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How to achieve successful GCL empowerment in poor, rural areas?

A new framework applied to the mobile biodiesel project in Central Kalimantan, Indonesia.



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EXECUTIVE SUMMARY

This study is performed for the University of Groningen to contribute to the knowledge with regard to the mobile biodiesel project. This project has just started and is a collaboration between several Dutch and Indonesian universities. The goal of the project is to increase economic activities in poor, small, rural villages in a specific area of Central Kalimantan. The expectation of the project members is that this area is characterized by low levels of electricity and hard access to biodiesel.

The subject of this study is collective empowerment. Four perspectives are discussed in the literature review. First of all, the basic needs perspectives, which stresses that the individual has to have fulfilled the basic needs before being able to grow. The second perspective is the human capital perspective, which deals with education, training, knowledge and skills. The local institutional perspective has social capital as a central concept and is a characteristic of the collective; the capability of the collective to manage their own needs with the help of access to other people or networks. Lastly, the decentralization perspectives deals with the degree of power local people have to make their own decision. In the conceptual sensitizing framework these four perspectives are presented as a new, integrated point of view which emphasizes that the requirements of all perspectives need to be taken into account in order to achieve successful collective empowerment. This is in contrast to the current view in the literature, which implies that each perspective by itself can already lead to successful empowerment.

During the empirical part, the concepts of the sensitizing framework are empirically applied in order to determine the strengths and weaknesses of the mobile biodiesel project in Central Kalimantan with regard to achieving effective collective empowerment. This empirically testing is done by performing a qualitative research and the necessary information is collected by interviewing, documentation and visits to the area.

It is concluded that the mobile biodiesel can be implemented successfully, however there are several aspects that can cause problems. Especially the concepts of the decentralization and local institutional perspective do not provide very positive results. A lot of power is in the hands of only a few people leading to the possibility of corruption. The local people themselves are very passive and just do what more powerful people (most likely the government) tell them to do. Besides the rubber union, which could be very helpful for the project, there are not many groups in the region or links to more powerful parties. This relates to the low amount of institutional capacity.

In short, care should be taken when implementing this project, but it can work. Another question to ask is if this is the right project to help these people, since it appears that most of them already have electricity and access to biodiesel. Whether the local people are ready to make such a change is a second question the project board could consider.

The evaluation of the conceptual framework is the second part of the conclusion. The concepts and relationships presented in the conceptual framework are confirmed in reality. However, two factors were missing and had to be added before presenting the final framework. The first is external infrastructure, which is very important with regard to local people's food security and therefore belongs to the basic needs perspective. Readiness to change is the second factor and is presented as a fifth perspective.

The discussion addresses the most important difficulties encountered as well as decisions taken. The open research question made it hard to define the boundaries of the literature review during the desk research. The field research had practical difficulties like language as the main problem. Also, understanding the technical aspects of the project required more time than estimated.

Research limitations derive mainly from the conceptual framework chosen. The four perspectives are quite broad, which lacks a more thorough investigation of a lot of concepts. Future researchers can focus on only one perspective for example and perform a more detailed and extensive study. Also some other concepts outside the field of empowerment can also influence the success of empowerment. These factors, for example technical, are not discussed in this study. A last direction for future research is the post-measurement of realized empowerment when the mobile biodiesel project is actually implemented.

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LIST OF ACRONYMS

ABF	Agriculture Beyond Food
AMAN	Indigenous Peoples Alliance of the Archipelago
BAPPEDA	Provincial Development Planning Agency
BAPPENAS	National Development Planning Agency
BOS	Bantuan Operasional Sekolah; Education Cost Support
BPS	Badan Pusat Statistik; Statistics Indonesia/Central Kalimantan
CIMTROP	Co-operation in Sustainable Management of Tropical Peatland
EMRP	Ex-Mega Rice Project
GCL	Group/Community/Locality
IAP	Integrated Assessment and Planning
IDR	Indonesian Rupiah
IDT	Inpres Desa Tertinggal
ITB	Institut Teknologi Bandung
LED	Local Economic Development
LERD	Local Economic Research Development
MBD	Mobile Biodiesel
NESO	Netherlands Education Support Offices
NGO	Non-governmental Organization
PODES	Potensi Desa; Statistics on socio-economic conditions of the villages
PM2L Program	Program of local government to develop villages in Central Kalimantan
PPO	Pure Plant Oil
TSU	Transmigrant Settle Unit
UoG	University of Groningen

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1. INTRODUCTION

Empowerment has become a real buzzword the last decade in the domain of development and is an increasingly familiar term within the World Bank and many other development agencies (Cornwall & Brock, 2005). Empowerment in general can be defined as enhancing an individual's or group's capacity to make choices and transform those choices into desired actions and outcomes (Alsop & Heinsohn, 2005). Moreover, empowerment of community members also gives them psychological power. The ability of their group to achieve desired goals which improves their lives, this produces an extreme sense of well-being and positive growth, also called liberating or emancipator experience (Fetterman & Wandersman, 2005).

Empowerment was highlighted as one of the primary forces for poverty reduction by the World Bank in its millennium *World Development Report 2000/2001: Attacking Poverty* and in subsequent strategy statements. Given the enormous scope, as well in terms of locations as in terms of money, of projects of the World Bank, the importance of empowerment as a strategy to reduce poverty is clear. From this point of view, the goal is to empower groups, communities or localities (GCL) by increasing the capacity of the GCL to make purposeful and effective choices in the interest of pursuing a better life for themselves (Smulovitz, C., Walton, M. & Petesch, P., 2003).

Although the huge amount of literature about empowerment, there are still some areas that need further research. My thesis fills a small part of this research gap. First of all concerning the context: a lot of academic theoretical work is about empowerment of minority groups, for example women or poor people in a developed area. Only a small portion of all academic literature is about the empowerment of poor communities in rural areas, which is different since they are not the 'worse off' part of a 'higher welfare' group, but they are a whole group themselves. So, literature about a poor minority group surrounded with wealthy others or women who have less rights than men for example, is not applicable since their whole community is poor and no (real) differences exist between the members. They are not confronted by wealth all the time and therefore they probably do not feel bad. This is a total different situation and I think it should also be dealt with in another way. This area is primarily dealt with by the World Bank. Therefore, this research adds to the current limited existing academic literature of GCL empowerment.

Furthermore, the current literature about empowerment can be widely divided into four different perspectives being the basic needs perspective, human capital perspective, social institutional capacity perspective and the decentralization perspective. However it is striking that in current literature, only one or two perspectives are dealt with at a time. A complete picture showing the interaction between

all four perspectives and the need to for an integrative view is lacking. In this thesis a new, integrative framework is provided.

To further illustrate the importance of my thesis I will use a program called *Inpres Desa Tertinggal* (IDT) as example. Empowerment program IDT was launched in Indonesia in 1994 and its goal was to encourage local people to initiate efforts to reduce their poverty problem. Self-reliant people's organizations working on local socio-cultural conditions, known as *pokmas* (people's groups), were established to manage a large sum of money given to their villages that should be used for the development process. The funds, together with adequate facilities and technical assistance, were provided in order to boost economic activities of the poor. Although on paper the approach was a great opportunity, the actual implementation was bothered by difficulties such as leadership problems. The village leaders were dominant in the organization of the *pokmas*. A program designed to empower the local people did not trickle the power of decision down to the people. The *pokmas* was formed only for the project and once it was over, they were also terminated.

The Integrated Assessment and Planning (IAP) has critically evaluated past efforts, including the IDT, and among others it was found that there was a lack of participation of the stakeholders, the major stakeholder being the poor people themselves. They were not assisted during the planning, development, implementation and monitoring of the program. As a result, ownership was low for the program and projects. Thus, empowerment failed! (Indonesia: Integrated Assessment of the Poverty Reduction Strategy Paper)

At this moment a mobile biodiesel (MBD) project is going on in the province Central Kalimantan with different stakeholders involved. One and a half years ago the MBD project was set up as one of the projects falling under the wider 'Agriculture Beyond Food' (ABF) project which was started to fight for food security, food and health, energy supply, stewardship and climate change. The MBD project started as a collaboration between Dutch and Indonesian universities and the main goal is to increase the economic activities in Central Kalimantan. According to the board of the MBD project, rural villages in this region are characterized by limited access to electricity, only several hours a day, as well as limited access to (bio)diesel which constrains their economic development. The MBD project consists of seven steps, starting with the development of the mobile biodiesel and the last step is the (possible) implementation of the mobile biodiesel technology in the Central Kalimantan area with the help of the LERD approach. This approach will be used to realize participation of all the stakeholders from the local area in order to start or increase local economic activities with the use of mobile bio energy. The project is still in the early stage of developing the mobile biodiesel, which can serve small, rural areas to get diesel and electricity. The main goal of this project is to establish local economic development in these areas facilitated by the usage of these mobile biodiesel.

Empowerment will be used as main implementation strategy to make this MBD project work. Based upon the above analysis of previous projects in Indonesia, it clearly shows the need to deepen the knowledge with regard to empowerment in order to achieve successful empowerment. This leads to the following research question:

“What are the strengths and weaknesses of the mobile biodiesel project in Central Kalimantan with respect to the four perspectives of the developed theoretical framework in order to achieve effective GCL empowerment and to what extent does the empirical evidence support the theoretical framework?”

The paper now continues with the research design. After that an overview of the current literature on empowerment is given, followed by the developed conceptual framework. Consequently, the MBD project is briefly described. The next step is to empirically apply the concepts of the framework and assess them. Implications for the MBD project are given as well. In the conclusion the strengths and weaknesses of the project are explained, advice is given to the board of the MBD project and the final framework is presented. The last two chapters conclude the paper with the discussion, limitations and recommendations for future research.

2. RESEARCH DESIGN

In this chapter first, the problem statement is elaborated upon by discussing the research objectives, sub questions and the demarcations of the research (De Leeuw, 2000). The fourth component, main research question, is not discussed again. After that the research strategy and research methods are addressed. The chapter concludes with evaluating the quality criteria.

2.1 Problem Statement

This study can be summarized by having the following three research goals:

1. Develop a new framework to assess the likelihood of success of GCL empowerment in poor, rural areas by integrating four different perspectives.
2. Assess the likelihood of success of GCL empowerment for the MBD project in Central Kalimantan by determining the strengths and weaknesses. This is reached by applying the framework empirically to the MBD project.
3. Relate the findings from the field work to the developed framework in order to test and build the framework.

When taking a look at this research from a more broad perspective, besides the MBD project which is especially interesting for the people involved, it is important to know its contribution other than this specific project. By developing the new integrated framework that integrates the four current perspectives and comes up with a possible new point of view (being that the perspectives cannot be seen separately), a contribution to the current literature is achieved by means of elaboration (van Aken, 2004). According to van Aken (2004) theoretical schemes need to be tailored to each specific situation or combined with each other. This is what I have done, since the framework is developed to assess the MBD project, but can be applied to similar projects as well since it is a general framework. The framework offers future practitioners an integrated perspective on assessing the likelihood of success of GCL empowerment.

In order to answer the main research question and to reach the three research goals, three sub questions are created.

1. What are, according to the theory, the requirements that need to be met in order to achieve effective GCL empowerment?

Current literature is reviewed by discussing the different perspectives. Consequently, these perspectives are graphically displayed in a framework. This new framework clarifies my integrated point of view, being that the four perspectives cannot be seen separately in order to achieve successful

GCL empowerment. Based upon this framework, the requirements that need to be taken into account are explained for each perspective, which gives insight into the important question: how to achieve successful GCL empowerment in a poor, rural area? This is the theoretical part of my thesis, finished with a sensitizing conceptual framework which is used as a starting point for the empirical part.

2. What is the MBD project in Central Kalimantan?

Before applying the new framework to the MBD project it is important to know what the MBD project exactly looks like. The project is briefly described and information is provided about for example: the parties involved and their specific interests, the mobile biodiesel technique, what is expected of the local citizens of Central Kalimantan and how will they be prepared. This knowledge is needed to get a good understanding of the project that is subject of my field research.

3. How does the MBD project in Central Kalimantan 'score' on the requirements needed to achieve successful GCL empowerment?

In this chapter the sensitizing conceptual framework is applied to the MBD project. This is the empirical part of the study and the requirements of the framework are used to assess the MBD project in terms of likelihood of success of the GCL empowerment. Insight will be given into the current state of the project with regard to the requirements of the MBD project in order to make it successful.

After answering these three sub questions, the main research question can be answered. Firstly, the empirical data is translated into strength and weaknesses for the MBD project. Implications are also discussed. Also, the empirical evidence can be compared with the developed framework based upon the literature review and provides information about confirmed, disconfirmed or missing relationships. It shows to what extent the overall sketched point of view (i.e. it is only possible to take all four perspectives into account) proves right and if the appropriate requirements are included. The framework will be adjusted if necessary and the final framework is presented.

The last part of the problem statement concerns the demarcations of the research. The biggest demarcation of my research is geographical. The MBD project focuses on Central Kalimantan, especially the ex mega rice project (EMRP) area. The exact characteristics of this area are discussed in paragraph 4.1. Therefore, the scope of my empirical investigation is limited to this EMRP area. Moreover, only a part of the villages within this area have been visited. By taking a look at the map of the EMRP area and by carefully selecting the cases, I think the site visits provide a good, general picture of different kind of villages and their characteristics. However, I also have to acknowledge that the site visits had some constraints such as travelling time and ease to reach the village, resulting that the most geographically isolated villages have not been visited. Therefore, the observations might not be representative for the isolated communities and villages in Central Kalimantan. Besides that, the MBD project might decide to implement the new technique in the whole Central Kalimantan province

instead of only the EMRP area. In that case especially the site visit observations and information might not be representative, since the EMRP area has its own characteristics due to its history.

Two other demarcations are time and language. Since the tourist visa for my stay in Indonesia is for two months only, this is the limited time frame to do the field work. Regarding language: all interviews are held in English, which means that neither party uses their mother language. This can lead to difficulties when explaining certain things or wrongly interpreted answers. Especially during the site visits, I had to ask questions to the guide, who subsequently translated and asked the question in Dayak language. However, the guide did not speak English very well, which often led to loss of information due to translation difficulties.

2.2 Research Strategy

The research strategy is classified as a combination of field study and field work. According to Mikkelsen (1995), field studies perform a systematic investigation of social situations and social change. In this case, the social situation of communities in the EMRP region in Central Kalimantan is investigated. Field studies seek answers to certain questions in a systematic way, but without following a stringently predetermined route. In this research, getting a better understanding of the requirements of the four different perspectives of GCL empowerment is the aim of the field study. The field study is concerned with activities which are not done in the field, but are related to it, for example gathering theoretical information, finding data sources and preparing instruments for the data collection. The field study is accompanied by real field work; site visits. During the site visits, empirical data is collected by observing and asking questions to local people.

The conceptual framework used as a guideline to assess the situation during my field work is developed based upon a literature review (field study). However, I chose for the so called 'open research question' approach. This means that the framework is further developed during the empirical research phase and is subject to change, no clear boundaries are stated upfront. In the conclusion, the final, possible adjusted, framework is presented.

2.3 Qualitative Research Methods

Many important issues in empowering the poor, for example their identities, ideas and perceptions cannot be easily converted into numbers or understood without explaining the immediate context in which they live (Narayan, 2005). Therefore, the choice for qualitative research methods is appropriate. Moreover, qualitative methods are oriented at the discovery of quality of things, in this case especially the properties of the communities and their members in the EMRP area. According to some methodologists, qualitative research has an interpretative approach which aims to understand another

person, group or culture and involves ‘looking through the eyes of somebody else’. Another characteristic of qualitative research is that the data will also retain its contextual nature in the analysis, for example interview transcripts, notes of observations and existing documents (Van Aken, 2007).

The remainder of this research methods paragraph follows the structure of Van Aken (2007) and discusses the units of analysis, strategies to select cases, data collection methods and data analyzing methods. Van Aken (2007) is used, since this book focuses on design questions. However, the book is concerned with problems in actual businesses. Since my study is social, with as main interest the communities, some steps cannot be followed or are followed in a slightly different way.

The units of analysis are the major entities that are analyzed, in this case the individual and the GCL. The basics needs and human capital perspective deal with characteristics of the individuals, whereas the decentralization and local institutional capacity perspective deal with the collective GCL. Consequently, collecting data and information about several concepts related to both the individual and the GCL is the focus of this study.

The next step is the selection of specific cases, individuals and GCLs, that are investigated. The geographical boundary of the MBD project is limited to the EMRP area in Central Kalimantan. Fortunately, a lot of statistical data is available for this complete area. However, during the site visits not all individuals and GCLs can be included. At first, the selection of cases is based upon pragmatic grounds like ease to reach and time to reach the village. This results in a list of villages that can be visited. During the period of site visits, again specific cases are selected or excluded. This second selection of villages is based upon the results of cases that have already been executed. Based upon the previous cases, characteristics are chosen that create an interesting difference between villages. For example the size of the villages. Since it seems that bigger villages are often more developed, relatively big and relatively small villages are selected to investigate this in more depth. Another example is the status of developed (*maju*) or underdeveloped (*tertinggal*) village. Villages with different status are selected to investigate the differences in reality.

Several methods are used to collect the needed data. Since this study also involves an empirical investigation in the Central Kalimantan area, the research is divided into two periods. The first period, from the beginning of February until the beginning of April, concerns a lot of desk research. It involves reading literature, especially of the World Bank, about empowerment in order to develop the conceptual framework and find indicators which make it possible to measure the requirements. Moreover, specific knowledge about the project is gathered by reading existing documentation. The main method to collect data in this phase is thus documentation.

During the second period, starting in April, the field research started. The field research is conducted together with my research partner, David Baars. He is also involved in the MBD project and studies the technological factors. His paper complements this paper, since it offers a wider view on the factors influencing a successful MBD project. Besides collecting data from documentation, interviews and observations are two additional forms of data collection. Please refer to Appendix 1 for a complete overview of the interviewees. Interviews have been held especially with people who are involved in this project, which might be biasing. By interviewing also external parties who have knowledge about development projects, biodiesel and the local communities in Central Kalimantan, I try to provide also opinions and expectations from outside experts. For example NGOs, private companies and government institutions. The goals of the interviews are twofold: get a complete understanding of the MBD project as well as getting information about the concepts in the conceptual framework. Since the goal of these interviews is to get as much information as possible instead of standardization of answers, semi-structured interviews are more appropriate. In contrast to the structured way of interviewing, it is allowed to word the questions differently for different respondents and also the order of the questions does not matter too much, as long as you get the needed information it is fine. Therefore, the interview schedule consists of a set of topics about which information is needed and thus follows the semi-structured approach (Thomas, 2004). For the interviews during the site visits, a different type of interview is chosen namely the informal conversational interview (Mikkelsen, 1995). Questions emerge from the immediate context instead of being specified in advance. This happens when villages are visited and some questions are asked to the local people. This type is chosen because it increases the relevance of the questions, since they emerge from the researcher's observations. A disadvantage is the lack of systematic questioning leading to different information collected from different people with different questions (Mikkelsen, 1995).

The last step is to analyze the collected information to turn it into findings. A lot of qualitative studies do not explain how this is done. However, systematic ways to analyze qualitative data do exist. Van Aken (2007) distinguishes two strategies: the grounded theory approach which is data-driven and the template approach which is more theory-driven. In this study, the template approach is applied since already existing concepts are used. These concepts derive from the literature review and are shown in the sensitizing conceptual framework. Thus, the phenomena that are interesting to study are set before the empirical data collection starts.

2.4 Qualitative Quality Criteria

Quality criteria are an important means to reflect upon the quality of the study. There has been considerable debate about whether or not the same quality criteria can be used for quantitative versus qualitative research (Bryman A., Becker, S. & Sempik, J., 2007). Researchers supporting separate

quality criteria argue that it is hard to translate quantitative criteria, like reliability and validity, into legitimate corresponding operations for qualitative research. Therefore, I have chosen to use the specific quality criteria for qualitative research.

The most important criterion is summarized as trustworthiness and separated into four sub criteria (Bryman & Bell, 2007). The first sub criterion, credibility, is concerned with how believable the findings are. One way to judge the believability is to look at the methods used for data collection. A disadvantage of the methods used in this study is the subjectivity of certain methods, like interviewing and observations. However, to minimize this problem I make use of what Mikkelsen (1995) calls methodological triangulation. This means that different methods are used to collect the data with respect to the same unit of analysis namely the individuals and the GCL. Besides the subjective methods, also more objective methods are used like documentation.

Transferability is related to whether or not findings are relevant to other settings and other times as well. The findings in this study are unique and remarkable for the EMRP area in Central Kalimantan at the time of writing. Other researchers themselves should determine if certain information and findings are transferable to other settings. To enable easy judgment of transferability, an extensive and detailed description of the situation is provided. For example by explaining the history of the area and showing pictures of the visited villages. Transferability of the specific findings to other times is hard and not very accurate, since the area will keep on changing and developing. However, the theoretical framework provided is more time resistant and can also be used at future times.

The third sub criterion is about whether the same results would be obtained when replicating the study and is referred to as dependability. This study scores relatively low on dependability, since some of the methods used to collect data are subjective. Interviews and observations are guided by the researcher and also subject to the own interpretation of the researchers. This is also referred to as investigator bias (Thomas, 2006). Regarding these subjective methods, it is possible that the results of another researchers are different. However, by also including a lot of more objective measurements, like statistics and written documents, the dependability is not that bad. Another possible source of bias worth discussing is the respondent bias. It is possible that the interviewed people do not always tell the truth, since it is a project which might be implemented. Some parties could, depending if they support or oppose the project, provide information which leads the researcher to their preference. For example, if the governmental institutions are not in favor of the project, they can withhold helpful information. Another form of bias is the mediating role of the guide, who translated all the questions and answers during the site visits. Sometimes he did not understand the question asked and he might not always translate accurate.

Conformability, whether or not personal biases have been guarded for, is the last sub criterion. The question is if the same research was conducted by someone else, would that researcher confirm the findings? Although some interpretations are of course subjective, I think I have not biased the results. All interviews are documented and villages are photographed, which helps to stay objective during the data analysis. If certain interpretations are unsure, alternative interpretations are given as well.

3. DEVELOPING A FRAMEWORK TO ASSESS THE LIKELIHOOD OF SUCCESS OF GCL EMPOWERMENT IN POOR, RURAL AREAS

The term empowerment can be translated easily as participation. Two major uses of empowerment or participation are in place. The first is empowerment or participation used as a *means* to development and is also called instrumental participation. The second use is empowerment or participation as an *end* in itself, i.e. everybody has the right to have a say in decisions about their own life and is referred to as transformational participation (Mikkelsen, 1995). Realizing this distinction is important and necessary, since both types are used in different situations or phases of the process. Instrumental participation is used to achieve initial movement whereas transformational participation concerns the next phase of continuous movement.

Besides the above distinction between instrumental and transformational empowerment, the distinction between empowerment on individual level versus collective level is important as well. The ultimate goal is to achieve successful GCL empowerment, thus empowerment at the collective level. An example of group empowerment is the empowerment of the local farmers in Central Kalimantan. They need to participate by providing the input crop (palm oil, jatropha or rubber seeds; which one still to be determined) for the mobile biodiesel. The community level is determined by people's place of residence and consists of multiple households within a village. Their participation is about the usage of the mobile biodiesel and especially the biodiesel itself. The locality level represents a set of communities that have ongoing patterns of interaction and cooperation, such as a village. This is the central unit in the MBD project. However, to achieve successful empowerment at the collective level, individual empowerment has to be achieved first. This in order to realize initial movement, like explained above.

3.1 Four Perspectives of GCL Empowerment

After reading the current existing literature regarding GCL empowerment in poor, rural areas, different perspectives can be found. In my opinion almost all information and requirements provided by the current literature available can be roughly summarized into four different yet interrelated perspectives. The four perspectives and their relationship are now discussed.

Two perspectives regularly discussed in the literature and by the World Bank, one of the main parties in local economic development, are the decentralization perspective and the local institutional perspective.

1. Decentralization perspective: This perspective is about the power relations between government and local citizens. Giving the local citizens more responsibility can start a process of local capacity

development and is therefore characterized as instrumental empowerment (Fishbein, 1997). The World Bank often refers to this perspective as the opportunity structure, meaning the informal and formal context of the wider society within which citizens operate and also includes non-governmental activities (Smulovitz et al, 2003). However, there is always the concern that decentralization is a threat to state power which possibly leads to increased tension between the government and the GCL (White, 2006).

2. Local Institutional Capacity perspective: Capacity building is a widely used term related to development projects and empowerment. Capacity broadly stands for the ability of people, organizations, and communities to handle all the aspects of existence that relate to them (Vincent-Lancrin, 2006). Translating this into practice, local capacity in poor, rural areas refers to the ability of the poor citizens to manage their own needs by making meaningful choices. One of the determinants of the effectiveness of local institutional capacity is the degree of decentralization. Another factor mentioned is the strength of bonds between community members, referring to bonding social capital (Bebbington, Dharmawan, Fahmi & Guggenheim, 2006).

Narayan (2005) for example uses elements of these two perspectives. According to Narayan (2005), three key elements in attacking poverty through empowerment are: make state institutions more responsive to poor people, remove social barriers, build social institutions and social capital.

The third and fourth perspective, the human capital and the basic needs perspective, do not get a lot of attention in current literature.

3. Human Capital perspective: According to research on rural education, higher educational levels lead to faster growth rates in both per capita income and employment (Gibbs, 2006). Furthermore, to build local capacity, the local citizens need to be educated and trained in order to get the knowledge and skills to handle with all these issues related to this.

4. Basic Needs perspective: According to the need-hierarchy of Maslow (see Appendix 2), the individual progresses through Maslow's hierarchy by fulfilling basic needs, also called deficiency needs, first and then progressing through the growth needs to the final state of self-actualization (Rhodes, 1990). This is also BRAC's (Bangladesh Rural Advancement Committee) strategy to achieve economic development. BRAC shows that economic development can be made possible by first investing in basic human needs in order to free people from a mere fight of survival (Seelos & Mair, 2005). Since the citizens of the poor, rural areas might have not fulfilled their basic needs yet, they will not be able to grow according to this theory. Consequently, these needs will have to be fulfilled even before Indonesia can start thinking about the regional local development. This perspective therefore also concerns the possibility of initial movement and is thus classified as instrumental participation.

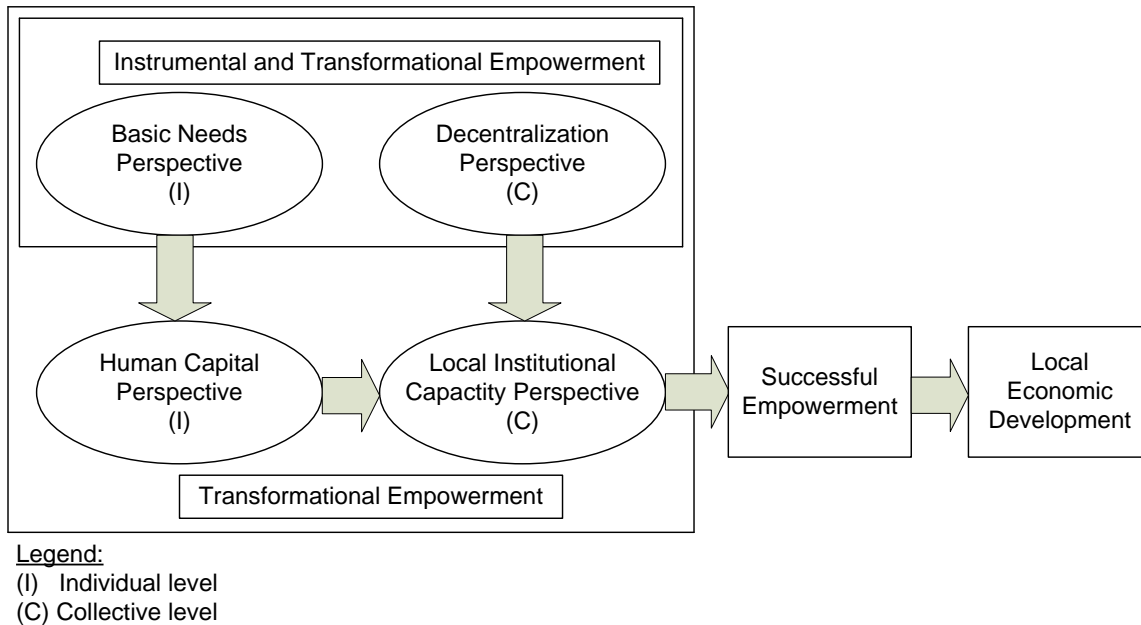
3.2 New, Integrated Point of View on the Four Perspectives

The above mentioned perspectives are the four different perspectives that can be found in current literature. However, in almost all researches, only one or two perspectives are dealt with, but a complete view covering all perspectives is missing. Therefore I explained the relationships between the four perspectives to fill in this literature gap. Moreover I argue that successful GCL empowerment cannot be achieved without taking a look at all four perspectives simultaneously, since they are so closely related. It is interesting to notice the different usages of empowerment for the four perspectives. Each perspective is characterized by transformational empowerment, meaning that they contribute to the continuous movement. However, to realize the initial movement, the basic needs perspectives and the decentralization perspectives have to be considered! This also implies that these two latter perspectives have to be taken into account *before* the perspectives of human capital and local institutional capacity in order to start the empowerment movement.

According to the current literature, each perspective by itself has a positive influence on GCL empowerment, neglecting the other three perspectives. In contrast to this view, my integrated point of view argues that all four perspectives need to be taken into account and cannot be seen separately if successful GCL empowerment is to be achieved. The relationships between the four perspectives and GCL empowerment, reflecting my integrated point of view, are graphically displayed in Figure 1. The figure shows that in order to initiate movement, on the one hand the basic needs requirements need to be fulfilled on individual level and, on the other hand the GCL on collective level needs to have the power to make certain decisions, which requires decentralization. Then, if the basic needs are fulfilled, individuals are able to grow and ready for the next phases of education and training which is needed in order to build local institutional capacity, which is a characteristic of the collective GCL. The importance of the human capital perspective and the local institutional capacity perspective as ways to reach continuous movement is also suggested by Mikkelsen (1995). He assumes that a lack of transformational participation is often an expression of the population's inability to participate, for example due to lack of education, lack of resources or a low level of organization. This new, integrated point of view leads to the following expectation:

An integrated view on GCL empowerment is required, i.e. (requirements of) all four perspectives need to provide satisfactory results, in order to achieve successful GCL empowerment.

Figure 1: The relationship between the four perspectives and GCL Empowerment: the new, integrated point of view



3.3 Sensitizing Conceptual Framework

This chapter continues by elaborating on each perspective presented in Figure 1. For each perspective the important concepts influencing the likelihood of empowerment success are discussed. After that the conceptual framework, which is used in the empirical case study, is presented.

Decentralization Perspective

Within the domain of community driven development strategies, locally planned and implemented strategies, referred to as decentralization, are becoming more and more popular. This involves that the local citizens themselves are essential contributors of the development process. Such a local approach is more likely to succeed in rural areas due to strong social relationship which is a favorable condition for collective action (Beard, 2007). Although decentralization helps initiating movement, it is also needed to realize continuous movement and thus transformational empowerment (Mikkelsen, 1995). Therefore, it is important to take a look at the local organizational context; which local governance institutions exists and what is their role with regard to local development?

In Indonesia, the local governance institutions can be classified into two different groups. The first encompasses the community organizations which are largely dependent upon participation of the communities own residents. Most often this concerns the governmental decentralization. The second group are the non-governmental organizations, NGOs, which often operate at a geographic or institutional level above that of the community. NGOs most of the time consist of professional staff

focusing on specific topic or target group. Although the amount of NGOs is growing, the presence of community organizations is still much broader and also more significant (Beard, 2007).

Given the enormous scope of the Indonesian Republic and its geographical distribution into more than 17.000 islands it is very hard to manage Indonesia from a centralized perspective. Therefore, decentralization of governance functions and resource allocation to local government authorities and communities is of great importance to serve local needs well. However, the effectiveness of decentralization is closely related to the second perspective of local institutional capacity. Capacity is defined as the overall ability of the individual or group to actually perform the responsibilities. This depends not only on the capabilities of the people, but also on the overall size of the task and the (financial) resources which are needed to perform them (Master Plan, 2008). Issues of limited capacity of local governments can be a constraint to effective decentralization reforms. An example is Colombia in the mid-1980s, where the local governments had to develop capabilities to be able to perform their new tasks due to state decentralization effectively, since they had only little experience with public administration and local governance. This was achieved by several capacity building efforts (Fishbein, 1997).

It is also important to recognize that decentralization is not necessarily effective. Too often decentralization presumes the existence of a homogeneous village with only poor residents all willing to work on community development initiatives (Leach et al, 1999). This is not always the case; it is possible that local authorities are not responsive to village demands or that the village authorities are not representative of the majority of the villagers (Bebbington, Dharmawan, Fahmi & Guggenheim, 2004). This can result in projects from which only a selection of the community will benefit or in the extreme case funds being lost to corruption (Chavis, 2009).

Local Institutional Capacity Perspective

An important concept influencing the amount of local institutional capacity is social capital. A lot of confusion around social capital stems from the application of the concept as an attribute of individuals versus collectives (Portes, 2000). For this study, the concept of social capital is seen as an attribute of the GCL, the collective. An individual's social capital is about both to the nature and extent of the involvement in informal networks and formal organizations. Indirectly a GCLs social capital provides insight into the amount and type of resources, such as information, ideas and support, a certain GCL is able to obtain (Grootaert, Narayan, Jones & Woolcock, 2003). Social capital is what we rely on when we use others to help us solve problems and take opportunities (Briggs, 1998). For example, social problems like crime, health, poverty and unemployment have empirically been linked to a (lack of) community's endowment of social capital. These resources, or capital, are called social capital, because they are only accessible through the interpersonal relationships (Grootaert et al, 2003). A

citation by Woolcock (1998) clearly illustrating the concept of social capital: “the theory of social capital thus presumes that if people are more connected with each other, they trust each other more, they cooperate more and the better off they will be, individually as well as collectively.” Thus, those communities owning a rich stock of social networks and civic associations will be in a stronger position to reduce poverty (Woolcock, 2001).

When investigating the different formal and informal networks of a GCL, a classification of three different types of social capital can be used. First of all there is the common distinction between bonding and bridging social capital (Gittell & Vidal, 1998). Bonding social capital refers to the type of relationships that brings people closer together who already know each other and are similar in terms of their demographic characteristics. Examples are the relationships between family members, neighbors, people living in the same village, colleagues and friends. For this study, it can be conceptualized as the strength of bonds between people of the same GCL. Bridging social capital refers to links outside the GCL, bringing people together who previously did not know each other, for example linkages with another GCL. Although these ties are weaker than bonding ties, they are considered more important “to get ahead” (Briggs, 1998).

I think that only these two types are not reflecting the total view of social capital and, moreover, are missing an important part of the linkages. Namely, both types only consider the horizontal linkages and networks, thus people with equal social status. Therefore I think that the third type, linking social capital, which is relatively new, should also be included. Linking social capital is referring to the vertical ties connecting to people with more authority and power, such as politicians or government officers for example. According to Woolcock (2001) a higher level of linking social capital results in higher access to ideas, information and resources.

The strength of each type of social capital depends on the richness of knowledge, skills and resources that can be obtained by it. The productivity of social capital can be increased by investing in the local capacity, which can be achieved by for example leadership training, increasing the awareness of constitutional rights and government programs and easier access to offices of the state (Krishna, 2001). This demonstrates the importance of the decentralization perspective.

It is clear that a high level of social capital definitely has advantages, but there are some negative consequences that might occur. Portes (1998) mentions several consequences to be aware of in case of high levels of bonding social capital. Bonding social capital might result in downward leveling norms, which occurs in situations in which group solidarity has arisen by a common experience of misfortune and opposition to mainstream society. Secondly, the individual freedom can be restricted, when that privacy and autonomy of individuals is reduced due to intense community life with strong

enforcement of local norms. It is also possible that outsiders are excluded in case of different groups living together in the same area. A possible negative consequence regarding linking social capital is mentioned by Titeca and Vervisch (2007). If linking capital is not accompanied by sufficient bonding and bridging social capital difficulties such as authoritarian tendencies and corruption can arise.

Human Capital Perspective

Besides social capital, which are resources *outside* the individual, human capital is also an important concept in order to achieve successful empowerment. This because human capital also contributes to the amount of local capacity. Human capital, reflecting the skills and education of individuals, is part of the property of the individual himself and is located *inside* the individual (Grootaert et al, 2003). Becker already introduced the notion of human capital back in 1962 by arguing that a society's amount of educated, trained and healthy workers determine part of the productivity of the workers. A better-educated labor force improves the labor pool for the public sector as well which leads to more efficient (local) government that is able to implement the right policies and programs that are required to achieve a high quality growth environment (Fox & Gaal, 2008). According to Krishna (2002), collective action towards shared GCL goals is more likely where social capital is high. However, the effectiveness of the collective actions and superior goal performance are achieved only in those GCLs where, besides high social capital, capable citizens are also present. Or as Ackoff (1999) puts it: "development is not a matter of how much one has, but how much one can do with whatever one has and what resources one can create out of what is available."

In order to ensure future labor quality, it is crucial that children have access to education. The percentages of children completing primary and/or secondary education is an important measure. In most developing countries it is often the case that education is only possible for the wealthiest families and often the enrollment level for girls is much lower. The direct and indirect costs of the education, for example education fees and the required uniform, are one of the highest barriers to enrollment and retention for lower income households. Especially for girls, the physical distance to school is a major factor that reduces enrollment (Fox & Gaal, 2008).

Another factor specifically for this project is the amount of technical knowledge and skills with regard to the mobile biodiesel. According to Ackoff (1999), knowledge is contained in instructions and consists of know-how. An example for the mobile biodiesel would be knowing how to make it work efficiently for an intended end. Knowledge can be obtained through experience, trial and error, or from someone else who has the knowledge. Most often, people are taught how to do something by participating in a training.

Although human capital is quite high, still, many development projects are not working well and farmers do not adopt the recommendations of the project board. If there is a lack of participation, this can be because of the inappropriate adaptation of the project to the needs of the target group. Literature on local people's knowledge and especially their technical knowledge demonstrates the importance of rural people's knowledge and its usefulness in inventing and adapting technologies to local conditions. This local knowledge is a very valuable resource and could complement the scientific knowledge. So, it is recommended to study this knowledge and incorporate it into formal research to make the development project more appropriate to local people's needs and thus more likely to have sustainable success (Grant & Sear, 1999 and Mikkelsen, 1995).

Basic Needs Perspective

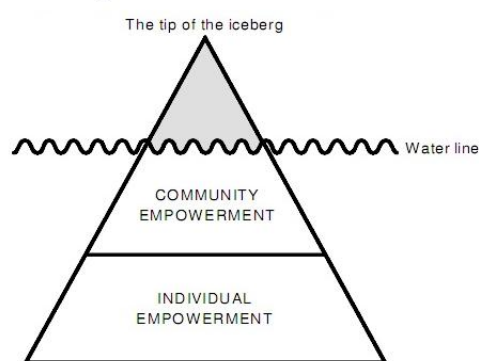
According to Wilson (1996) individual empowerment is crucial before community empowerment and finally community economic development can be achieved (see Figure 2). The goal of individual empowerment is the self-realization of the own well-being and the potential to change themselves, their families and their community. Hereby it is important that the individuals have self-esteem, think positive and feel

secure for example. Individual empowerment is enhanced by participation in the economic development process. Participation creates a feeling of belonging and interconnectedness which results in commitment and cooperation. Empowerment that is based on this inner transformation motivates people to improve their own lives, but also the lives of their close others, such as their community.

This is line with Maslow's hierarchy of needs theory stating that the basic needs must be at least partially satisfied before an individual can achieve growth and self-actualization, referring to the need for self-fulfillment. The hierarchy is displayed as a pyramid, see Appendix 2, ascending from the most basic physiological needs, such as hunger and thirst, to increasingly complex needs, such as safety, belonging and self-esteem. Maslow recognizes that most people are too busy satisfying their more basic needs in order to arrive at the stage of self-actualization (The Gale Encyclopedia of Psychology, 2001).

Health and nutrition are two factors influencing higher levels for example the quality of labor, which confirms Maslow's theory. Workers or children with bad health conditions are characterized by higher absence and lower productivity at work or at school (Krishna, 2002, Fox & Gaal, 2008). This specific example justifies the importance of the basic needs perspective.

Figure 2: Community Economic Development

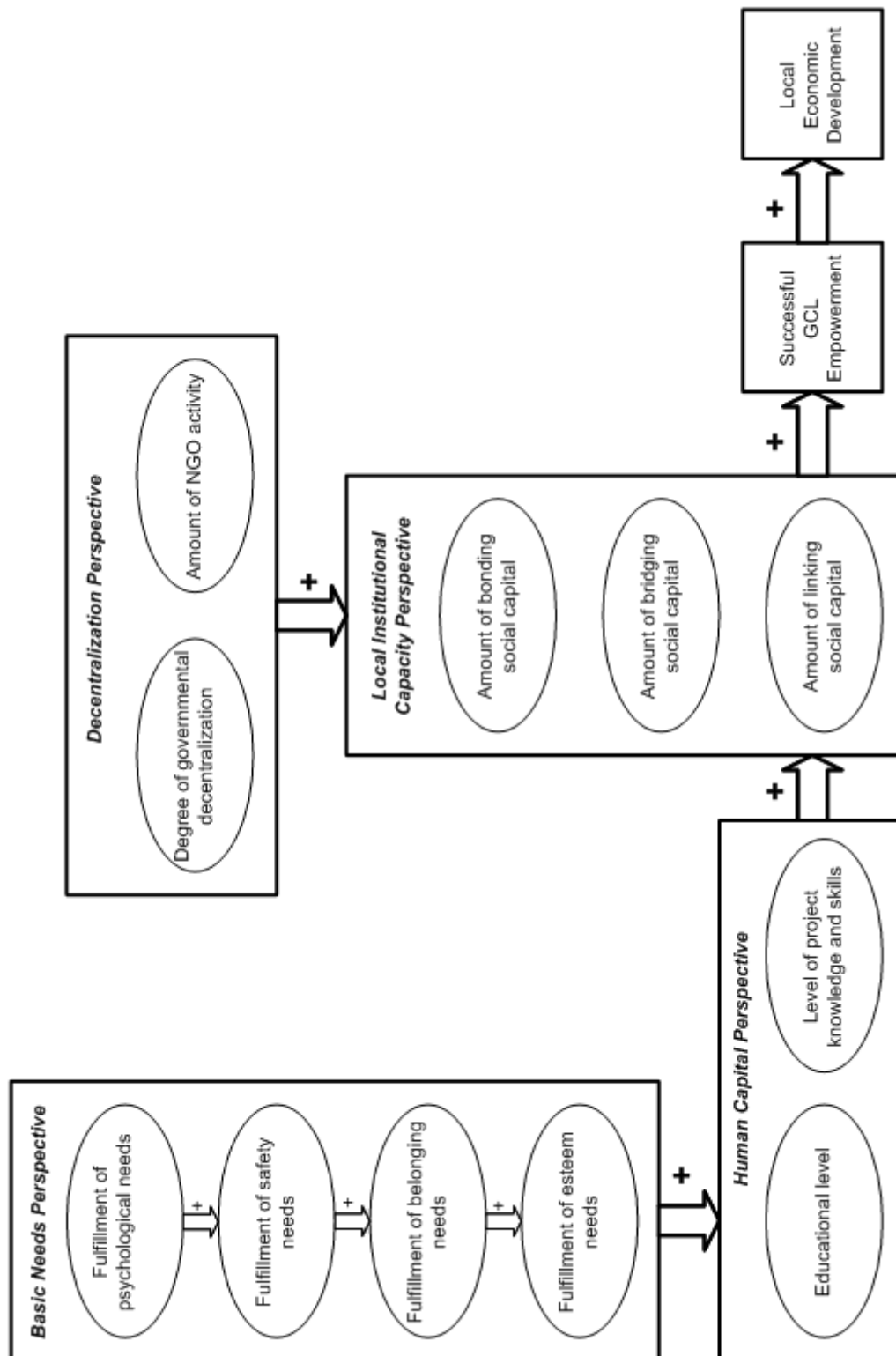


Sensitizing Conceptual Framework

Based upon the above literature review, a conceptual framework reflecting the sensitizing concepts influencing the likelihood of success of GCL empowerment is provided in Figure 3. In this conceptual framework the most important concepts of each perspective and the presumed relations between the perspectives and some concepts are specified. The integrated view on the four perspectives is the main argument of my thesis and is also applicable for this sensitizing conceptual framework. However, the conceptual framework goes into depth by showing the different concepts used in the empirical part to know which data is to be collected and how to structure this data. Due to the open research approach chosen, the conceptual framework consists of theory embedded sensitizing concepts and is used as a guideline suggestion directions along which to look. The concepts are applied to the units of analysis: the individual and the GCL. After the empirical field work, the final framework is presented in the conclusion and may contain new concepts.¹

¹ Powerpoint Presentation Bartjan Pennink/Kees van Veen, Research and Methodology Course Semester 1A

Figure 3: Sensitizing Conceptual Framework



4. THE MOBILE BIODIESEL PROJECT IN CENTRAL KALIMANTAN

In the research of the World Bank (2003) to reach the rural poor they found out that today three out of every four of the world's poor live in rural areas. They conclude that there will be no success in the war on poverty unless we take the fight to where those people live. This conclusion resulted in this MBD project which is explained below, mainly based on the "Agriculture beyond Food" Full Proposal September 2008.

4.1 Central Kalimantan and the EMRP Area

Central Kalimantan, also known as Kalimantan Tengah, is the area where the new technology will be implemented. The choice for Central Kalimantan is based upon several reasons. First of all, Kalimantan is the largest island of Indonesia, but has the lowest population density. Central Kalimantan is has a total land area of 153 564,50 km² representing 8.04% of the total Indonesian land area. Central Kalimantan is mostly forest and consists of a huge amount of poor, small and rural villages. The province is characterized by a very small population density, only 20 people per square kilometer and consists of 1432 different villages with over 500 000 households.² In Central Kalimantan, almost 60% of the one million working people are active in the agriculture, fishery, forestry or hunting sector. Please take a look at Appendix 3 with regard to the boundaries of the Central Kalimantan region.

In the past years there have been a couple of projects in this area to improve the economic activities, unfortunately they failed. For instance the ex-mega rice project (EMRP), from 1995 onwards, was to turn one million hectares of unproductive so called 'peat swamp forest', characterized by their acidity, into rice paddies in an effort to alleviate Indonesia's growing food shortage. The government has invested heavily in constructing irrigation canals and removing trees. However, the land proved to be unsuitable for rice cultivation, due to improperly preparation. Currently about 110.000 ha of this area is planted with rice, but with a low return due to poor land and water management. This resulted in deforestation and a serious land degradation, so the project failed. Due to the serious damage to the environment of the EMRP and the negative consequences for the local people living in this area, the mobile biodiesel is preferred to be implemented in this specific area. Therefore, in my thesis I will focus on this EMRP area with regard to the empirical study.

² In 2007. Source: Statistik Indonesia: Statistical Pocketbook of Indonesia, 2008 & Statistics Indonesia (Badan Pusat Statistik—BPS) and Macro International, 2008.

To define the area in detail, I use the boundaries as mentioned in the Master Plan for the Rehabilitation and Revitalization of the EMRP Area (2008). According to the Master Plan, the EMRP area falls within the boundaries of four districts of Central Kalimantan province: Kapuas, Pulang Pisau, Barito Selatan and Palangka Raya (See Figure 4 and Table 1). This area consists of 187 villages within the EMRP boundaries and 40 villages in the surrounding area. Including these additional villages is important, since it will assure greater impact of regional development programs in the EMRP area. So, from now on, when talking about the EMRP area, the total of 227 villages is referred to. The complete list of all 227 villages is provided in Appendix 4.

The EMRP area is home to over 450.000 people - a mix of Dayaks (which constitute the dominant ethnic group), and lesser numbers of Banjarese, Javanese, Madurese, Sundanese, Batak and Bugis. Recent developments in the area have been dominated by the EMRP and are characterized by the construction of canals. Construction of these canals was accompanied with extensive clearance of forest and other land cover, leaving a degraded peat land landscape with a high fire risk (Master Plan, 2008).

Figure 4: EMRP Area (source: Master Plan, 2008)



District	Area of EMRP (ha)	Sub-districts	Villages	Population	Households
Palangka Raya	65.775	2	9	18.448	4.623
Kapuas	716.465	10	139	296.662	79.207
Barito Selatan	261.115	3	18	34.786	9.186
Pulang Pisau	727.730	7	61	104.036	27.495
Total	1.771.085	22	227	453.932	120.511

Table 1: Area, Population and Administration of the EMRP area 2008 (source: PODES 2008)

4.2 MBD Project Goals

The main goal of the project is to increase the economic activities in the rural areas in Central Kalimantan that fall within the EMRP area. To reach this goal, the MBD project concerns the development of a small-scale biodiesel industry and waste products thereof. Besides stimulating local economy, this will also prevent further degradation of the environment (especially the peat lands) and reduce the chances of forest fires. Furthermore the project will also benefit Indonesia as a country

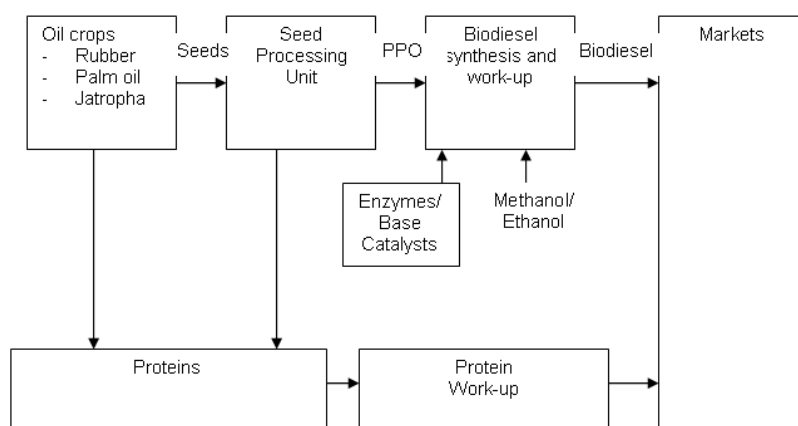
since it stimulates the transition of Indonesia into a bio-based economy and reduces the Indonesian dependency on fossil resources.

4.3 The Technology of the MBD Project

The socio-economic development is encouraged by the establishment of a local biodiesel industry using locally produced pure plant oils and protein containing by-products thereof. Furthermore these products, the biodiesel and the protein byproducts, are used to support and generate local productive activities.

One of the stakeholders of the project, the Chemistry department of the UoG, has recently started the development of a new technology, which is related to the described problem. This new technology, called the “mobile biodiesel processing unit”, can convert oil crops into biodiesel and is able to serve the smaller, rural villages. The technology can be located on a truck and therefore serve more villages (large-scale), few areas (small-scale) or one village (fixed-base small scale). Although the technology is still in the development phase and expected to be finished in a couple of years, the process of how the mobile biodiesel should work is clear and graphically displayed in Figure 5.

Figure 5: The Biodiesel Process (source:



This is a schematic representation of the proposed research project. To clarify this schematic representation, it will be described in more detail, structured by input, process and output. One of the seven projects is to investigate which oil crop is best applicable to use as input for the technology. In the project elaboration, the three most interesting oil crops are mentioned: rubber, palm oil and jatropha. All three oil crops are growing in areas with a tropical climate, but it is in this phase still unsure which crop has the highest return. The specific situation of each crop in Kalimantan, for example with regard to availability, is also still uncertain.

The next step is to take the seeds of the chosen crops and process this into Pure Plant Oil (PPO). This process is done by a seed processing unit, which is an easy and standard process. The reaction of PPO, methanol or ethanol and enzymes will take place in the mobile biodiesel processing unit. This will most likely be a truck, where the technology is located in a container. Although this technology is more difficult than the technology needed to process the seeds, it still can be done by lower educated people. Because of the mobility of the biodiesel processing unit it is possible to reach many small and rural villages. Local residents themselves can take care of the plants, take the seeds of the plants and process this into cans of PPO. The cans of PPO can be stored until the mobile biodiesel processing unit arrives, for instance once a month, where it can be processed into cans of biodiesel.

The final output, the biodiesel, can be used for several destinations. It can be used as diesel for cars, tractors or trucks. Another destination is to sell it on the market, so that a rural village can have economic development. The third, and probably most interesting destination, is to use the biodiesel to generate electricity. By putting the biodiesel into a generator, electricity can be generated. The rural areas often do not have access to water or electricity all day, this is limited to several hours or no access. Although the habitants in the big cities of Indonesia have access to electricity all day, supplied by very large generators with a huge capacity, there are still lots of areas which has no access. These large generators do not reach rural areas far away from big cities and no small generators exist with a smaller capacity meaning that smaller villages in rural areas only have limited access to electricity.

4.4 Subprojects

The project is divided into seven subprojects. The first six subprojects concern the development of the mobile biodiesel and other choices concerning the technology. For example how to process the seeds, which enzymes to use and how to get the best quality biodiesel (see also Appendix 5). As already mentioned, I am involved in the last subproject concerning the implementation of the mobile biodiesel. Each subproject typically has an Indonesian and a Dutch supervisor from different research schools who are responsible for the subproject. The complete MBD project is expected to be finished in 2013.

4.5 Parties

The MBD project is carried out by six universities, three universities in the Netherlands cooperate with three universities in Indonesia. The Dutch universities involved are the University of Wageningen, University of Twente and the University of Groningen (UoG). The Indonesian counterparts are the Technology Institute Bandung (ITB), Gadjah Mada University and the University of Palangkaraya. Each subproject, except the last one, is carried out by four Indonesian PhD students and two postdoctoral fellows (one Dutch and one Indonesian). Furthermore, the involvement of Indonesian and Dutch master students, like me, is possible.

4.6 Local Economic Resources Development (LERD)

This is the title of the seventh subproject and is given specific attention since this is the subproject I am dealing with. This subproject is researched by Dr. Joko Siswanto (ITB) and Dr. B.J.W. Pennink (UoG). The supervisors are professor Dr. L. Karsten (UoG) and Dr. B.J.W. Pennink (UoG) from the Netherlands and Dr. Ir. S.H. Limin (CIMTROP, Palangkaraya) from Indonesia. This subproject started in June 2009 and the expected end date is June 2013.

The objective of the LERD approach is to build the economic capacity of a local area, to improve its economic future and the quality of life for all by means of social and economic entrepreneurship capability development. To reach this objective the UoG and ITB have developed a LERD training program (based on the local economic development framework of the World Bank) at the request of the Bappenas. This training program focuses on enhancing competitiveness, increasing sustainable growth and ensuring that growth is inclusive. It offers the possibility for local government, private as well as not-for-profit businesses and local communities to work together to improve local economy. It incorporates local government and private sector functions including regional and environmental planning, business development, infrastructure provision and finance and this will be the framework also in this MBD project.

During the LERD project, suitable business models and franchising systems will be examined. If it is feasible, a franchise model will be developed as a pilot project. According to Dr. Joko Siswanto franchise systems work because they can overcome two important problems. First of all, the local people often do not have the competences that are needed to manage a business system. Secondly, the local people also do not have the capital to buy the equipment that is needed, for example the generators. The system will be created by the smart people at for example ITB or from the project, and operated by the local people. The villages/communities or a co operation of a couple of villages/communities can be seen as franchisees.

The franchise parties are all somehow related to each other. They all have their own input in the franchise system, but lack others. This creates a mutual interdependence. However, the parties can change over time, since the franchise system is used to generate initial movement at first, both at the individual level as at the level of the collective GCL, which requires the help of franchise actors from outside the GCL. Later on, in the ideal situation, the complete franchise system should consist of local actors, without outsiders of the MBD project as owners or managers, and the local people should continue moving by themselves! The franchise parties along with their inputs and possible difficulties are described in Table 2.

	Producers	Investors	Owners	Managers	Consumers
Who?	Farmers	Bank, donations, grants, private, government	Very related to investor; local major, government, entrepreneur, MBD project.	Young, motivated, (local) academic with leadership skills	Almost everybody; industrial customers, local customers, export
Input in the franchise system?	Local resource access and skills	Capital	Knowledge, capital	Knowledge, managerial skills, willingness to change	Willingness to buy the product
Possible difficulties?	Quality control knowledge and skills	Discussion about share of wallet	Discussion about share of wallet	If bupati or old conservative leader becomes manager, problems with integrity and intentions	Export/ quality requirements, need for stable demand, low local consumer knowledge

Table 2: Franchise parties, inputs and possible difficulties.

Besides the parties described above, two other parties can also become part of the system. The first party consists of the technical suppliers. This group could be responsible for the maintenance of the mobile biodiesel or the supply of electricity generators and seed processing units. The second possible party are the quality control groups. As indicated in Table 2 the farmers might lack the skills of quality control in order to guarantee good qualitative products and to meet the requirements for export purposes. In that case the farmers take care of the cultivation and harvest process and then the quality control can take place by an independent group. However, it is also possible that this process will be done by the consumer.

In order to make sure the local actors acquire the needed knowledge and skills to perform their task, a LERD training program has been developed. Two main local parties are distinguished who have to be trained, namely the producers (farmers) and the managers. The managers are the ‘brains’ of the

franchisee unit and need to manage the producers. The producers might need training about the input crop chosen, for example how to cultivate that or how to perform the quality control. The managers are the people who need to be trained specifically for this tasks and therefore are enrolled in the training program. This training program needs to be tailor made for the MBD project, but has the Bappenas LERD training program as a basis. The intensity and specific content of the training depends on the competences, knowledge and educational level of the local people. What the MBD training program will exactly look like is not yet decided. For more detailed information about the structure of the Bappenas LERD training program as well as the MBD training program, take a look at Appendix 6.

5. APPLICATION OF THE FRAMEWORK TO THE MOBILE BIODIESEL PROJECT IN THE EMRP AREA

In this chapter the sensitizing concepts of the framework are empirically applied to the MBD project in Central Kalimantan in order to be able to determine the likelihood of success of GCL empowerment. After evaluating the concepts, each paragraph ends with discussing the implications of the findings for the MBD project. The information presented in this chapter is interpreted in more detail in the conclusion, where the strengths and weaknesses of the MBD project are discussed. The structure of this chapter follows the overall structure of my thesis, namely the four perspectives.

With regard to the empirical data, I focused on the EMRP area of Central Kalimantan. I have set up a specific database which only includes data about the villages that fall within this area. For an overview of the villages included in the database, please take a look at Appendix 4. This data stems from the BPS (Badan Pusat Statistik) Central Kalimantan PODES (Potensi Desa) 2008 which is based upon a questionnaire and is used to determine the economic potential of a village. Other information in this chapter comes from written documentation about the area, the site visits and the information collected during the interviews. A summary of the findings during the site visits as well as detailed observation reports of each village/area visited is provided in Appendix 9.

5.1 Basic Needs Perspective

The four sensitizing concepts belonging to this perspective are derived from Maslow's hierarchy (Appendix 2) which provides a lot of possible variables to investigate. I have made a selection based upon practical reasons like availability of numerical data and whether it is observable. This led to a reasonable coverage of the concepts of psychological needs as well as safety needs. Unfortunately, no useable information is gathered about the belonging needs concept and the esteem needs concept. Reason for the lack of information is because it is impossible to assess just by observing.

Wealth Index

In a report published by Statistics Indonesia and Macro International (2008) wealth numbers are provided based upon a survey held in 2007. The wealth index is used as a proxy for long-term standard of living of the household. It is based on the data for household ownership of consumer goods, housing characteristics, sources of drinking water, toilet facilities and other characteristics related to the socioeconomic status of households. The wealth index can therefore be seen as a summarizing variable. The total sample was divided into five wealth quintiles: lowest, second, middle, fourth and highest. More than half of the people living in Central Kalimantan, 51.8%, belong to the lowest wealth quintile. Only three other provinces (West Papua, West Sulawesi and East Nusa Tenggara) out of total of Indonesia's thirty-three provinces score higher! The average score of all rural

areas is 31,7% in the lowest quintile (opposed to only 4,4% for urban areas), Central Kalimantan thus scoring almost twice as high.

Food Expenditures

Another interesting measure of wealth is the percentage of money people spend on buying food each month. In 2000, the percentage of per capita average expenditure on food was still very high with 73.14%. However, this number has significantly decreased to 58.98% in 2008 (Kalimantan Tengah in Figures 2009). People do have more money to spend on non food products, which is a promising development. However, it should be noted that these numbers are averages from all people living in the Central Kalimantan province and thus are probably higher for the people belonging to the lower wealth quintiles or living in the EMRP area. According to the Master Plan (2008), food security in the EMRP is threatened by agricultural pests and diseases, low soil fertility, floods and fires and decreasing availability of wild food resources harvested.

The wealth index and food expenditures show figures of the Central Kalimantan province. To be more specific, the status quo of several basic needs (sanitation, electricity, water source and infrastructure) is now being described in more detail for the villages within the EMRP area. For a more detailed overview, please take a look at the tables in Appendix 7.

Sanitation

In the district of Palangkaraya, the percentage of villages of which most people have their own toilet is the highest (66.7%). This is in sharp contrast to Barito Selatan, where in almost 80% of the villages most people do not have a toilet at all. Kapuas and Pulang Pisau are in the middle; around one third does not have a toilet and about two third do have a toilet. Although this toilet is more often shared or public in Kapuas than in Pulang Pisau. During the site visits it became clear that since almost everywhere people live along the river, the toilets are also built above the river. Houses that are not located next to the river also use these toilets or have their own toilet inside their house.

Water Source

The source of the water people use for drinking as well as cooking is very important with regard to diseases like diarrhea. In the database of PODES 2008, the water sources are divided into three overall categories. The first category is water from a good, clean source being packaged water or pump water. This is the main water source in Palangkaraya, however in the other three districts this percentage is much lower between 11.1% and 19.7%. In these three districts, the main water source is a river, a lake or rainwater. These sources all belong to the third and least favorable category. Rivers and lakes because of their uncleanness (bacteria) and raining water due to the uncertainty of the availability. In the total EMRP area, over 65% of all water stems from this third category. Since almost every village

is located near the river, it is logical to explain why people use this as their main water source. However, clean bottled water is also available in every village and is sold by small, local shops. In these villages, every week a ship (or in very rare cases a scooter) comes by to supply the shops of new goods and this gives the local people also a chance to buy stuff they need, if the access to the nearest market or little shop is too far for them.

Electricity

The percentage of families that have electricity within a village varies between 55.7% on average in Kapuas and 88.3% being the average in Palangkaraya. This includes state electricity (PLN) as well as electricity from generators (non PLN). It is clear that in Kapuas and Barito Selatan the percentages of villages with less than 25% of the families having electricity, respectively 36.7% and 33.3%, is about three times as high than in Palangkaraya and Pulang Pisau. The villages I visited all had at least partial access to electricity. Even the most remote and spread out village still had (non PLN) electricity, which could easily be discovered by all TV receivers. The local people use electricity especially for lightning and the TV. Often it is also used for refrigerators, fans, radios, rice cookers and to charge their mobile phones! The price of PLN electricity depends on the amount people use; some people pay IDR 30.000 per month and others IDR 150.000. Unfortunately the price of non PLN electricity is unknown. The quality of the electricity is debatable, since the region is characterized by regular power cuts that can take several hours, even in Palangkaraya. Reliable electricity supply is also one of the priorities expressed by community leaders themselves (Master Plan, 2008).

Infrastructure

Although infrastructure is not part of the hierarchy of Maslow, I discovered it is very important for the local people's food security. Food belongs to the physiological needs which justifies the inclusion of infrastructure at the basic needs perspective. During the site visits and interviews, it became clear that access to markets is very important for local people. That is why most of the villages have a market once per week. However, some of the villages lack these kind of markets as well as little shops, which makes it difficult for them to buy things they need but do not produce themselves. A good external infrastructure is one of the priorities mentioned by communities since it facilitates their ease to reach another nearby market and also stimulates businesses between different villages (Master Plan, 2008). Therefore the main focus of the local government at this moment is to develop the external infrastructure in order to assure year round access to and from the communities. The government improves the quality of the roads and increases the ways to reach a village if this is limited to either water or land.

However, a good infrastructure needs to be accompanied by a transportation possibility, which remains a problem in some villages. The distances can be quite far, so a motorcycle or car is preferable. If this is not affordable, motorcycle taxi services are available called *ojek*. Taxi transport over water is still quite expensive since it is not very competitive. Although the number of (mini) buses are used for public transportation shows a rapid yearly increase (Kalimantan Tengah in Figures, 2009), I have seen no public transport buses in the smaller villages. This is something that still needs to be expanded to the smaller villages and remote areas.

Health

An overview of the health facilities per district in the EMRP area is displayed in Table 3. Information is provided about the number of villages who possess the specific health facility as well as the average distance that has to be travelled to the nearest facility if a village does not have the facility. Also an indication about the difficulty to reach this nearest facility is given on a 4-point scale; very easy (1), easy (2), difficult (3) and very difficult (4).

The local government of Central Kalimantan really stimulates the development of rural villages, also with regard to health services. A few years ago they started a program which means that graduated nurses looking for a job are sent to rural areas and sign a contract to stay there at least 10 years. Their health center, house and salary is financed by the government. In 2008, almost 65% of the villages in the EMRP area have their own community health centers for basic health services. Diseases that are related to poor drinking water and sanitation facilities such as diarrhea and vomiting are common in the area. Diarrhea and malaria are diseases recurring every year during dry season (Technical Report No. 12, 2008). People can get treatment and medicines for common diseases, which are free within opening hours, at the community health center. If help cannot be given here, the individual has to go to a health center which is most often located in the capital of the sub district. I visited the health center in Kalampangan and it looked really good. They had dentists, doctors, midwives and also beds to stay overnight. In the worst case, an individual has to go to the hospital. In the past few years it has become easier to reach health facilities due to the huge investment in infrastructure as well as health facilities. However, the average distances to the nearest hospital are still quite big and also more difficult to reach, since there are only hospitals in the big cities like Palangkaraya, Pulang Pisau and Kapuas. Getting somebody to the hospital can still take up to 4 hours depending on the geographical and infrastructural situation of the village.

With regard to the quantities of health facilities, I think this is sufficient. However, about the quality of the staff and the equipment, it is more difficult to give my opinion or observation. According to the Master Plan (2008), the communities pointed out that health services still need to be upgraded with regard to the quality and staffing levels.

District	No. Villages	Hospital	Distance (Difficulty)	Health Center	Distance (Difficulty)	Community Health Center	Distance (Difficulty)
Barito Selatan	18	0	75km (2,3)	4	15km (1,9)	12	8km (1,7)
Kapuas	139	1	46km (2,7)	22	14km (2,2)	72	15km (2,1)
Palangkaraya	9	0	17km (2,1)	1	7km (2,0)	6	4km (2,0)
Pulang Pisau	61	1	45km (2,6)	7	22km (2,4)	42	15km (2,3)
Total/Mean 2008	227	2 0.8%	46km (2,4)	34 15.0%	15km (2,1)	132 63.3%	11km (2,0)

Table 3: Number and distance to health facilities per district in EMRP area (source: Master Plan, 2008)

PM2L Program

A new program, since 2008, developed by the Bappeda is the PM2L program. This program aims to develop and build villages, based upon a tailor-made approach. The governor has set up this program, so it is for Central Kalimantan specifically. Once every 10 years they will investigate the status of each village in Central Kalimantan based on the PODES database and each village gets the status of *tertinggal* or *maju* based upon 15 different variables (Appendix 8).

If the village is *maju*, no government help is needed since the village is already advanced. The villages that are *tertinggal* will be included in the PM2L program meaning that their needs are determined and within 5 years the developments should be finished and the village should have reached the status of *maju*. This could for example include an investment in infrastructure, electricity access or the provision of education and/or health facilities.

From 2008 till 2011, pilot studies only in 3 villages per district have been performed. Because this was successful, they continue the program for all villages in Central Kalimantan that are *tertinggal*. The minimum score is 26 and the maximum score is 44 with 36 being the cut-off score. The average score in Central Kalimantan is 35, so on average the villages in Central Kalimantan are *tertinggal*. The average score in the EMRP area is 34, so these villages are slightly less developed than the average in Central Kalimantan. In the EMRP area, 136 villages have the status of *tertinggal*, that is 60% of the total amount of villages in this area!

Implications for the MBD project

Dr. Joko Siswanto recognizes that a low wealth score, reflecting low fulfillment of their basic needs, can indeed be problematic. He mentions that the selection of producers, the people that have local resources access (for example the farmers) is the most difficult part of setting up a business system around the mobile biodiesel. It has to be understood that, since they are quite poor, during the selection the board of the MBD program has to be on guard for problems with integrity. He has experienced this

during one of his previous project dealing with arranging telecommunication in rural areas. Citing Dr. Joko Siswanto: “on the one hand you just need to trust them, but on the other hand they simply need the money in order to survive. They use the money for their basic needs like food (salt, sugar) or soap which they cannot produce by themselves.”

5.2 Human Capital Perspective

The human capital perspective is divided into two different concepts; educational level and level of specific project knowledge. As mentioned in paragraph 4.6, a tailor made LERD training program will prepare the local people for their tasks. Since the project has not yet reached this phase, it is not possible for me to evaluate this concept. Therefore, only the educational level is being assessed.

Accessibility of Schools

According to the Statistical Pocketbook for Indonesia (2008) the total number of primary schools in Central Kalimantan has declined from 2.830 in 2004/2005 to 2.445 in 2006/2007. The number of students remained stable around 290.000. However, in the EMRP area the amount of primary schools remained the same in the period 2005-2008 and every village has at least one primary school. With regard to the development that has been made since 2005, it is clear that especially the number of junior secondary schools has risen sharply: over 50% of the villages has one. The total number of high schools remained about the same. 77.3% of all villages lacks a high school and the average distance to the closest high school is 15km.

Besides these three types, another type of high school exists called vocational school. These are high schools specialized in a certain field. Examples are a gardening/farming school in Kalampangan and a wood furnishing school in Mandomai. Students attending this type of school are prepared to start working immediately after they have finished, since they have specialized skills. This in contrast to students attending general high school, who often continue studying at college or university in order to specialize (Interview Bappeda; Provincial Development Planning Agency). In total the EMRP area has nine vocational schools of which seven are situated in Kapuas district. Palangkaraya and Pulang Pisau both have one (PODES 2008).

District	No. Villages	State Primary School	Private Primary School	State Junior Secondary School	Private Junior Secondary School	State High School	Private High School
Barito Selatan	18	37	8	8	4	3	4
Kapuas	139	305	95	49	39	11	16
Palangkaraya	9	17	4	5	2	0	3
Pulang Pisau	61	138	17	22	11	8	5
Total in 2008 (% change since 2005)	227	497 - 0.4%	124 0.0%	84 13.5%	56 47.4%	22 - 4.3%	28 12.0%
<i>Total in 2005</i>	<i>227</i>	<i>499</i>	<i>124</i>	<i>74</i>	<i>38</i>	<i>23</i>	<i>25</i>

Table 4: Overview of schools per district in 2005 and 2008 in the EMRP area (source: PODES 2008 & Master Plan, 2008)

District	No. Villages	% Without Primary School	% Without Junior Secondary	% Without High School	Average Distance to Closest High School
Barito Selatan	18	0.0	55.6	77.8	16km
Kapuas	139	0.0	52.5	82.7	19km
Palangkaraya	9	0.0	22.2	66.7	10km
Pulang Pisau	61	0.0	52.5	82.0	15km
Total/Mean	227	0.0	45.7	77.3	15km

Table 5: Accessibility of schools in the EMRP area (source: PODES 2008 & Master Plan, 2008)

Level of Education

Among the adult population in the EMRP area educational levels is low and limited to (several years) of primary school education. Nowadays, primary school facilities are widespread over the area and most children complete primary school education due to two major educational programs. Firstly, the “Nine Years Compulsory Education Program” for children under age of 15. These nine years are free of tuition for children attending a public school. To compensate for missing income and to assure that school is free, the national government provides funding to public schools at the primary and junior secondary school by means of a second program, started in 2005, called BOS. This program was started to increase the access to education. However, group discussions with community members, village heads and local government highlighted the lack of monitoring and transparency of the government BOS program (Technical Report No. 12; Improving livelihoods in the EMRP area in Central Kalimantan. October 2008).

While there are small differences in educational attainment between males and females in older age groups, the gap in educational attainment is no longer visible by gender in the younger age group. These figures imply that in recent years, girls have had as much opportunity as boys to pursue education. The increasing level of completed education also resulted in women having a greater

opportunity to participate in the labor force. Labor force participation among women age 10 and older increased from 33% in 1971 to 50% in 2007. Most women work in agriculture, trade, or the service industries (Demographic and Health Survey, 2007).

Continuation of education depends however on the family income, distance to junior secondary schools as well as high schools and the policy of the district government towards education. In general there is a shortage of junior secondary and high schools as most are located far away from the village, leading to high transportation costs. As a result, many children are not being able to continue their education (Master Plan, 2008). However, during the site visits I discovered that a lot of children have bicycles which makes it easier for them travel the distances to higher education. Also a teacher of the high school in Maluku explained that a lot of funds and subsidies exist which reduces the barrier to enroll in high school. Students here indicated however that continuing to university depends for a large degree on the ability to pay the tuition fee and also the housing, since universities are more far away. The figures of BPS Kalimantan Tengah (2009) show a gradual increase in the number of students attending university. State universities, seven in 2008, have experienced an increase from 11.744 to 12.499 students while the number of students in private universities has grown from 3.834 to 4.348.

Table 6 shows the percentages of the population in Central Kalimantan with regard to their education compared to the average percentages in Indonesia. It can be concluded that Central Kalimantan scores higher than average, but still the percentages completed primary and secondary school are not that high. The results can be a little bit misleading since the total population over the age of six is included and not only children.

	No Education	Some primary	Primary completed	Some secondary	Secondary completed	More than secondary	Missing
Male	2.6 (5.9)	25.9 (27.4)	24.5 (20.7)	25.1 (22.7)	15.0 (16.8)	6.5 (6.2)	0.5 (0.2)
Female	6.0 (11.7)	25.4 (26.6)	24.6 (21.2)	25.3 (21.5)	12.6 (12.8)	5.5 (5.8)	0.6 (0.2)

Table 6: Overview of completed education; Central Kalimantan compared to Indonesia's average (source: Demographic & Health Survey, 2007)

Quality of Education Services

Good access to education services still is a major issue for the local population and is one of the local aspirations for the future. According to the Master Plan EMRP (2008) primary schools often have a shortage of classrooms. Almost all schools cope with a teacher shortage and many teachers with their low salaries have no civil servant status and do not live in the villages, both of which cause regular

absence and the need for extra jobs for additional incomes. However, this is not something I ran into during the site visits. The schools looked good with regard to size and facilities. Teachers interviewed indicated they either were locals or had moved to the area to teach. The ratio of students to teachers in public schools is highest for primary schools (21), followed by secondary high school (17) and lowest for the senior high and vocational schools (12). Private schools have a significant lower ratio (Kalimantan Tengah in Figures 2009). The government had the same program for teachers in public schools as for the nurses, meaning that in previous years teachers have been contracted to teach in rural areas for a certain time period and their housing is provided by the government on school area (interview Bappeda). However, I question the level of teaching since the English high school teacher in Maluku could not speak English at all! Quality of education is also a factor mentioned in the Master Plan EMRP (2008) that needs to be upgraded in the future.

Relationship Wealth and Education

As suggested by my developed framework, the basic needs first need to be fulfilled in order to realize good educational attainment. This relationship is also found in reality when looking at the wealth quintiles and highest level of schooling attended or completed for Indonesia in total. It is evident that the people without education or some primary education mainly belong to the lowest wealth quintile. The other way around, almost all people that have completed secondary school or have high education than secondary belong to the highest wealth quintile (Demographic and Health Survey, 2007).

Implications for the MBD Project

Interpreting the information above, I conclude that educational level does not have to be a barrier for the MBD project. However, based upon the observations and little chats during the site visits, I do not think that if these local people are asked to provide a business plan for local diesel production (which is part of the LERD training program) this will work out. The Bappenas tried this before, but got almost no response. Firstly, this can be because they are willing to and business minded, however they have limited knowledge. Secondly, some villages with limited economic activity just rely on the government and do not take any initiative themselves. They just wait till the government has a new plan for them and do what they are told. Therefore my opinion is that local people should be trained first to get knowledge about biodiesel and the benefits, before they are asked to hand in a business plan. Also, for the less economically developed villages, I think you really need “to take their hand” and just tell them what they have to do and let them operate, since they mentioned they did not have any plans for the future or needs or whatsoever, they just let other people guide them.

Dr. Joko Siswanto adds another reason why the MBD program could fail, although the educational levels are satisfactory. He comes up with an additional concept being readiness to change. He mentions that a lot of people living in rural areas live in a very basic manner, but they accept their way

of living and do not want to change. For example, during a previous project fishermen had been given new boats and new equipment which increased the productivity. However, instead of working the same hours and get more revenue, the fishermen just worked less until they reached the same revenue, so this project failed. Based upon the site visits, this would fit the profile of the less economically developed villages. Dr. Joko Siswanto mentions that the most important success factor to overcome the cultural barrier and to increase the chances of success is the real interest of the local people and their level of motivation. This is closely related to their commitment, which can be assured by showing the local people, but also the other stakeholders involved, what benefits are in it for them.

5.3 Local Institutional Capacity Perspective

In this paragraph the three sensitizing concepts of social capital are discussed.

Bonding Social Capital

Communities in the EMRP area have many positive assets, such as traditions and leadership, mutual help and social cohesion, traditional knowledge of the forest environment and diverse farming systems and household livelihood strategies. These form the basis for providing assistance for community and socio-economic development (Master Plan for the Rehabilitation and Revitalization of the EMRP Area, 2008). The site visits also revealed that people are very close, live together and really take care of each other.

Bridging Social Capital

In the EMRP area there is a lack of producer (including farmer) groups, associations and cooperatives. Village facilitators need to form these groups to support communities in terms of developing agriculture, processing of products and value chain addition, and accessing markets and finance (Plan for the Rehabilitation and Revitalization of the EMRP Area, 2008). The rubber unions is the only producer group I discovered in the area. A lot of rubber farmers are present in Central Kalimantan as well as East Kalimantan. These rubber farmers are often member of one of the rubber unions.

Linking Social Capital

According to the literature, villages have become more liberal and autonomous since the fall of President Suharto in 1998. However, this means that the decision making power is in the hands of the village head (*kepala desa*). Ordinary village members do not have a real say in what happens in their village. Therefore, linking social capital remains a big problem in the EMRP area. Local people are still poorly represented in terms of policy and decision making, the region is characterized by locally weak institutional relationships. There is a major need to strengthen village institutions and community representation and participation at the sub-district, district and provincial levels and clarify the role of the village institutions at the community level. A particular issue concerns a large number of transmigrant communities that still have the status of Transmigrant Settlement Unit (TSU). These

TSUs need to become official villages and formally become part of the district government, so they get more involved and also get subsidized (Master Plan for the Rehabilitation and Revitalization of the EMRP Area, 2008).

Implications for the MBD Project

It can be concluded that the local people and villages of the EMRP area have bonding social capital but score low on institutional capacity due to lack of bridging and linking social capital and are therefore lacking power. High levels of bonding social capital is very useful for the MBD project. Dr. Joko Siswanto indicated that it is important that the operators or producers of the system are local people who live in the area of interest. This because they need to work a lot during rainy season and it makes it easier to get help from other people they know. With this argumentation he indirectly refers to the importance of social networks like communities.

Although the amount of bridging social capital is low, the rubber unions offer a promising perspective for the MBD project. At this moment, the nuts containing oil are thrown away, because the farmers do not consider them as valuable. Mr. Ambu Naptamis, director of credit union Betang Asi, agrees that usage of these rubber nuts to produce biodiesel for the local community could be a great opportunity. Rubber farmers who are member of a rubber union are also member of a credit union. Mr. Ambu Naptamis explains that this could facilitate the MBD project, since it allows the local farmers to get a loan if they want to start a new business related to biodiesel! Members do also get business training, so the rubber farmers could also be trained by the staff of Mr. Ambu Naptamis about how to process the rubber nuts and how to produce and use the biodiesel for instance.

As described in the literature review, high levels of bonding social capital can lead to exclusion of other groups. This is a problem that the MBD board has to be aware of. Mr. Albertus Hadi Pramono of Aid Environment raised this issue as an important success factor of the implementation of the MBD project. He mentions that it is very important to investigate the existing power relations within the GCL in order to ensure that the people with the right intentions are empowered. Especially the transmigrants are groups that should be given attention to. These people are originally from Java and were subsidized to leave their original land to start businesses in Central Kalimantan and help the local people to develop. During the interviews, it became clear that different parties have different opinions about the situation between the original local people and the transmigrants. Firstly, the gentlemen of the Embassy of the Kingdom of the Netherlands think that the transmigrants are a good partner for doing business in Central Kalimantan. This because they originally come from Java and came to the area to do business. Contrasting this point of view, Mr. Abdon Nababan (AMAN) advises business people as well as people who want to perform development projects in the area not to deal with the transmigrants. He mentions that the help of the transmigrants often results in conflicts with the local

people. Often this conflict is about the transmigrants being subsidized to come to Central Kalimantan and got all kind of facilities like houses, infrastructure and land. Moreover, the transmigrants often have good contacts with outsiders, since they are more willing to do business, and that is why many projects choose the transmigrants to manage their projects. Even when doing business via the bureaucratic way always ends at the transmigrants, since the government is also dominated by outsiders as a result of the transmigration period. Regarding the different opinions and the fact that the local situation really determines the relationship between these two groups, it is important to identify their relationship in each specific case. This to ensure that everybody will enjoy the benefits of the MBD project! This can be achieved by performing social mapping activities, which is also advised by Mr. Abdon Nababan (AMAN).

5.4 Decentralization Perspective

Looking at Indonesia from an administrative point of view, Indonesia is divided into 33 provinces (see Appendix 3). These provinces are again divided into districts and municipalities. In total, there are 96 municipalities and 370 districts. The next lower administrative level are the subdistricts and villages. In 2007 there were 6.131 subdistricts and 73.405 villages in Indonesia.³ Besides this official governmental structure, there is a lot of NGO activity in Central Kalimantan. This concept is discussed as well.

Governmental structure of Indonesia⁴

At the highest level, the national government exists, with the president on top. The next step are the thirty three provinces of Indonesia, of which Central Kalimantan is one, which all have a provincial government with a governor who is in charge. The local government, below the provincial government, is divided into cities or urban areas and districts or rural areas. The difference between a district and a city lies in differing demographics, size and economics. Generally the district consists of as larger area than a city and a city has non-agricultural, urban, economic activities. First, every city (*kota*) or urban area is ruled by a mayor or '*Wali Kota*' and reflects the 96 municipalities. Second, every district (*kabupaten*) or rural area is in charge of a regent or '*Bupati*'. *Wali Kota* or *Bupati* and member of representatives are elected by popular vote for 5 years term.

The next level are the sub-districts. Every district or city consists of several sub-districts (*kecamatan*). The head of a sub-district is called '*Camat*'. The *Camat* is a civil servant appointed by and also responsible to the *Bupati* or *Wali Kota*, since the government of the sub-district is under the their management.

³ Statistics Indonesia (Badan Pusat Statistik—BPS) and Macro International. 2008. Indonesia Demographic and Health Survey 2007. Calverton, Maryland, USA: BPS and Macro International.

⁴ Source: interview Dr. Ir. Heru Purbuyo and Wikipedia: Government Administration in Indonesia

Each sub-district again divided into multiple villages, called *desa* or *kelurahan*, which is the lowest level of government administration. Both *desa* and *kelurahan* are the area within sub-district, however a *desa* enjoys greater local matters, has rural connations and possesses more power than a *kelurahan*. In the context of Indonesian Government Administration, a *desa* can be defined as a body which has authority over the local people in accordance with acknowledged local traditions of the area. *Desa* is headed by '*Kepala Desa*'. He or she is elected directly by village people. Besides the *Kepala Desa*, each *desa* has a legislative body consisting of representatives of the local people. Together, they can decide relatively autonomously, independent from the district government, for what local economic development program to use the subsidies they get from the district government. This mechanism of autonomous decision making is not present in a *kelurahan*. The head of a *kelurahan* ('*Lurah*') is a civil servant and directly responsible to the *Camat*. So, each *kelurahan* is part of the district or city government bureaucracy and just follows the decisions of the *Wali Kota* and thus has, in contrast to a *desa*, no freedom to create any development program autonomously.

Non-administratively, each village (whether *desa* or *kelurahan*) is divided into local communities which manage a certain number of households. Communities have their own specific structure and are headed by community leaders. However, community leaders have to follow and obey what the *Kepala Desa* or *Lurah* decides if they live within their administrative territory.

State Structure History

Decentralization was realized in 1998, after the fall of President Suharto, when Indonesia moved from one of the most centralized countries in the world to one of the most decentralized ones (Palmer & Engel, 2007). Since then, local governance has become more liberal giving villages and their communities a larger role in their own development. The community was free to return to its local customs and the village head was no longer accountable to the district head, but to the village representative body (Bebbington et al., 2004). Moreover, in 1999 a law on provincial government was introduced which gave full autonomy to the districts. Since then, the provincial government is also responsible for all central government ministries at the province and district level (Demographic and Health Survey, 2007).

This change in government structure has worked out quite well. Since 2000, the Indonesian economy has recovered with a growth rate of 5% in 2000 and 6% in 2007 (Demographic and Health Survey, 2007). However, giving full autonomy to the districts heads like *Bupatis* has led to several problems in the province of Central Kalimantan. An employee of the economic department of the Bappeda explained about troubles with *Bupatis* giving permits to palm oil companies allowing them to start up new plantations. The *Bupatis* engage in such behavior simply because the companies pay them a lot of money which leads to corruption. This behavior is contradicting the plan of the Bappeda to reduce the

amount of palm oil plantations in the Central Kalimantan province, but corruption still is a problem and very hard to stop.

Non-Governmental Organizations

Besides the official government structure, a lot of NGOs are active in Central Kalimantan. These organizations really serve the local people's needs and help them to conserve the forest and the environment they live in (and from) and are thus against the logging activities. These NGOs often collaborate, because being bigger means more power and a greater chance that the goal will be achieved. A couple of NGOs we have contacted are now mentioned. Firstly, AMAN (Indigenous Peoples Alliance of the Archipelago) fights for indigenous people's rights. In this way AMAN hopes the indigenous communities can fight against big oil palm companies who want to take their land for example. In this battle they are supported by Sawit Watch. Secondly, Wetlands is especially busy with the Central Kalimantan Peatland Project. This project is about the EMRP area and how to develop this area again. Care Indonesia, thirdly, is also involved in the Central Kalimantan Peatland Project, but has also different projects like community development and empowerment. These are only a few examples of the active NGOs in the Central Kalimantan area. For the MBD project, it is important to contact them in order to ensure the activities can be aligned.

Implications for the MBD Project

The NGOs really want to help local people and have good contacts with them. This could be a very useful partner to collaborate with. Almost every NGO interviewed, indicated that they are willing to offer their help. A good person to contact in Palangkaraya is Mr. Ambu Naptamis, already mentioned in paragraph 5.3. He has good contacts with rubber farmers united in rubber unions, is the director of a Credit Union which can give farmers a loan and he can facilitate a training for all his members in the Central Kalimantan (or EMRP) area.

The government structure also has several important implications for the MBD project according to Dr. Ir. Heru Purbuyo, especially with regard to the approval of the local business plan and its funding. The LERD teams will have to present their social entrepreneurship plan to the local government officers, like the *Bupati* and several sector organizations, since they have to approve the plan. Examples of sector organizations that are involved are the agricultural (about land and farmers), industrial (more in case of the fixed biodiesel if a plant needs to be build) and cooperative organization (dealing with small and medium sized businesses). The amount of funding a LERD team will be able to obtain depends on the quality of their business plan. The first and most important source for funding is the local government, but if the plan is really good, the provincial government and even the national government might also supply funds. In case of foreign funding for the project, this is also managed by the national government, namely the Bappenas.

Moreover, Mr. Jefri Gideon Saragih, head of department ‘campaign and public education’ of Sawit Watch, also thinks the MBD project should be implemented very careful and he mentioned several success factors relating to decentralization. The first is local government consensus. If the local government or local palm oil companies feel threatened, they can cooperate with local police. For example, Jefri and his two foreign colleagues were once awaked by police officers during a field visit: they had to show their visas. The local companies did not appreciate their presence, since they are against palm oil plantations. I experienced this atmosphere as well during a visit to a company palm oil plantation. The field was heavily secured and we were not allowed to enter their property since we did not have the right letter. The second is the involvement of local people organizations living in the village or community of interest. He argues that it is very important to involve them in the project, inform them and above all be honest about their benefits and (if this is also the case) losses. Local people are smarter and a lot more careful nowadays due to their, often negative, experience with huge companies and the government. Local people’s land, about which the local government still can decide, is often sold to local palm oil companies. National government tolerates local palm oil companies and although regulation exists, they make no use of it, since they are mostly interested in the high short term earnings. The local people subsequently buy the land, including palm oil trees, back from the companies with a loan. However, they get not informed about the consequences: they are still dependent upon the oil palm companies to get a revenue out of the land and they have to pay high interests over the loan which leaves them with high amounts of debt. This is also confirmed by Roos Nijpels (Cordaid). In the area of the site visits, not many palm oil plantations were apparent, so we did not really run into this phenomenon. However, in the Dadahup area a plan of the *Bupati* was shown by a local person. Although our guide was not willing to explain the content of the plan, the figures and tables made the content quite clear to us. The mission was to increase the agriculture in the area in the period 2008-2013. There was a map of the EMRP area with block A till E and a map of the near area: “the *Kelapa Sawit* area” (The palm oil Area). The pictured area was around 24.000 ha and there was also a big amount of money displayed of IDR 200.000.000. According to our interpretations and observations this is a plan of a company and the *Bupati* to make this local area a palm oil area. Along our way to Dadahup we have seen many logging. Therefore, we believe that the people are under pressure of the government and especially the *Bupati*. Thirdly, a broker like a village head or community leader is often involved, which also needs to be involved by the process and convinced of the benefits for the local people.

Moreover Dr. Joko Siswanto also warns for one of the theoretical pitfalls of decentralization. It is often assumed that everybody of a GCL benefits, but in reality it occurs that local authorities are not responsive to the GCLs demands or that they only reflect the needs of a part of the GCL. This can result in projects from which only a selection of the GCL will benefit or that funds are lost to

corruption. The reason that this occurs can be two fold. On the one hand, sometimes people that really need the money to satisfy their basic needs are in charge of the money, which makes it very tempting to steal the money. On the other hand, GCL leaders or district leaders like *Bupatis* are very strong leaders who want to be the head of the project and manage it, including the money. However, these leaders sometimes do not have the right intentions and might want to use the money for themselves or a small group of people instead of using it for the right purposes ensuring everybody of the GCL will benefit.

6. CONCLUSION

In this chapter the main research question, which is twofold, is answered based upon the answers/information of the three sub questions in chapters three, four and five. The main research question of this study is: *“What are the strengths and weaknesses of the mobile biodiesel project in Central Kalimantan with respect to the four perspectives of the developed theoretical framework in order to achieve effective GCL empowerment and to what extent does the empirical evidence support the theoretical framework?”*

6.1 Strengths and Weaknesses of the MBD Project

In this paragraph, the MBD project is evaluated with regard to its score of the four perspectives. The findings are interpreted and it is indicated whether or not it is a strength or a weakness for a successful implementation of the MBD empowerment project. Starting with the basic needs perspective, one of the assumptions of the board of the project was that the villages do not have (or have very bad/expensive) access to electricity and diesel. Although the majority of people living in the Central Kalimantan province belong to the lowest wealth quintile, I believe that the basic needs of most local people in the EMRP area are fulfilled. They have access to basic things like clean water, housing, sanitation and electricity. In every village, gasoline and diesel is sold for IDR 6.000. Health centers are available in almost every village, but vary in size and level of services. In the basics, health care is well arranged, however getting to the nearest hospital in case of emergency can take up to several hours. External infrastructure is underdeveloped and has to improve in most of the smallest villages in order to increase their access to markets, which is important for their food security. Since the local government has a special program called PM2L for developing the villages, the local situation in the villages will continue to develop the next couple of years.

Furthermore, every village has at least one elementary school itself, which secures primary education for the practically everybody. Secondary school as well as high school can be reached quite easy. These forms of higher education are often found in surrounding villages and are reached by bike or motorcycle. Access and availability of education provide satisfying results, however the quality of teaching is doubtful. Because of the supporting system of the government, most parents can afford basic education for their children. However, going to a university is more expensive and the costs are therefore mentioned as a barrier.

The local institutional capacity perspective did not reveal many results. At regional and national level, a farmers cooperation (HKTI) and several rubber unions exists, where the local farmers could also be a member. A lot of the rubber farmers in the EMRP area are a member of a rubber union. Union membership is an easy way to identify and reach the rubber farmers and is an opportunity for the

MBD project. An important group to look at are the transmigrants. Their relationship with the local people has to be investigated in order to empower the right people and get the desired results.

Since the fall of the Suharto regime in 1998, the government structure of Indonesia has changed from highly centralized to more and more decentralized. More power is located at the province and district level and lies in the hands of the provincial government and the *Bupatis*. The *Bupatis* have the most power at district level and can even contradict the local government plans, which occurs when companies give them money in exchange for a palm oil plantation for example. Heads of villages with a *desa* status get their own subsidies and can decide relatively autonomously what to do with it. The village head sometimes has a council with several other villagers in it, but the village head himself is the chairman of this council. So, although power is decentralized, it is still in the hands of practically one person, leaving all other villagers out of the decision making process if their opinion is neglected.

6.2 Advice for the Board of the MBD Project

Based upon the strengths and weaknesses discussed above, I would like to give advice to the board of the project. My advice is divided into three important questions the board needs to consider.

Can the MBD project be implemented successful in the EMRP area?

Based upon these findings, I conclude that the basic needs perspective and the human capital perspective are satisfied and do not provide a barrier for the project to succeed. Therefore, the main barrier to local economic development seems to be cultural. The local people are ok with their way of living and do not have a 'working' mentality if it is not necessary to live/survive. This non-proactive attitude is the result of a long history of centralization, resulting that local people are still waiting for others like the government to tell them what to do. The local institutional capacity and decentralization perspective do not provide satisfactory results and can be a barrier for the MBD project to succeed and should be given extra attention. When empowering local people, it should be carefully investigated if the selected people have the right intentions: benefits for everybody! Especially the *Bupati*, the village head and the transmigrants are parties that need to be checked. Moreover, to increase the chance of success of the MBD project it is a good idea to cooperate with a local NGO which often have a good name as well as experience in the area.

Are the local people in the EMRP area ready for the MBD project?

This questions deals with the readiness to change of the local people. It can be concluded that especially the less economically active villages lack an active attitude, which is needed for the MBD project. The question is to either leave them alone for a couple of years until they are ready or to make them ready. In order to help them with their development, the latter is preferable. Readiness to change can be stimulated by, for example, exposing them to other cities that are more developed. This will

hopefully open their eyes that local economic development in their region is highly desirable. Therefore, it is very important to give part of the training in Bandung (or another developed city). Another important thing is to get the local people interested and committed. In order to reach this, the benefits have to be clear for them.

Does the MBD project fulfill the needs of the local people in the EMRP area?

Since the basic needs as well as education are already satisfactory, the question is to what extent the biodiesel project is a goods means to increase their quality of living as well as stimulate their economic development, since most people (all villages) *do* have access to diesel and electricity already. The most people have their own scooter and use gasoline. Gasoline is quite cheap, IDR 6.000 per liter in remote areas, because it is subsidized by the government. Cars also run on gasoline, however trucks and boats have a diesel engine, the price for diesel is also IDR 6.000 per liter. The local use and benefits of producing their own biodiesel really depends on the applicability of the diesel. Can the diesel also be used for cooking, instead of kerosene? Can the diesel be used instead of gasoline, for cars and scooters? If yes, it would save them some money if the costs per liter is below IDR 6.000. However, is this really economic development? In my belief, most of these villages are better helped by other things such as building a plant for rubber processing or giving them an irrigation machine to control the water level in their rice fields (also mentioned in the Master Plan 2008), which can really make a big difference with regard to their economic situation.

6.3 Evaluation of the Sensitizing Conceptual Framework

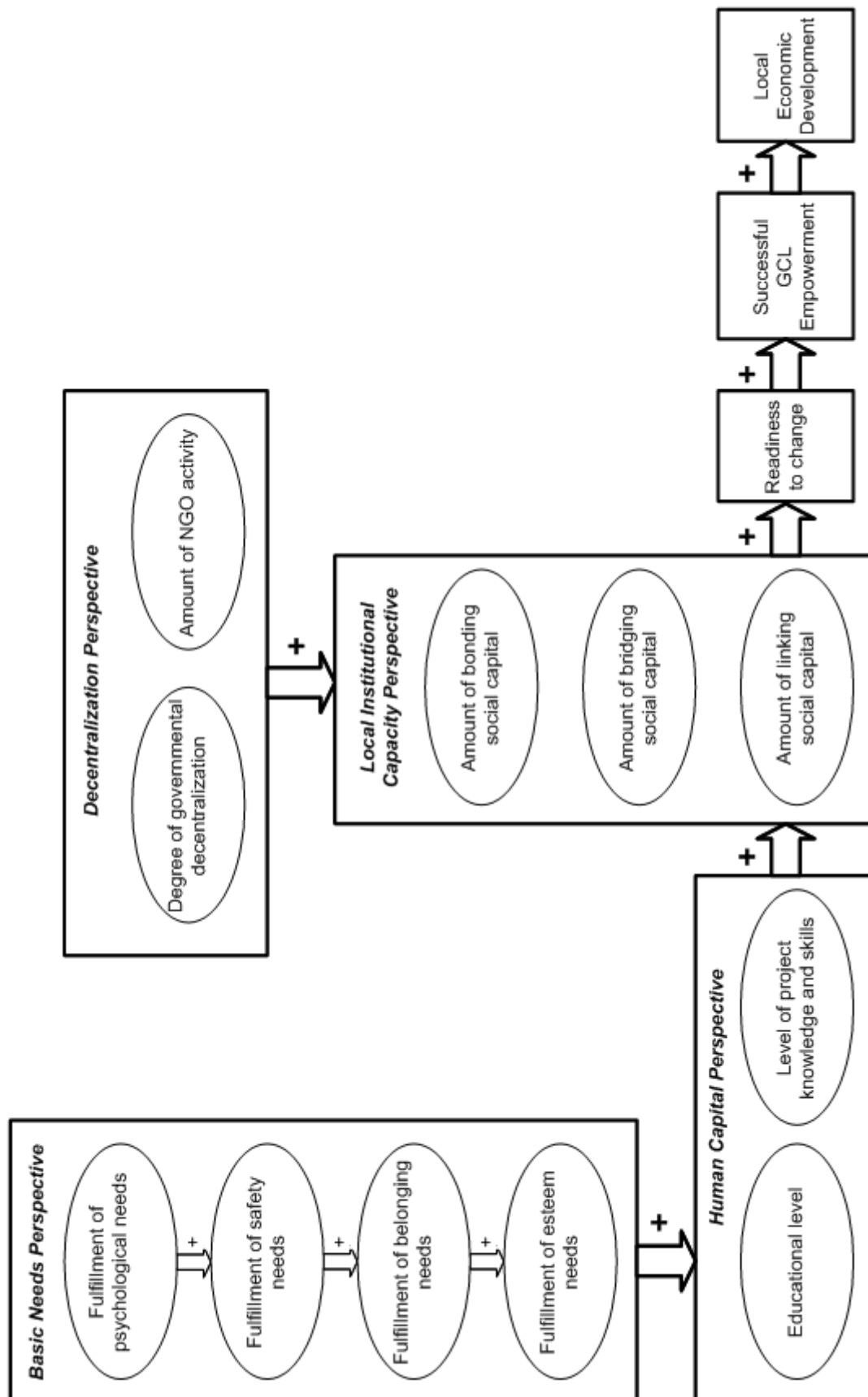
The conceptual framework is evaluated based upon the empirical evidence gathered. Two factors that are missing in my conceptual model and should be included are the cultural barrier or readiness to change and the (external) infrastructure. The attitudes, beliefs and knowledge of local people towards changing and improving their way of living is very important for a local economic development project to succeed. If the local people belief their situation is just fine and they have enough money for living, it is very hard to, for example, increase the productivity so their income will increase. If they are just unaware of the possible changes, the story changes. Then, providing information and exposing them to developed cities might open their eyes. So, although the other factors prove satisfying results, it is very important to reach awareness and readiness to change as well.

Infrastructure is the second factor, but falls under the basic needs perspective since it is related to food security. Products that are not available in their village need to be bought in a market elsewhere and especially the external infrastructure is therefore important for the villagers. Moreover, if the access between villages becomes easier, this stimulates doing business between villages and increases the scope of (economic) activities which is preferable with regard to economic development.

Whether or not the level of education should be included in the framework depends on the needs of each specific GCL empowerment project. For the MBD project, the local people involved are divided into managers and producers, each having different requirements with regard to educational level. In order to be a manager and really achieve self actualization, a high level of education is needed.

Overall, I believe that all four perspectives and the factors included in the conceptual framework are important for every GCL empowerment project and should be assessed. Also the new, integrated view presented proves right: the four perspectives all have to be addressed since they are so closely related. However, the framework should be classified as a contingency framework meaning that the satisfying scores can be different for different projects. This evaluation leads an important addition to the conceptual framework. Readiness to change is added as an extra factor in between the local institutional capacity perspective and successful GCL empowerment. This is necessary because, although all perspective provide satisfactory results, in case of lack of readiness to change, achieving successful empowerment becomes very hard. This small, but important, modification completes the final framework presented in Figure 6 on the next page. I believe it this a good general model that can be used as a guideline when determining the likelihood of success of a GCL empowerment project!

Figure 6: The Final Framework: Contingency Model for Successful GCL Empowerment



7. DISCUSSION

During the thesis I experienced several difficulties and consequently I had to make certain decisions. To make it more clear for the reader, the most important difficulties and decisions are discussed, starting with the desk research. By having an open research question, it was very difficult to define the boundaries during the literature review. Of course the literature search was somehow constrained by the four perspectives plus the focus on GCL empowerment, but still I had the feeling that I was never completely finished with collecting information. This problem was solved by taking a look at the important journals considering my topic, especially the World Development journal, to see if all important items surrounding these perspectives nowadays had been taken into account.

Another thing I would like to mention here, is the fact that the MBD project itself is very technical and still in its scientific development. Knowledge about the MBD technique is not part of my expertise which made it very difficult to understand what the whole project is about. To illustrate this, during the time in Bandung and Jakarta, a lot of the interviews and meetings were about getting a better understanding of the technology. For example, which input crops can be used and how does the process work. Of course, for the project these are all very important and interesting topics. However, with regard to empowerment as the implementation strategy which is the last step, all technical information first had to be understood well, but is not of direct use. This took a lot of extra time to explore and also to determine in what depth I should describe the aspects of the technology in my thesis was difficult.

During the site visits it was not possible to gather a lot of information about the non-observable concepts. Especially the amount of information about the different kinds of social capital and the belonging and esteem needs of the basic needs perspective is very low. This was not in line with my expectation upfront. Whenever I arrived in a village, practically everybody came to say hello and watch us. This did not really have a positive effect on the interviews that could give us some information about these non-observable topics. Moreover, the guide did not speak English very well so difficult topics like these were hard to understand for him.

The last issue I want to address is the issue of conflicting data. During the empirical investigation, I have gathered information from documents and statistics as well as from my own observations during the site visits. The documents and statistics picture a quite dramatic socio economic situation for the EMRP area. However, my observations and interpretations during the site visits made me believe that their situation is not that bad at all. In the conclusion, the latter sources have dominated since this is a primary source instead of a secondary source. I recognize that another researcher (or reader) might come up with a different conclusions, depending on the criteria and/or sources he or she looks at.

8. LIMITATIONS AND RECOMMENDATIONS FOR FURTHER RESEARCH

First of all, the MBD project itself is not being evaluated in this paper. During the interviews and review of existing documentation it became clear that not everyone is positive about these kinds of projects and palm oil in particular. A lot of organizations already started a project in Central Kalimantan and also numerous others are planning to. The overview of who is doing what and where is lacking at the district and provincial government. There also is a huge ongoing fight against the increasing amount palm oil plantations and therefore palm oil as a possible input crop was heavily rejected. However, with regard to my paper I assumed the MBD project is good, as well as wanted by the local people, and will have a positive effect on the economic development of the residents of Central Kalimantan.

Both the framework and the empirical application of the framework focus on the four presented perspectives. Based upon empirical data, the current state of the Central Kalimantan area is determined and the likelihood of success of the MBD empowerment project. However, other factors outside the field of empowerment can also influence the likelihood of success of the empowerment. For example, macroeconomic, demographic or technological changes can also have a positive or negative influence. Future researchers could investigate how factors outside the field of empowerment can influence the concepts in my empowerment framework. In that way they could also contribute to provide an even more complete view of factors influencing the likelihood of success of GCL empowerment.

Since I have chosen for a very broad view on empowerment, it has to be acknowledged that each of the four perspectives could be described in much more detail and depth on its own. However, this paper is especially written for the board of the MBD project and therefore a broad point of view serves their needs well in order to get a better view of the practical issues surrounding the implementation of the mobile biodiesel. If the board of the MBD project wishes to have a more detailed analysis of a certain perspective, this could be the work of a future researcher. For example, concepts like belonging and esteem needs could be researched in more depth. Other very interesting concepts for further research are the concepts of social capital,. These are concepts I have investigated in a quite superficial way, since it cannot be researched only by observing the people and villages.

The last limitation is that no post-measurement of the effectiveness of the empowerment can be done by me. This is another direction for future research; assessing the degree of realized empowerment. He/she could for example look at whether the opportunity to make a choice exists, whether the citizens actually use this opportunity to choose and whether the choice results in a desired result (Alsop & Heinsohn, 2005).

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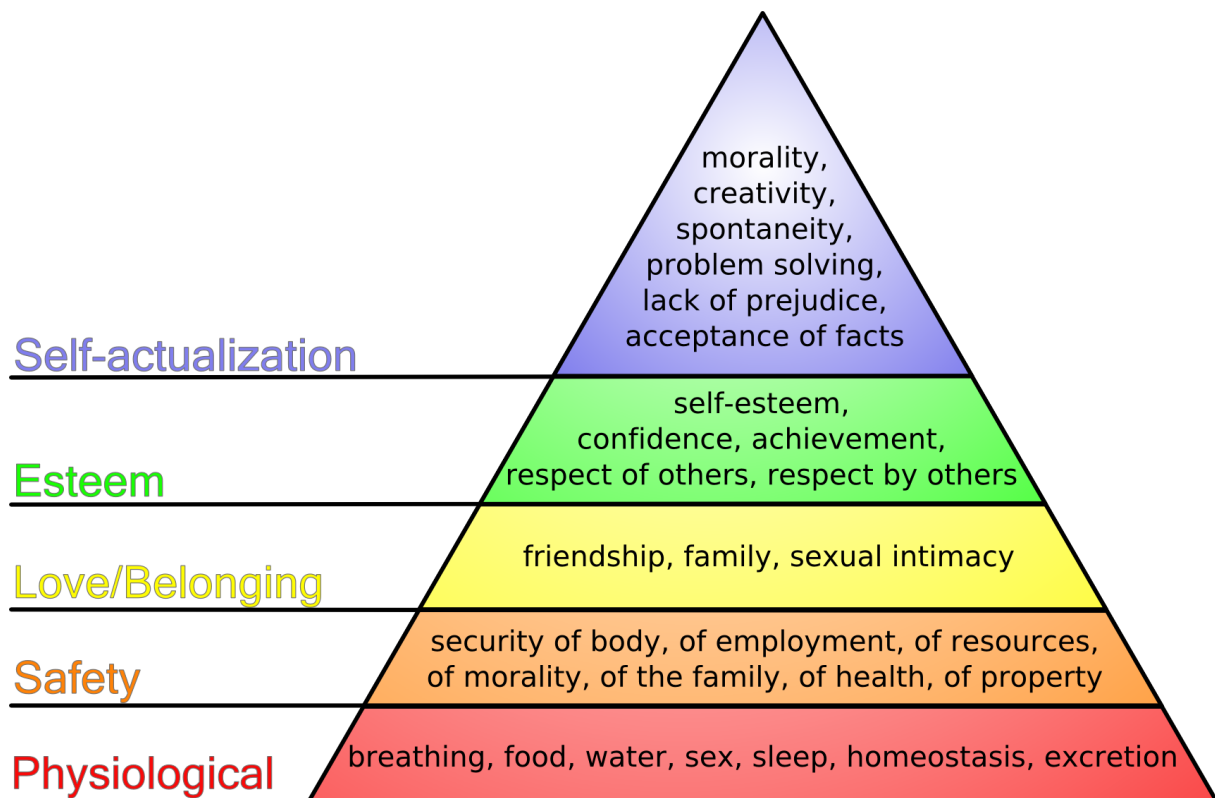
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APPENDIX 1: LIST OF INTERVIEWEES⁵

Name	Company	Function	Date
Mr. Hugo Verkuijl	Mali Biocarburant	Director Mali Biocarburant	11 March 2010
Ms. Roos Nijpels	Cordaid	Department 'Ondernemen'	30 March 2010
Prof. Erik Heeres	UoG	Overall project manager and supervisor of the Netherlands	6 April 2010
Dr. Joko Siswanto	ITB	Researcher subproject 7: LERD	20+22 April 2010
Dr. Ir. Heru Purbuyo	ITB	LERD training coordinator at research center on Environment, Infrastructure, and Regional Development	22 April 2010
Dr. Robert Manurung	ITB	Co-project manager and supervisor for Indonesia	Several times
Mr. Jefri Gideon Saragih	Sawit Watch	Head of Department Campaign and Public Education	26 April 2010
Mr. Wirendro Sumargo	Forest Watch Indonesia	Executive Director	26 April 2010
Drs. MA. Edy Purwanto	Bappenas	Senior Planner (National Development Planning Agency)	3 May 2010
Dhr. Arnold van der Zanden, Dhr. Hans van der Zijden, Dhr. Benjamin Zech	Embassy of the Kingdom of the Netherlands	1.First Secretary, Education 2.Counselor for Agriculture Nature and Food Quality 3. First Secretary, Environment	4 May 2010
Mr. Abdon Nababan	AMAN; Indigenous Peoples Alliance of the Archipelago	Secretary General	5 May 2010
Mr. Albertus Hadi Pramono	Aid Environment	Consultant Aid Environment Asia	6 May 2010
Mr. Ambu Naptamis	1.AMAN 2.LDP; Lembaga Dayak Panarung 3.Credit Union Betang Asi	1. Chairman of the board in CK 2. Director 3. Secretary	10 May 2010
Several people	Bappeda Central Kalimantan	Several departments: education, infrastructure, economy and citizenship	17 May 2010

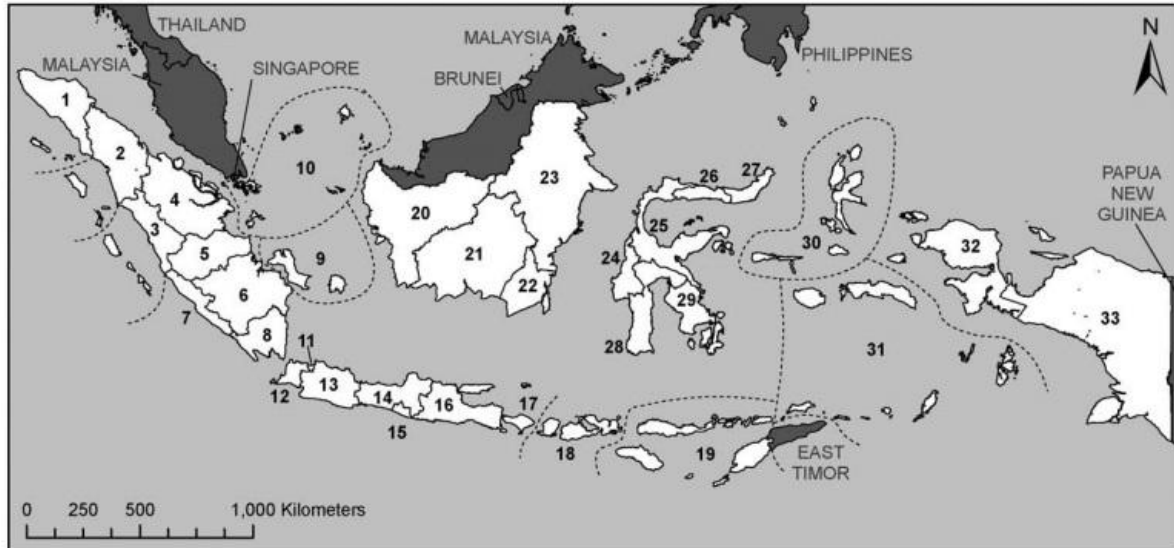
⁵ The full interviews are available on request.

APPENDIX 2: MASLOW'S HIERARCHY OF NEEDS



APPENDIX 3: MAP OF PROVINCES INDONESIA

INDONESIA



- | | | |
|----------------------------|-----------------------|-----------------------|
| 1 Nanggroe Aceh Darussalam | 12 Banten | 23 East Kalimantan |
| 2 North Sumatera | 13 West Java | 24 West Sulawesi |
| 3 West Sumatera | 14 Central Java | 25 Central Sulawesi |
| 4 Riau | 15 DI Yogyakarta | 26 Gorontalo |
| 5 Jambi | 16 East Java | 27 North Sulawesi |
| 6 South Sumatera | 17 Bali | 28 South Sulawesi |
| 7 Bengkulu | 18 West Nusa Tenggara | 29 Southeast Sulawesi |
| 8 Lampung | 19 East Nusa Tenggara | 30 North Maluku |
| 9 Bangka Belitung | 20 West Kalimantan | 31 Maluku |
| 10 Riau Islands | 21 Central Kalimantan | 32 West Papua |
| 11 DKI Jakarta | 22 South Kalimantan | 33 Papua |

APPENDIX 4: VILLAGES IN THE EMRP AREA

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
PALANGKA RAYA	PAHANDUT	TUMBANG RUNGAN	277	296	573	144
PALANGKA RAYA	PAHANDUT	TANJUNG PINANG	1205	1137	2342	575
PALANGKA RAYA	PAHANDUT	PAHANDUT SEBERANG	1596	1504	3100	815
PALANGKA RAYA	SEBANGAU	SABARU	1293	1217	2510	504
PALANGKA RAYA	SEBANGAU	KALAMPANGAN	1515	1497	3012	855
PALANGKA RAYA	SEBANGAU	KAMELOH BARU	337	317	654	164
PALANGKA RAYA	SEBANGAU	BERENG BENGKEL	515	525	1040	266
PALANGKA RAYA	SEBANGAU	KERENG BANGKIRAI	2641	2361	5002	1242
PALANGKA RAYA	SEBANGAU	DANAU TUNDAI	113	102	215	58
KAPUAS	KAPUAS KUALA	CEMARA LABAT	1142	1163	2305	639
KAPUAS	KAPUAS KUALA	PALAMPAI	348	359	707	215
KAPUAS	KAPUAS KUALA	SUNGAI TERAS	1537	1520	3057	854
KAPUAS	KAPUAS KUALA	LUPAK DALAM	2802	2794	5596	1513
KAPUAS	KAPUAS KUALA	TAMBAN BARU SELATAN	658	700	1358	379
KAPUAS	KAPUAS KUALA	BATANJUNG	1214	1168	2382	666
KAPUAS	KAPUAS KUALA	TAMBAN BARU	1109	1093	2202	580
KAPUAS	KAPUAS KUALA	TAMBAN BARU TENGAH	1776	1789	3565	842
KAPUAS	KAPUAS KUALA	BANDAR RAYA	1633	1605	3238	838
KAPUAS	KAPUAS KUALA	WARNA SARI	1490	1402	2892	860
KAPUAS	KAPUAS KUALA	TAMBAN LUPAK	793	777	1570	492
KAPUAS	KAPUAS KUALA	TAMBAN BARU MEKAR	826	796	1622	491
KAPUAS	KAPUAS KUALA	SIDOREJO	773	763	1536	470
KAPUAS	KAPUAS KUALA	LUPAK TIMUR	606	586	1192	335
KAPUAS	KAPUAS TIMUR	ANJIR SERAPAT TIMUR	1652	1660	3312	1087
KAPUAS	KAPUAS TIMUR	ANJIR SERAPAT TENGAH	3176	3330	6506	1676
KAPUAS	KAPUAS TIMUR	ANJIR SERAPAT BARAT	1929	1947	3876	951
KAPUAS	KAPUAS TIMUR	ANJIR SERAPAT BARU	708	642	1350	395
KAPUAS	KAPUAS TIMUR	ANJIR MAMBULAU TIMUR	1629	1519	3148	889
KAPUAS	KAPUAS TIMUR	ANJIR MAMBULAU TENGAH	1126	1165	2291	526
KAPUAS	KAPUAS TIMUR	ANJIR MAMBULAU BARAT	1442	1389	2831	760
KAPUAS	SELAT	TERUSAN RAYA	3587	3490	7077	1668
KAPUAS	SELAT	TERUSAN MULYA	1235	1153	2388	682
KAPUAS	SELAT	TERUSAN KARYA	1230	1194	2424	672
KAPUAS	SELAT	TERUSAN MAKMUR	930	883	1813	521
KAPUAS	SELAT	TAMBAN LUAR	1830	1728	3558	1036
KAPUAS	SELAT	HANDEL JANGKIT	2053	2062	4115	1080
KAPUAS	SELAT	PULAU KUPANG	3609	3449	7058	1692
KAPUAS	SELAT	SEI LUNUK	1894	1812	3706	973
KAPUAS	SELAT	PULAU MAMBULAU	1680	1592	3272	930
KAPUAS	SELAT	MURUNG KERAMAT	3250	3086	6336	1791
KAPUAS	SELAT	SELAT HILIR	4524	4601	9125	2467

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
KAPUAS	SELAT	SELAT TENGAH	7811	8114	15925	4338
KAPUAS	SELAT	SELAT HULU	5783	5932	11715	3058
KAPUAS	SELAT	SELAT DALAM	2949	3011	5960	1616
KAPUAS	SELAT	PULAU TELO	2133	1979	4112	1054
KAPUAS	BASARANG	PANGKALAN REKAN	1098	1077	2175	569
KAPUAS	BASARANG	BASARANG	1284	1138	2422	576
KAPUAS	BASARANG	MALUEN	960	897	1857	485
KAPUAS	BASARANG	BASUNGKAI	490	487	977	249
KAPUAS	BASARANG	LUNUK RAMBA	452	405	857	249
KAPUAS	BASARANG	BATUAH	558	531	1089	302
KAPUAS	BASARANG	TAMBUN RAYA	974	931	1905	538
KAPUAS	BASARANG	PANGKALAN SARI	928	930	1858	527
KAPUAS	BASARANG	BUNGAJ JAYA	820	953	1773	482
KAPUAS	BASARANG	BASARANG JAYA	578	588	1166	309
KAPUAS	BASARANG	PANARUNG	272	274	546	155
KAPUAS	BASARANG	TARUNG MANUAH	215	230	445	117
KAPUAS	BASARANG	BATU NINDAN	554	544	1098	302
KAPUAS	KAPUAS HILIR	HAMPATUNG	913	888	1801	539
KAPUAS	KAPUAS HILIR	DAHIRANG	573	618	1191	320
KAPUAS	KAPUAS HILIR	BARIMBA	897	871	1768	507
KAPUAS	KAPUAS HILIR	SEI PASAH	671	580	1251	330
KAPUAS	KAPUAS HILIR	BAKUNGIN	592	585	1177	349
KAPUAS	KAPUAS HILIR	SEI ASAM	1012	909	1921	526
KAPUAS	PULAU PETAK	TELUK PALINGET	1388	1347	2735	789
KAPUAS	PULAU PETAK	BUNGA MAWAR	1330	1340	2670	697
KAPUAS	PULAU PETAK	SEI TATAS	1481	1431	2912	846
KAPUAS	PULAU PETAK	NARAHAN	1248	1279	2527	658
KAPUAS	PULAU PETAK	PALANGKAI	469	502	971	302
KAPUAS	PULAU PETAK	HANDIWUNG	1335	1349	2684	678
KAPUAS	PULAU PETAK	ANJIR PALAMBANG	1558	1525	3083	705
KAPUAS	KAPUAS MURUNG	PALINGKAU BARU	1704	1670	3374	892
KAPUAS	KAPUAS MURUNG	UPT PALINGKAU SP1	511	479	990	241
KAPUAS	KAPUAS MURUNG	PALINGKAU LAMA	3824	3967	7791	1922
KAPUAS	KAPUAS MURUNG	UPT PALINGKAU SP2	348	326	674	185
KAPUAS	KAPUAS MURUNG	UPT PALINGKAU SP3	486	389	875	190
KAPUAS	KAPUAS MURUNG	TAJEPAN	1427	1443	2870	789
KAPUAS	KAPUAS MURUNG	MAMPAI	1594	1645	3239	887
KAPUAS	KAPUAS MURUNG	MUARA DADAHUP	1030	1065	2095	530
KAPUAS	KAPUAS MURUNG	DADAHUP	1492	1065	2557	783
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A1 (BINA JAYA)	782	751	1533	535
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A2	692	582	1274	364
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A4 (HARAPAN BARU)	678	657	1335	384
KAPUAS	KAPUAS MURUNG	(UPT DADAHUP A5) BENTUK JAYA	724	680	1404	415

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A6	141	167	308	97
KAPUAS	KAPUAS MURUNG	UPT DADAHUP B1	585	534	1119	343
KAPUAS	KAPUAS MURUNG	UPT DADAHUP B2 (SUMBER AGUNG)	625	531	1156	536
KAPUAS	KAPUAS MURUNG	UPT DADAHUP B3	342	353	695	197
KAPUAS	KAPUAS MURUNG	UPT DADAHUP B4	269	292	561	158
KAPUAS	KAPUAS MURUNG	UPT DADAHUP F2	233	191	424	119
KAPUAS	KAPUAS MURUNG	UPT DADAHUP F5	329	262	591	160
KAPUAS	KAPUAS MURUNG	UPT DADAHUP G1	657	665	1322	315
KAPUAS	KAPUAS MURUNG	UPT DADAHUP G2	388	380	768	209
KAPUAS	KAPUAS MURUNG	UPT DADAHUP G3	396	388	784	214
KAPUAS	KAPUAS MURUNG	UPT DADAHUP G4	392	418	810	217
KAPUAS	KAPUAS MURUNG	UPT DADAHUP G5	465	457	922	269
KAPUAS	KAPUAS MURUNG	BELAWANG	272	329	601	149
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A8	96	111	207	79
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A9	253	258	511	159
KAPUAS	KAPUAS MURUNG	PALANGKAU LAMA	258	254	512	167
KAPUAS	KAPUAS MURUNG	UPT DADAHUP A7	467	509	976	298
KAPUAS	KAPUAS MURUNG	PALANGKAU BARU	363	386	749	209
KAPUAS	KAPUAS MURUNG	UPT DADAHUP C1	398	405	803	208
KAPUAS	KAPUAS MURUNG	UPT DADAHUP C2	278	294	572	185
KAPUAS	KAPUAS MURUNG	UPT DADAHUP C3	384	412	796	201
KAPUAS	KAPUAS MURUNG	UPT DADAHUP C4	141	168	309	89
KAPUAS	KAPUAS MURUNG	TAMBAK BAJAI	211	237	448	131
KAPUAS	KAPUAS BARAT	SEI KAYU	1366	1222	2588	614
KAPUAS	KAPUAS BARAT	SAKA MANGKAHAI	2141	2152	4293	1037
KAPUAS	KAPUAS BARAT	MANDOMAI	1976	1932	3908	1056
KAPUAS	KAPUAS BARAT	ANJIR KALAMPAN	1104	1046	2150	608
KAPUAS	KAPUAS BARAT	PANTAI	817	928	1745	393
KAPUAS	KAPUAS BARAT	SAKA TAMIANG	853	870	1723	475
KAPUAS	KAPUAS BARAT	PENDA KETAPI	560	525	1085	303
KAPUAS	KAPUAS BARAT	TELUK HIRI	174	147	321	81
KAPUAS	KAPUAS BARAT	SEI DUSUN	653	606	1259	317
KAPUAS	KAPUAS BARAT	BASUTA RAYA	250	207	457	134
KAPUAS	MANTANGAI	MANUSUP	1341	1445	2786	696
KAPUAS	MANTANGAI	UPT LAMUNTI A 1	894	857	1751	350
KAPUAS	MANTANGAI	UPT LAMUNTI C 1	431	493	924	198
KAPUAS	MANTANGAI	UPT LAMUNTI C 3	749	787	1536	336
KAPUAS	MANTANGAI	SEI KAPAR	451	430	881	224
KAPUAS	MANTANGAI	TARANTANG	951	932	1883	482
KAPUAS	MANTANGAI	LAMUNTI	292	280	572	162
KAPUAS	MANTANGAI	UPT LAMUNTI A 2	298	291	589	203
KAPUAS	MANTANGAI	UPT LAMUNTI B 1	543	537	1080	299
KAPUAS	MANTANGAI	UPT LAMUNTI C 2	343	374	717	193

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
KAPUAS	MANTANGAI	UPT LAMUNTI C 4	206	180	386	119
KAPUAS	MANTANGAI	PULAU KALADAN	1051	1067	2118	556
KAPUAS	MANTANGAI	UPT LAMUNTI A 3	246	238	484	128
KAPUAS	MANTANGAI	UPT LAMUNTI A 4	284	301	585	141
KAPUAS	MANTANGAI	UPT LAMUNTI B 2	272	257	529	145
KAPUAS	MANTANGAI	UPT LAMUNTI B 3	467	500	967	176
KAPUAS	MANTANGAI	UPT LAMUNTI B 4	177	145	322	80
KAPUAS	MANTANGAI	MANTANGAI HILIR	1887	1938	3825	943
KAPUAS	MANTANGAI	UPT LAMUNTI A 5	156	158	314	82
KAPUAS	MANTANGAI	UPT LAMUNTI B 5	290	403	693	157
KAPUAS	MANTANGAI	MANTANGAI TENGAH	918	882	1800	467
KAPUAS	MANTANGAI	MANTANGAI HULU	986	858	1844	467
KAPUAS	MANTANGAI	KALUMPANG	542	493	1035	284
KAPUAS	MANTANGAI	SEI AHAS	401	433	834	208
KAPUAS	MANTANGAI	KATUNJUNG	438	592	1030	270
KAPUAS	MANTANGAI	LAHEI MANGKUTUP	1214	1156	2370	576
KAPUAS	MANTANGAI	TUMBANG MUROI	875	874	1749	438
KAPUAS	MANTANGAI	DANAU RAWAH	2045	1965	4010	1086
KAPUAS	TIMPAH	PETAK PUTI	555	585	1140	346
KAPUAS	TIMPAH	ARUK	327	256	583	149
KAPUAS	TIMPAH	LAWANG KAJANG	836	1026	1862	260
BARITO SELATAN	JENAMAS	TABATAN JAYA	51	65	116	28
BARITO SELATAN	JENAMAS	TAMPULANG	675	672	1347	371
BARITO SELATAN	JENAMAS	RANTAU BAHUANG	679	692	1371	404
BARITO SELATAN	JENAMAS	RANTAU KUJANG	1803	1916	3719	1110
BARITO SELATAN	JENAMAS	RANGGA ILUNG	1328	1343	2671	674
BARITO SELATAN	DUSUN HILIR	SUNGAI JAYA	885	783	1668	454
BARITO SELATAN	DUSUN HILIR	MAHAJANDAU	612	534	1146	296
BARITO SELATAN	DUSUN HILIR	MENGGATIP	2035	1835	3870	1094
BARITO SELATAN	DUSUN HILIR	KALANIS	1146	1132	2278	607
BARITO SELATAN	DUSUN HILIR	TELUK TIMBAU	535	531	1066	307
BARITO SELATAN	DUSUN HILIR	BATILAP	433	405	838	235
BARITO SELATAN	DUSUN HILIR	BATAMPANG	785	773	1558	423
BARITO SELATAN	KARAU KUALA	SELAT BARU	165	185	350	60
BARITO SELATAN	KARAU KUALA	BANGKUANG	2354	2255	4609	943
BARITO SELATAN	KARAU KUALA	TELUK BETUNG	609	603	1212	301
BARITO SELATAN	KARAU KUALA	BABAI	2558	2561	5119	1419
BARITO SELATAN	KARAU KUALA	Taliuk	737	786	1523	355
BARITO SELATAN	KARAU KUALA	TELUK SAMPUDAU	160	165	325	105
PULANG PISAU	KAHAYAN KUALA	CEMATAN	651	617	1268	359
PULANG PISAU	KAHAYAN KUALA	PAPUYU III SEI PUDAK	1273	1223	2496	595
PULANG PISAU	KAHAYAN KUALA	KIAPAK	461	428	889	248
PULANG PISAU	KAHAYAN KUALA	PAPUYU II / BARUNAI	512	467	979	252

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
PULANG PISAU	KAHAYAN KUALA	PAPUYU I / PASANAN	1127	1028	2155	513
PULANG PISAU	KAHAYAN KUALA	SEI RUNGUN	657	673	1330	319
PULANG PISAU	KAHAYAN KUALA	BAHAUR HILIR	1436	1369	2805	790
PULANG PISAU	KAHAYAN KUALA	BAHAUR TENGAH	1462	1424	2886	702
PULANG PISAU	KAHAYAN KUALA	BAHAUR HULU	2038	2005	4043	1066
PULANG PISAU	SEBANGAU KUALA	MEKAR JAYA	693	664	1357	336
PULANG PISAU	SEBANGAU KUALA	SEBANGAU PERMAI	723	612	1335	354
PULANG PISAU	SEBANGAU KUALA	SEBANGAU JAYA	333	292	625	163
PULANG PISAU	SEBANGAU KUALA	SEBANGAU MULIA	605	544	1149	301
PULANG PISAU	SEBANGAU KUALA	PADURAN SABANGAU	437	371	808	212
PULANG PISAU	PANDIH BATU	DANDANG	1177	1097	2274	369
PULANG PISAU	PANDIH BATU	TALIO	519	678	1197	400
PULANG PISAU	PANDIH BATU	GADABUNG	743	733	1476	411
PULANG PISAU	PANDIH BATU	BELANTI SIAM	1160	1080	2240	615
PULANG PISAU	PANDIH BATU	PANGKOH HILIR	404	389	793	217
PULANG PISAU	PANDIH BATU	TALIO MUARA	1182	1101	2283	606
PULANG PISAU	PANDIH BATU	TALIO HULU	1120	976	2096	606
PULANG PISAU	PANDIH BATU	PANGKOH SARI	626	361	987	319
PULANG PISAU	PANDIH BATU	KANTAN MUARA	860	781	1641	407
PULANG PISAU	PANDIH BATU	PANGKOH HULU	637	651	1288	267
PULANG PISAU	PANDIH BATU	SANGGANG	504	401	905	243
PULANG PISAU	PANDIH BATU	PANTIK	303	309	612	238
PULANG PISAU	PANDIH BATU	MULIA SARI	873	808	1681	493
PULANG PISAU	PANDIH BATU	KANTAN DALAM	795	743	1538	421
PULANG PISAU	MALIKU	G A N D A N G	1202	1077	2279	710
PULANG PISAU	MALIKU	GARANTUNG	1524	1394	2918	816
PULANG PISAU	MALIKU	MALIKU BARU	1698	1580	3278	972
PULANG PISAU	MALIKU	BADIRIH	550	465	1015	356
PULANG PISAU	MALIKU	TAHAI JAYA	1146	1351	2497	691
PULANG PISAU	MALIKU	TAHAI BARU	938	916	1854	508
PULANG PISAU	MALIKU	KANAMIT	994	881	1875	476
PULANG PISAU	MALIKU	PURWODADI	1047	969	2016	521
PULANG PISAU	MALIKU	WONOAGUNG	1168	1192	2360	397
PULANG PISAU	MALIKU	KANAMIT BARAT	923	869	1792	482
PULANG PISAU	MALIKU	SEI BARU TEWU	247	261	508	130
PULANG PISAU	MALIKU	SIDODADI	608	489	1097	262
PULANG PISAU	MALIKU	KANAMIT JAYA	564	467	1031	250
PULANG PISAU	KAHAYAN HILIR	BUNTOI	1372	1279	2651	772
PULANG PISAU	KAHAYAN HILIR	MINTIN	1550	1489	3039	895
PULANG PISAU	KAHAYAN HILIR	MANTAREN II	1165	1083	2248	714
PULANG PISAU	KAHAYAN HILIR	MANTAREN I	880	765	1645	414
PULANG PISAU	KAHAYAN HILIR	PULANG PISAU	3261	3183	6444	1819
PULANG PISAU	KAHAYAN HILIR	ANJIR PULANG PISAU	1664	1789	3453	818

District	Subdistrict	Village	Total male population	Total female population	Total population	Number of Families
PULANG PISAU	KAHAYAN HILIR	GOHONG	910	850	1760	522
PULANG PISAU	KAHAYAN HILIR	UPT ANJIR PULANG PISAU	817	794	1611	389
PULANG PISAU	JABIREN RAYA	GARONG	520	510	1030	250
PULANG PISAU	JABIREN RAYA	HENDA	374	311	685	169
PULANG PISAU	JABIREN RAYA	SIMPUR	272	219	491	117
PULANG PISAU	JABIREN RAYA	SAKA KAJANG	464	528	992	223
PULANG PISAU	JABIREN RAYA	JABIREN	1375	1141	2516	589
PULANG PISAU	JABIREN RAYA	PILANG	683	736	1419	315
PULANG PISAU	JABIREN RAYA	TUMBANG NUSA	526	478	1004	269
PULANG PISAU	KAHAYAN TENGAH	PETUK LITI	283	267	550	138
PULANG PISAU	KAHAYAN TENGAH	BUKIT LITI	384	352	736	181
PULANG PISAU	KAHAYAN TENGAH	BUKIT RAWI	506	500	1006	228
PULANG PISAU	KAHAYAN TENGAH	TUWUNG	285	256	541	127
PULANG PISAU	KAHAYAN TENGAH	SIGI	334	225	559	153

APPENDIX 5: THE 7 SUBPROJECTS OF THE MBD PROJECT

1. Techno-economic evaluation on seed processing technology.
2. Exploratory experimental studies on biodiesel synthesis in mobile production units using CCS equipment.
3. Techno-economic evaluations of biodiesel synthesis in mobile production units using CCS equipment.
4. Development of technology for biodiesel production using locally produced enzymes.
5. Optimal planning and control of mobile processing technology with multiple inputs and outputs.
6. Isolation and valorization of peptides and amino acids from the rubber tree, oil palm and Jatropha Curcas plant.
7. LERD, establishment of a framework and concrete action plan for all stakeholders involved in the introduction of new technology including local government planners, small entrepreneurs and NGO's and creating a conducive environment.

APPENDIX 6: THE LERD TRAINING PROGRAMS OF BAPPENAS AND MBD

The Bappenas LERD training program is five weeks in total. The first two weeks are in Bandung and deal with stakeholder identification, stakeholder participation (show them the benefits) and provide an general action plan. Subsequently, the trainees stay for three weeks in Groningen, where they work on a more business oriented and further specified action plan. Each business option is elaborated upon in pros and cons. Based on the final plan a budget is determined. Finally they present this to the provincial or national government to get extra money besides from the local (district) government. Mixed teams, fully local and with very diverse members join the training. In general the teams consist of one provincial government, three or four local government officers, one member of the local university and two or three people from the private sector/entrepreneurs. Until now, no team of Central Kalimantan has been involved in this program.

Based on the importance of the biodiesel in the national midterm and long term plans of the Bappenas, the Bappenas asked the government on regional level in the provinces of Kalimantan in 2007 to develop business plans to make local economic development possible with biodiesel. This has not worked out very well. Only one region developed a plan and this was also not appropriate to make realization possible. That is why the Bappenas gives less attention in their LERD program to biodiesel. However, Drs. MA. Edy Purwanto thinks that it could work out if you give them a clear idea about possible business opportunities. This problem is also recognized by the board of the MBD project.

The board argue that since the MBD project deals with a new product, the mobile biodiesel, and thus new markets and new organizations, the above described standard LERD training program needs to be tailor made. Basically, the program for the MBD project will consist of seven steps:

- 1) Fact Finding, 2010/2011. This is the part I am involved in. Discover the local needs for this specific LERD program.
- 2) Competitive application by 13 regions in 2012. Groups of the 13 districts of Central Kalimantan, thus not only the EMRP area, present their problem and solutions (from A to C by B). It has to be a good business/action plan. Then a couple of groups are selected and competitively work on improving and optimizing their plan. Only two of them are chosen and might be implemented during a next project.
- 3) Two weeks of training at ITB
- 4) Three weeks of training elsewhere in Indonesia: 'seeing is believing'
- 5) Elaboration of plans
- 6) Presentation of the plans to their stakeholders
- 7) Presentation to the ABF, 2014

APPENDIX 7: TABELS EMRP AREA

7A: Sanitation

District	No. Villages	Own toilet	Shared toilet	Public toilet	No toilet
Barito Selatan	18	16.7%	5.6%	0.0%	77.8%
Kapuas	139	46.0%	13.7%	3.6%	36.7%
Palangkaraya	9	66.7%	11.1%	0.0%	22.2%
Pulang Pisau	61	63.9%	0.0%	3.3%	32.8%
Total/Mean	227	48.3%	7.6%	1.7%	42.3%

Main type of sanitation of villages per district in the EMRP area (source: PODES 2008)

7B: Source of Water

District	No. Villages	Packaged	Pump	Well	Spring	River/Lake	Rainwater	Other
Barito Selatan	18	11.1%	-	-	-	88.9%	-	-
Kapuas	139	7.9%	3.6%	19.4%	-	43.9%	21.6%	3.6%
Palangkaraya	9	11.1%	55.6%	-	-	33.3%	-	-
Pulang Pisau	61	3.3%	16.4%	18.2%	-	46.5%	24.6%	-
Total/Mean	227	8.4%	18.9%	9.4%	0.0%	53.2%	11.6%	0.9%

Main source of water used for drinking and cooking used by percentage of villages within district in the EMRP area (source: PODES 2008)

7C: Electricity

District	No. Villages	Families with PLN electricity	Families with Non PLN electricity	Total amount of families	% of families with electricity
Barito Selatan	18	4728	2244	9186	75.9%
Kapuas	139	41471	2668	79207	55.7%
Palangkaraya	9	3926	156	4623	88.3%
Pulang Pisau	61	16907	953	27495	65.0%
Total/Mean	227	62304	3777	111325	59.4%

Levels and type of electricity use per district in the EMRP area (source: PODES 2008)

District	No. Villages	villages <25% families	villages <50% families	villages <75% families	villages >75% families
Barito Selatan	18	33.3%	5.6%	11.1%	50%
Kapuas	139	36.7%	25.2%	20.9%	17.3%
Palangkaraya	9	11.1%	0%	11.1%	77.8%
Pulang Pisau	61	8.2%	19.7%	34.4%	37.7%
Total/Mean	227	28%	21%	23%	28%

Quartiles of electricity use per village for the districts in the EMRP area (source: PODES 2008)

7D: Infrastructure

District	No. Villages	Over land	Over water	Over Land and Water
Barito Selatan	18	0.0%	61.1%	38.9%
Kapuas	139	20.1%	7.2%	72.7%
Palangkaraya	9	22.2%	11.1%	66.7%
Pulang Pisau	61	24.6%	1.6%	73.8%
2008	227	20%	10%	70%
2005	227	16%	26%	56%

Main access to villages in the EMRP area (source: PODES 2008 and Infrastructure Report 2008)

District	No. Villages	Asphalt	Gravel	Dirt road	No road access
Barito Selatan	18	11.1%	16.7%	11.1%	61.1%
Kapuas	139	30.2%	23.0%	39.6%	7.2%
Palangkaraya	9	44.4%	11.1%	33.3%	11.1%
Pulang Pisau	61	21.3%	27.9%	49.2%	1.6 %
Total/Mean 2008	227	27%	23%	40%	10%
Total/Mean 2005	227	19%	9%	45%	26%

Main access road to villages in the EMRP area (source: PODES 2008 and Infrastructure Report 2008)

APPENDIX 8: VARIABLES OF THE PM2L PROGRAM

	Variable	Classification	Score
1	Main road type in village	<ul style="list-style-type: none"> • Asphalt • Stones, hard road • Land 	3 2 1
2	Main activity of local people	<ul style="list-style-type: none"> • Agriculture • Non agriculture 	3 4
3	Educational facilities	<ul style="list-style-type: none"> • Primary school • Secondary school • High school 	2 3 4
4	Health facilities	<ul style="list-style-type: none"> • No facilities • (Community) health center • Other facilities than health center 	2 3 4
5	Health workers	<ul style="list-style-type: none"> • Midwives • Paramedicals • Doctors 	1 2 3
6	Communication facilities	<ul style="list-style-type: none"> • No facilities • Post office OR public phone • Post office AND public phone 	2 3 4
7	Population density per km2	<ul style="list-style-type: none"> • < 100 • 100-300 • > 300 	1 3 4
8	Drinking water source	<ul style="list-style-type: none"> • Clean water source • A well • Raining water 	3 2 1
9	Fuel source for cooking	<ul style="list-style-type: none"> • Gas/electricity • Wood or other 	4 2
10	Percentage of people using electricity	<ul style="list-style-type: none"> • < 5 • 5-15 • 15-70 • > 70 	1 2 3 4
11	Percentage of people living from agriculture	<ul style="list-style-type: none"> • < 65.0 • 65.0-80.0 • 80.0-87.5 • > 87.5 	4 3 2 1
12	Economic situation	<ul style="list-style-type: none"> • Very poor • Poor • Ok • Rich 	1 2 3 4
13	Ease to reach health facilities	<ul style="list-style-type: none"> • Easy • Quite easy • Hard • Very hard 	4 3 2 1
14	Ease to reach a market	<ul style="list-style-type: none"> • Easy • Quite easy • Hard 	4 3 2
15	Ease to reach shops	<ul style="list-style-type: none"> • Easy • Hard 	3 2

Total score: 27-32= far behind, 33-37=behind, 38-42=developed, >42=very developed.

APPENDIX 9: OBSERVATION REPORTS SITE VISITS

Summary

During 6 days, 17 villages are visited. These villages are all located in the EMRP area and are in three of the four districts in this area and located in 7 different sub districts (total is 22) . The villages visited are the following:

Palangka Raya: Kereng Bangkirai, Kalampangan

Pulang Pisau: Badirih, Maliku, Kanamit, Bahaur , Dandang, Talio, Pangkoh, Buntoi

Kuala Kapuas: Dadahup village, Dadahup A1, Dadahup A2, Dadahup G5, Mandomai, Pantai, Anjir

An extensive description of each village can be read in observation report 1 to 7. This is a summary of the observations and some conclusions based on these observations.

Agriculture / Input Crops

The main income of the visited villages is agriculture. Some crops are used for local consumption, others are sold to a company. No machineries are used for the process, people work tradition with their hand. Next to agriculture some villages live from fishery. Although most of the villages are located next to the river, the fishery industry was smaller than expected. Industry is in very small amount available. Mostly little retail shops, but in the “larger” villages like Pangkoh, Bahaur and Mandomai there is on small scale industry visible, for example wood production.

Rubber

Rubber plantations are located all over the visited area. The biggest plantations are found along the road of Buntoi – Bahaur and Kapuas – Pulang Pisau. The rubber trees are planted in rows and between the rows there is a space near to four meter. Near Anjir the trees are planted very close and according our guide this has negative influence of the quality of the trees. Some plantations have very young trees, others are very old.

The rubber process is as follows:

- The farmer cuts the tree early in the morning, white rubber comes out the tree in a little stream and is captured in a coconut shell
- Around 11:00 the farmer collects the rubber and process this with vinegar.
- The rubber gets hard and is captured in proportions of 50 kg.
- A middle man checks the quality, weights the rubber and buy the rubber from the farmer for +/- Rp7.000 per kg. The middle man sells it to a company (profit of 700 Rp per kg) which exports the rubber mostly to China where it will be processed into products like tires.

This process repeats every other day. According to a farmer in Kanamit the nuts of a rubber tree grows once a year and only in dry season. He does not use the nuts. Sometimes a new plant is growing out of

the nuts and then he takes and replant it on his land. Some children use the nuts as a toy, something we have seen in a house in Dadahup A2.

Palm oil

During the site visits, we have seen just one palm oil plantation, which was located near to Anjir. This is caused because not many plantations are located in the visited area and the plantations are mostly far from the road and villages. The plantation is owned by a company named PT. Fajar Mas Indah and the security was too strict to take a closer look. Although we thought it was a big plantation, our guide explained it was just a small one. Some people in the area have palm oil trees for themselves, but this is not more than two or trees and therefore not enough for the MBD. In the Dadahup area a plan of the Bupati was shown by a local person. Although our guide was acting strange and would not translate the content of the plan, the pictures made the content clear enough. The timeframe was 2008-2013 and the mission of the plan was to increase the agriculture in the area. There was a map of the EMRP area with block A till E and a map of the near area: “the Kelapa Sawit area” (The palm oil Area). The area was around 24.000 ha and there was also a big amount of money Rp 200.000.000. According to our interpretations and observations this is a plan of a company and Bupati to make the area a palm oil area. Along our way to Dadahup we have seen many logging. And it is, according to our guide, not allowed to talk about this to us. So, we believe that the people are under pressure of the government.

Jatropha

In the visited area we have not seen *Jatropha*. Also the people were not familiar with the crop.

Other Crops

The two major available crops in the visited area, next to rubber and palm oil, are rice and coconuts. Coconut trees are located spread over the whole visited area, but the only coconut plantations seen are along the road between Pangkoh and Bahaur. They make sugar of the coconut and sell the oil. Complete coconuts are also sold to Palangkaraya where it is used for drinking. Rice fields are located in the whole visited area. They use it for own consumption and/or selling to companies. Sometimes the rice is intercropped with rubber- or coconut trees. There are some little Cassava plantations located near Maluku.

Infrastructure

External infrastructure

The external infrastructure, so the roads to the village, was much better than expected. Many roads are made from asphalt, some with white stripes in the middle. The distance to big villages influence the quality of the road (further away, less quality), something seen in the road from Buntoi to Bahaur.

Some villages are not accessible by road in rainy season, for example Dadahup A1 & A2. Some roads are made from soil and holes are fixed with wood from trees.

Internal infrastructure

The roads in the villages (internal infrastructure) differs much from the external infrastructure. Some villages, like Anjir and Kereng Bangkirai, are located along the main road and the infrastructure is therefore good. Bahaur and Dadahup have a good infrastructure and are easy accessible by car. But many other villages we have seen are not accessible by car. Small roads made of soil or wood can only be driven by motor cycle and bicycle. Also the roads to agricultural land are very small.

Education

Every village visited has its at least one elementary school. Most often, the smallest (and least developed) villages do not have a secondary school or high school. Children living in the small villages go to the nearest secondary/high school, which is generally located in the capital of the sub district. We think education is in general well accessible for most children, since they have a lot of bicycles in order to reach the schools. For example, children living in Bandirih take their bicycles on the ferry to go to secondary/high school in Maluku.

With regard to the costs, elementary and secondary school (the first 9 years of education) are free of tuition. This decreases the barrier for school enrollment and has resulted in high levels of enrollment. According to the high school we visited, a lot of costs are also subsidized by government, which also decreases this barrier. Students indicated however that continuing to university depended for a large degree on the ability to pay the tuition fee and also the housing, since universities are more far away (Palangkaraya, Banjarmasin, Kapuas). From a university student we heard that for one year the tuition fee is 2 Million Rupee (€ 165,-).

Since the government had a special program that started a couple of years ago, lack of teachers is not really a problem. Some schools have special housing facilities for teachers who moved to the area especially to teach. However, we question the quality of the teachers. Speaking to an English teacher in English did not at all work out. She did not understand us and her English did not make sense to us, so we let our guide be the interpreter.

Health Facilities

Around 50% of the villages has its own community health center for basic health services. People can get medicines here, which are free within opening hours. We talked to the nurse in Badirih and she mentioned that she moved here 4 years ago after signing a contract with the government for at least 10 years. She mentions that she can also take care of pregnant women. She also indicates that the problem with local people is that a lot of times they are ill, they do not go to the community health center, because they rely on traditional medicines. If the illness is more serious, people have to go the Maluku

with the ferry. However, this is not so far. If they cannot help them there and really need special treatment, they are taken to the hospital in Pulang Pisau. Actually this is the procedure for all villages we visited. The community health centers are often small and basic, but can offer help and give medicines. The health centers we visited in Kalampangan was really great, with several different departments, like doctors, dentists, midwives and also place to stay overnight.

To conclude, we think that health services are well arranged in the basics. However, if quick help is needed for a more severe and difficult disease, it gets difficult. Getting somebody to the hospital can take up to 4 hours in the worst case.

PM2L Program

Seven of the sixteen visited villages has the status of TERTINGGAL. Bases upon the database of PODES 2008 and the observations, we can conclude that villages with the status TERTINGGAL are characterized by a bad infrastructure to or within the village or have difficulties accessing higher education and/or health services. The government is really busy to improve these villages by building the needed facilities in the coming 5 years.

Conclusion

Technical

From the 3 input crops, oil of rubber is definitely the best option for the MBD project. The nuts are not used and the EMRP area is characterized by a lot of rubber plantations. If lucky, the farmers are also member of a rubber union and can be easily contacted. With regard to the infrastructure, all main roads are quite good consisting of asphalt or amplified and can easily be used by a truck. However, to really reach the center of some villages, the truck can use a small road, which is not made for trucks but might be possible to use. Another option we thought of is to place the truck of the main road, which can also easily be reached by the local people by scooter or bicycle, and process the diesel there.

Needs

We do not really think diesel is something these villages really need. All villages have electricity, food, tv etc and are ok with their way of living. Also access to education and health services is a lot better than expected and the government is really busy developing the villages. The most people have their own scooter and use gasoline. Gasoline is quite cheap, 6.000 Rp per liter, because it is subsidized by the government. Cars also run on gasoline, however trucks and boats have a diesel engine. The local use and benefits of producing their own diesel really depends on the applicability of the diesel. Can the diesel also be used for cooking, instead of kerosene? Can the diesel be used instead of gasoline, for cars and scooters? If yes, it would save them some money if the costs per liter is below 6.000 Rp. However, is this really economic development?

We share the opinion that most of these villages are better helped by other things such as building a plant for rubber processing or giving them an irrigation machine for the rice fields, which can really make a big difference.

How to make the MBD program successful

We do not think that if these local people are asked to provide a business plan for local diesel production, this will work out. The Bappenas tried this before, but got almost no response. Firstly, this can be because they are willing to but they have limited knowledge. Secondly, some villages with limited economic activity just rely on the government and do not take any initiative themselves. They just wait till the government has a new plan for them and do what they are told. Therefore we think local people should be trained and explained about biodiesel before they are asked to hand in a business plan. Also, for the less economically developed villages, we think you really need “to take their hand” and just tell them what they have to do and let them operate, since we do not expect them to take any initiative.

Observation Report 1: Kereng Bangkirai, 14-05-2010

Kereng Bangkirai is a small village close to Palangkaraya, about 10 kilometer. It is easy accessible by car, motorcycle or even taxi since the main road is made from asphalt. The taxi buses from Palangkaraya also serve this area. The side roads are small and not easily accessible by car. However, most people live on the main street here. The houses are quite big and look nice. The main structure is made of wood, but most roofs are from TATA plates. Some are from wood.

Businesses

- The main source of income is fishery. People fish in the peat land river as well as the wetland near the road. The fish is sold to local people as well as people from Palangkaraya.
- Besides fish they also sell a special kind of wood. This wood needs to be dried and then it has to be further processed in order to produce the circular mosquito protection products that have to be lighted. This is sold to Palangkaraya and Banjarmasin.
- Cassava is also made by local people, but this is mainly for local use. Just like the small gardening sites we saw.
- Gasoline and solar is being sold. This is bought by gasoline stations and packaged in 1 or 2 liter bottles. The price of solar for one liter is 5.000 Rp, at the most gasoline stations it is 4.500 Rp. So their profit is 500 Rp per liter at maximum.
- There is one quite big supermarket. Besides that, a lot of small local shops exists selling noodle soups, chips, candy and water for example. These supplies are delivered at the shop by the brand itself one in a while.

Transportation

A lot of scooters, only a few cars we have seen. Also a lot of bicycles!

Facilities

- A community health center.
- A primary school in the center of the village. Junior high school is located about 2km outside the center, but easy to reach by asphalt roads. Both schools look quite big. For the junior high they even have houses for the teachers. Senior high school is more far away, about 10km.
- They have a Muslim Center, since most people are Muslim.
- Most houses have normal electricity and a lot of houses have TVs.
- Public street lightning (lantaarn palen) is present, but only limited.

Photo Report

Main road



Side road



Electricity Network



Community Health Center



Supermarket

Selling Solar/Gasoline



Wood sold as mosquito protection



Cassava



Gardening



Small local shop



Fishery



Motorcycles



Primary school



Junior high school



Library



Classroom



Buildings of Junior High School



Houses for Teachers



Sports facilities



Meeting the local people



Observation Report 2: Kalampangan, 14-05-2010

Kalampangan is a small village close to Palangkaraya, and about a 15 minutes drive from Kereng Bangkirai. The village was established in 1980 by 500 families of transmigrants. The village is located on the dome of the peat land between Kahayan and Sabangau rivers. It is easy accessible by car, motorcycle or even taxi since the main road is made from asphalt and is in a really good condition. It even has the white stripes in the middle to divide the lanes!! The side roads are small and consist of 'kiezelstenen'. Most communities live in these side roads. On the main road there are mostly people that have quite big gardening land, such as corn, cassava, kind of potato, cucumber etc. We have not been into the side streets, only on the main road and to the health center (which is not a community health center but a real health center) and to the junior high and vocational school. The houses on the main road are quite big and look nice. The main structure is made of wood, but most roofs are from TATA plates. Some are from wood. We even saw a 'zonnepaneel'.

Businesses, along the main road

- The main source of income is farming/gardening. Corn, cassava, cucumber, etc. They do not use machinery to harvest, only their hands! Gardening takes place on peat land. However, before being able to do this, the peat land has to be burned in order to rise the PH and make the land less acid ('zuur'). The success of farmers' cultivation is totally determined by using ash as the main fertilizer. However, the production process of ash increases CO2 emission to the atmosphere.

The products are also sold to Palangkaraya and Banjarmasin. It seems to be the case that each region has its own specific gardening crops, that's why they even sell to people from Banjarmasin, which is about a 4 hour drive. Those people come to Kalampangan once in a while to buy loads of the vegetables/fruits in a time.

- A lot of small local shops exist selling noodle soups, chips, candy and water for example. These supplies are delivered at the shop by the brand itself one in a while.

Transportation

A lot of scooters and bicycles. Only a few cars.

Facilities

- A health center, with dentist, doctor, midwife, baby care, vaccination etc. Even place to stay overnight and also an intensive care for critical patients.
- Primary school, junior high, senior high and a vocational school that specializes in farming and has 60 students at this moment. We have visited the junior high school and the vocational school, which are situated next to each other and share some facilities like sports fields.

- Cooperation. If we understood it right, this cooperation is some sort of bank/credit union, in which students can save their money and also borrow money from.
- Most houses have normal electricity, which is used for TV, light and refrigerators.

Photo Report

Main road



Side road



Gardening; Corn



Fruit



Health Center



Oxygen device at intensive care



Ambulances



Generator



Dentist



Doctor



Junior High School & Vocational School (Farming)



Cooperation



Zonnepaneel



Rubber tree next to the main road (only 1)



Observation Report 3: Badirih, Maluku & Kanamit, 20-05-2010

Badirih

Badirih is a small Dayak village and reachable from Maluku by a small ferry. It is also possible from the road between Pulau Pisau and Kapuas, but with a small road and just by motorcycle. The roads in the city are mainly made of wood and soil. The houses of the people are in the water, and sometimes under water (We have seen a kitchen in the water).

Businesses

- Most of the businesses are very local. So there are little local shops, little rice production, little wood production, local fishery, chickens, all for their own small community.
- With dogs they are hunting on pigs, but also for small production
- For luxury goods they take the ferry to Maluku, where they go the market.

Transportation

Within this villages there are very little amount bikes, more bicycles. No cars! Many small boats and a ferry.

Facilities

- In the house there are many luxury goods, like refrigerator, stereo, tv, rice cooker. Also many plates and glasses.
- There is one elementary school, and for the other types of schools they go with the bicycle and ferry to Maluku. The teachers of the elementary school are from the village, the school is very small since there are 100 families living in this village.
- They have a little community health centre. The nurse went to (and is) nursery school in Palangkaraya four years ago. She signed a contract from the government to stay in Badirih for at least ten years. She did not really have a choice, her husband still live in Palangkaraya. The government paid her house (integrated with health centre). The opening hours are from 7:00 till 12:00 and the medicines and help is free during opening hours, since she is paid by the government. If help is needed on another time, people have to pay. The facilities were very limited, if she can't help them, they go to health centre in Maluku. She also serves pregnant women.
- People don't have an own toilet, but use the river.

Maliku

Maliku is a quite big village and developed compared to other villages in its region. The village is divided in different parts. It is a transmigration village. The road to Maliku from Buntoi is easy accessible by car and is mostly asphalt.

Businesses

- The main business is agriculture. Many rubber and cassava, corn, bananas, vegetables in the surrounding area.
- There are many shops in this village. A hairdresser, tailor, restaurants, motorcycle retail shop and a post office. A couple of shops are using advertising.
- Also cows are sold from Maliku and Talio to Palangkaraya. The business chain is as follows: The farmer sells his cows to a middle man (the guys we have spoken to are from Java). This middle man transports it to Palangkaraya. There it will be killed and prepared for the food business. The profit for transferring and killing is around 1.000.000 Rp per cow.
- We have also seen a small wood processing company which makes doors and windows.
- Several bird houses are being build. Many workers are there. However, we do not know if these are local people or people from the company.

Transportation

Many scooters and also cars.

Facilities

- Doctor
- Post office
- Health centre (quite big)
- Several elementary schools, junior high school and a senior high school. We visited the senior high school and talked with teachers and students. However, none of the teachers could speak English, including the English teacher. This school has 350 students, who are all living in the close area and go there mostly by scooter. The teachers are also from outside the region, for instance Kapuas. They moved here and some of them are living in special teacher houses next to the school. We have talked to two classes (1st and second class). Hearing and talking in English was quite hard for them and it was hard for them to ask questions. The response on the question if they wanted to go to the university was that they did not know, also because of the money.
- Electricity is also available and the same as in other villages used for luxury goods and sometimes for small businesses.

Kanamit

Kanamit is a village with a small city centre. Most of the people are Dayak people, but also some people moved here ten years ago with a big group from Benjarmasin for merchandising. Kanamit is located between Buntoi and Maluku and that road is very good, but the road inside the village is not so good and not accessible by car.

Businesses

- A couple of small shops, like mini market, clothes stores and also stores for small luxury goods. The owner of a little shop told that many families owning a shop are also working in agriculture.
- Many people live from rubber, there are many rubber plantations in this area. We have spoken to a farmer. He starts the rubber process around 7:00 in the morning, he cuts one or two small holes in the tree. The rubber comes out the tree and they catch this with a coconut shell. After cutting all the trees he waits and around 11:00 he puts all the rubber in a bucket. After that he processes the crude rubber with vinegar. After that he keeps the rubber wet and waits for the middle man who buys this rubber. He told that the nuts are only there in dry season. They don't do anything with the nuts. Sometimes they are lucky and there grows a new tree out of the nut. They take this little plant to somewhere else where they plant it.
- People from Kanamit work in palm oil plantations. These plantations are located 50 km outside the village and are only accessible by Klotok. The plantations are owned by big companies.

Transportation

Many scooters, some cars with houses outside the city centre.

Facilities

- Electricity is also available and the same as in other villages used for luxury goods and sometimes for small businesses. The owner of a shop told the price of electricity. She has to pay 120.000 Rp per month. According to her, some families pay more, but there are also people who just pay 30.000 Rp per month.
- Other facilities are there, but we have not seen them.

Photo Report

Rubber plantation on main road (*Kanamit*)



Tapping of rubber before collecting (*Kanamit*)



Small road to Kanamit village



Cow transportation to Palangkaraya (*Maliku*)



General high school (*Maliku*)



Hairdresser (*Maliku*)



Restaurant (*Maliku*)



Building of bird houses (*Maliku*)



Wood processing business (*Maliku*)



Main road in Maliku village



Side road in Maliku village



Rice fields + Banana (*Maliku*)



Ferry to Bandirih



Road along (or in) the river (*Bandirih*)



House on water (*Bandirih*)



Living room from house visited (*Bandirih*)



Koelkast, rice cookers in house (*Bandirih*)



Local boats (*Bandirih*)



Baby, koelkast, etc (Bandirih)



Kitchen under water (Bandirih)



Community Health Center (Bandirih)



Community Health Center Facilities (Bandirih)



Observation Report 4: Bahaur , Dandang & Talio, Pangkoh, 19-05-2010

Bahaur

The road from Buntoi to Bahaur is in beginning really good, mostly asphalt. The road after Pangkoh is mainly soil and sometimes not good, many holes. In rainy season this part of the road to Bahaur, from Buntoi, gets really bad, since it is mainly made of soil. On the road there are many rubber plantations, but also rice and coconut plantations. The sideways to villages and agricultural land is in bad condition. There are just a few oil shops outside the villages. Lots of canals are visible due to the EMRP. Bahaur is a quite big city and close to the sea. The city has three main areas, Bahaur Hulu, Bahaur Tengah and Bahaur Hilir. Most people live along the river. Their houses can be reached by small roads, but are accessible by car.

Businesses

- The main source of income is selling rubber.
- The second main source of income is rice paddies. This is mainly for local use, but is also sold to Kapuas and Benjarmasin for example.
- Production of boats, but only for local use.
- Production of baskets, from something like palm oil tree, but different, grows in the water.
- Every day there is a small local market, which sells eggs, dry fish, clothes and also luxury goods like shampoo and accessories.
- A lot of bird ('wallet') houses are built by companies from outside of the village who buy land from locals. The nests are worth a lot of money.
- Small retail of bensin/solar. Price of bensin: 6.000 Rupiah per liter. They buy it in Pulang Pisau and transfer it by scooter (ferry).

Transportation

A lot of scooters, some bicycles and also a few cars. There are just a few boats, mostly used for local transport or to reach their plantations.

Facilities

- A lot of small local shops, where it is also possible to eat.
- Couple of primary school, a junior school and a high school. Easy accessible. All schools look alike, since it are mostly public schools.
- Most houses have normal electricity, which is used for TV, light, vans, refrigerators, rice cookers and sometimes computers. A restaurant owner told that he has to pay 150.000 Rp per month for electricity
- They also have a political party.

- Muslim center.
- Health center, but under water ☺

Dandang & Talio

Dandang and Talio are both very small villages located on the road from Pankoh to Bahaur. The main people that live in here are indigenous Dayak people. They live along the river, just like in Bahaur. This place is only accessible by scooter or bicycle. Some people live along the main road. We have not seen Dandang, but heard it was the case. Between Dandang and Talio they are building a harbor! This to facilitate export. To serve the other villages, mainly small boats like Klotoks will be used for supply/demand of the harbor. Just as in most villages in we have seen, the people are doing almost nothing. Hanging around, watch tv or sleeping. A little amount of the people is working, mostly on agriculture.

Businesses

- The main businesses are the selling of rubber and the use of rice for themselves. The rice cannot be sold very good, since the rice is acid due to the peat land.
- They also have coconut trees and sell pigs. Lots of Cassava plantations are located along the road between Dadang and Talio.
- Although they live next to the river, they don't sell fish. If they fish, they use an accu/generator to kill the fish. This is much more efficient than traditional fishing with 'hengels'. They catch a lot, and consequently dry them, in order to conserve without refrigerator. But we have heard that they don't fish for business because there are not many fish in the river anymore.

Transportation

Some scooters and more bicycles. No cars!

Facilities

- These villages are more poor than Bahaur and Pankoh. Our guide mentions that this is caused by the fact that they are indigenous Dayak people that like to live from the forest etc.
- Although they have a very simple life, they have electricity and use this for light, stereo, television.

Pankoh

Pankoh is separated into 3 different parts; 1, 2 & 3 according to them. It is mainly a transmigrant village. There is quite a big distance between part 1, 2 & 3. In contrast to Bahaur. Part 1 (south) is mainly along the main road and a lot of businesses can be seen. Normally, you only see people working in the forest. The houses in part 1 are also bigger, more luxury.

Businesses

- In 1, they produced doors and 'vensters'. They get also glass from Maluku. They also have small shops, + eating (with advertisements). Moreover, cows and other animals are held. We have seen the first truck used for business here.
- In 2, we have also seen local shops. The owner of the shops by the products mostly on the boat and the market. If he buys at the boat, the owner doesn't need to pay immediately. He gives the money if he sold the products, good relationship.
- In 3, there is a small bus terminal. However, we question if these buses are used....
- The main source of business for Pankoh 1,2,3 is coconut trees. They make sugar and sell the coconut oil. They also sell complete coconuts to Palangkaraya and there it is used for drinking
- Small fuel retail shops. These are mostly integrated with other businesses, like local shops.

Transportation

The main transportation is with scooter, but also some cars, trucks and taxi buses (these were very old).

Facilities

- The road between Bahaur and Pangkoh is mainly soil and not so good, but the road between Buntoi and Pangkoh is really good, mostly asphalt. The road between Pangkoh 1,2,3 is soil. The side roads are also in bad condition.
- Most houses have electricity, used for luxury goods. Also for the production of the doors and 'vensters' they use electricity.

Photo Report

Main road Pangkoh - Bahaur



Many canals along the road



Intercropping Coconut – Rice (*Pangkoh – Bahaur*) Rubber (*Buntoi – Pangkoh*)



Main road (*Bahaur*)



Along the river & fishery (*Bahaur*)



Wood and TV sattelite (Bahaur)



Boat production (Bahaur)



Computer services/ facilities (Bahaur) Local people in little shop (Pangkoh)



Goats (Pangkoh)



House with little truck (Pangkoh)



Main road & truck for wood transportation (*Pangkoh*)



Wood processing (*Pangkoh*)



Toilet in river (*Talio*)



Small road to Talio



Pig (*Talio*)



Houses on the river (*Talio*)



Toilet (*Dandang*)



Road to Dandang



Coconut plantations (*Dandang*)



Observation Report 5: Buntoi , 18-05 tm 20-05

Buntoi is a small Dayak village close on the way of Palangkaraya to Pulang Pusau and is located between Palangkaraya and Kapuas&Benjarmasin. The village is located near the Kahayan river. The village is easy accessible by car, since the main road is made of asphalt. However most people live in these side roads, along the river. The side roads are very small and in bad condition. With the motorcycle you can also reach the village by ferry. The houses are all build on 'palen' and quite big. Most roofs are from TATA or wood. Cooking is (mainly) done by means of wood.

Businesses

- The main source of income is selling rubber. We have seen some small plantations, but in this area there seems to be a lot of rubber. The nuts are not used, this could be an opportunity. The farmers sell the rubber to a middle-man, who consequently transports and sells it to Indonesian companies, who export it mainly to China for further process. The farmer sells on average for 7.000 Rupiah per kg. What we heard was that the middle-men, who only buys and resells, gets a profit of 700 Rupiah per kg, if good quality.
- The second main source of income is rice paddies. This is mainly for local use, but is also sold to Kapuas and Benjarmasin for example.
- It surprised us that they do not have a lot of fishery.....! The river is very very big!
- It was hard to find small local shops selling noodle soups, chips, candy and water for example, as well as a place to eat. Once a week, a small ship will stay at the village for one day that brings new supplies for shops as well as the families. This ship travels from village to village.
- Every day there is a small local market, which sells eggs, dry fish, clothes and also luxury goods like shampoo and accessories. Once in a week there is a big traditional market, selling fruits and vegetables etc.
- Small retail of bensin/solar.

Transportation

A lot of scooters and no (just one) cars, this is mainly caused by the fact that the houses where people live cannot be reached by cars. There are just a few boats, mostly used for transportation of rubber, goods or people (ferry). Not only used in the big river, but also to the agricultural fields.

Facilities

- Primary school and junior high are located in Buntoi. We have seen two primary schools, one was in the village and the other near to the main road (just outside of the village).
- We have stayed for three days in Buntoi. The house were we slept was quite big, with all the facilities inside (TV, Refrigerator, Rice Cooker, Stereo, Accu in case the electricity goes out and even a computer). This was representative for houses in Buntoi. In the three days the electricity was off for several hours, something what is normal in this village.

Photo Report

Main road



Side road



Ferry



Water supply for the house



Shared Toilet



Cooking



Rubber Process: *Small rubber plantation*

Tapping of rubber

Unused seeds



Rubber as it is sold by farmer



Middle man weights the rubber he wants to buy



Primary school 1



Primary school 2



Boat Market



Longhouse (*original housing Dayak*)



Houses on water (*also killing monkey*)



Electricity supply



Wood storage



Local market



Own shower in house



Own toilet in house



Kitchen part 1, wood



Kitchen part 2, kerosene



Observation Report 6: Dadahup , 22-05-2010

Dadahup village

The road from Kapuas to Dadahup is really good, mostly asphalt with a line in the middle. At the end to really reach Dadahup village the road is less good, very small with many holes. Between Kapuas and Dadahup there are many rice fields, bigger and more than we have seen before. There are also some rubber and coconut plantations. We also have seen many logging along the road. We saw big trucks picking up the cut trees. A couple of villages are located along this road, like Palingkau and Tajepan. These villages have, according to PODES 2008, all a Maju status. So these villages are not in need of further development and this is in our believe caused by their location along this road. Many shops for food, car reparations and selling of products.

Dadahup is the main village, but has many (+/- 20) small surrounding villages called Dadahup A1,A2,B1,B4 etc. Dadahup village is a Maju village and the other Dadahups are called a Tertinggal village, so not developed and in need of development. Most people in Dadahup village live along the river. The roads in the village are mostly soil and wood.

Businesses

- The main source of income is rice.
- There are a couple of small shops, a few places to eat.
- A couple of women are making products and souvenirs of Rotan.

Transportation

A lot of scooters, some bicycles and also a few cars. There are just a few boats, mostly used for local transport.

Facilities

- Most of the houses have electricity. They use it for luxury goods.
- Once a week there is a big market where people from outside the village come to sell their stuff. The other Dadahup villages (like A1 and A2) come also to Dadahup village to buy products on this market
- There are many schools and health facilities, but we have not seen them

Dadahup A1

Dadahup A1 is also a Maju village. It is very small and according our Klotok driver only accessible by Klotok. Normally it is possible to reach the village by scooter, but due to the wetter this road was broken. The canals to this village were 12 years old and in good condition, probably made in the EMRP time. Dadahup A1 is a transmigration village, but mostly local people.

Businesses

- The main business is rice.
- A local man showed our translator (Endo) a plan, a PowerPoint presentation on paper from the Bupati of Kapuas. He explained the subject of this plan to Endo, but he did not want to translate it to us. Endo was acting strange and was referring to the letter of Cimtrop and that is was not possible to get documents or explanations from local people. We have seen the document and it was about Sawit (palm oil). Although we did not have a translation of Endo, the goal of the paper was quite clear. The mission was to increase the agriculture in the area. There was a map of the EMRP area with block A till E. On another page there was a map of the close area, the Kelapa Sawit area. The area was around 24.000 ha and there was also a big amount of money Rp 200.000.000. The plan was for 5 years, 2008-2013. According to our interpretations and observations this is a plan of a company and Bupati to make the area a Palm Oil area. Along our way to Dadahup we have seen many logging. And it is, according to Endo, not allowed to talk about this to us. So, we believe that the people are under pressure of the government.

Transportation

Some scooters, no cars. A few boats.

Facilities

- We have been into a house. The house was very basic, but it had Television. The people were cooking with wood.
- In the house were the nuts of the rubber tree used by children for playing.
- Most of the houses have electricity
- Minimal facilities, hard to understand why this village is Maju village

Dadahup A2

The numbers of the Dadahup villages are not logical so it took us 30 minutes by Klotok to reach this village. During this travel we have seen again many logging. Some boats transfer cut trees. Dadahup A2 is a small village and the houses are located spread out over the area. It is a transmigration village, with people from Java, Kalimantan and Sulawesi. The streets are very small and in bad condition. According to a local shop owner the government invest in infrastructure in this area. In Dadahup A5 there are already roads from asphalt and according to him this will be also the case in Dadahup A2 next year.

Businesses

- Many rice fields, the main income is rice. They use the rice for local consumption or they sell this to a company. This company sells this to Benjarmasin. According to the shop owner, the irrigation system is not good, mostly due to the bad condition of the dam close to this village. The government need to invest in and repair this dam. They harvest the rice now twice a year, to increase to this to 3 or 4 times a year, they would need an engine for water management. This could be an opportunity for the MBD!
- They also have fishery, but on low scale
- Once a week there is a little bazaar. People from outside the village come here to sell their products. This is a small market, so for other goods they go to Dadahup village. The supply to the village is mostly with scooter
- We asked the shop owner what the future will bring him, he said that it all depends on the government. We heard him talking about Sawit, but again no translation from our translator. So maybe he knows about the plans of the government, but we could not ask.

Transportation

We have seen a couple of scooters, but no cars. In the current situation not possible to come here by car, but with the plans of the government this will change in the near future.

Facilities

- They have two schools, both in good condition
- There was a medium sized community health centre
- Each house has their own toilet and shower. There is a water system, a big tomb with access for twenty houses.
- This is a tertinggal village, but compared with Dadahup A1 we think this village is more developed.

Dadahup G5

This village is at least 20 kilometer a way from Dadahup village, on the road from Dadahup to Kapuas. From this way it is necessary to take a small road in bad condition of 4 kilometer to reach this “village”. It is the smallest village we have seen so far. A couple of houses spread in the area. It is also a transmigration village, with people from Java.

Businesses

- There were many rice fields, but also many who were still unused. According to a local they needed rice seeds to plant the rice.
- There was a little shop selling basic products.

Transportation

The main transport was by scooter, but we have seen two cars.

Facilities

- This village does not have an electricity network, but most people have a generator. We have that most houses have a connection to get TV signal, so most people have television.
- There was a small school.
- A small community health centre.
- The status of this village was also Tertinggal, something we surely understand.

Photo Report

Main road Kapuas - Dadahup



Village with many shops along road Kapuas - Dadahup



Logging along road Kapuas - Dadahup



Main road (Dadahup A1)



House with TV (Dadahup A1)



Rubber nuts used as toy (Dadahup A1)



Logging on the river (*Dadahup A1 & A2*)



More logging along the river (*Dadahup A1 & A2*)



Community Health Centre (*Dadahup A2*)



Rice Field and road condition (*Dadahup A2*)



Water system (*Dadahup A2*)



Fishing and Bazaar stand (*Dadahup A2*)



Road to Dadahup G5



Community health centre (*Dadahup G5*)



Dadahup G5, “the village”



Observation Report 7: Mandomai, Pantai, Anjir, 25-05-2010

Mandomai

The road from Kapuas to Mandomai (18km) is really good, mostly asphalt with a line in the middle. To finally reach Mandomai, we had to take the ferry. This is only for scooters, so cars have to take another road, which is longer in distance, but also good (via Pulang Pisau). Between Kapuas and Mandomai there are a lot of rubber fields, but mostly still young. We also saw some rice fields and even intercropping with rice and rubber or coconut trees. We also passed Pulau Telo, which has a Maju status according to PODES 2008. Mandomai is also quite big, and both are not in need of further development and this is in our believe caused by their location along the road and good infrastructure. Many shops for food, car reparations and selling of products. We also saw the weekly bazaar. Mandomai is the main village and is very well accessible. From Pulang Pisau the village is easily accessible by car. Most people live along the river, but have their own toilets.

Businesses

- The main source of income is rubber and other farming.
- There are a couple of small shops.

Transportation

A lot of scooters, some bicycles and also a few cars.

Facilities

- A supermarket.
- SMK specialized in making furniture from wood.
- Most of the houses have electricity. They use it for luxury goods.

Pantai

When we follow the road from Mandomai along the river, the road becomes smaller and of soil, before we end up in Pantai. This village cannot easily be reached by car, but with motorcycle no problem. In this village a lot of people have their own rubber fields, especially the men, and the women make souvenirs like bags, hats, etc from Rotan and similar products. We have talked to some people and they said they live day by day, have no expectations of the future and do not really have needs; it's ok the way it is...

Businesses

- The main business is rubber or other gardening.
- The women make souvenirs from Rotan. One person can make 2 bags per day, which they sell for 17.000 Rp to the middleman who takes it to Kapuas, Pulang Pisau or Palangkaraya to sell in a souvenir shop.

Transportation

We did not see cars, motorcycles or bicycles.

Facilities

- We see a house from the inside. The house was very basic, but it had Television.
- Most of the houses have normal electricity.
- No health facilities > community health center in Mandomai.
- Two elementary schools.

Anjir Kalampan

From Pantai back to Madomai, we took the main road that leads to Pulang Pisau. Again this is a very good road. Workers were building new bridges, so this road even gets better. Along this road, the village Anjir is located. Because of the location between Mandomai and Pulang Pisau, this village has good access to markets and other things they need. Anjir village is located on both sides of the river which are easily accessible by bridges, however not for cars. People live along the river and since one side of the river also has the main road from Mandomai to Pulang Pisau, people on this side of the river live between the main road and the river.

Here we also visited a palm oil plantation of PT. Fajar Mas Indah company. We took a side road and followed this small road and bad soil road about 3 km and ended up at the plantation. Since we did not have a formal letter, we could only take a quick look at the plantation. It was quite big, although our guides said this was a only a small plantation. The security was very strict and we had to leave. In this side road we also saw the rubber process again. The man told us he produced 50-100 kg rubber per day and sells this to the company for 7.000 Rp per kilogram.

Businesses

- Main source of income is rubber or other farming.
- On the main road, there are a lot of little shops where we could also eat.

Transportation

We have seen a couple of scooters and cars and bicycles.

Facilities

- They have a community health center.
- They have electricity.
- Good infrastructure.
- A lot of shops.

Photo Report

Main road Kapuas to Mandomai - Weekly bazaar



Small part of main road is amplified



Rubber&rice intercropping (*Kapuas-Mandomai*) Mandomai – people live along the river



Main road in Mandomai (*going to Pulang Pisau*) SMK Mandomai – wood furnituring



**Main road from Madomai to Pantai
- Drying of Rotan next to the road**



Main road in Pantai (soil)



Making souvenirs from rotan (*Pantai*)



Living along the (side) river (*Anjir*)



People living on both sides of river (*Anjir*)



Living along the (side) river (*Anjir*)



Palm Oil Plantation 3km of main road (Anjir)



Security at entrance



Mixing rubber with some kind of vinegar (Anjir) Vinegar added to the rubber (Anjir)



The hard rubber is kept in the water before the company picks it up (Anjir)

Several palm oil trees along the main road (Anjir)

