statements at face value. Especially concerning our first specific objectives of government institutions, we have found it difficult to cross-check the scarce information given in the interviews.

### **3.3.2 The role of the interpreter**

Throughout all the interviews and informal discussions we were assisted by a UNIMAS student, who helped us as interpreter. We were lucky to get Josephine Jame as interpreter, and she helped us in many ways. Her skills at creating a good atmosphere gave the interviews an informal character, which was very beneficiary for the outcome. We spent the first days introducing her to our objectives, and went through the questionnaire several times. By doing so, she became confident with the questions and during the interviews she came to know the best way to ask them. This was especially important, as the dialect in the research area was somewhat different from hers. We had the most success carrying out our fieldwork, when we had made preparations together with Josephine.

The first day in the village we made a pre-test of our interview. The purpose of this was not primarily to gather information, more to give us a chance to adjust our questionnaire and appearance. After the pre-test, we realised that the way we placed ourselves during an interview was important. We were four people conducting the interview. The interviewer was the one actually carrying out the interview together with Josephine, the two other members of the group were note takers, after each interview the three of us rotated. We ended up by having the interviewer sitting next to Josephine. By doing so, the interviewer could look at the respondent while asking the questions, and at the same time Josephine would be able to hear the question asked, so she could translate correctly. The note takers were placed on each side of Josephine and the interviewer respectively. They tried to stay out of the interview, but often they had some additional final questions. We also learnt from the pre-test that it was important to have Josephine making her translations often during a longer discussion. Otherwise we thought a lot of important information was lost. However, Josephine told us that some of the discussions were concerning irrelevant issues, e.g. that one of the chickens had become sick, etc., and she sometimes had a hard time keeping the respondents on the right track.

### **3.3.3 Direct observations**

Direct observations of the actual situation, e.g. behaviour, social differences, disputes, infrastructure, land use practices etc., provide important information for posing central questions and for judging information given. Direct observations were carried out both in the field, in the village and at the market. By visiting people in their houses, going with them to their fields, information gathered through interviews and other conversations could be verified or adjusted and put into context. This was very useful for the survey, as some information was contradictory. The villagers were eager to take part, and it enabled us to acquire a more complete impression of the actual situation and the direct observations were easily carried out. A trip to the market was made to determine the income generating perspectives of improved infrastructure. As described later this did not teach us much about the market practices of people from Kpg. Gumbang, as they, due to a local sports day, were absent from the market.

### **3.3.4 Participatory mapping**

Through participatory mapping the informants get an opportunity to point out, discuss and illustrate issues they themselves find important.

Kpg. Gumbang was split into three separate villages some decades ago. By using participatory mapping we hoped to get an impression of the situation before the separation, how the land had been divided between the villages and where the villagers practiced farming. Some had to walk quite a long distance to reach their fields, for example for more than two hours into Indonesia, and we were somewhat confused about the different boundaries. Further, we used the mapping to illustrate how the infrastructure in the area had developed.

The participatory mapping was carried out with two people from the village; the medicine man and his son in law (See appendix 2). The medicine man was selected because he had lived in the village all his life and showed a thorough knowledge of the area. They were both given a pencil and were asked to draw the physical surroundings of the village area. While the drawing was undertaken we asked additional and explanatory questions. The mapping was a success in the sense that a lot of important information was facilitated. It helped us to develop an overview, but it was difficult to include many villagers in the process as we only had one small piece of paper and few pencils.

### **3.3.5 Triangulation**

Triangulation is a method whereby a variety of techniques are applied to gain an understanding of the circumstances of e.g. land use practices. Direct observations, participatory mapping, informal discussions and GPS were tools used for triangulation of the information obtained during interviews. The information given during these activities were used for further perspectives and verification of already obtained knowledge. It enabled us to develop an overall impression of the land distribution and land use and was necessary because of the great variations in some kinds of information, due to language and conceptualisation problems.

One example of this was concerning the listing of the various vegetables people grew. When asked what crops they grew the villagers primarily answered rice and the main cash crops. In the interviews almost none of the other vegetables they grew were mentioned. We had to go

to the market and to the fields and ask many additional questions to obtain the list we have enclosed as appendix 3.

The GPS was helpful, as the only map we could get was old and not updated. The GPS verified the sketch from the participatory mapping, but it could have helped us a lot more during the first days, if we had used it. We were lost several times in our effort to find Kpg. Gumbang. If we had plotted all the tracks, that we had driven on, into the GPS, we would have had quite a good picture of the infrastructure in the area.

The different methods of triangulation proved to be useful. They supported some of our assumptions and encouraged further investigations.

### ***3.4 Evaluation of methods***

All in all the choice of the RRA method and the descriptive objectives proved to be useful. We succeeded in examining our objectives within the timeframe and instead of having to work with reformulating the objectives, we spent most of our time in the field. We put much emphasis on ensuring that our objectives and tools used could be fulfilled within the limited timeframe. This meant that we did not encounter major problems with insufficient time and too ambitious objectives. One could argue that since this is mainly an exercise in methodology we would not have had to restrict ourselves as much. We are however satisfied with having had a positive experience of working in the field.

Looking back we could have addressed the issue of interdisciplinarity differently, meaning that we could have exploited each group members scientific skills better. The consensus approach of finding a common academic ground has meant, that it has been difficult to draw on our individual academic skills.

## 4 Findings

In this chapter our findings from Kpg. Gumbang will be presented and discussed in accordance with our four specific objectives, further is the significance of the road in relation to these findings discussed.

### 4.1 *Specific objective 1:*

*To give a brief overview of the politically formulated intentions and objectives of upgrading the infrastructure in rural areas in Bau District.*

There are four levels of political administration for infrastructure in a district as Bau: Federal, state, district and village. The highest level is the federal government in Kuala Lumpur, which sets the overall objectives and decides the attribution of funds for upgrading and maintenance of infrastructure. This is partly done through the 5-year plans. The next level is the Public Work Department (JKR) in Kuching (JKR, 1998). They are responsible for the distribution of funds. Selection of areas to be developed and where infrastructure is to be implemented or upgraded is done on an *ad hoc* basis and in accordance with the recommendations from district level, channelled through the local District Officer (JKR, 1998). At village level, each village has a development committee of its own that can apply the District Officer for road construction or upgrading (District Officer, 1998; JKR, 1998).

According to the JKR and the District Officer in Bau the overall objectives for upgrading the infrastructure are to reduce poverty, and to improve and support industry, agriculture and plantations. Usually, upgrading is done over a wider area at the same time. Roads will mainly be constructed in areas where some kind of “development” already has taken place. The State Government makes sure that there is an ongoing “development” before they start spending funds on infrastructural improvements. Priority areas are where roads can support e.g. industries and plantations and areas where upgrading is needed, in terms of paving of gravel roads; particularly in front of public areas/buildings, e.g. churches, schools, longhouses or where the roads are so steep that heavy rainfall would otherwise make driving impossible. The first roads in an area are often made by logging companies and are normally not suitable for transport. Sometimes the State Government takes over control of these roads and improve

them. Low priority is given to areas with low population density situated far from “development centres”. Kpg. Gumbang can be characterised as such an area (JKR, 1998), which is most likely the reason why it was not connected by road until 1996.

In 1987 it was decided to build a road to Kpg. Gumbang in order to open up the area for “development”, and to support agriculture and plantations. Building of the road was started in 1991 and ended in 1996. The road is 10 kilometres long, and from 1991 to 1996 two kilometres were built each year. Most of the road is gravel road. Before the road was upgraded it was a narrow jungle track. This track was the foundation of the present road, which is why the road is quite meandering. Future stoning and sealing of the road will continue depending on the availability of funds (JKR, 1998). There are still a few areas in the Kuching area without roads.

Although the villagers in Kpg. Gumbang have the right to apply for infrastructure, they do not seem to have many chances to be given a road, if they are not pointed as a “development area”. Being situated close to Indonesia, which comprises of only forest in this area, Kpg. Gumbang is not an obvious “development area”. But being a border-village we considered if development of this village was part of protecting national interests, in terms of e.g. national security. This did however not seem to be the case according to JKR, though they recognised that the village did play a role in such issues.

**Discussion:** We were somewhat surprised that infrastructure appears not to be the primary initiative when developing rural areas. The government’s strategy for rural development seems to be based on an idea of developing a few geographic centres where from development should spread. Moreover, we were surprised to find that different governmental initiatives such as the agricultural schemes (Dept. of Agr.), SALCRA and the infrastructure (Public Work Dept.) are not co-ordinated. Instead, the different departments claim to operate independently. They all aim at “developing” rural areas, however, it is still unclear what they mean exactly by “development areas” and on what basis such areas are classified. The various departments benefit from each other’s “development”, but one might think that the mutual benefits would be higher if they co-ordinate their planning. SALCRA came to the Kpg. Gumbang area in 1993 after the road construction had taken off in 1991 when the agricultural schemes all ready had existed for about 12 years (District Officer, 1998). According to the

institutions we have spoken with, there is no co-ordinating objectives of the different departments. Building of roads is one tool out of many in “developing” rural areas. One can therefore not discuss if the road fulfils a “development” objective.

#### **4.2 Specific objective 2:**

*To analyse to what degree the upgraded infrastructure has changed access to markets in e.g. Bau and Kuching.*

Before the road was build, the travel time from Kpg. Gumbang to the nearest market in Kpg. Bogag was about four hours walk. From Kpg. Bogag markets in Bau and Kuching could be reached by vehicle (see appendix 3). In order to sell products at the market people either had to pay someone to carry or carry the products themselves.

According to all villagers interviewed, the upgraded infrastructure has had a great impact on the access to markets in Bau and Kuching and upon the mobility in general. Many of the villagers express their satisfaction with the easy access to family, friends, the hospital, etc.

After the road was build the market can be reached in less than one hour by car. In the village, one household, Mr. and Mrs. Osen, operates the “village van”, which is one of the only vehicles in the village. They take the villagers and products to the market for a fee: RM 3.5/person, RM 2/student, RM 2/sack of pepper and RM 1/sack of ginger. According to Mrs. Osen the van usually drives to Bau once a day, but on Fridays and Saturdays twice a day, due to students and people working in Bau or Kuching returning to the village for weekends. According to the villagers they go to the market to sell crops three to five times a year in average. For the majority (five or six of the nine respondents) this is more often than before the road was build. Those who go more often explain this by the better market access and shortened travel time. Those who do not go more often have either become old or do not sell crops due to low market prices.

**Discussion:** We had some problems in estimating how often the villagers went to the market to sell crops. It seems strange that they only go three to five times a year. Sometimes they had somebody else bringing their products to the market, and we were not quite sure if they included that in their answers. Moreover, it was difficult for us to distinguish between the



frequency of the sale of the three major cash crops (rubber, pepper and cocoa) and the sale of the minor cash crops as vegetables. It appears that the sale of e.g. ginger or beans at the market does not count as going to the market to sell crops by the respondents. We tried to go to the market to see what they actually sold and how many that went to the weekly Sunday market. Unfortunately, the only weekend we were in Kpg. Gumbang was at a sports day and no-one from the village went to market.

Nevertheless, the overall impression, according to the answers given during interviews, is that the villagers go more often due to the improved road.

The key finding in relation to access to the market is that crops easily can be sent to the market and fertiliser, pesticides, construction materials and various consumption goods can be driven to the village. The road has opened up a range of consumption possibilities for the Gumbang people. The change in consumption goes hand in hand with the shift from a barter economy to a money economy, with the road as a supporting element. The village is no longer isolated from but instead incorporated into the market economy. Within the last couple of years many households have placed the pictures of Christ and the television as the centre of the living room. The question is how important the road has been in these changes in consumption, the changes might have occurred without the road, just in a slower manner. An important argument for the latter is that the increase in consumption apparently started of before the road reached the village.

### **4.3 Specific objective 3:**

*To examine if there has been any changes in the land use practice in the village area.*

In Kpg. Gumbang there are mainly two systems of agriculture: Shifting cultivation and permanent cultivation. From our interviews and discussions we learned that until 20 years ago shifting cultivation with rice as the main crop was the most common land use practice. At that time no cash crops were grown. About 17 years ago cash crops were introduced through government agricultural schemes and permanent cultivation became part of the land use practice. The government offered assistance in the form of plants, pesticides and fertiliser for people wanting to grow cocoa, pepper, rubber, fruit trees, etc. Five out of the nine households

we interviewed participate in these schemes. Records from the Department of Agriculture shows that in 1991 21 households in Kpg. Gumbang participated in the cocoa subsidy scheme and 11 in the pepper scheme. We could not get more recent data, but both the number of households participating in the schemes and the total area under permanent cultivation has gradually increased since the schemes were introduced (Dept. of Agr., 1998).

Most households still practice some kind of shifting cultivation, only one out of nine respondents does not. Shifting cultivation is mainly for rice growing, but also includes vegetables as ginger, beans, chillies, lady fingers, cucumbers, etc. (See appendix 4). Shifting cultivation is mainly undertaken on the Indonesian side of the border, because land is abundant there and the villagers apparently can cultivate this land for free due to a local agreement with an Indonesian Bidayuh village three hours walk inside Indonesia. According to a respondent this practice of using the Indonesian land for shifting cultivation has been going on for at least 25 years. Permanent farming systems are situated near the village.

**Discussion:** The use of land in Indonesia is normally on a one-year basis, and the villagers were therefore not interested in practising permanent agriculture there. Insecurity of the right to use the land continuously can be an important factor for land in Indonesia only being cultivated on a one year basis. During a field trip we did, however, see some cocoa and pepper plantations on the Indonesian side of the border.

The farming practices have changed from being purely a system of shifting cultivation to becoming a mixture of shifting cultivation and permanent cultivation. Our general impression is that this change in land use has occurred mainly within the last decade but that there has been no major changes within the last few years. This means that the changes began before the road was started. Furthermore, the road has not led to an expansion of the area of agricultural land. The change from shifting cultivation to permanent cultivation has meant that a household can get the same yield from less land. Only one of the nine respondents was interested in growing more land, also because most of them, due to lack of manpower, were not able to cultivate more land. Moreover, six of the nine respondents were not cultivating all the land in their possession.



The large group of villagers attending school and working outside Kpg. Gumbang have severely changed the conditions for the land use practices as they no longer are available as labour force in the fields. The farming is mainly undertaken by the parents. The road is surely strengthening this development, but the move from shifting cultivation to permanent plantation took off before the road was build. We see this shift as being predominantly a result of government agricultural schemes. The road does however play an important role in the possible further expansion of plantations and agriculture.

#### **4.4 Specific objective 4:**

*To investigate the changes in external and internal employment in the village.*

According to our respondents there has been a great expansion in external employment since the 1970s when the first people started working outside the village. Out of nine households, five were involved in external employment, with an average of four people from each household. The most common kind of external work is in the hotel-, restaurant-, and construction businesses and in the army. It is mostly the young people that seek employment and study outside the village, and according to our interviews hardly any young people are engaged in farming anymore.

The level of paid internal employment have risen since the road was build, particularly the ongoing construction activity in the village. People want new houses build of materials such as bricks and metal roofs and with modern installations such as televisions and radios. These materials and items can now easily be brought to Kpg. Gumbang. The construction activity has created a demand for construction workers which is met by local men and men from the nearest village in Indonesia. As for other types of internal paid labour there is no industry, no major handicraft production and no tourists. However, Mr. and Mrs. Osen, have started a new business driving the "village van". Furthermore, two small shops operates in the village. The most recent of these started in 1994 and according to the owner it has been extending the selection of goods as a result of easier market access and has experienced an increased sale.

**Discussion:** There has no doubt been a major change in external labour within the last 20 years and this development seems not to have changed significantly since the road was build.

The upward trend in external employment has continued uninfluenced, but the road has made external work more comfortable. The road makes it more convenient for people working or studying to return to Kpg. Gumbang for weekends and holidays. We came to the village thinking that the road had made access to markets and jobs possible, not knowing that the urban centres had been attracting people for two decades despite of the four hour jungle walk to the nearest road. The main effect of the road in terms of external employment is therefore not seen to be that it enables people to go to the urban centres to work, but surprisingly enough that it brings them back to the village for the weekends. Internal work such as construction work has always been going on, but obviously the new possibilities for improving houses create more work. This would probably not have been possible to the same extent without the road.

## **5 Conclusion**

### **5.1 Method**

The RRA method and the use of interviews, direct observations, participatory mapping and triangulation proved to be useful. Our emphasis on making objectives that could be applied in various settings was in our case successful and the use of descriptive objectives enabled us to fulfil our objectives within the timeframe. More emphasis could have been placed on exploiting the skills of each group member.

### **5.2 Objectives**

The political objectives for upgraded infrastructure is to support development. Upgrading and building of roads is mainly undertaken in “development areas”, where some kind of e.g. industry or plantation activity exists.

The road to Kpg. Gumbang has meant that the transportation time from the village to Bau is about one hour. Before the road the villagers had to walk four hours to reach the nearest village, Kpg. Bogag, that was connected to a road. Land use practices has changed and today more land is cultivated as permanent land. It is however the agricultural schemes more than the road that is the cause for this change.

People from Kpg. Gumbang have been working outside the village for two decades, and most youngsters attend school elsewhere. The road has meant that the villagers more easily can go back and forth from Kpg. Gumbang and more people come back for the weekends. Materials such as bricks, concrete and metal roofs are more easily transported to the village and constructing activity is taken place in the village. This has created internal jobs. Moreover, many people have possessed themselves of television, radio etc, mostly after the road reached the village.

Our preliminary idea was that the road was the primary cause for changes in the village. This proved not to be the case. The economical and agricultural development took of before the road reached the village, but the road definitely has supported this development in several ways. We acknowledge that there can be many other factors influencing this development

some of which we might not even be aware of. There is however no doubt about the importance of a road in the development process, but the road is only one out of many factors influencing the changes in livelihood strategies and land use practices in Kpg. Gumbang.

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Dep. Director of the Road Section: Mr. Winsel Atos, Public Work Department, Kuching, Sarawak. 19.10.98



## 7 Appendix I

### Presentation of interviews and evaluation of the questionnaire used in the survey

The questionnaire was used during interviews in Kpg. Gumbang. The interviews took about one hour and was usually ended by an informal discussion.

- Interview no. 1: Respondent: Anen  
Interpreter: Josephine and Alum  
Guide: Gregers  
No. of people present: 9  
Time used: 1 h. 15min.  
Comments: Many interruptions and difficulties because of two interpreters. Sought of as a pre-test.  
Date: 9-10-1998
- Interview no. 2: Respondent: Ajang  
Interpreter: Josephine  
Guide: Elisabeth  
No. of people present: 0  
Time used: 35 min.  
Comments: Short interview without any interruptions  
Date: 11-10-1998
- Interview no. 3: Respondent: Layem  
Interpreter: Josephine  
Guide: Rasmus  
No. of people present: 1  
Time used: 45 min.  
Comments: Hard for Josephine to understand her dialect.  
Date: 11-10-1998
- Interview no. 4: Respondent: no name  
Interpreter: Josephine  
Guide: Gregers  
No. of people present: 3  
Time used: 30 min.  
Comments: Josephine was slightly interrupted by the noise.  
Date: 11-10-1998
- Interview no. 5: Respondent: Peter Asai  
Interpreter: Josephine  
Guide: Elisabeth  
No. of people present: 1  
Time used: 1 hour  
Comments: Our respondent was well informed - turned in to be a key informant.  
Date: 11-10-1998
- Interview no. 6: Respondent: Mishin  
Interpreter: Josephine  
Guide: Rasmus  
No. of people present: 0  
Time used: 20 min.

Comments: Wife of the former head-man.  
Date: 11-10-1998

Interview no. 7: Respondent: Juliana  
Interpreter: Josephine  
Guide: Gregers  
No. of people present: 0  
Time used: 30 min. of the household, slightly interrupted by the rain, a very casual interview.  
Date: 12-10-1998  
Comments: Made in the field, daughter

Interview no. 8: Respondent: Daing  
Interpreter: Josephine  
Guide: Gregers  
No. of people present: 2  
Time used: 45 min  
Comments: Good interview, good respondent.  
Date: 15-10-1998

Interview no. 9: Respondent: Madrin Nyubey  
Interpreter: Josephine  
Guide: Rasmus  
No. of people present: 2  
Time used: 25min.  
Comments: Disturbed by many mosquitoes and man in wheelchair. Gregers left after 10 minutes because of another appointment.  
Date: 15-10-1998

**Each question in the questionnaire will be evaluated, first a comment on the purpose of the question and then a brief evaluation is made:**

## Questionnaire

### Introduction

Introduce us; inform about our survey and the purpose of our stay

#### Households

1. *How big is your household?*

- To start with an "easy" question and to see the average household size.
- The question was well understood and answered.

2. *For how long have you lived here?*

- To be able to judge the validity of the respondents answers.
- The question was well understood and answered.

#### Land holdings

3. *How much land do you own?*

- To know the land size.
- The question was well understood and answered.

4. *How much land do you grow?*

- To see if all the respondents landholdings were cultivated and be able to judge if there were shortage of land.
- The question was well understood and answered.

5. *How are your possibilities of changing your cultivation areas?*

- To see if the respondent could expand his cultivation areas.
- The question was difficult to some and later we added the question if they were interested in expanding their areas.

Land use

6a *What do you grow?*

- To have the respondent listing what he grows before asking more complex questions.
- The question was added after the pre-test, as this background information was needed in order to clarify/verify the following answers. The respondents did seldom mention any other crops than the three major cash-crops.

6. *How do you cultivate your land?*

- To investigate the land use practice. To see if the respondent is a shifting cultivator, a governmental scheme member, uses fertiliser etc.
- The question was difficult to some and after a while we started asking specifically to issues as fertiliser, governmental scheme member etc.

7. *Has your cultivation system changed over the last five years?*

*-How, why*

- To examine the changes in land use practice, e.g. if the cultivation system has changed after the village was connected to a road.
- The question was well understood and answered.

8. *Has your crop composition (choice of crops) changed over the last five years?*

*-How, why*

- To examine if the crop composition system has changed after the village was connected to a road.
- The question was well understood and answered.

9. *Has the amount of grown crops changed?*

*-How, why*

- To examine if the amount of grown crops has changed after the village was connected to a road.
- The question was well understood and answered.

10. *Do you sell crops that you grow in the field at the market?*

*-What species, name the most important, why are they most important*

- To investigate what the respondent sold at the market. The question was compared with question no. 6a
- The question was mostly well understood and answered. After the pre-test, a “why” was added.

11. *For how long have you sold crops at the market?*

- To see if there has been any changes after the road was build or if the respondent sold crops at the market before the road.

- The question was well understood and answered.

12. *Do you sell more now than before you became connected to the road?*

- To investigate if the road had meant any changes for the respondent decisions concerning market sale.
- The question was well understood and answered. Only three respondents did not remember.

13. *Do you sell other products at the market?*

- *Which*

- To check if the respondent sold other products as e.g. handicrafts
- The question revealed that the respondents often sold other crops than mentioned in question no. 10. This was usually vegetables of minor importance.

14. *Do you grow crops only for the market?*

- To investigate if the respondent grow crops *specifically* for the market.
- The question was well understood and answered.

15. *Do you grow crops only for self-consumption?*

- To investigate if the respondent grow crops *specifically* for self-consumption.
- The question was well understood and answered.

Forest

15a *We can see that you have forest around the village, why do you not cultivate this land ?*

- When we arrived to the village we were surprised to find much forest around the village. We were interested in investigating if this was religious forest, and what the reason was for not cultivating the land.
- The question was well understood and answered. The question was added after the pre-test.

Transportation

16. *How do you get your crops/products to the market?*

- To investigate how the products were transported to the market.
- The question was well understood and answered.

17. *How long time does it take?*

- To find out how much time they spent on transport.
- The question was well understood and answered. All the respondents answered the same, so after three interviews the question was left out.

18. *How often do you or anyone in your household take your crops/products to the market?*

- To investigate the frequency for market trips.
- The question was answered, but it was difficult to verify if the question had been understood

19. *Before the road was build/upgraded how did you get your crops to the market?*

- To investigate how the products used to be transported to the market.

- The question was well understood and answered.

20. *How long time did it take?*

- To investigate the frequency for market trips before the road was build.
- The question was well understood and answered.

21. *How often did you or anyone in your household take your crops/products to the market?*

- To investigate time spent on transportation before the road was build.
- The question was answered, but it was difficult to verify if the question had been understood

#### Employment

22. *Do you or anyone in your household work for paid labour?*

-Where, How often

- To get an impression of how many people within a household that was working and if some of the work was seasonal.
- The question was well understood and answered.

23. *Have there been any changes during the last five years in your employment?*

-Why

- To investigate if the road has meant any changes in employment.
- The question was well understood and answered.

#### Market dependency

24. *Do you now earn money in other ways than five years ago?*

- In what ways, why

- To investigate if any money generating activities had begun since the road was build.
- The question was well understood and answered.

25. *Have you become more dependent of the market during the last five years?*

- In what ways

- To investigate if the road has caused a greater market dependency.
- It was difficult for the respondents to understand the question. After a while the question was left out and instead included in informal discussions. Only the well informed and educated respondents were asked the question throughout the survey.

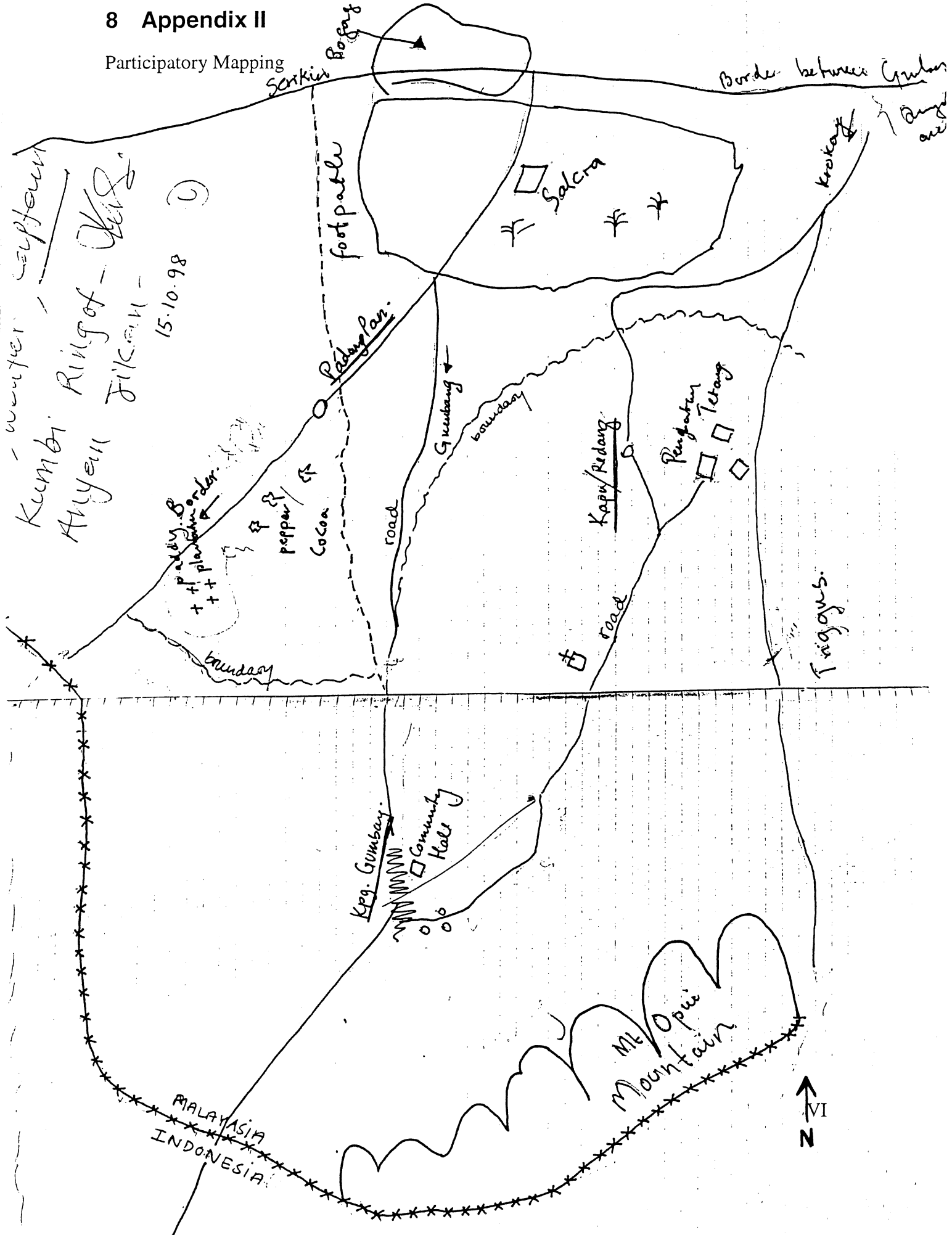
26. *Has the upgrading/building of the road had anything to do with this?*

- To investigate if the respondents could see a clear connection between the road and the market oriented development and dependency.
- The question was not understood and after four interviews the question was substituted by another question: *Has the road changed anything for you?*

*Thank you for your time, we are very grateful for your kindness. Do you have any questions for us?*

8 Appendix II

Participatory Mapping



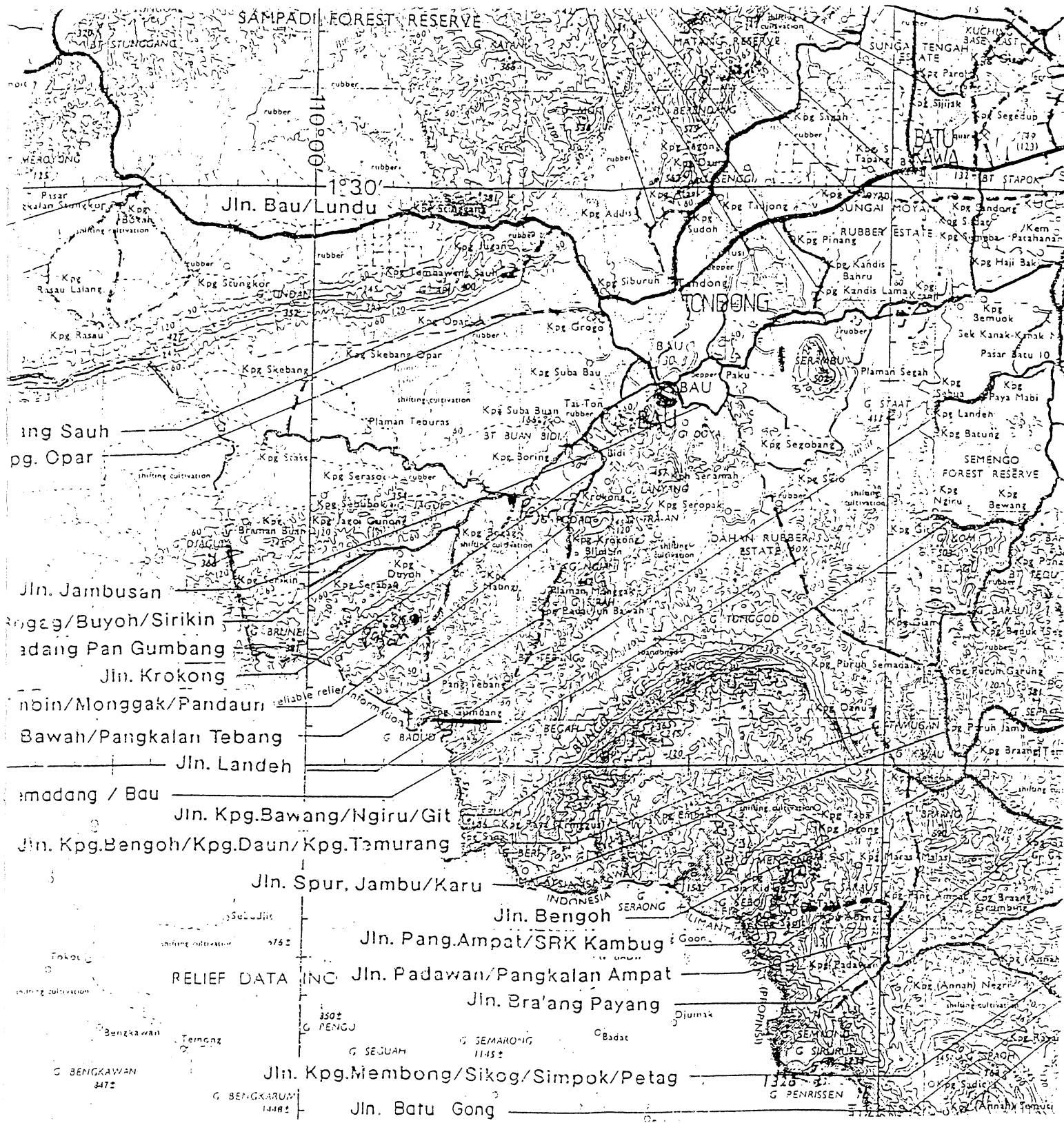






# 9 Appendix III

Map showing the infrastructure around Kpg. Gumbang.



## 10 Appendix IV

List of products found at the Sunday Market in Bau.

| Product             | Unit      | Price    |
|---------------------|-----------|----------|
| 1. Lemon Grass      | Bundle    | 50 cents |
| 2. Sweet Potatoes   | Piece     | 2 RM     |
| 3. Pineapple        | Piece     | 2 RM     |
| 4. Lime             | one kilo  | 4 RM     |
| 5. Ginger           | one kilo  | 3 RM     |
| 6. Lady Fingers     | one kilo  | 2 RM     |
| 7. Star Bean        | one kilo  | 5 RM     |
| 8. Lemon            | Piece     | 4 RM     |
| 9. Sabi             | bundle    | 1,5 RM   |
| 10. Cucumber        | one kilo  | 2 RM     |
| 11. Baby Corn       | one bag   | 1 RM     |
| 12. Banana          | one kilo  | 1 RM     |
| 13. White Carrot    | one kilo  | 5 RM     |
| 14. Peria           | bundle    | 2 RM     |
| 15. Kasai           | bundle    | 4 RM     |
| 16. Star Fruit      | one kilo  | 25 RM    |
| 17. Keilan (salad)  | one piece | 1 RM     |
| 18. Terung          | bundle    | 1 RM     |
| 19. Tage            | one kilo  | 14 RM    |
| 20. Local Mango     | one kilo  | 3 RM     |
| 21. Abougin         | one piece | 2 RM     |
| 22. Paku (fern)     | bundle    | 1 RM     |
| 23. Seaus           | one kilo  | 5 RM     |
| 24. Cucumber Leaves | bundle    | 1 RM     |
| 25. Kusai           | bundle    | 1 RM     |

### **Participatory matrix scoring and pairwise ranking**

The idea of a matrix scoring is a method where the informant can express the importance of activities, items, products (etc) compared to each other, with another method than verbally. The idea of pairwise ranking is to rank two activities/things against to each other. For example; what is best - milk or water? A person may, by using a larger number of small stones to illustrate a high preference of a certain activity/thing compared to a smaller number of stones to indicate a low preference of another activity/thing, indicate their preference. As a minor part of the semi-structured interviews we decided to incorporate participatory matrix scoring and pairwise ranking (appendix 5). We had foreseen that our informants most probably would not be used to being interviewed, so we tried a method where the informants were more active. We made a scheme in which they should rank to what extend the NTFP's were used, in the household or for the market. The result of this participatory matrix-scoring, which we tried out in two interviews, indicated that all the NTFP's were used equally in the household and for the market. We had several reason to consider if the results were trustworthy. First, the background of the informants. The informants had told us that their regular collection of NTFP was mainly for the market. Second, the fact that we had given them eight corns made it possible to make a 50/50 score. The 50/50 score was given by both of the women for all products, before and now, which can be seen as a way of being neutral. Third, it was doubtful that we had chosen the NTFP's to be ranked. We could not be sure that these NTFP's were the ones the informants collected and we had not defined the wild animals either. We decided that there were too many uncertainties in the set-up of our matrix resulting in such a doubtful picture, that we could not legitimise continuing with the matrix method. We attempted to use the pairwise ranking in two interview because we thought it would be interesting to know what village people used their money for at the market. We realised that the few options we had in the scheme were not relevant to rank, and that we did not know how we should use the information. As a consequence we decided not to go on with pairwise ranking.

### **Topic focused interviews.**

The idea of topic focused interviews is to create a situation where the interviewer is free to phrase questions and dwell in detail on matters that particularly excite the informants. The interviewer has a list of topics and sub-topics and do not have to follow a certain line, but can

pose the questions when there are relevant. (Casley&Kumar,1992)

During the last 6 interviews in Gumbang we changed our approach of questioning to the informants because we had the impression that the villagers did not feel very comfortable with our questions, resulting in many unanswered questions - especially those - as mentioned earlier - where the informants should answer whether there had been a change within the last ten years or not and explain why. At the same time we did put even more emphasis on the introduction to ourselves and emphasised that our supervisor was joining the interview, not to check the answers of the informants, but to see how we were doing.

Our experience with topic focused interview was positive (keywords in appendix 6). The conversation was easier and we received a lot of information. It seemed as if the informants felt more relaxed and the feeling of an "examination" was out of the interview, which seemed to have a major influence on the way the informants answered the questions. Using the topic focused interview method we did not experience even once that people refused to explain what they had just said, or becoming confused if we pointed out some constraints in what they were saying. On the other hand the danger of using this method is to loose consistency and not remembering all the relevant questions because the topics can change often.

We learned that topic focused interview is a good way of getting a more relaxed interview with people who are not used to be interviewed. By using the knowledge from the former interviews during the topic focused interview can make the interviewer and informants come closer to a discussion-like situation. The interviewer then has pre-knowledge about the topic and can more easily follow up on the informant's statements and get the informant to explain exactly what he/she means.

The method can also be used as a sort of an informal interview to get some overall information about a certain topic. The interviewer can ask overall open-ended topic focused questions that gave the informant opportunity to answer exactly what he/she finds is relevant for the topic. The interviewer can use it before making a more specified semi-structured questionnaire.

### **The role of the interpreter**

During the whole fieldtrip we were very dependent on our interpreter, Carol. She was a second year student at Social Science at UNIMAS. Her English was not fluent and it was the first time she had the role as an interpreter. In general our experiences with her were positive,

we could communicate with each other without any serious problems.

It sometimes happened that the informants gave an answer to a question that was not asked, and we discussed whether it was our formulation of the question that could be misunderstood, did Carol change something in the question before she asked it to the informant or did the informant misunderstand/refuse to answer the question? The same problem could arise the other way around. If the informant formulated an answer that could be misunderstood, Carol may change something in the answer or it was us who misunderstood the answer. We discussed the issue with Carol and went through the questions/keywords and used other words on the questions/keywords to make sure that we understood each other, but the problem can not be totally eliminated. Before an interview we always made sure that the interpreter was sitting in a position where she could have eye contact with the interviewer as well as the informant, and that made it possible for the interviewer to repeat or reformulate the questions if the interpreter seemed not to understand the questions.

We have discussed to which extent Carol has biased the answers we received. Our experience is that she did not adopt a critical attitude to our project, but at the same time we know that she did select what to interpret according to what she thought that we would like to hear.

### **Keyinformants:**

Our key-informants in Gumbang were the local headman and one of the schoolteachers. They provided us with overall information about the inhabitants and told us about the history of the village.

### **Selection of informants:**

We found the informants from different criteria:

1. The key-informants pointed out some of our other informants. This creates a biased group by the key-informants understanding of whom we would like to talk to.
2. Some informants suggested other village people to be interviewed. The group could be biased by the informants' relationship to other villagers.
3. We knocked the doors where we thought somebody would be home. We tried to choose houses of both bricks/cement and wood-houses structure.

## **5 Conclusion**

Our project is a result of a long process where we have tried to design a project that reflects the experiences we got during our fieldstay in Sarawak. The meeting with Bau, Opar and Gumbang reminded us that reality often turns out to be different from what we had expected. The stay in Gumbang/Opar was a challenging and very difficult process of changing focus, changing objective and changing the way we were asking our questions.

During the fieldtrip and afterwards we have been reflecting on our methods and have considered what we were doing, how were we doing it, and how we could do it in another way. These legitimising questions have been very important and have lead to a lot of frustration, but at the same time it learned us that the process of developing an objective and make a questionnaire that is clear and relevant is long and very challenging. Fortunately this project has been open for changes all the time, we could change our objective and our questionnaires as we wanted. We ended up with a project, with a different objective from what it started as and based on interviews where both the type of questions and the way they were asked, were different from our original ideas.

It is our opinion, being two persons in a group has put a limitation on our fieldwork. We were just two people having to conduct all the interviews. We would have liked to have a larger sample for each interview method tried, before we changed from one method to another. This would have given us a greater legitimation for changing from one method to another.

Looking at our main objctive we did not find the great changes that we had expected. We had actually thought that the market had had a bigger influence on the collection of NTFP.

According to our results there has not been any significant changes in what the villagers are collecting from the forest when looking at plants and fruits. It is only the amount of animals that seems to have decreased according to the villagers due to different changes. It did not have a direct relation to the road but instead there were more villagers hunting and there were more villagers owning guns.

This means that we can not prove a tendency in changes in what is being collecting due to better access to a market.

According to our results there has been a little change in what the collected products are being

used for. Before the road the villagers hardly ever went to the market to sell anything but as it looks today almost all of our informants said that they would sell a surplus at the market. This change has happened due to the better access to the market.

We can not point out a certain change in livelihood practises for the people we were talking with due to the development in the last decade. The reason why there has not been any major changes can be found in the fact the road is still quite new and it is to early to see any big changes. Collection of NTFP seemed to us to play a quite important role for the household, but not for the household economy. The villagers get their money from relatives or/and sale of other activities or/and (cultivated) products that are not related to NTFP. NTFP 'provides' the household with fruits and plants (and animals) when it is needed and that was the same picture before.

It could be interesting to go back to Gumbang in 5-10 years time and see if it would be easier to find some changes due to development. We think that it is a village that is just in the beginning of a transformation from a more traditional community to a more "modern" one and it would be interesting to see which role NTFP's would play in the future.

# Appendix 1

## An overview of our interview-schedule from 7.10.1998 to 18.10.1998.

|                 |   |
|-----------------|---|
| Wednesday 7.10  | Informal interview with headman Opar  |
| Thursday 8.10   | Informal interview with headman Gumbang<br>Informal interview with headman Doyoh                        |
| Friday 9.10     | Direct observation, Gumbang<br>3* Semi-structured interview, Gumbang                                    |
| Monday 12.10    | Structured interview with 25 stallkeepers at the market in Bau<br>Focused "group" interview, Doyoh      |
| Tuesday 13.10   | Semi-structured interview, Gumbang  |
| Wednesday 14.10 | 2* semi-structured interview, Gumbang<br>"group" interview, Gumbang<br>Topic focused interview, Gumbang |
| Thursday 15.10  | 7* topic focused interviews, Gumbang  |
| Friday 16.10    | Topic focused interviews, Gumbang<br>2* informal interviews with keyinformants, Gumbang                 |
| Saturday 17.10  | 2*Informal interviews, Gumbang  |



## **Appendix 2**

### **Interview guide for interview with the headmen.**

- village history
- what people are doing in the village
- how many collectors
- which products are being collected
- any selling at the market
- transportation to a market/which markets

14. *Have you decided what you to collect before you go out? Why/whynot?*
15. *Why do your household collect products from the jungle?*

## **CULTIVATED PRODUCTS**

16. *Do you cultivate anything yourself?*
- a) *What do you cultivate?*
  - b) *How far away is your field? Why?*
  - c) *Do you collect jungle products on the way to the fields?*
  - d) *How often do you go to the field? (What do you do the other days?)*
  - e) *How much time do you spend in your fields?*
17. *What do you do with your cultivated products?*
- The household?*
  - The market?*
18. *How often do you go to the market to sell your jungle products and cultivated products and which one?*
19. *How are all the products transported?*
20. *What are the costs for transportation and stall-fees for both the jungle-products and the cultivated products?*
21. *How long time do you stay at the market to sell the products?*
22. *Why do you sell your products to another stall-keeper?*
23. *How much money do you earn on selling all your products?*  
*(In week/month/year). Part: jungle-products / cultivated products?*
24. *Why do people sell their products at the market and not in the village?*

## **MARKET RELATIONS.**

25. *Does your household get money from somewhere else?*
- From where?*
  - How much? How often?*
26. *Does your wife/husband work?*
27. *Do your children send you money?*
28. *Do you have other jobs? What do you do? How often? Earnings? Why?*
29. *How often do you go to buy things at the market?*
30. *Which food-products do you buy at the market?*

*31. Are you saving money?*

*-What for?*

*32. What is your future plans?*

*33. Has it become more easy/ more difficult to get the forest products?*

■ *Why?*

## Appendix 5

### Participatory Matrix scoring:

|                  | FERNS | BAMBOO | FRUIT | RATTAN | ANIMALS |
|------------------|-------|--------|-------|--------|---------|
| FOOD             |       |        |       |        |         |
| BUILDING<br>MAT. |       |        |       |        |         |
| CASH             |       |        |       |        |         |
| OTHERS           |       |        |       |        |         |

### Pairwise ranking matrix:

|            | FOOD  | CLOTHES | BUILD.MAT. | PETROL |
|------------|-------|---------|------------|--------|
| FOOD       | ----- |         |            |        |
| CLOTHES    | ----- | -----   |            |        |
| BUILD.MAT. | ----- | -----   | -----      |        |
| PETROL     | ----- | -----   | -----      | -----  |

# Appendix 6

## Topic focused interview

Name

Age

Numbers in the household

Main occupation

To all the following topics we were asking about before and now.

### Use of forest products

Which ones (plants, fruits, animals)

Easy/difficult to find

Time spent

What are they used for?

Importance for the household

### Cultivated products

Which products

Time spent on cultivation

Used in household or sold at the market

### Market

How often they go to the market

Transportation

Money earned

The importance of the road for going to the market

Why selling at the market

### Economic situation

Income from somewhere else (children/other jobs)

Buying at the market

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