



The synergy between Social Entrepreneurship, Community Empowerment and Social Capital for the Local Economic Development of the smallholder rubber culture in Central Kalimantan

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## **Abstract**

This research is part of a program that investigates local economic resource development (LERD) for the implementation of a local biodiesel project in Kalimantan, Indonesia. Due to the combination of a technology-push project and Indigenous communities, a strong focus on the community level stakeholder is required for successful implementation of the biodiesel project. This thesis used an existing regional development model and expanded it on the basis of theoretical considerations of local economic development theory and the sociological concepts social entrepreneurship, community empowerment, and social capital. The expanded model is used to describe three villages in Central Kalimantan and one in South Kalimantan. Consistent with the theory, the empirical data suggests strong beneficial relationships between the sociological concepts and the level of local economic development and high interdependency between the three sociological concepts. Moreover, there is strong evidence for the given cultural and religious background of communities, to have major implications for the outcomes of the sociological concepts, and therefore on the level of local economic development.

**Keywords:** *Local Economic Development, LED, Social Entrepreneurship, Community Empowerment, Social Capital, Indigenous Development, Indonesia, Kalimantan, Dayak*

## Table of Contents

<b>Abstract .....</b>	<b>2</b>
<b>1. Introduction .....</b>	<b>5</b>
1.1. Background and relevance.....	5
1.2. Research Design .....	7
1.3. Thesis overview .....	8
<b>2. Literature review on the concepts related to local economic development, the rubber culture and the community stakeholders in Kalimantan .....</b>	<b>9</b>
2.1. Local economic development .....	9
2.2. Social entrepreneurship .....	11
2.3. Community empowerment.....	15
2.4. Social Capital.....	17
2.4.1. Trust .....	18
2.4.2. Bonding Social Capital.....	19
2.4.3. Bridging Social Capital.....	19
2.4.4. Benefits from social capital.....	20
2.4.5. Dark side of social capital.....	21
2.4.6. Social capital and local economic development .....	22
2.5. Sociological background information .....	23
2.5.1. Indigenous communities on Kalimantan .....	23
2.5.2. Empowerment .....	23
2.5.3. Sustainability .....	24
2.5.4. Communal associations .....	24
2.5.5. Indigenous communities and local economic development .....	25
2.6. Background information on the rubber industry in Indonesia .....	25
2.6.1. Corporate rubber culture.....	25
2.6.2. Native rubber culture.....	26
2.6.3. Modern rubber culture .....	28
2.6.4. Preliminary historical evaluation .....	29
2.7. Preliminary conclusion on the local economic development theory .....	29
<b>3. Methodology of the data collection during the field research .....</b>	<b>31</b>
3.1. Overall research strategy.....	31
3.2. Field research.....	31
3.3. Specific data collection methods.....	33
3.3.1. Local economic development .....	34
3.3.2. Social entrepreneurship.....	34
3.3.3. Community empowerment.....	35
3.3.4. Social capital.....	35
3.4. Ethical considerations .....	36

<b>4. Findings on the local economic development theory in Central Kalimantan .....</b>	<b>37</b>
4.1. Main findings on Bawan .....	37
4.2. Main findings on Tumbang Jutuh .....	38
4.3. Main findings on Tumbang Tahai .....	40
4.4. Main findings on Sungai Alang .....	41
<b>5. Discussion of the findings .....</b>	<b>43</b>
5.1. Discussion of the research questions .....	44
5.2. Limitations of the research .....	47
<b>6. Conclusions and implications for the local economic development theory and the biodiesel project in Kalimantan .....</b>	<b>49</b>
<b>References .....</b>	<b>52</b>
<b>7. Appendices.....</b>	<b>59</b>
<b>7.1. Complete report of findings Bawan.....</b>	<b>59</b>
7.1.1. Economic development .....	59
7.1.2. Social entrepreneurship.....	60
7.1.3. Community empowerment.....	61
7.1.4. Social capital.....	62
<b>7.2. Complete report of findings Tumbang Jutuh .....</b>	<b>65</b>
7.2.1. Economic development .....	65
7.2.2. Social entrepreneurship.....	66
7.2.3. Community empowerment.....	67
7.2.4. Social capital.....	67
<b>7.3. Complete report of findings Tumbang Tahai.....</b>	<b>70</b>
7.3.1. Economic development .....	70
7.3.2. Social entrepreneurship.....	71
7.3.3. Community empowerment.....	71
7.3.4. Social capital.....	72
<b>7.4. Complete report of findings Sungai Alang .....</b>	<b>74</b>
7.4.1. Economic development .....	74
7.4.2. Social entrepreneurship.....	75
7.4.3. Community empowerment.....	75
7.4.4. Social capital.....	75
<b>7.5. Photo reports of field research .....</b>	<b>77</b>
7.5.1. Photo report Bawan.....	77
7.5.2. Photo report Tumbang Jutuh.....	83
7.5.3. Tumbang Tahai.....	86
7.5.4. Photo report Sungai Alang .....	88
<b>7.6. Example interview and observation report .....</b>	<b>92</b>

# **1. Introduction**

## **1.1. Background and relevance**

‘Around the world 2.8 billion people, almost half of the world’s population live on less than 2 dollars a day. Unless we tap into the resources and capabilities of poor people themselves – expanding their freedom of choice and action and supporting their efforts to lift themselves out of poverty – the numbers of poor people will only increase, and the impact of poverty on their lives will only worsen’ (World Bank, 2002: 9). This statement emphasises the current situation where economic development is distributed far from equally among different regions worldwide. As a result, not all regions provide sufficient welfare for their inhabitants, defined as the minimum standards for survival (Pennink, 2011).

Many rural communities are unable to control their own development process without outside interference, since these communities cannot effectively analyse their own development needs and do not know how to harness the resources to meet these needs (Sesay et al., 2010). Numerous theories and programs aiming for better economic activities have been developed in the past, however, most of them have failed due to a too great focus on economic development on macro level (Pennink, 2011). To overcome this issue, the World Bank initiated a focus on the local level of economic development, coined by the term local economic development (LED) programs.

This thesis is part of a project in which three Indonesian and three Dutch universities work collectively to develop a local/community-scale biodiesel industry in Kalimantan. The aims of this project are stimulating the local economy and particularly local agricultural activities, preventing further degradation of the environment and in particular that of sensitive peat lands, reducing the chances of forest fires leading to haze problems throughout South East Asia, stimulating the transition of Indonesia into a bio based economy, and reducing the Indonesian dependency on fossil resources like crude oil. The project is considered to be a technology-push project, demanding great attention on the local contextual characteristics. The biodiesel project consists of several programs. This thesis is part of the local economic resource development (LERD) program, which focuses on the establishment of a framework and concrete action plan

for all stakeholders involved in the introduction of this new technology, including local government planners, small entrepreneurs and NGOs, in order to create a conducive environment. The objectives of this thesis are mapping the economic development, social infrastructure and institutional involvement with regard to the community level stakeholders in Central Kalimantan.

Large shares of Kalimantan are underdeveloped in comparison to other parts of Indonesia. One of the main industries is the smallholder rubber industry. Nuts from rubber trees have high potential for the creation of biodiesel. Therefore, the focus will be to a great extent on these stakeholders, they are believed to be highly important for the success of the biodiesel project. The strong local stakeholder oriented focus demands the inclusion of sociological perspectives with the potential to positively contribute to LED, which need to be mapped in the area of interest and linked to the actual level of economic development. These sociological perspectives are social capital, social entrepreneurship and community empowerment. Besides a comparison between villages in Central Kalimantan, also economic and social differences with South Kalimantan are assessed. Moreover, changes in the smallholder rubber industry are reflected on from a historical perspective to investigate differences before and after the Indonesian independence.

The findings of this dissertation project contribute to both the biodiesel project and the academic literature. For the biodiesel project it is evident to have a detailed description of the local stakeholders and their economic and social development to be able to successfully implement a technology-push project. Also the existence and role of third parties empowering the communities play an import role in this affair. The academic contribution of the conducted research consists of empirical results, discussing the role and importance of the factors contributing to local economic development, with an emphasis on sociological perspectives.

## 1.2. Research Design

The main research question results from the objectives to both contribute to the description of the community stakeholders and the development of local economic development theory:

- *What is the level of local economic development in the smallholder rubber culture in Central Kalimantan, how can it be further developed and which role play sociological perspectives?*

To properly answer the main research question, first the current level of economic development needs to be discussed:

1. *What is the level of economic development within the smallholder rubber culture in Central Kalimantan?*

The technology-push characteristics of the biodiesel project demand a thorough emphasis on local stakeholders and reflection on local economic development from sociological perspectives:

2. *What is the level of Social Entrepreneurship in Central Kalimantan and how does it affect LED?*
3. *What is the level of Community Empowerment in Central Kalimantan and how does it affect LED?*
4. *What is the level of Social Capital in Central Kalimantan and how does it affect LED?*

After having assessed all concepts individually, their relationship and implications for local economic development will be assessed:

5. *How can social capital, social entrepreneurship and community empowerment be used and combined to enhance LED in the smallholder rubber culture in Central Kalimantan?*

Finally, the suggestion by members of the biodiesel project that the development of the smallholder rubber industry has suffered from the governmental transition after the Indonesian independence will be reflected on, providing important insights on the importance of government involvement in the creation and continuation of LED:

6. *What has been the influence of the Indonesian independence on the level of economic development in the smallholder rubber culture?*

### **1.3. Thesis overview**

In the next chapter an overview of the literature on all theoretical concepts and their relations, followed by both sociological and industry specific background information on the area of interest is provided. In chapter 3, the strategy and measures used to assess the theoretical concepts in an empirical setting will be discussed. Chapter 4 presents the most important findings by providing summaries of the acquired data per village. Chapter 5 critically appraises the findings, links those to the research questions and states the limitations of this research. Finally, chapter 6 concludes with the most important findings and implications for both the academic literature and the biodiesel project, and suggests potential areas for future research.



## **2. Literature review on the concepts related to local economic development, the rubber culture and the community stakeholders in Kalimantan**

The first five sub-sections of this chapter provide an extensive overview of the literature on local economic development theory by discussing local economic development, social entrepreneurship, community empowerment, social capital and the relationships between these variables. The last two sub-sections will subsequently discuss historical industry related background information on the rubber culture and sociological background information on the community stakeholders in Central Kalimantan.

### **2.1. Local economic development**

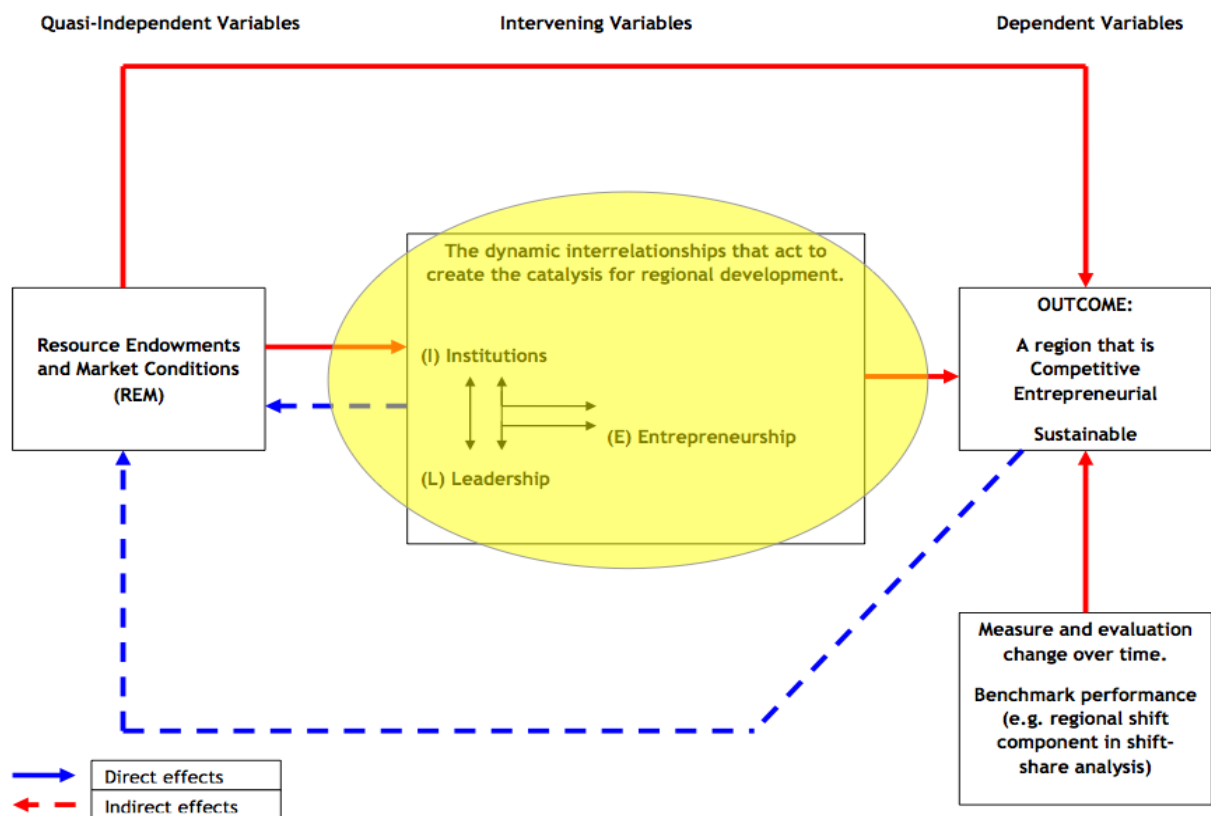
According to the Worldbank (2011) ‘the purpose of LED is to build up the economic capacity of a local area to improve its economic future and the quality of life for all’ and ‘it is a process by which public, business and nongovernmental sector partners work collectively to create better conditions for economic growth and employment generation’. This participatory process that aims to enhance the welfare of the poor tries to achieve its goals by focusing on enhancing competitiveness, increasing sustainable growth and ensuring that growth is inclusive (Worldbank, 2011).

The United Nations Human Settlements Programme (2005) argues for a process-oriented, non-prescriptive LED strategy, which does not aim at quick fixes or generating wish lists. A successful strategy requires a practical understanding of what the local area does well and what it has to offer, including a thorough overview of its strengths, weaknesses, opportunities and threats. More specifically, the United Nations Human Settlements Programme (2005) mentions targeting business expansion aimed at jobs for the poor, targeting the poor as an unskilled labour force for training and placement assistance, and micro-enterprise/micro-credit programmes as actions that could contribute to successful LED.

One of the main focuses within modern development is the need for sustainability. The first formal definition of sustainable development is “meeting the needs of the present without compromising the ability of future generations to meet their own needs” (Brundtland Commission 1987: 43).

Stimson et al. (2009) argues for four variables to be crucial to regional economic development and growth, demonstrated in Figure 2.1. The first one demonstrates the resource endowments and market conditions that a region currently possesses. Sufficient resources are necessary for a region to grow and perform well. The second and third variable, leadership and entrepreneurship, are closely related but no synonyms. Effective leadership contains entrepreneurship. Leadership can be performed by an individual, but in the case of regional economic development is more likely to be the expression of the collective action of a society or a group of people. This is where the fourth variable, institutions, becomes relevant. Resource endowments and market conditions is mentioned as a quasi-independent variable; although it is partially given for a specific region, it is also influenced by the the amount of leadership, entrepreneurship and institutions within a region.

**Figure 2.1: Regional economic development model by Stimson (2009)**



While the role of government institutions is emphasised in numerous research with regard to local economic development, it is commonly agreed that multilevel participation is required in

order to be ultimately successful. This is consistent with Pennink, who states that ‘the first initiatives for LED programs came usually from the national government and in a second phase were worked out by local actors’ (2011: 5). It seems that Stimson et al.’s (2009) model is not complete, since it does not put great emphasis on the stakeholders and their social infrastructure. Also Pennink (2011) argues that an approach focusing on LED activities from a strong sociological perspective is lacking. Besides the focus on institutions demonstrating both leadership and entrepreneurship, which could be regarded as a form of social entrepreneurship this leaves room for social perspectives like community empowerment and social capital to be investigated on their relationship with local economic development.

## **2.2. Social entrepreneurship**

The intervening variables in the model of Stimson et al. (2009) fall within the concept social entrepreneurship, which will therefore be firstly discussed with regard to its potentially beneficial influence on local economic development.

The basis of this concept is entrepreneurship. According to Martin and Osberg (2007), entrepreneurs are people that see a suboptimal equilibrium as an opportunity to create something new by providing a solution, product, service, or process. The difference with non-entrepreneurial people who see the current inconvenient situation as something they just have to cope with, stems from their unique set of personal characteristics. Those are inspiration, creativity, direct action, courage, and fortitude, all considered to be fundamental for the innovation process.

The scope of social entrepreneurship is heavily debated amongst authors. While some argued for a broadening of the domain of social entrepreneurship (Light, 2006), others have encouraged greater precision and conceptual clarity to allow the domain to build a scientific base of knowledge (e.g. Nicholls, 2006). Brouard and Larivet define a social entrepreneur as ‘an individual or group of individuals who act(s) as social agent(s) using entrepreneurial skills for value creation’ (2010: 31). This is consistent with Dees, who states that ‘social entrepreneurship combines the passion of a social mission with an image of business-like discipline, innovation, and determination’ (1998: 1).

According to Martin and Osberg (2007), the distinction between ‘regular’ entrepreneurs and social entrepreneurs is not the prospects of financial gains of the former, because this is seldom

the motivation for entrepreneurs in general. Entrepreneurs are in both cases never fully compensated for the time, risk, effort, and capital that they pour into their venture. Instead, Martin and Osberg (2007) claim the critical distinction between entrepreneurship and social entrepreneurship lies in the value proposition itself. 'Unlike the entrepreneurial value proposition that assumes a market that can pay for the innovation, and may even provide substantial upside for investors, the social entrepreneur's value proposition targets an underserved, neglected, or highly disadvantaged population that lacks the financial means or political clout to achieve the transformative benefit on its own'(Martin and Osberg, 2007: 34). However, Martin and Rosberg (2007) further argue, ventures created by social entrepreneurs can certainly generate income and profits, what distinguishes social entrepreneurship is the primacy of social benefit,

Martin and Osberg define social entrepreneurship as having the following three components (2007: 35):

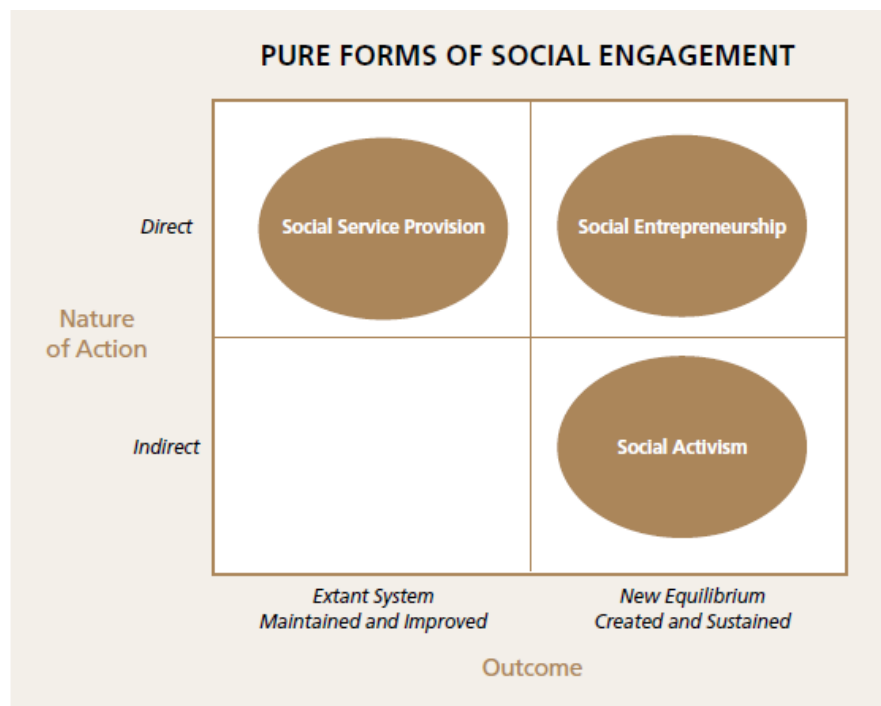
1. Identifying a stable but inherently unjust equilibrium that causes the exclusion, marginalization, or suffering of a segment of humanity that lacks the financial means or political clout to achieve any transformative benefit on its own
2. Identifying an opportunity in this unjust equilibrium, developing a social value proposition, and bringing to bear inspiration, creativity, direct action, courage, and fortitude, thereby challenging the stable state's hegemony
3. Forging a new, stable equilibrium that releases trapped potential or alleviates the suffering of the targeted group, and through imitation and the creation of a stable ecosystem around the new equilibrium ensuring a better future for the targeted group and even society at large.'

Dees (1998) states the time is certainly ripe for entrepreneurial approaches to social problems, since many governmental and philanthropic efforts have fallen far short of expectations. Major social sector institutions are often viewed as inefficient, ineffective, and unresponsive. Therefore, social entrepreneurs are needed to develop new models for a new century. Also Davis (2002)

sees social entrepreneurship as the way forward to valuable innovations and changes. Davis states ‘an entrepreneurial culture for social and economic development is an act of creation that involves everyone and begins with each of us’ (2002:34). On the downside, Light (2008) mentions the possibility of tension between the social mission of an entrepreneur and the economic sustainability as a potential problem, since the social mission should also be economically feasible to be able to continue the business.

Not every form of social engagement should be considered as social entrepreneurship, demonstrated in Figure 2.2.

**Figure 2.2: Pure forms of social engagement Martin and Osberg (2007)**



‘In the pure form, the successful social entrepreneur takes direct action and generates a new and sustained equilibrium; the social activist influences others to generate a new and sustained equilibrium; and the social service provider takes direct action to improve the outcomes of the current equilibrium’ (Martin and Osberg, 2007: 38). However, they acknowledge that in reality there are probably more hybrid models than pure forms.

Within social entrepreneurship, Smith and Stevens (2010), distinguish three different types:

1. Social bricoleur

This type of social entrepreneurship has a focus on local concerns, and is partly driven out of first hand exposure to problem. The recognition of a problem is largely driven by local, tacit (domain-specific) knowledge. The motivation is to solve local problems and maintain a local focus, as this is both the source of the opportunity and a route to measuring success. The solutions that are developed by these resource-poor social entrepreneurs are generally rather small in scale and scope.

2. Social constructionist

This second type of social entrepreneurship has a broader market focus than the social bricoleur, and identifies social opportunities by being more alert than others to such opportunities. Domain specific knowledge serves less as a method of problem recognition and more as a filter for the many problems they may see. While the primary focus is on local concerns, solutions may be also expandable to many other contexts. It requires more resources to support the scalability of the missions.

3. Social engineer

The final type focuses on deconstructing and reconstructing the engines of society to achieve broad social aims. Social engineers seek to implement social ventures to replace those solutions currently provided by existing institutions. It must primarily concern itself with a quest for legitimacy, as the broad scale and scope of their entrepreneurial ventures require mass support, while prior knowledge is not required for identification of a problem since the issues are well-known in a variety of settings and often understood by persons with limited knowledge of any particular aspects of the problem.

In summary, the typologies by Smith and Stevenson (2010) are distinguished on the base of two dimensions; geographical scale and scope and the level of structural embeddedness. While the former describes the physical distance and area within which an entrepreneur is active, the latter represents its degree of relational and institutional ties.

Light (2008) argues that the form of a social entrepreneur is not restricted to be an individual, also a group of people or even a local government can function as one. In the context of local economic development, the role of a social entrepreneur is best applicable to be fulfilled by institutions. This is consistent with the model of Stimson et al. (2009), which argues that institutions performing entrepreneurial leadership are highly important for improving the development and competitiveness of regions.

### **2.3. Community empowerment**

The first neglected variable in Stimson et al.'s (2009) regional development model is community empowerment. The focus of this concept is to make citizens within communities that are aimed to economically develop, more involved. Cornwall and Brock (2005) argue that the term empowerment is to a high extent a buzzword which helps to draw attention for the phenomenon, but due to its broadly applied definition has the potential to dilute the power of the word. This is consistent with Bebbington et al., who argue that 'empowerment is an ill-defined concept used across a wide range of agencies within the development industry and also more widely in non-development settings' (2007: 600).

The World Bank did define empowerment, as 'the expansion of assets and capabilities of poor people to participate in, negotiate with, influence, control, and hold accountable institutions that affect their lives' (2002: 19). Furthermore, the World Bank (2002) states that empowerment is key with regard to the quality of life and human dignity, good governance, pro-poor growth, project effectiveness and improved service delivery, and enhances participation on social, economic and political level.

While the World Bank (2002) views empowerment primarily as a process of involving actors, Hashemi et al. (1996) are reluctant to venture a definition. In their view, empowerment is not a process but a state or outcome, a set of conditions that are achieved as a result of entrepreneurial efforts.

The World Bank (2002) distinguishes four key elements of empowerment:

1. Access to information

Information is power. In order to achieve both responsible citizenship and responsible, accountable governance, information needs to flow both ways.

## 2. Inclusion/participation

Poor people need to be treated as co-producers, with authority and control over decisions and resources devolved to the lowest appropriate level. In this way, the limited resources are built on local knowledge and priorities, and it enhances commitment to change.

## 3. Accountability

State officials, public employees, private providers, employers, and politicians must be held accountable for their policies and actions that affect the wellbeing of citizens.

## 4. Local and organisational capacity

This capacity represents the ability of people to work together, organise themselves, and mobilize resources to solve problems of common interest. More organised groups are better able to have their voices heard and demands met.

Sesay et al. (2010) also argue for active participation of the community itself in development projects. Besides a better understanding of how to manage projects, they know better what resources they have to contribute to project activities. Furthermore, active participation creates an understanding of why they should contribute and builds up self-confidence of individuals. By contributing money, time, resources and labour, Sesay et al. (2010) furthermore state the community starts feeling they own the project, and stays involved in the future. Moreover, bringing in own resources saves substantial costs in comparison to government projects. The same research by Sesay et al. (2010) for a merely facilitating role of development partners in the economic development process, since this is the only way to build the community skills to the level they can decrease their dependence on outside donors. Community involvement in all phases of the development process will enhance the chances of transferring the necessary skills to pursue development in their communities even after donor funds have been depleted, and will encouraged to learn the long-term development planning, budgeting, proposal writing, management, project design and organisational skills necessary to implement new projects.



Whereas many development organisations in the past failed to focus on communities' most pressing needs, community empowerment will catalyse people to take charge of the development process. Other reported benefits by Sesay et al. (2010) are stronger collective decision-making, higher trust, more gender and social cohesion and inclusiveness, more information transfer, better communication and closer relationships with members of the local government, all considered to be vital to rural development.

In conclusion, only the existence of entrepreneurial institutions is not sufficient for achieving LED. These social entrepreneurs should allocate a large share of their resources to empowering local communities. Greater information sharing, inclusion and participation of community members and higher accountability of these involved institutions are suggested to positively influence the level of local economic development.

#### **2.4. Social Capital**

The second neglected variable in the model of Stimson et al. (2009) is social capital. This concept represents the social infrastructure within communities. Social capital is a relatively new concept within the economic development theory, however, it already received a lot of attention and debate. The main issues are the complexity of its conceptualisation and operationalisation.

Although there is not one single definition agreed by all academics, the basic meaning and function can be identified sufficiently. Hayami tried to create an operationally useful definition by combining the work of two highly recognised professors in the academic field of social capital, Coleman and Putnam into 'the structure of informal relationships conducive to developing cooperation among economic actors aimed at increasing social product, which is expected to accrue to the group of people embedded in those social relationships' (2009: 4). According to Putnam (1993), the key feature of social capital is that it facilitates coordination and cooperation for the mutual benefit of the members of the association. Serageldin (1996) defines social capital as glue that holds societies together; it represents common cultural identifications, a sense of belonging and shared behavioural norms. Without social capital, society would collapse since it would make discussions about economic growth, environmental sustainability and human well-being irrelevant (Serageldin and Grootaert, 2000). Serageldin and Grootaert (2000) further emphasise that social capital is best studied in the context of the

contribution it makes to sustainable development, and that examples of social capital are easier to provide than one specific definition.

Social capital is multi-dimensional with each dimension contributing to the meaning of social capital although each alone is not able to capture the concept in its entirety (Hean et al. 2003). The main dimensions of social capital are trust, rules and norms governing social action, social interaction, and network resources (Coleman, 1988; Snijders, 1999).

#### **2.4.1. Trust**

Trust is commonly linked to social capital. Dasgupta (1988) claims that associations reduce opportunistic behaviour by creating a framework within which individuals interact repeatedly, enhancing trust among members. Falk and Guenther (1999) argue that trust is a component of social capital, and is critical for the formation of cohesive relationships between individuals within a community, an organisation or a society. Furthermore, Falk and Guenther (1999) state that these relationships lead to cooperation between individuals and organisations, which through community safety and lower transaction costs, contributes to the social and economic wellbeing of the whole community. Tonkiss and Passey (1999) link trust to values of honesty and fairness. Kasperson et al. (1992) argue that trust represents the expectation of cooperative, competent and caring behaviour of others in certain given situations, and on perceptions of commitment to a goal in the fulfilment of obligations. Moreover, Tonkiss and Passey (1999) state that trust can be viewed as the basis for voluntary association, since it contains the potential to replace formal contracts. Reciprocally, the more that citizens participate in their communities, the more that they learn to trust others (Brehm and Rahn, 1997: 1001). 'Membership in voluntary associations should increase face-to-face interactions between people and create a setting for the development of trust' (Stolle, 1998: 500).

Putnam (1993) views the relationship between trust and cooperation as a prisoner's dilemma where everyone would be better off if everyone could cooperate. 'In the absence of coordination and credible mutual commitment, however, everyone defects, ruefully but rationally, confirming one another's melancholy expectations' (Putnam, 1993: 1). Consistent with the view of Putnam (1993), trust, and consequently cooperation among people is most easily sustained through repeated interaction. Putnam (1993), continues by stating that trust, norms, and networks, tend to be self-reinforcing and cumulative; successful collaboration in one endeavour builds connections

and trust. These social assets facilitate future collaboration in other, unrelated tasks. Social capital is therefore a resource whose supply increases rather than decreases through use and which (unlike physical capital) becomes depleted if not used.

Besides multiple dimensions, there are also different types of social capital available. One of the main distinctions is the difference between bonding and bridging social capital, which is explained clearly by Putnam (1993) and Zhang et al. (2011).

#### **2.4.2. Bonding Social Capital**

This type of social capital is the strongest, and beneficial to people with internal access to the network. It consists of strong bonds within homogenous populations, for example families or ethnic groups. Due to its inward looking characteristics, bonding capital brings together people together who are already familiar with each other and similar in terms of demographic characteristics (Gittel and Vidal, 1998). Therefore, it is very difficult for outside entrepreneurs to become successful in a group where a large amount of bonding social capital exists.

#### **2.4.3. Bridging Social Capital**

This form of social capital is weaker and less dense than bonding social capital, but more cross-cutting ties (Social Care Institute for Excellence, 2009). In contrary to bonding capital, it brings people together who did not know each other before. Although these ties are obviously weaker in comparison to bonding ties, Briggs (1998) claims they are more important to get ahead. It becomes relevant in a situation where an outside social entrepreneur enters a local community in order to perform his ideas. He should try to establish a connection between the local community and himself. Other examples can be business associates, friends from different ethnic groups and friends of friends (Bayat, 2005).

Briggs (1998) states with regard to the effectiveness of bonding and bridging social capital that bridging capital makes it more likely that people are exposed to fresh and new information and resources, and is therefore more useful in making financial progression. Bonding capital is argued to be less valuable in economic enhancement, since members in such networks do not exchange new and fresh information that may be valuable in their economic enhancement. According to Evans and Syrett (2007), the precise mix of bonding and bridging social capital varies within the dynamics of LED according to the situation, context and time. However, both are considered to be necessary in order to achieve sustainable development.

Putnam also argues that scores of studies of rural development have shown that a vigorous network of indigenous grassroots associations can be as essential to growth as physical investment or appropriate technology (1993: 5). Examples of social capital are community groups, schools, employers, and workers (Putman, 1993: 6).

#### **2.4.4. Benefits from social capital**

Adam and Roncevic state that 'despite problems with its definition as well as its operationalisation, and despite its (almost) metaphorical character, social capital has facilitated a series of very important empirical investigations and theoretical debates which have stimulated reconsideration of the significance of human relations, of networks, of organizational forms for the quality of life and of developmental performance' (2003: 177).

Putnam states social capital is coming to be seen as a vital ingredient in economic development around the world (1993: 5). Furthermore, Putnam (1993) explains that studies with regard to the rapidly growing economies of East Asia almost always emphasize the importance of dense social networks, so that these economies are sometimes said to represent a new brand of network capitalism. Putnam also argues that scores of studies of rural development have shown that a vigorous network of indigenous grassroots associations can be as essential to growth as physical investment or appropriate technology (1993: 5).

The literature in the field of social capital provides a long list of potential benefits that the concept is able to provide. 'Social capital is productive, making possible the achievement of certain ends that in its absence would not be possible' (Coleman, 1988: 98). 'Social capital is an instantiated informal norm that promotes co-operation between individuals. In the economic sphere it reduces transaction costs and in the political sphere it promotes the kind of associational life which is necessary for the success of limited government and modern democracy' (Fukuyama, 2001: 7). 'Cooperation across sector differences, power inequalities, and cultural differences can improve the quality of life of poor populations' (Brown and Ashman, 1996: 1476). Narayan and Cassidy (2001) state that positive outcomes of social capital operate through and include social control or norm observance, family support and benefits mediated through extra-familial networks. These have been demonstrated to have an impact on income outcomes (Burt, 1997; Narayan and Pritchett, 1999; Robinson and Siles, 1997), and collective action at the community level (Molinas, 1998). Narayan and Cassidy (2001) further argue that the inherent

value of social controls is that they render formal or overt controls unnecessary. Furthermore, Narayan and Cassidy (2001) found positive relationships between social capital and factors like optimism, satisfaction with life, perceptions of government institutions, political involvement, trust, community involvement, social engagement, and volunteerism in their research. Sampson et al. (1997) argue that by strengthening community ties, social capital may provide sanctions against those who transgress accepted norms of behaviour through shaming and interventions by neighbours in the precursors of crime. Requena (2003) suggests that the importance of social capital comes from bringing together several important sociological concepts such as social support, integration and social cohesion. Social capital promotes educational achievements (Israel et al. 2001) and public health (Subramanian et al. 2003). Isham and Kahkonen (2002), demonstrate the use of social capital within communities by arguing that enhances the likeliness to facilitate collective action among households and voluntary compliance with rules.

In conclusion, there is growing evidence that social capital can have an impact on development outcomes, including growth, equity, and poverty alleviation (Grootaert, 1996). Associations and institutions provide an informal framework for sharing information, coordinating activities, and making collective decisions. Its success factors are peer monitoring, a common set of norms, and sanctions at the local level (Bardhan, 1995).

#### **2.4.5. Dark side of social capital**

Although the literature on social capital provides a long enumeration of potential benefits, there are also downsides related to this concept. Basically, the characteristics that make individual people function as a group and benefit from cooperation, possess at the same time the potential to cause negative externalities.

Putnam (1993) mentions that social inequalities may be embedded in social capital, norms can be discriminatory, and networks may be socially segregated. Putnam (1993) further argues that although social capital can have great importance for sustaining community life, it is important to consider who is inside and benefits from it and who is outside and does not. Also the potential impair of an individual's liberties is a risk of social capital. This is consistent with the work of Wall et al. (1998) who argue that social capital can become a constraint to individuals' actions and choices. Small (2002) states that this is in particular dangerous in case of urban poverty situations.

Aldridge et al. (2002) support the argument for the potential dark side of social capital by stating it can foster behaviour that worsens rather than improves economic performance, act as a barrier to social inclusion and social mobility, divide rather than unite communities or societies, facilitate rather than reducing crime, and can lead to education underachievement and health-damaging behaviour. Erickson argues for the following paradox: 'every feature of social structure can be social capital in the sense that it produces desired outcomes, but also can be a liability in the sense that it produces unwanted results' (2002: 547). The same argument holds in the case of transaction costs, where the same mechanisms that reduce these costs can also produce negative consequences (Carroll and Stanfield, 2003; Fine, 1999; Torpe, 2003). The kinds of groupings and associations that can generate social capital always also carry the potential to exclude others (Hunter, 2000; Morrow, 1999; Szreter, 2000).

Whether the positive externalities of social capital outweigh the negative ones is highly context specific, and should therefore be separately taken into consideration in every case. Apart from the discussed dark sides of social capital, also the difficulties with regard to definition, operationalisation and measurement make it hard to demonstrate commonly agreed empirical benefits apart from theoretical explanations. Serageldin and Grootaert (2000) conclude the discussion on the use of social capital by stating that the competing definitions of social capital are largely artificial and unnecessary, and that they detract from the fact that different types of social capital coexist and can be mutually reinforcing. Moreover, Serageldin and Grootaert (2000) argue that there is an appropriate level and composition of social capital for a given country at a given time, which is likely to change over time.

#### **2.4.6. Social capital and local economic development**

In conclusion, besides the potential for institutions to perform entrepreneurial leadership in order to empower local communities and achieve local economic development, also social capital is likely to play a substantial role in the local economic development puzzle. Through the empowerment of communities by providing those with information and making them participate in their own development, social capital is created. In return, social capital leads to the accumulation of community empowerment and furthermore facilitates the empowerment by institutions.

## **2.5. Sociological background information**

After having discussed all relevant theoretical concepts, background information on the community stakeholders in Kalimantan is provided for a better linkage between local economic development theory and contextual characteristics.

### **2.5.1. Indigenous communities on Kalimantan**

The original inhabitants of the major part of Kalimantan, including Central Kalimantan, are the Dayak tribes. Traditionally, many Dayak families lived together in communal longhouses. In the modern era these social structures have more or less disappeared and families prefer single houses, as a result of socio-political interventions, trading and development activities (Joshi et al., 2004). In Kalimantan, rubber complex agro forests allowed formerly migrating Dayak groups to establish permanent villages (Sist et al., 1997). Throughout history the Dayak have had a reliance on forest resources, which shaped their culture and life ways (Crevello, 2004). The Dayak are interwoven with their surroundings and have developed a complex system of cultural aspects in relation to the forest that they depend on for survival (Crevello, 2004: 69).

### **2.5.2. Empowerment**

In the past, many development and conservation related projects have failed due to top-down approaches by outside agencies, and the lack of involvement and knowledge of local people and ecosystems (Crevello, 2004). Furthermore, Crevello (2004) argues that more participation and empowerment is required for working with indigenous groups. ‘This neopopulist approach focuses to contribute to long-term positive change, promoting culturally appropriate and environmentally sustainable adaptations as increasing resources are commercially exploited’ (Sillitoe, 1998: 224).

Indigenous participation is used as a process of empowerment to amplify traditionally unacknowledged voices (Slocum et al., 1995), and focuses on ways to mobilise local resources, engage in diverse social groups in decision-making, and identify patterns to eliminate poverty (Feldstein and Jiggins, 1994; Slocum et al., 1995). Ellen et al. (2000) describe indigenous knowledge as holistic, integrative, and situated within broader cultural traditions. Whereas in western ideologies man conquers nature, indigenous people see themselves as part, instead of in charge of the natural world (Crevello et al., 2004). Indigenous peoples continue to assert that

their economic, social and cultural development cannot be separated from how their rights to own, control or have access, over their ancestral lands, territories and resources, to their cultures and identities, and to self-determination, are protected, respected and fulfilled (Tebtebba, 2010: 16).

Furze et al. (1996) argues that empowerment in management and conservation projects can evoke a sense of pride from indigenous communities. Other benefits are the assurance of future resources, possible employment through conservation projects, and land protection from outside encroachment (Crevello, 2004). In conclusion, Crevello (2004) states that it is vital for indigenous people and conservation groups to work together to protect the future of the forests and the people who depend on them.

### **2.5.3. Sustainability**

Indigenous people have a wealth of knowledge on plant usage, function, and regeneration, making their involvement crucial in sustainable development of these natural resources (Joshi et al., 2004). Examples of their innovations and underlying knowledge of cleverly exploiting natural resources without causing a detriment to these resources are the swidden agriculture, the forest gardens, the community forest reserves and their management. Indigenous societies have maintained natural resources better than other societies, due to low population densities and with less environmental degradation. They caused less impact on the ecosystem than large scale timber harvesting, mining, and migrants from other regions that are not familiar with the ecosystem (Schartzman et al., 2001; Redford and Sanderson, 2001).

Joshi et al. (2004) conclude by stating that Dayak farming is basically a subsistence system without the objective of commercial exploitation of natural resources. 'Large-scale logging and mining activities in the region go against the traditional strategy of harmony and sustainability causing much social conflict and environmental degradation' (Joshi et al., 2004: 17).

### **2.5.4. Communal associations**

A way to protect the interests of indigenous communities is the establishment of communal associations, which can be defined as voluntary associations which represent ethnic communities and pursue a wide range of issues and concerns on behalf of those communities (Chee-beng, 1997). 'The Dayak communal associations are new organisations established by new leaders who organise ethnicity in a formal way to relate to the state, to articulate overall communal



interests and the interests of the emerging indigenous middle class, and to assert the community's presence and identity' (Chee-beng, 1997: 280).

Chee-beng (1997) further argues that these communal associations both complement and supplement the roles of traditional leaders, such as the village headmen, in adjusting to the state and to the market economy. The organization of successful communal associations consisted at first of teachers and civil servants, but as more people started to receive education, the leadership shifted to professionals.

The importance of communal associations results from enhanced economic and political participation in larger society and expressing ethnic identities in a multi-ethnic state (Chee-beng, 1997). Furthermore, Cheebeng (1997) argues it provides the possibility of proper collective presentation, since others, especially government authorities, often misrepresent indigenous groups.

#### **2.5.5. Indigenous communities and local economic development**

The described characteristics of the indigenous Dayak communities in Kalimantan emphasise the importance of the stakeholder approach for achieving local economic development in this area. Through community empowerment, two-way information flows need to be established between institutions and indigenous communities so that all involved parties can learn from each other. As both a facilitator and accumulator of community empowerment and cooperation, also social capital plays an important role. Therefore, these findings are highly consistent with the argument for the inclusion of more community stakeholder focused variables in the model of Stimson et al. (2009).

### **2.6. Background information on the rubber industry in Indonesia**

After having reviewed background information on Kalimantan from a sociological perspective, an overview will be provided of the history and development of the rubber industry in Indonesia. The focus is on the involvement of the government in order to reflect on the influence of the government transition after the Indonesian independence, on the level of economic development.

#### **2.6.1. Corporate rubber culture**

This section is based on the work of Maas and Bokma (1949), who described the founding and development of the rubber culture in Indonesia till their publishing date.

The type of rubber trees in Indonesia is originally from Southern America and called *Hevea Brasiliensis*. The product is named after its ability to make pencil lines vanish by rubbing, another use was making clothes waterproof. The rapidly increasing rubber demand after the invention of the pneumatic tire stimulated the import of the rubber seeds to South East Asia, facilitated by a coffee crisis. After several attempts, the first succeeded import of *Hevea* to Asia took place in 1876. From the 20<sup>th</sup> century, the circumstances became interesting for economic exploitation. The production of plantation rubber increased rapidly after 1910 and reached its peak in 1913. The share of Indonesia in the total production capacity increased from 20% in 1917 to 45% in 1946. Whereas the corporation-based rubber was produced mainly in Java, the smallholder rubber originated primarily from Sumatra and Borneo. During the Second World War, the allies were cut off from 85% of natural rubber sources, resulting in the establishment of the synthetic rubber industry. Although the preference, in particular for the manufacturing of auto tyres, was still natural rubber, synthetic rubber became an important competitor.

Reviewing the work of Maas and Bokma (1949), it becomes clear that a significant amount of knowledge was available on the preferred circumstances for the production of natural rubber. For instance the optimal air and water ratio for root development, the groundwater level, and other ground characteristics for plantations were described in high detail. The same argument holds for the ground maintenance, planting techniques, optimisation of the planting material, tapping techniques, and finally the preparation process. However, it has to be noted that there were major differences between the corporate rubber industry and the production of rubber by smallholders.

### **2.6.2. Native rubber culture**

In this section, the distinctions between the corporation and the native rubber culture are described based on Van Gelder (1950).

Several decades after the import of the rubber tree in East Asia, people formerly depend on the supply from the forest, started created small family-owned rubber plantations. The Chinese trading organisation had a great share in this development by supplying planting materials and later on purchasing the harvest. The rubber product was produced primitively, and therefore needed to be reprocessed before it could be brought to the world market. The Chinese purchasers built special factories for executing this process.

Borneo was one of the first areas where this smallholder form of producing rubber became very popular. The first planting activities have been in the first couple of years of the 20<sup>th</sup> century. However, as a result of the rubber prices reaching enormous heights between 1909 and 1912, the cultivation of rubber occurred on large scale. The government did not have a role in the establishment of the smallholder rubber industry, but started taking care after it matured. Civil servants provided a lot of small scale support, however, not a lot is known about the exact content of this support since it took place discretely. At first, the government advised against the use of Hevea by smallholders, since it was assumed high skills and maintenance were required. However, this assumption proved wrong since the Hevea is especially appropriate for extensive use. Basic rubber processing was performed by cooperating farmer groups through transforming latex into sheets with the use of rolling mills. The rubber collector exercised usually the smoking process of the sheets, since a privately owned smoking house was too capital intensive for smallholder farmers.

Government control of the native rubber culture was highly complicated due to the lack of an accurate overview of the size and production capacity of the native rubber culture. Based on findings of the founded 'Native Rubber Investigation Committee', several measures were taken by the government. Firstly, attention was created for the food position of the rubber districts, which faced a potential shortage due to the increased planting of rubber. Secondly, the population's increased tax bearing capacity allowed the introduction of an export tax in 1925. The third measure was agricultural education, in particular for native rubber to avoid capital destruction as a result of poor tapping. Finally, the government interfered in the processing of rubber.

Decreasing rubber prices in the late 1920s resulted in the transition from paid workers to family labour, instead of decreasing rubber production. However, the major drop of global rubber prices leading to a threatening catastrophe in the rubber culture, forced the government to introduce an export restriction in 1934. To improve the situation of native rubber, the government succeeded in transferring a large share of the processing of raw materials from Singapore to Indonesia, allowing better prices for producers. When Japan came in charge of Indonesia in 1942, the native rubber culture stopped almost entirely. After the capitulation of Japan in 1945, there was no exploitation of native rubber anymore. Moreover, large shares of the processing materials were

destroyed. A special committee was founded to rehabilitate the rubber production in Indonesia in 1944, but it remained difficult to meet prior successes.

The interest of the native rubber culture for the economy in Indonesia was substantial, in particular due to the lack of outside capital with it was funded with, in contrast to the corporate rubber culture. Therefore, all income stayed within the country borders. However, due to a lack of motivation for commercialisation, it never reached its maximum capacity.

### **2.6.3. Modern rubber culture**

Sist et al. (1997) state that in Sumatra and Kalimantan, rubber cultivation covers more than 2.5 million ha. These production systems provide income for more than one million farmers and are also a cropping opportunity on poor soils (Dove, 1993; DGE, 1996). Also Wulan et al. (2006) argue that natural rubber is an important export commodity for Indonesia, where approximately 1.3 million farm households rely on rubber cultivation and provide 75% of the national production (DGE 2002). Moreover, jungle rubber provides environmental benefits. As essentially a secondary forest, it performs functions of biodiversity conservation, carbon sequestration, watershed protection and soil conservation (Joshi et al., 2003). Barlow et al. (1988) state that jungle rubber normally produces 500-600 kg/ha/year, in comparison to 1200 kg/ha/year in estate plantations. Furthermore, Barlow et al. (1988) argue that extensive processing of the low quality of rubber from jungle rubber is needed to produce a low grade product for the international market.

In the 1990s, Malaysia, Thailand and Indonesia contributed 75% of the total world production of rubber (Penot and Ruf, 2001). Indonesia is the second largest rubber producer, closely behind Thailand. In terms of non-oil exports, rubber is currently the fourth largest export after plywood, pulp and paper and oil palm (Penot and Ruf, 2001). The tire industry accounts for 70% of the use of natural rubber, making it highly dependent on the transportation sector. The rubber sector as a whole in Indonesia is a source of income for more than 10 million people (Penot and Ruf, 2001).

On a more critical note, Belcher et al., (2004) compared the financial costs and benefits of the principal land use options in East Kalimantan of oil palm plantation, traditional rattan gardens, intensive rubber plantation, and traditional rubber plantation are compared on a land unit basis. They concluded that rubber production, at current prices, was not profitable.

Wulan et al. (2006) emphasise that many projects have been implemented in Indonesia over the last several decades to improve rubber production and productivity by introducing more intensive monoculture systems. Outside government project areas, most smallholders cannot implement recommended technologies that are not less appropriate for smallholder farmers with limited capital and resources.

Penot and Ruf furthermore argue that by revealing the extent of environmental and social damage caused to rubber smallholders by estates and by logging companies (of whom a number belonged to the Suharto family, their friends and the army), the 1997 ecological and 1998 Krismon crisis in Asia proved that these damages were aggravated, if not triggered by policies of ignorance, corruption and inefficiency (2001: 20). In conclusion, Penot and Ruf (2011) emphasise the need to prioritise smallholder interests, concerning all aspects of agriculture and environment, from land management and land ownership, to information, credit facilities and the assistance provided to and by farmers' organisations, which must remain under farmers' control.

#### **2.6.4. Preliminary historical evaluation**

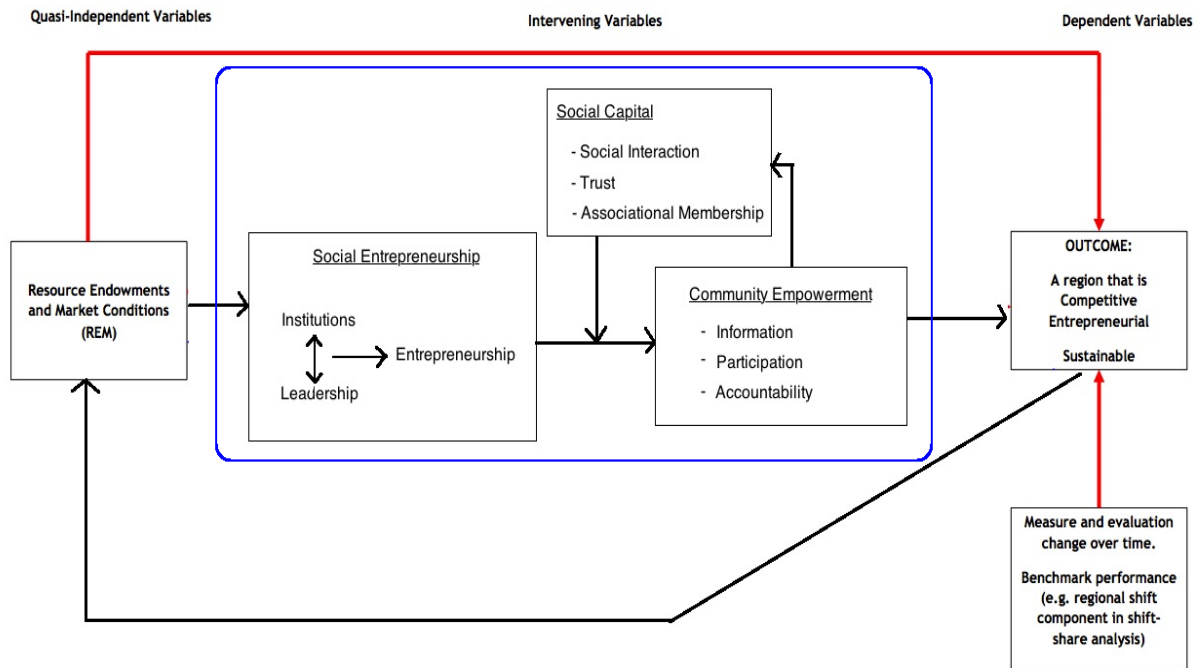
Firstly, the emergence and development of the rubber culture in Indonesia is discussed. The comparison between the corporate and the native rubber culture in Indonesia before the independence demonstrates a major gap in the level of development between both cultures. Moreover, the government involvement in the native rubber culture before the independence is discussed in detail. A more extensive evaluation on the situation afterwards needs to be conducted to draw a conclusion on the influence of the governmental transition on local economic development. What has not changed according to modern information on the native rubber culture, is its substantial importance for the Indonesian economy.

#### **2.7. Preliminary conclusion on the local economic development theory**

The specific needs of the biodiesel project and the social perspectives discussed in the local economic development literature argue for a modification of the regional economic development model of Stimson et al. (2009). Also the literature on indigenous communities emphasise the need of more extensive community stakeholder approach. The existing intervening variables are referred to as dimensions within social entrepreneurship, and the concepts community

empowerment, social capital and their relationships are added as important components for achieving local economic development.

**Figure 2.3: Modified local economic development model for the biodiesel project**



The applicability of this theoretical model for the economic development in Central Kalimantan needs to be empirically examined by assessing all factors independently and investigation their relationships. Also the role of the government as an important institution within this model, based on a comparison between the level of government involvement and local economic development before and after the Indonesian independence, will be further investigation with the use of primary data.



### **1. Bawan**

Bawan is located two hours by car from Palangka Raya, the capital city of Central Kalimantan. There are good contacts between the village and the agricultural department (CIMTROP) of the University of Palangka Raya. Prior visits of project members suggested a low development of the local rubber culture.

### **2. Tumbang Jutuh**

The quality of the rubber provided by the trees is suggested by the agricultural department of the CIMTROP to be highly dependent on the location of the plantation. More upstream plantations, experience higher water quality, therefore higher rubber quality, which again suggests higher income for farmers. Tumbang Jutuh is located along the same river as Bawan, but more upstream. It is also suggested that the organisation of the plantations, the level of cooperation and therefore also the economic development, is more developed in this area. Better cooperation between farmers offers the possibility to exclude resourceful middleman and achieve more economic benefit for the farmers themselves. Examples are sharing knowledge, money, and providing transportation for the harvest to the processing factory collectively in order to save money.

### **3. Tumbang Tahai**

Tumbang Tahai is a village 35 km from Palangka Raya. Although there is no rubber industry, an evaluation of this area is relevant as a reference. Since there is no known official farmer cooperation within the smallholder rubber culture in Central Kalimantan, a village with proper working farmers' cooperation outside the rubber industry is investigated. The agriculture consists of vegetables and the farmers are organised in both official and non-official Koperasies. It is researched why these Koperasies were established, whether they function properly, and to what extent the social infrastructure differs from Bawan and Tumbang Jutuh.

Eisenhardt and Graebner (2007) argue for the use of multiple cases as this creates more robust theory because the propositions are more deeply grounded in varied empirical evidence, and more generalisable and testable theory is created compared single-case research (2007: 27). For this reason, also a comparative field visit takes place in South Kalimantan.



**Figure 3.2: Map of Kalimantan with field visit location South Kalimantan**



#### **4. Sungai Alang**

Close to Banjarmasin, the capital of South Kalimantan, Sungai Alang is also investigated in the same manner as the villages in Central Kalimantan. The relevance of adding this area to the field research results from the suggested differences in social structure in South Kalimantan, and near Banjarmasin in particular. The location near the coast of Kalimantan is suggested to have facilitated large-scale entry of Javanese people through former transmigration policies. These Javanese people are assumed to have higher commercial interests. Besides the actual difference in social infrastructure, its effect on the level of economic development in the smallholder rubber culture is investigated through a comparison Central Kalimantan.

#### **3.3. Specific data collection methods**

In all cases, observations will be combined with taking interviews with the help of local translators. The first step community contact is through the network of the biodiesel project. After initial contact, key persons are identified and their networks used to identify other relevant respondents. Flick (2006) refers to this phenomenon as a snowball effect.

Firstly, smallholder rubber farmers and their plantations are observed. Secondly, these farmers are interviewed on the observations and more detailed questions are asked with regard to their production methods, industry knowledge and motives. Furthermore, observations and interviews

are conducted on the social phenomena within communities. Besides farmers, also shop owners, civil servants and any other relevant stakeholders within communities are observed and interviewed. Additionally, staff members from regional governments and universities are interviewed for their views on the development in rural communities and background information on the smallholder rubber culture.

In Bawan, the interviewees consist of 13 farmers, a rubber collector, 3 gold miners, the secretary of the village, the leader of the church, 2 highly respected elderly community members, and several shop holders and regular village members. In Tumbang Jutuh, the interviewees are 9 farmers, the village headman, a staff member of the sub district's department of plantation, the head of the sub district, the priest, the imam, and several shop holders and regular village members. In Tumbang Tahai, the interviewees are 23 farmers, the imam, the secretary of the village, and several shop holders and regular village members. In Sungai Alang, the interviewees are 3 farmers and a rubber processor. Moreover, in Palangka Raya, the head of the economy department of the regional government, the head and a staff member of CIMTROP are interviewed. In Banjarmasin, also two staff members of the agricultural department of the local university and several other staff members are interviewed. An example interview and observation report of a respondent in Tumbang Jutuh is listed in Appendix 7.6.

### **3.3.1. Local economic development**

The first step consists of detailed observations of the areas and inspections of the available rubber plantations. These observations form the basis for interviews with the people in the communities. The interviews are semi-structured in order to get answers with regard to the observations of interest and additionally to get information new information from the respondent's own viewpoint, contributing to the broader research problem (Cooper and Schindler, 2006). The combined data from the observations and the interviews is compared between different areas, resulting in an assessment of the development level in the smallholder rubber culture.

### **3.3.2. Social entrepreneurship**

The actual amount of third party involvement is hard to observe. Therefore, interviews will take place from a multiple stakeholder approach. The focus will be on social entrepreneurship performed by institutions. Within communities, farmers, regular citizens and civil servants are

questioned on the amount and type of help they receive with regard to stimulating the local economic development in their specific community or in the broader industry. Outside the communities, regional governments and universities are questioned on their own efforts and the help of other parties with regard to the same issue.

The reported help is assessed on both the geographical scale and scope, and the level of structural embeddedness, in order to appoint the relevant type of social entrepreneurship.

### **3.3.3. Community empowerment**

The World Bank (2002) suggests access to information, inclusion/participation of community members, accountability, and local organisational capacity as indicators for community empowerment.

The access to information and the inclusion/participation of community members are assessed by comparing their knowledge of available support for development with the reported support by other stakeholders at university and government level. Also their knowledge with regard to their own industry is compared. Moreover, the quantity and quality of the communication between the village members and institutions is evaluated.

The actual accountability of outside stakeholders is difficult to map in high detail. In order to provide a broad qualification, the opinions of other stakeholders are compared. However, this judgment is not of great value for the overall evaluation of community empowerment in this research.

The factor local organisational capacity is highly related to the concept social capital, and is therefore not assessed separately.

### **3.3.4. Social capital**

Both the quantity and quality of networks between people will be assessed. Grootaert (1999) identifies six dimensions through which social capital can occur:

1. density of membership
2. internal heterogeneity of associations (by age, gender, education, religion, etc.)
3. meeting attendance
4. active participation in decision-making

5. payment of dues
6. community orientation

Also the indicators trust and social interaction within communities are mapped. All levels of trust, from community to government level are included. Besides interaction through membership as discussed by Grootaert (1999), also non-organised interaction is included. All indicators are firstly measured through observation followed up by interviews. Through including as many knowledgeable respondents from different angles in the community and comparing these interviews with own observations, an interpretation of the available social capital is made.

### **3.4. Ethical considerations**

Since this research concerns people, more specifically people in poor, rural areas, ethical issues are taken into consideration carefully. During the data-gathering phase, the well-being of all respondents receives the highest priority. All interviews, observations and photo shoots are taken in full consent of the relevant community members. Since most remote villages are not used to western researchers taking part in daily activities, the purpose of the field visits is explained carefully and only continued in case of full consent. The overall goal of stimulating sustainable local economic development is helping poor people to have a better future. Therefore, not a single step during the research takes place against the will of these same people.

## **4. Findings on the local economic development theory in Central Kalimantan**

The first three sub sections of this chapter present the main findings of the field visits in Central Kalimantan. In the fourth and final sub section comparative findings on South Kalimantan are discussed. Reports containing the full descriptions of all four villages based on the discussed methodology are listed in Appendix 7.1 till 7.4. Photo reports contributing to the textual description of the villages are subsequently listed in the Appendix 7.5.1. till 7.5.4.

### **4.1. Main findings on Bawan**

Bawan is a small and quiet village with a nearly entirely Dayak-Christian background. Economic development of the smallholder rubber culture is basic. Farmers tap on daily basis, but do not show a great amount of discipline. After tapping the trees, farmers wait till the latex is coagulated before collecting their harvest. No further processing is done; the lumps of rubber are saved on a pond on the plantation till a middleman collects the rubber and transports it to a rubber-processing factory in Tangkiling, close to Palangka Raya. There is no competition or large motivation for making more money; the main objective for farmers is to provide for their families. Although more intensive cooperation of farmers could create economies of scale and offer the possibility to exclude middlemen, most farmers prefer to only work with family.

Government institutions provided up till now only basic support for rubber farmers. Once a year education is offered. The most relevant contribution was a program in 1990 educating farmers how to best build rubber plantations. After this education, farmers started using a fixed planting system, making their production more efficient. However, the support from government institutions is not sufficient to be regarded as social entrepreneurship. This is consistent with the views of the head of the economy department of the regional government in Palangka Raya, who argues that the government lacks a strongly required entrepreneurial vision. CIMTROP, which is part of the University of Palangka Raya, is also not content with government policies with regard to agriculture. Instead, CIMTROP is working on an own initiative to educate farmers. They would like to build a research center and to provide three times a year education in an informal and pleasant setting with music, to farmers in Bawan. The head of CIMTROP is a Dayak born and raised in Bawan, and therefore feels the responsibility to provide education together with

other highly developed Dayak people, to local Dayak communities. It can be concluded that the level of community empowerment is low at the moment, due to the low involvement of government and educational institutions. However, the educational institutions seem to have greater motivation and potential than the government institutions to empower the community in Bawan.

The amount of social interaction between inhabitants is low, especially for farmers. After working, people prefer to spend their time with their family. Besides occasional activities as weddings, people interact through short daily conversations. Trust between community members is explicitly reported as low, in particular when money is involved. This is also the reason for the scarce cooperation between rubber farmers. Furthermore, trust in governments is low from national to local level. Besides too little support, they are sometimes suspected to be highly corrupt. The low level of social interaction and trust suggest a low amount of social capital. This is consistent with the evaluated associational membership. The density is low; there are only two religious groups where people can become a member. Besides the main church there is an additional religious group, which occasionally cooks and prays together. Within these groups, the heterogeneity and the meeting attendance are low. The vast majority of the payment of dues only takes place in case of attendance.

In summary, the current local economic development in Bawan is low. Currently, there are no effective social entrepreneurs. This is consistent with the low level of community empowerment. However, there is entrepreneurial potential at the University of Palangka Raya. Also the social capital in Bawan assessed by both the quantity and quality of social networks is low.

#### **4.2. Main findings on Tumbang Jutuh**

Tumbang Jutuh is slightly larger and more crowded than Bawan, positioned at more upstream in Central Kalamantan, along the same river. Although there are Javanese-Islamic people, the vast majority of the people has a Dayak-Christian background. Farmers also tap on daily basis, but show more discipline in doing so. Most farmers collect the latex in liquid form, on the same day as the tapping. Chemicals are used extensively to increase the quantity of the latex production. The harvest is not processed, and farmers do not have the knowledge to do so. Moreover, it is not believed to increase their income due to a lack of buyers. Chemicals are added to quicken the

coagulation process, and afterwards the lumps of rubbers are saved on a pond. This is both a tradition and a way to gain weight before selling. In the past there were Koperasies of rubber farmers, but they failed due to corruption of the management and lacking trust of new generations of farmers to join. Currently there are groups of farmers who collectively organise the transportation of the harvest to the factory, both by hiring a trusted driver and transportation on the river.

Consistent with Bawan, the government provides basic educational support on yearly basis. In 1993 there was a program offering money, seeds, and education for the creation of efficient plantations. Since this period, plantations contained an organised planting system. No other institutions are known for empowering the community in Bawan. Even the basic and occasional government support cannot be regarded as a form of social entrepreneurship.

As the capital village of the sub district, there is relatively more contact between the community and government institutions in comparison to Bawan. This higher level of communication results in better knowledge on the availability of government support. However, the actual level of active empowerment and support of the community is low.

Consistent with Bawan, free time is mainly and preferably spend with family members. Although Tumbang Jutuh experiences more daily social interaction than in Bawan, trust between community members is also low, partially because of bad experiences with corrupt cooperation in the past and regular criminality. The trust in government institutions is good, mainly caused by low expectations of support. Associational membership is again restricted to religious groups, which are homogeneous, have a low meeting attendance and dues only have to be paid during attendance. Therefore, also the amount of social capital in Tumbang Jutuh is assessed to be low.

In summary, the local economic development in Tumbang Jutuh is low. There are no social entrepreneurs with the ability to empower the community. Although there are close connections to the local and the sub district governments, actual support and community empowerment fall still short. Low associational membership and trust are the main causes for the low amount of available social capital.

### **4.3. Main findings on Tumbang Tahai**

Tumbang Tahai is located closest to the capital city Palangka Raya, of the conducted field research in Central Kalimantan. The population density and the amount of facilities in terms of shops and restaurants are low. Within the population 90% of the people have a Javanese-Islamic background, whereas 10% only 10% shares a Dayak-Christian background. There is no rubber culture; instead farmers cultivate several types of vegetables.

All farmers are member of a farmers' group, which is called a Koperasi. There are both official and non-official Koperasies. The main difference is that the latter is not officially registered and therefore recognised by the government. The main purpose of the Koperasies is saving money collectively, which can be borrowed to members with the need for improving their plantation. Loans need to be refunded by monthly instalments with an interest rate of 10%. Besides the entrance fee for members and a monthly membership fee, the officially recognised Koperasi also received substantial financial support from the government. Furthermore, the government provided machines and tractors to the farmers. The better access to credit through the Koperasi resulted in a reported income increase of around 50% for the participating farmers. Problems with the management of the Koperasies are never experienced. It is learned from other successful Koperasies how to set up an effective organisation and there is great transparency with regard to the incoming and outgoing cash flows.

The sub district government shows more communities involvement. The founding of the Koperasies is suggested by this government institution, and the learning process of the Koperasies is facilitated by other Koperasies in the same sub district. However, not enough detailed information on this institution is available to assess the level and type of social entrepreneurship that is performed. The participation in Koperasies and the knowledge on how to receive government support show high community empowerment.

Social interaction between people in Tumbang Tahai is high. People trust each other and like to work together and help each other. There is also trust in government institutions. These factors make effective cooperation between farmers possible. The high interaction and trust are not the direct result of the successful professional cooperation, were already present before. They are the



result of a shared Javanese background, where it is a tradition to work collectively. Besides homogeneous religious groups, there are only the professional associational memberships. Within these Koperasies, meeting attendance, active participation and payment of dues are high. In conclusion, social capital in Tumbang Tahai is assessed high.

In summary, the economic development in Tumbang Tahai is relatively high. Participation in Koperasies substantially increased farmers' welfare. Although the exact level and potential of social entrepreneurship has not been assessed with great precision, it is obvious that the sub district department of the government had a high share in the empowerment of the community. This empowerment is high; people have knowledge about available support and also participate in this support. Due to high organised social interaction, trust and active membership, the level of social capital in Tumbang Tahai is high.

#### **4.4. Main findings on Sungai Alang**

Sungai Alang is a small village located close to Banjarmasin, the capital city of South Kalimantan. The background of the population is for 95% Banjarese-Islamic against 5% Javanese-Islamic. Although rubber is the main industry, many farmers also exploit other business like fish and fruits, and combine them with the cultivation of rubber. Farmers within this village have a considerable amount of knowledge about rubber production. The small plantations are well maintained and organised, and new ones are being created. High quality seeds are selected for shortening the time between planting the seeds and the first harvest. Also several fertilisers are used for enhancing the growth and development of the trees, and increasing the production of latex when they are ready to be tapped.

There are no Koperasies anymore, since they did not survive the economic crises in the late 1990s and new ones are considered hard to establish officially. Trust is not a constraint, and the intention to start a new Koperasi in the future exists. Currently, there is an informal group of farmers sharing their knowledge.

There are two types of rubber farmers. The first type does both the tapping and collecting of the latex on one day, whereas the second type collects the latex only once in a few days. There is one purchaser in the village, which is a resourceful family owning a processing unit. In the first

case, latex is supplied to the processing unit, which will be processed into rubber sheets on the same day. After five days in the smoke house, the rubber is ready to be sold. In the second case the already coagulated lumps of rubber are also sold to the owner of the processing unit, who sells the harvest unprocessed to another middleman facilitating the transportation to the factory. Although it is more profitable for the owner of the processing unit to buy fresh latex and process it themselves, farmers are not motivated to do so since the price is more or less the same. The only motivation for farmers is to have lower risk of theft of their harvest in case the tapping and collecting is performed on the same day.

In Sungai Salang there is basic support from the government, consisting of the possibility to hand in proposal for acquiring money and seeds to improve agricultural plantations. Moreover, the University in Banjarmasin provides access to international researchers, where this particular is an example of. However, real efforts of social entrepreneurship by individuals or institutions to empower the community do not take place. Inhabitants know about the content of government programs and how to receive support. This is partially due to good access information by the community as a result of friendship and family relationships between important community members and civil servants in different government layers.

The level of social interaction between people is moderate. The amount of trust is high because of a shared cultural and religious background. Besides religious activity, there is informal knowledge sharing between farmers. Therefore, the overall level of social capital in Sungai Alang is considered to be moderate.

In summary, the economic development in Sungai Alang is moderate. Processing takes place but this is hardly beneficial for the general rubber farmer. Strong social entrepreneurship is lacking, but the community very well empowered themselves with knowledge and have good trust and relationships with government institutions. There is low associational membership, moderate social interaction and high trust within the community. Therefore, the overall level of social capital is assessed to be moderate.

## **5. Discussion of the findings**

Out of the three villages in Central Kalimantan, Bawan experiences the lowest level of economic development. Farmers only perform the minimum steps necessary to provide for their families, without a strong motivation to achieve more welfare. Tumbang Jutuh is slightly more developed, whereas the agriculture in Tumbang Tahai is most developed. The difference between Bawan and Tumbang Jutuh cannot be explained by the current levels of social entrepreneurship since these are low in both cases. The same argument goes for the levels of social capital in Bawan and Tumbang Jutuh. Low social interaction and trust, together with low associational membership result in both low quantity and quality of networks. The main difference is the higher amount of community empowerment, explained by the better relationship between the community and the government institutions in Tumbang Jutuh.

The higher economic development of Tumbang Tahai in comparison to Bawan and Tumbang Jutuh is not likely explained by the difference in industry since the factors influencing their higher welfare would also be applicable for the rubber industry. The main difference is the amount of community empowerment and social capital. The sub district government has played an important role in empowering the community by providing access to information and stimulating participation. The effect of this empowerment has been facilitated by the already available social capital. The extent to which the empowerment by this institution is an example of social entrepreneurship needs further investigation. The effect of the empowerment is a higher level of information and therefore access to support, and more cooperation leading to economies of scale. These benefits have resulted in higher local economic development.

In Bawan and Tumbang Jutuh there has been less empowerment, but the empowerment that did take place had less effect because of low social capital. Low interaction and trust have prevented people from sharing knowledge and cooperating. Through knowledge sharing, more people in the community would have information that could be used for acquiring resources provided by the government or for adding value to their products by processing. Through cooperation, economies of scale could be achieved enhancing farmers' bargaining position. Collective transportation and processing could exclude middlemen and generate more economic value.

For a comparison with South Kalimantan, Sungai Alang is assessed, where the economic development is evaluated higher than in Bawan and Tumbang Jutuh. There is more knowledge on the creation of plantations, production of rubber and processing of latex into rubber sheets. Moreover, many farmers also run other businesses besides rubber plantations. These differences are consistent with the differences in community empowerment and social capital. Higher social capital enabled the community to empower themselves without social entrepreneurs or strong influence of institutions. However, in comparison to Tumbang Tahai, Sungai Alang experiences lower economic development. This difference can be explained by higher community empowerment and higher social capital, which facilitated more cooperation.

The evaluated social capital in Bawan and Tumbang Jutuh is low, but the limited amount that is available is homogenous, and therefore bonding. Lack of bridging social capital and low levels of social capital in general, have prevented potential beneficial externalities for local economic development. However, low levels of social capital suggest also absence of dark externalities. Although the high level of social capital in Tumbang Tahai is to a high extent also based on homogeneous, bonding social capital, the effectively proven empowerment suggests also bridging social capital to exist. The same reasoning goes for Sungai Alang, however, the lower level of outside empowerment also provides less support for available bridging social capital. In both cases, no support is provided for dark externalities of social capital.

### **5.1. Discussion of the research questions**

The first sub research question regarded the level of local economic development in Central Kalimantan. The findings indicate a low level of local economic development, also in comparison to South Kalimantan, with an exception for Tumbang Tahai. Because of the mainly Javanese-Islamic background, the characteristics of this community show higher similarity with the population in South Kalimantan than with the regular population in Central Kalimantan, who possess a Dayak-Christian background.

The second sub research question regarded the level of social entrepreneurship in Central Kalimantan and its relation with local economic development. There are no strong social entrepreneurs currently active in Central Kalimantan, which is consistent with the findings in South Kalimantan. However, in Central Kalimantan there is a planned initiative to set up a

research centre for educating indigenous Dayak communities by CIMTROP in Palangka Raya. Social entrepreneurship can contribute to local economic development by complementing or substituting the role of governments in empowering communities.

The third sub research question regarded the level of community empowerment in Central Kalimantan and its relation with local economic development. Although community empowerment is higher in Tumbang Jutuh than in Bawan, both levels are regarded insufficient. In Tumbang Tahai there is considerably more empowerment, which can be explained by their specific sub district. Although the assessed community in South Kalimantan is more empowered, this cannot be explained by a substantially higher level of outside support. This community has to a higher extent the characteristics to empower themselves. However, both in Central and South Kalimantan, community empowerment could be substantially higher. The case of Tumbang Tahai showed clearly that community empowerment can contribute to the knowledge and cooperation that are highly beneficial for local economic development.

The fourth sub research question regarded the level of social capital in Central Kalimantan and its relation with local economic development. Consistent with the local economic development, the levels of social capital in Bawan and Tumbang Jutuh are low, also in comparison to South Kalimantan. Tumbang Tahai is again an exception, explained by the same background related argument as in the case of the local economic development. The Dayak-Christian background of the vast majority of Central Kalimantan is best represented by the first two villages. This suggests that social capital is related to the cultural and/or religious background of communities and that there is also a positive relationship between social capital and local economic development. Furthermore, community empowerment is more effective with the availability of sufficient social capital and social capital can contribute to community empowerment even in the absence of strongly empowering institutions.

The fifth sub research question regarded the combined use of social entrepreneurship, community empowerment and social capital for achieving local economic development. The findings of the research on this matter are consistent with the local economic development model that is designed on the basis of the academic literature. Institutions have the ability to contribute

to community empowerment. Since the community empowerment of governments in Central Kalimantan is insufficient, there is an opportunity for social entrepreneurs to complement or substitute this role. Furthermore, local economic development is more likely to occur if communities are empowered. This empowerment is more effective in case of a high level of social capital, empowerment can increase the level of social capital, and social capital can also have an empowering role itself. The findings of this research suggest strong relationships between the four concepts and emphasise the importance of the expansion of the regional economic development model by Stimson (2009) with additional sociological concepts.

The sixth sub research questions regarded the influence of the Indonesian independence on the local economic development in the smallholder rubber culture. Comparing the literature on the smallholder rubber culture before the Indonesian independence in 1945 with the findings in this research, it can be concluded that the local economic developed decreased. Where most farmers in the past worked collectively to perform the first processing steps of latex into rubber sheets, currently farmers sell their harvest unprocessed. The machines for executing these processing steps were provided at that time by the government. Since this support consisted of a limited amount of equipment per village, farmers were forced to cooperate. The example is consistent with the historical literature, which suggests more government interference in the smallholder industry before the independence than is currently the case. However, more information on the exact level and content of the current support is needed to further support this suggestion.

Through the assessment of these six research questions, the local economic development model that has been developed on the basis of academic literature is tested on its applicability based on empirical data. The findings are strongly consistent with the academic literature, which suggests justification for the expansion of the regional economic development of Stimson (2009) with more sociological concepts aimed at improving the position of community stakeholders. Besides the academic literature, these findings also show implications for the biodiesel project in Kalimantan. By using this model for describing the characteristics of the villages in Kalimantan, it is aimed to provide a thorough understanding of the stakeholders of the biodiesel project. The findings of this research and the technology-push characteristics of the project dissuade the use of a top-down approach for implementing this new technology. The indigenous Dayak

communities are willing to learn and to participate in economic development, but are not likely to take initiative by themselves. Firstly, these communities need to be empowered in order to create a basic level of social capital. The social capital can lead in its turn to the accumulation of the empowerment and furthermore facilitates more empowerment. More empowerment by governments is desired, but it is unlikely that governments will be able to fully provide the necessary empowerment. Therefore, social entrepreneurs could play an important role in complementing and substituting for the community empowerment exercised by governments.

## **5.2. Limitations of the research**

This research experiences several limitations. Firstly, there are only three cases used to investigate the rubber culture in Central Kalimantan. Village specific characteristics may have had disproportional influence on the outcomes. Therefore, the findings of this research must be viewed as suggestions which could be used for more focused research. The same argument holds for the comparison between Central and South Kalimantan, since the latter is based on a single case.

Secondly, there were access difficulties for the collection of direct information from the discussed governments themselves. In many cases the level of government support is assessed by the reported government support by other stakeholders. In reality, it is possible that there is a discrepancy between the support that is available and the support that people actually know about. Also the level of accountability of governments and other institutions as part of community empowerment is not fully captured in this research.

Furthermore, it has been proven difficult to isolate the type and effects of available social capital in able to fully capture which share of the evaluated social capital is bonding or bridging.

Moreover, data is gathered through interviews with the help of translators. It is hard to find local people in Central Kalimantan who speak both proper English and local Dayak language. Most educated people that speak English sufficiently live in Palangka Raya, where the language of Dayak languages is no longer used. Language issues may have compromised the richness of the data from the original source. Besides language, also cultural issues may have played a role in

the data gathering. Although great effort is put into filtering socially desirable answers from both the respondents and the translator, bias may have not been completely excluded from the data.



## **6. Conclusions and implications for the local economic development theory and the biodiesel project in Kalimantan**

This thesis has aimed to contribute to the local economic resource development (LERD) program, as part of the local biodiesel project. Therefore, a thorough overview of the level of economic development and the characteristics of the rural population in Central Kalimantan proved necessary. The starting point for assessing this development was the regional economic development model by Stimson (2009). This model proved incomplete, in particular considering the technology-push characteristics of the biodiesel project. Based on the academic literature, the model is expanded by adding the sociological concepts social entrepreneurship, community empowerment and social capital as important determinants for local economic development. The modified model is used to describe the characteristics of both the communal populations in Central and South Kalimantan and at the same time test its applicability for the academic local economic development theory.

There is much room for improvement on the local economic development in Central Kalimantan, in particular with regard to the smallholder rubber culture. The Dayak-Christian communities in Central Kalimantan restrict themselves to the basic steps for producing rubber, just enough for providing for their families. This phenomenon could be explained by their indigenous background. In the past, instead of generating economic activity, Dayak tribes were self-providing communities that just took the resources necessary for survival from the forest. Empowerment from the government to stimulate more economic development is low, and social entrepreneurs actively complementing or substituting this role are currently lacking. The empowerment efforts that do take place lose part of their effect due to low social capital. For the Dayak-Christian communities in this research interaction and trust, mainly stays within the family. Other community members are primarily met during daily casual contact, religious activity or occasional activities like weddings. Because of low trust in other families, farmers prefer not to cooperate professionally, which prevents them from sharing knowledge and achieving economies of scale. Although the findings support the statement that organised cooperation can be highly beneficial for local economic development, it is not recommended to start close cooperation in the absence of sufficient social capital. The comparison between

communities with a Dayak-Christian and communities with a Javanese-Islamic background in Central Kalimantan is consistent with the argument that the cultural and/or religious background is to a great extent responsible for differences in local economic development. The community with a Javanese-Islamic background had a higher level of social capital making the empowerment to participate in Koperasies effective, which resulted in substantially more economic development.

Moreover, the transition of the government after the Indonesian independence does not seem to have facilitated the local economic development in the smallholder rubber industry in Kalimantan. The total product chain of rubber did become longer since more middlemen have entered, weakening the position of farmers. It is possible that more support is currently available than reported by the relevant stakeholders, but this lack of proper knowledge would at least suggests lower community empowerment.

Villages in South Kalimantan show higher similarity to the Javanese-Islamic background than to the Dayak-Christian background. However, not all Islamic people in South Kalimantan originate originally from Java; also Banjarese tribes have an originally Islamic background. It could be that the similar religious background facilitated the transmigration of Javanese people to this region. To what extent the higher commercialisation in South Kalimantan is influenced by the transmigrated Javanese people or was already existent among the Banjarese-Islamic people, requires further investigation.

This research provided evidence that social entrepreneurship, community empowerment and social capital are highly beneficial for achieving local economic development in poor, rural areas. Furthermore, they are highly interdepending by both enabling and facilitating each other. It is therefore likely that the local economic development model drawn from the relevant academic literature is not only applicable for describing and evaluating the situation in Kalimantan for the biodiesel project, but could be also extended to similar areas and projects. The main contribution to the biodiesel project is a description of the existing local economic resources in Central Kalimantan.

Future research could try to evaluate more villages in South Kalimantan to increase the reliability and richness of the data and to make a better comparison with the situation in Central Kalimantan. In this sample of communities in South Kalimantan it would be interesting to include villages with a Banjarese-Islamic, a Javanese-Islamic, and if existent also villages with a Dayak-Christian background in order to make a better evaluation of the extent to which differences between Central Kalimantan and South Kalimantan can be explained by the cultural and religious background of the communities. Also a greater focus on the institutional side of the stakeholders in Kalimantan would be beneficial for the assessment of the available local economic resources and support.

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## **7. Appendices**

### **7.1. Complete report of findings Bawan**

#### **7.1.1. Economic development**

Bawan is a small village with 737 registered inhabitants. The main source of income in is the rubber industry, of which 200 farmers and their families are financially dependent. Other income comes from several gold mines, small shops, restaurants and governmental employment. The infrastructure of the village consists of one main road and two smaller parallel roads. All roads are in poor condition, which makes transportation uncomfortable, even though the distances are small.

The sizes of the rubber plantations vary between 1 and 20 hectares, but most of them cover 3 to 4 hectares of rubber trees. The amount of trees that are planted per hectare ranges from 150 to 500. Also the organisation of the field varies between rubber farmers. The majority of the active plantations have a planting system where the distance between the trees is 2.5 meters and the distance between the rows 5 meters. These modern plantations are created after 1990, and facilitate more efficient rubber tapping on a smaller piece of land.

All farmers in Bawan tap rubber on daily basis, starting in the early morning. However, most farmers do not tap on Sunday because of religious motives and in practice also skip working days in case of holidays, weddings, and the occurrence or threat of rain. With a special knife the reopening of an incision in the tree bark takes place, due to the shape of the incision the fresh latex flows down into a cup attached to the tree. Everything that can be used to collect the latex is used; from coconut shells to soda cans cut into halves, to motor oil bottles. All rubber plantations are family-employed, where the man is the main worker, often with the assistance of wife and/or sons. The amount of working hours per day varies from 1 to 6 hours.

All farmers in Bawan collect the harvest 2 times per week. An average farmer with a plantation size of 2 to 4 hectares and around 1000 retrieves around 100 kg of latex per collection. The lumps of rubber are put on a small pond, elsewhere on the plantation. After collecting, no substantial processing is done. However, some farmers reported to remove small pieces of dirt

from the cups in order to acquire cleaner and therefore higher quality rubber. Most rubber farmers sell their harvest to fixed collectors, located in near-by villages. The rubber price depends on the season, but the regular price is 15000 IDR (€1.24) per kg. There is 1 collector located in Bawan; a shop owner who has 15 rubber suppliers from within the village. Collectors are resourceful middlemen, often shop owners, who possess a car to transport the harvest to a processing company in Tangkiling, close to the capital Palangka Raya.

No farmer reports to make use of chemicals, for example fertiliser, to influence the rubber producing ability of their trees. Some farmers do small maintenance work at their fields, like building a place to take rests and cutting grass between trees. Other farmers state to only perform activities that are directly related to their income, in this case only basic tapping and collecting of rubber. There is no knowledge available on further processing of the harvest. Some farmers know that in the colonial period there was some basic processing, but the knowledge on how to do it themselves is lacking. The majority of the farmers state to try keeping their life as simple as possible. There is neither competition nor a relevant amount of cooperation between farmers; everybody does the minimum to be able to provide for their own families. The average farmer with a regular plantation size and harvest would like to earn more money if possible, but on the other hand states to be content with the current rubber prices and consequent income.

### **7.1.2. Social entrepreneurship**

Agricultural support is provided by the regional government by sending one time per year a civil servant to the village. During this meeting, basic education is provided, consisting of suggestions for rubber production techniques and locations of plantations. All farmers in Bawan believe this is insufficient and argue there should be more support and education. Furthermore, there was a government program between 2007 and 2009. Through a group proposal, farmers could request free rubber seeds. However, not all farmers know about the existence of this program. Some farmers do not even know about the yearly education. The head of the economy department of the regional government states that there are no governmental programs for specific villages, only general ones. Moreover, he argues that Bawan does not have a particular high potential for rubber. The geographical location to the river is not optimal, there is too much peat land and there is not enough export value, so he argues. The general revitalisation programs that are available, offering seeds and credit, require the cooperation of farmers in a group, in order for

them to achieve economies of scale. Furthermore he argues that the governmental approach is too bureaucratic, the implementation of a more market based system with a fair position of farmers is required. In conclusion, he claims that the government bureaucrats need a more entrepreneurial vision.

Some farmers get some support from their collector, in this case advice for improving the quality of the rubber is provided. However, this concerns only basic information on small scale.

According to the head of CIMTROP, most of the problems with regard to local economic development are caused by wrong government policies. One of the examples is forest exploitation. He claims there has always been a homogeneous approach, with no focus on what already exists in individual areas. Every time a new program is introduced with a focus on a different agricultural discipline, people are afraid not to have a future if they do not follow the new discipline and abandon the old one. The head of CIMTROP, Suwido Limin, is born and raised himself in Bawan. At the moment he is planning to create a research centre with other well educated people originated from Bawan, to bring sustainable development. They already provide information to the farmers occasionally, but would like to do this more often. The plan is to create an event three times per year with music and education to involve and empower people in a nice way. The idea is to go back to basic. Use what is already there and do not focus only on one industry, because that makes people too dependent on price fluctuations. In the past all people had their own rice field for private consumption; this saves a lot of money and can easily be combined with the production of rubber. Suwido Limin feels it is the responsibility of the well-educated Dayak people to educate and develop other Dayaks, otherwise the already existing gap in development between Dayak and other ethnic groups becomes too large. The social entrepreneurship proposed by CIMTROP is best considered as the social constructionist type. The focus is on local concerns, but the solution offered could easily be expanded to other areas.

### **7.1.3. Community empowerment**

There is not a lot of direct help from the government to Bawan, only the single yearly meeting. The information level is low, not all farmers know about the provided education. The same argument holds for the general programs of the government to improve plantations, by providing seeds and credit. Also the initiatives from CIMTROP are not known by the people within the community of Bawan. Moreover, there is very little knowledge available with regard to the

production of rubber. Farmers only execute the basic steps. Some heard rumours about the negative consequences of using fertilisers or other kinds of chemicals, other just claim the use is too expensive, without knowing potential positive or negative influences. There are no proper communication channels available to exchange information between the community, governmental departments and the local university.

The accountability of stakeholders outside the community is hard to assess. However, based on the opinions and views of both people at community level and university staff members, governments and civil servants take barely any responsibility for problems in society. Also corruption issues in Indonesia in all layers of government departments suggest a low level of accountability with regard to behaviour, policies and actions that affect the wellbeing of citizens.

#### **7.1.4. Social capital**

Social interaction in terms of community activity is very basic in Bawan. Rubber farmers spend the majority of their free time home with their families. Moreover, they meet other village members during short casual conversations on the street, during church and other religious activities, and on weddings. Some farmers however, organise a small party every month for a fixed group of around 5 farmer's families and some other friends, after they have sold their harvest to the collector. During the party the attendants cook together and make conversation.

During regular days, most people spend their time within their houses. Some activities of social gathering have been reported; there is a small daily street market to buy cloths and other small accessories in the early evening, and an improvised infant welfare centre was organised where women and young children gathered to collect medicines, measured the growth of their babies and made conversation. Moreover, kids play regularly volleyball together on a field. Also during other social gatherings like weddings, there is considerably more interaction between women and kids than with and between men. Later on the party, a few men started having conversations consisting of brave hunting stories, whereas most other restricted to listening.

Trust levels of inhabitants of Bawan are low. Almost all farmers argue that the main reason for the lack of cooperation with their colleagues is the result of trust issues. During their working activities the only cooperation is with family, because those are considered to be the only ones that can be completely relied on. Although most farmers consider a great share of fellow farmers

and village members to be friends, it is stated explicitly that they cannot be fully trusted, especially with regard to money. Apart from the low levels of trust in other village members, also a low level in authorities is assessed. This holds true for all layers of government; from the village headman to the national government. While corruption issues in national government issues are widely known in Indonesia, some inhabitants suspect the same on lower and even village levels. Other inhabitants do not think the government at village level is corrupt, however, all people argue for a highly insufficient level of current support from all levels of government.

- Density of membership

Out of the 737 inhabitants, around 600 are member of the protestant church. The majority of the remaining people joined the other Christian church, named Pantekosta. Besides church membership, there are additional memberships of religious groups within the church. There is a men's group and a women's group. The men's group consists of 144 men, but their wives also join the meetings. The women's group consists of 179 members, which attend meetings without their husbands.

- Internal heterogeneity

Both the church and the group within the church are defined on the basis of religion, which reflects low religious heterogeneity. There is no age restriction for the groups. However, most citizens are middle aged to elderly people, consistent with the distribution in the village. Younger people often move out to Palangka Raya or other cities. In all groups except for the women's group, the gender of the attendants is mixed.

- Meeting attendance

Out of the 600 protestant church members, 200 attend every Sunday. From the 144 men in the additional religious group, 80 including their wives, attend the monthly meeting. Of the 179 women, 50 people attend the weekly meeting. The main reported reasons for people not to attend meetings are a too great distance and being too tired.

- Active participation in decision-making

Although all groups have a leader, when it comes to decision-making all votes count equally. The extra duty of the leader is to attend other meetings and learning activities outside the village and to share these experiences and newly gained ideas with the other group members.

- Payment of dues

The Christian groups that are part of the protestant community pay for the expenses of the church, and there are also weekly voluntarily collections. For the men's group the only dues are collections during the monthly meeting to pay for the consumed food and drinks. In the women's group there is a general membership fee for every member, which is 5000 IDR (€0.41) per year per person. This money is used for attending activities in other villages or for helping people when they are in need. Moreover, the women's group has collections for the people that attend the meetings, which are used to pay the priests and for organizing Christian parties like Christmas.

- Community orientation

The religious memberships are community initiated.



## **7.2. Complete report of findings Tumbang Jutuh**

### **7.2.1. Economic development**

Tumbang Jutuh is a village located more upstream along the same river as Bawan. In total there are 2229 people registered, however, a large share of these people live outside the village during the week. Normally, around 1200 people are present within Tumbang Jutuh. The size of the village is considerably bigger than Bawan. Besides a crowded main road, there are several smaller roads. Also substantially more shops and restaurants are present. Electricity is still scarce, and is therefore available only 6pm till 6am.

The main industry is the production of rubber. In total there are 1431 hectares of rubber, a regular plantation contains 1500 trees, covering 3 hectares of land. Nearly all plantations make use of a fixed planting system; 500 trees per hectare and 5 meters distance between 2 trees. The existence of a planting system is dependent on the creation date, after governmental education in 1993; all new plantations were established in this manner.

Consistent with Bawan, farmers tap their rubber trees every morning. However, there are considerably more farmers also tapping on Sundays. A major difference with Bawan is that most farmers collect their harvest every day, in a liquid form. Moreover, farmers make extensive use of chemicals. Besides the use of the fertiliser Urea, a type of oxygen is added to the latex to quicken the thickening process. While in some cases the use of chemicals seems to stimulate the output of latex compared to Bawan, this does not hold true in all observations. The whole process from tapping to storage takes place within one day. The end product is put on a pond, which is said to be both for traditional purposes and gaining additional weight.

In contrast to Bawan, farmers used to cooperate in groups. Officially state-recognised farmer groups are called Koperasies. The regional government suggested the establishment of these Koperasies. In the past, there were five Koperasies, each consisting of 20 to 25 members. Farmers within the Koperasi collectively saved money for improving their plantations, organising transportation of the harvest, and sharing knowledge. The management of the Koperasi consisted of a leader, a secretary and a treasurer. Most Koperasies only lasted for a few years. The main reason for failure was corruption by the management, collectively saved money disappeared and was taken for personal use by the management. There are examples of

Koperasies that claim to have functioned effectively, but stopped due to natural causes. Members moved out the village or died, and younger generations lacked the trust to step in. At the moment there is no official Koperasi anymore, but some farmers still have some cooperation with regard to transportation. They hire drivers they know and trust very well to transport the rubber to the processing company. Other farmers work together by transporting their harvest on the water, a very time consuming choice in comparison to transportation on the road and also not resulting in higher income. Furthermore, there is one large plantation of 100 hectares owned by one resourceful plantation owner who employs 70 workers. This plantation is clearly further developed; there are fixed working hours for 7 days per week, chemicals to fertilise and to remove grass around the trees are used and multiple trucks for transportation are owned. This plantation owner also collects from other farmers in the village.

Although rubber farmers in Tumbang Jutuh use chemicals and the ground in general is considered to be more fertile than in Bawan due to its more upstream location, this does not result in a higher selling price for farmers. Farmers that collectively hire a driver, receive 16000 IDR (€1.32) per kg from the processing company, but pay 2500 IDR (€0.21) to 3000 IDR (€0.25) per kg to the driver. Farmers that sell to collectors inside the village receive around 12000 IDR (€0.99) per kg. There is low motivation to obtain a higher price since there is a lot of rubber in this region and it is produced really quickly. Farmers are content with their current income and there are no competitive considerations.

Consistent with the situation in Bawan, no processing of the latex takes place by the farmers. They prefer to keep their life and job simple and also do not know which steps should be taken. Moreover, it is generally believed that selling processed rubber does not result in a better price, since there are no known buyers of processed rubber.

### **7.2.2. Social entrepreneurship**

Consistent with the government support in Bawan, one time per year a civil servant from Palangka Raya provides education by giving suggestions for improving quality (e.g. tapping from shadow side) and improving the quantity of the rubber production (i.e. fertiliser). Moreover, the government provides seeds after handing in group proposals. In 1993 many new plantations were created after a government program providing money, education and seeds. Before this period, the rubber price was low and most farmers focused on the cultivation of rice.

The government of the sub-district claims to have more spirit than in other sub-districts, but clear differences in support with other sub-districts cannot be provided. At local level, the village headman plays a mainly administrative role. The mission and vision are directly copied from the sub-district and regional government, and only used for election purposes.

There are no other parties known with programs aiming to stimulate the local economy. At least, the farmers, civil servants and other inhabitants are not aware of any planned or on-going initiatives. Therefore, Tumbang Jutuh is considered not to have individuals or institutions performing social entrepreneurship.

### **7.2.3. Community empowerment**

In comparison to Bawan, more farmers are aware about available government support. The village headman has good relationships with the village members. Although most people do not think he offers great support with regard to economic development, this does not affect their trust because of low expectations. Since Tumbang Jutuh is the capital village of the sub-district consisting of 21 villages, there is also a good relationship between both governmental departments and between the sub district and the village members. This results in better communication and better-informed inhabitants. However, since a thorough focus on the economic development is lacking, the same holds for the empowerment of the inhabitants in achieving that development. The most substantial form of empowerment is a program from the regional government in 1993 which educated farmers on how to best establish a plantation.

Also in this case it is hard to assess the actual accountability and responsibility of the stakeholders involved. However, own experiences in dealing with the relevant government departments suggest a large gap between promises and deeds, also suggesting low accountability of actual behaviour.

### **7.2.4. Social capital**

In and around Tumbang Jutuh, there is clearly more street activity than in Bawan. People are younger and the streets are filled with motorcycles and considerably more cars. There are spots where friends gather daily. However, most people, in particular farmers, prefer to spend almost all free time home with their family. Other associational groups besides church and related

religious groups do not exist. The only non-religious community activities result from small talk during daily life on the streets and occasional activities like wedding parties.

The findings with regard to trust are mixed. Some people believe that the amount of trust is diluting due to declining social interaction. Others argue people generally trust each other, with the exception of money related issues. One of the reasons for the lack of trust between farmers is the experienced corruption in former Koperasies. Generally it is believed that the regional government and the local village headman can be trusted, but barely any support is reported. There is a low level of expectations from the inhabitants when it comes to governmental support. Many farmers have experienced or know examples of criminality in Tumbang Jutuh. Since many farmers preserve their harvest on the river, thieves often misuse this opportunity to steal lumps of rubber overnight.

- Density of membership

Around 90% of the population is Christian, divided over 2 streams; 80% of the Christians are Protestant and the remaining 20% Pantekosta. Most of the remaining people are Muslim. Only a few people still practice the original Dayak religion, Hindu Kaharingan. The majority of the remaining people joined the Pantekosta stream. Within the Protestant religion there are 3 religious associations; for men, women, and children group. The main activity during the meetings is praying, but the men also clean the church collectively. Also within the Muslim religion there are 2 groups for praying, 1 for men and 1 for women. Other non-religious membership is not available.

- Internal heterogeneity

Again, all associational memberships are based on religion. There is a rough age distinction between kids and adults. Apart from the kids, also the genders are separated in the additional religious groups.

- Meeting attendance

Within the Christian population, 15 to 25% attends the Sunday meeting. Around 19% of the total church population attends the additional religious group, 60% of those attending are children. Within the Muslim population, everybody attends the Friday meeting. Of the 5 other daily

praying sessions, an average of 20% per session attends. The additional religious Muslim groups are attended by 40% of the population.

- Active participation in decision-making

Although all religious groups report a lack of hierarchy with regard to decision-making, it is difficult to assess this indicator with great reliability.

- Payment of dues

During all religious meeting, money is only gathered through voluntarily contributions. There are no fixed membership fees.

- Community orientation

All religious memberships are community initiated

### **7.3. Complete report of findings Tumbang Tahai**

#### **7.3.1. Economic development**

Tumbang Tahai is a village located 30 kilometers from Palangka Raya. The village covers a large area in comparison to the number of inhabitants. The total amount of inhabitants is 2006, of which 90% have an Islamic background. The other 10% is Christian. Nearly all Islamic people originally come from Java, whereas the Christian population originates from Kalimantan.

The agricultural is based on the cultivation of several vegetables, mainly tomatoes and long beans. All farmers are organised in farmer groups, both officially state-recognised Koperasies and unofficial Koperasies.

An overview of a successful official Koperasi is given. The Koperasi is called Harapan Jaya and was founded in 2004. In total there are 53 members, of whom 6 take care of the organisation, and thus represent the management. Besides a leader, a secretary and a treasurer, there are three watchers to ensure the management functions properly. The leader is not a farmer himself, but a civil servant whose main job is training farmers. Every three years the management changes. The duty of the Koperasi is saving and distributing money among its members. Knowledge transfer and collective transportation are not included at the moment. Besides an entrance fee of 225000 IDR (€18.62), there is a monthly fee of 26000 IDR (€2.15). By handing in group proposals at the regional government in Palangka Raya, a single grant of 50 million IDR (€4,137.86) is acquired. Members can borrow money from the Koperasi if for improving their plantations solving financial trouble. Repayments occur through monthly instalments with an interest rate of 10%. If a farmer cannot repay a monthly instalment, the first two months he only pays the interest. If the loan cannot be paid back after three months, no new loans can be taken. However, so far this problem has never occurred. There are no corruption issues as a result of close monitoring of all incoming and outgoing cash flows by the watchers. Moreover, all transactions taking place in a transparent setting; during the monthly gathering of the members.

According to the members, other Koperasies have failed due to inactive members. The attendance of the meetings is too low, therefore members do not see what happens to the money and get suspicious. The ingredients for a well-functioning Koperasi according to the members

are: learning from other successful Koperasies, creating a high level of interaction between members and discussing all topics extensively with the members.

The unofficial Koperasi uses a highly similar system. However, they do not have official watchers; all remaining members perform this role. Also the fees are lower, 150000 IDR (€12.41) entrance and 10000 IDR (€0.83) monthly fee. Handing a proposal to acquire extra money from the government is planned, but has not been executed. Since this cooperation is not state-recognised it is also not sure if a fund will be granted. The main differences between official and unofficial Koperasies are: there is no office, there are no salaries for the management, there is no official registration at the government and therefore they are also not assured of financial support.

### **7.3.2. Social entrepreneurship**

Civil servants from the sub-district have provided education and made suggestions to start a Koperasi. By showing examples of other Koperasies in the same sub-district, farmers were convinced of potential benefits. Besides money, the government provided also machines, tractors and seeds to the state-recognised Koperasi.

Besides the government, the community stakeholders report no other individuals or institutions supporting local economic activity. The sub district provided a substantial amount of support for this village, however, not enough information on this governmental department is available to assess the level and type of this social entrepreneurship with great precision.

### **7.3.3. Community empowerment**

Information flows between the government and the community are clearly higher in Tumbang Tahai than in other visited areas in Central Kalimantan. Inhabitants are familiar with the content and acquiring methods of governmental support. By working together, they also participate in the programs that are organised to stimulate agriculture and economic development.

The accountability of the stakeholders involved in the regional development has not been assessed with great precision. Since the same regional government is responsible for the villages in Central Kalimantan, also the outcomes on accountability are likely to be highly consistent. However, the sub-district that in this case stimulated the cooperation between farmers differs from Bawan and Tumbang Jutuh.

#### **7.3.4. Social capital**

Since the area of Tumbang Tahai is thinly spread with buildings (houses, shops, restaurants and other institutions), regular street interaction is low. However, there is a lot of organised social interaction. Farmers from Koperasies work together on building one member's house and others are helping with another member's wedding party preparations. Besides helping each other, inhabitants also work together regularly to keep the village clean. Within Koperasies there is a lot of interaction, but this is not the result of the successful professional cooperation. Before the Koperasies were founded, this interaction already took place. Working together and helping each other is said to be a tradition, and individuals claim they have no ego or arrogance that restrict them from doing so. Moreover, also social interaction through religious associations takes place.

People claim to trust each other because of their shared background and traditions. They borrow each other's machines and also watch over each other's children. Sharing money is also not an issue, since there are no known stories of corruption within Koperasies. Corruption is not believed to be possible, not even when somebody has dark motives, because of the monitoring role of other members. Some members argue to have been slightly suspicious in the beginning, but their concerns proved wrong. Effective functioning of Koperasies in nearby villages enhanced the trust and believes in the potential of this system. Furthermore, there are always more loan applications than money available, so there are no savings that can be stolen.

The trust in the government is good, but it is believed that more support is necessary. However, specific examples of needed support cannot be mentioned since the people are highly self-supporting. The village headman is not believed to provide any support and is hardly known by the population.

Different religious backgrounds do not cause tension within the community, for instance people from different religions celebrate religious holidays like Christmas collectively.

- Density of membership

Around 90% of the population is Muslim; the other 10% is Christian. Both religions organise additional religious meetings where members pray together. Besides these religious groups there is active participation of farmers in their professional Koperasies.



- Internal heterogeneity

Apart from the Koperasies, the other memberships are based on religion. The additional religious groups are also based on gender. The Koperasies are only based on occupation. In none of the memberships, age plays a role.

- Meeting attendance

All members of the Koperasies attend the monthly meeting. Furthermore, they meet regularly to help each other and work together. All religious meetings are attended by 30 to 40% of the members. Working duty and being tired are the main reasons for people not to attend.

- Active participation in decision-making

Although all associations report a lack of hierarchy with regard to decision-making, it is difficult to assess this indicator with great reliability.

- Payment of dues

During all religious meeting, money is only gathered through voluntarily contributions. There are no fixed membership fees. As described before, Koperasi members pay both entrance and monthly fees.

- Community orientation

All religious memberships are community initiated. The government suggested founding the Koperasies.

## **7.4. Complete report of findings Sungai Alang**

### **7.4.1. Economic development**

Sungai Alang is a small village located close to Banjarmasin, the capital city of South Kalimantan. The farmers within this village have a considerable amount of knowledge on the production of rubber. The small plantations are well maintained and organised, and new ones are being created. High quality seeds are selected for shortening the time between planting the seed and the first harvest. Also different fertilisers are used for enhancing the growth of the trees and afterwards increasing the production of latex.

In the past there was a Koperasi of farmers, but it did not survive the economic crises in the late 1990s. There were no issues of trust, and there is an intention to start a new Koperasi, but it is considered hard to establish one. However, there is a group of farmers informally sharing knowledge on the creation of plantations and production of rubber.

Most farmers have other businesses besides rubber, for example fishing and fruits. Some farmers are having high entrepreneurial qualities; they own multiple businesses, are trying to combine them and are always looking for new opportunities. An example is the combined cultivation of rubber and durian fruit.

There is no competition between farmers, especially not with regard to the cultivation of rubber since this is an old business with old roles and relationships between the people. In new businesses like fish and fruits, there is more competition.

There are two types of rubber farmers. The first type does both the tapping and collecting of the latex on one day, whereas the second type collects the latex only once in a few days. There is one purchaser in the village, which is a resourceful family owning a processing unit. In the first case, latex is supplied to the processing unit, which will be processed into rubber sheets on the same day. After 5 days in the smoke house, the rubber is ready to be sold. In the second case, lumps of rubber are bought and sold unprocessed. Whereas the sheets are sold to a middleman, the lumps go for processing to a rubber factory in Banjarmasin.

The purchasing family in Sungai Alang prefers the supply of fresh latex, since there can be achieved a much higher margin by own processing and the end product can be retained in order

to anticipate price fluctuations. However, this preference is not translated into the stimulation of farmers' supply. Fresh latex is purchased for 6000 IDR (€0.50) per kg and the price of rubber lumps 12000 IDR (€1.00) per kg. However, in the former case a substantial amount of water is added to the latex by the farmer before selling, therefore the net turnover for the farmer is more or less the same. The issue whether to sell latex or lump rubber is therefore hardly a financial one. It is considered to be primarily risk management versus discipline. Selling the harvest every day as latex eliminates the risk of theft, but means more work since collection needs to take place on daily basis.

#### **7.4.2. Social entrepreneurship**

The regional government provided money and seeds to build new plantations. The local university provides indirect help by sending researchers and participating in international research and development programs, where this research is an example of. However, no specific programs are available or planned for helping the farmers in Sungai Alang. There is high confidence in the farmers' own ability to stimulate economic development. Therefore, in reality, most entrepreneurial efforts come from people within the community themselves.

#### **7.4.3. Community empowerment**

There are proper information flows between government and the community in Sungai Alang, partially because of friendship and family relationships between important community members and government officials. Inhabitants know about the content of government programs and how to receive support.

The accountability of the stakeholders involved in the regional development does not become clear for the situation in Sungai Alang.

#### **7.4.4. Social capital**

Social interaction in Sungai Alang consists of monthly wedding parties where people talk cook and party together, attending funerals, cleaning the mosque, cleaning the streets collectively, attending religious meetings, people meeting in their breaks to eat and drink at small street stalls, and farmers' attending of group meetings.

The trust between people is good because of good social interaction and shared background. All people share the same Islamic religion, while 90% of the total population on Kalimantan is

Christian. The Islamic religion in this village is not the result of transmigration programs. Islam is religion of the original ethnic group in South Kalimantan, which is called Banjar. Only 5% of the population comes from Java, in Banjarmasin this percentage is around 40%. There are also good relations with civil servants, since the leader of the farmers' group has friends and family members among different government layers.

- Density of membership

All village members are Muslim. Besides the main religion, there are additional groups for men and women. There is also a group of farmers who share knowledge together.

- Internal heterogeneity

The Islamic associations are based on religion and the farmers group based on education. Farmers from different ages work together.

- Meeting attendance

The group of farmers have no fixed meetings. Occasionally, for example for advice or in case of issues, they gather at the leader's house. Information on the actual attendance of the additional religious groups is not available.

- Active participation in decision-making

Although all religious groups report a lack of hierarchy with regard to decision-making, it is difficult to assess this indicator with great reliability.

- Payment of dues

During all religious meeting, money is only gathered through voluntarily contributions. There are no fixed membership fees. Within the farmer's group, no monetary transactions are applicable.

- Community orientation

All religious memberships are community initiated. The same argument holds for the group of farmers.

## 7.5. Photo reports of field research

### 7.5.1. Photo report Bawan







School



School



Church



Restaurant



Hospital



Hospital



Street market



Street market





Shop rubber collector



Shop rubber collector



Child welfare center



Child welfare center



Kids playing volleybal



Motor parts shop



Pre wedding party



Pre wedding party









Rubber tapping



Rubber knife



Resting place



Latex



Latex



Latex



Storage pond



Latex



Plantation



Storage pond







Rubber collection pond



Latex



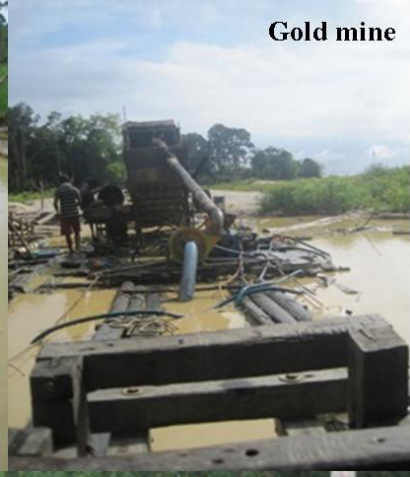
Access point gold mine



Gold mine



Gold miner



Gold mine



Gold mines



Gold mine



### 7.5.2. Photo report Tumbang Jutuh

Entrance Tumbang Jutuh



Street view



Street view



Street view



Social gathering

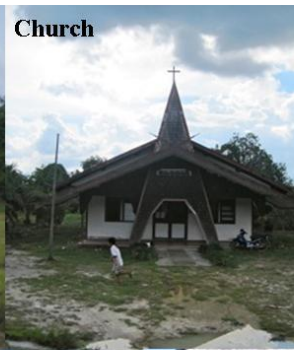


Rubber storage



Street view









Rubber plantation



Fertiliser



Fertiliser



Rubber storage



Rubber transportation



Rubber coagulation



River



### 7.5.3. Tumbang Tahai







Office official Koperasi



Collective house building



Social gathering



Shop





#### 7.5.4. Photo report Sungai Alang

Rubber tapping and collecting



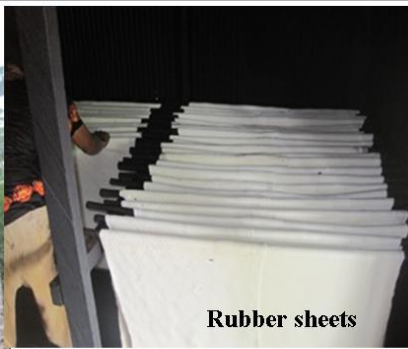








**Smoking house**



**Rubber sheets**



**Smoked rubber sheet**



**Rubber processing factory**



**Rolling mills**



**Smoked rubber sheets**





**Fishing business entrepreneurial farmer**



**Fishing businesses**



**Shop entrepreneurial farmer**



**Social gathering**



**Fishing businesses**



**House entrepreneurial farmer**



## 7.6. Example interview and observation report

**Respondent:** Pak Jono

**Date:** 19-09-2011 till 21-09-2011

### **Interview 19-09-2011 about former rubber Koperasies in Tumbang Jutung**

- What was the reason to start a cooperation of rubber farmers?

Suggested by the regional government.

- How did the cooperation work?

Rubber farmers put money together for transportation, improvements plantations and quality, etc. There was an organisation around it: leader, secretary and a third person.

- How successful was the cooperation?

It only lasted for 2 years, after that all the money was gone and the farmers did not trust the organization anymore. There was corruption by the caretakers of the cooperation.

- Is there no cooperation anymore at the moment?

There is no official Koperasi anymore, but some farmers still have some cooperation with regard to transportation. They hire drivers they know and trust very well to drive the rubber to Sangili, where an office is located from a rubber company in Sampit.

- How much do these farmers earn after selling their rubber?

They get around 16000 RP/kg, from which they keep around 13500, the rest goes to the driver. The ride is around 3 hours by pickup; max load is 3000 kg per pickup. There is a low motivation to get a higher price per kg since there is a lot of rubber in this region and it is produced really quickly.

- What is the difference in production methods with other regions?

Instead of the 3 days in Bawan, here it takes only 1 day to produce the entire rubber. To make the rubber compact, latex is put in a box and biological chemicals (oxygen) is added for speeding up the process.

- What kind of other processing takes place?

No further processing is done (e.g. smoking/cooking) for 2 reasons, there is no buyer for that kind of rubber and it takes a lot of extra work (a week) whereas they can produce and sell the rubber now within 1 day.

- How is the amount of trust between people in Tumbang Jutuh?

People do trust each other in the village, only not with money.

- Is there criminality within Tumbang Jutuh?

Rubber is stolen frequently from the river by thieves.

### **Observation and interview rubber plantation 20-09-2011**

Size plantation:	2 HA, 1000 trees
Organisation field:	4 meters distance between trees
Amount of workers:	2
Working hours:	Every day at 8AM, 6 hours of work
Process:	Collection of latex every day in liquid form
Quality improvement:	None, vinegar could be used but too expensive and no reward from buyer
Chemicals:	- Fertilizer (Urea) to increase quantity - Oxygen to speed up thickening process
Harvest:	20 KGs per day, 1.5 tons per month
Sales price:	16000 RP/kg to company, but driver also gets 2500-3000 per kg
Buyer:	Processing company directly, sells 1 time per 2 months (speeding up process just for shortage collection boxes)
Income satisfaction:	Enough, satisfied with current price level
Competition	No competition, farmers only care about having sufficient own income
Cooperation:	Transportation (see previous interview), also casual knowledge sharing with friends
Help government:	Meeting 1 time per year with servant from Palangka Raya; suggestions for improving quality (e.g. tapping from shadow side) and quantity (using chemicals)
Other help	No other help from outside.
Head of village	Enough help (friend), also civil servant sub district himself
After tapping process:	Small maintenance (e.g. cutting grass)
Use of rubber nuts	No use of rubber nuts, since quality for

	good seeding is too low
Knowledge former processing	Knows existence but not how it works

**Community interaction:**

- Most time is spend home with family
- Every Friday there is Muslim activity with around 100 people
- The only other organised community activity is weddings

**Additional questions 21-09-2011**

- How many Koperasi's did exist in Tumbang Jutuh?

5 koperasi's in total, none of them still exist now.

- What was the size of these koperasi's?

20-25 farmers per Koperasi

- Where there also good working Koperasi's that did not experience corruption?

Does not know about the good ones, one was working properly for around a year and then also became corrupt. The problem is often that the leader does not set a good example and also the caretakers are too lazy to interfere. However, the purpose of a Koperasi is good.