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**A study on intervention activities of external agents in forest dependent communities and their effects on livelihoods and the state of the forests in Northern Thailand**



Universiteit Utrecht



Master's Thesis

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Master's thesis

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## Preface

Dear reader,

June 25<sup>th</sup> 2017

Before you lies the product of over six months of hard work and dedication: my Master's thesis. By handing this in, I hope to have finished the research study Sustainable Development: Environmental Governance at Utrecht University and by that to receive my Master's degree. I was fortunate enough to stay in Northern Thailand for the greatest part of the thesis process. This would have never been possible without the help of other people, whom I would like to thank in this preface. First of all, I would like to thank my supervisor Frank van Laerhoven for already looking into a preliminary research proposal before the start of the process so that I could plan my internship and for having trust in me that I could make this work ever since that moment. Of course I would also like to thank him for his continuous support and feedback during our Skype-meetings throughout the whole period and for his enthusiasm for the subject that I have chosen. Also, I would like to thank Miguel Tenorio Tagle for giving me the opportunity to do this internship with Conserve Natural Forests and for his great hospitality during my stay. Next to that, I would like to thank Anchala Nimitmala, for being my best friend and my mom during my stay with the organization. Every day she took such good care of the interns and without her I could not have completed my data collection. She arranged the interviews and household surveys for me. Even though we had several setbacks in this process, she never gave up and always found a way. Also she helped me with all the translations for the interviews as well as the surveys. Together, Miguel and Anchala gave me a wonderful time with the organization that I would never forget. Furthermore, I would like to thank all interviewees and all villagers that participated in the household surveys for their time, their insights and giving me a glimpse of their lives in both villages. Of course, I would also like to thank my family for their support and trust in me that I could do this. Finally, I would like to thank my Thai partner Q, whom I met during my stay in Thailand for his continuous love, support and trust in me. I would like to conclude by saying that I have really enjoyed conducting this research, and that I would like to thank everyone that I mentioned above one more time for making this possible for me.

I hope you will enjoy reading my thesis,

Lenore Sturm, Schelluinen

## Summary

Studies on the commons have mostly been focusing on how communities themselves can overcome collective action dilemmas, but a lot of communities still find it difficult to effectively self-govern their commons without external intervention. External actors have been trying to help forest dependent communities through intervention activities for decades to manage their forests sustainably and help create institutions to do so. These interventions could have potential to effectively assist forest dependent communities who are not yet able to self-govern their forest. However, there are no convincing studies yet that show that these external actors contribute to a significant improvement to the forest as well as the livelihoods of these communities. It is not certain what the best approach for external actors would be, as it has been proven difficult to design interventions that are both trying to improve biodiversity conservation as well as improving livelihoods of forest dependent communities. Therefore, the objective is to make recommendations to external actors on how to improve such intervention designs. To achieve this, an analytical, practice-oriented research is conducted in which a comparison is made between two forest dependent communities in Northern Thailand of which only one has received external intervention. A qualitative approach is chosen in which interviews and household surveys are conducted on site. In the analysis, the livelihood portfolios and the ability to deal with collective action dilemmas are studied, as well as which institutions are present and which activities of the external actor are directed at these. To be able to get a nuanced understanding of these complex and dynamic interrelationships, an integrated analytical framework is tested which has proven rather useful for the purpose of this research. The findings of this research confirm what is already stated in the current literature as this is yet another example that shows that external intervention did not bring any significant change or improvement. In other words, it is again not clear if, how, and to what extent external actors can actually make a difference. This study is highly relevant as it contributes to the existing literature and debates, by clarifying the used approach in this case, to what extent it works or not, and what would be advised to do differently in order to become more effective. Together this contributes to accumulating knowledge in order to improve interventions designs for external actors.

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# 1. Introduction

## 1.1 Problem description & background

### **Problem description**

Forests cover 31% of the world's land area, but are declining at an alarming rate. Each year, an area with the size of Panama is lost due to deforestation (UNDP, 2016). Rainforests could even completely disappear within a century if deforestation would continue at its current rate (National Geographic, s.a.). These deforestation rates form a serious threat to the livelihoods of 1.6 billion people who depend on forests as they offer shelter, clothing, medicine, and food and fresh water to them (IUCN, 2016; WWF, 2016; Australian Forestry Standard, s.a.). NGOs and other external actors have been trying to help forest dependent communities through intervention activities for decades to manage their forests sustainably and help create institutions to do so (Barnes & Van Laerhoven, 2015). These interventions could have potential to effectively assist forest dependent communities who are not yet able to self-govern their forest (Van Laerhoven & Barnes, 2014; Barnes & Van Laerhoven, 2015). However, there are no convincing studies yet that show that these external actors contribute to a significant improvement to the forest as well as the livelihoods of these communities. Next to that, the external actors themselves also lack in keeping a good and transparent track record regarding (the success of) their interventions (Wright & Andersson, 2013). It is thus unclear if and to what extent they actually can make a difference and what the best approach would be for them to intervene. This research aims to contribute to clarifying this issue.

### **Background**

The disappearance of forests can be framed as an example of a tragedy of the commons. A commons can be broadly defined as "natural or human-made resource systems that are or that could be enjoyed collectively (Van Laerhoven & Barnes, 2014, p. i120)". Intimately related to that are common pool resources (CPR), which refer to resources that produce rivalrous goods from which others cannot be easily excluded (Gardner *et al.*, 1990). A community forest owned and exploited by a group of people is an example of a CPR. According to Hardin (1968) CPRs will go to waste if they are left to be governed by communities and this will result in a tragedy of the commons. He came up with two solutions to stay clear of this tragedy, of which the first is privatization. The second option he proposed is regulation by an external authority like the government (Hardin, 1968). His work has been very influential in dealing with commons as many policy interventions have consisted of either privatization or regulation of CPRs such as forests (Van Laerhoven & Barnes, 2014).

However, Ostrom and Walker (2000) and Ostrom (1990; 2010) question that these two options are the only solution to avoid a tragedy of the commons. Half a century after Hardin's work came out, many scholars and practitioners agree after many empirical observations that communities can actually be very effective in governing a commons, challenging Hardin's claim that communities are not able to do so (Ostrom, 1990; Berge & Van Laerhoven, 2011; Van Laerhoven & Berge, 2011). Furthermore, according to Andersson and Van Laerhoven (2007), and Andersson *et al.* (2009), there is still a lot of room for solutions that include community participation and decentralization in order to sustainably govern a commons. Nowadays, people and communities are not necessarily seen anymore as the cause of resource collapse, but rather as potential participants in solution strategies (Agrawal & Gibson, 1999). However, in order for a community to sustainably govern a commons, it is necessary that they overcome collective action dilemmas within the community (Olson, 1965). Therefore, as a strategy to avoid a tragedy of the commons, communities should invest in institutions for collective action. Evidence has shown that community-led institutions often even deal better with collective action dilemmas to stay clear of resource collapse than would be the case with privatization or nationalization (Porter-Bolland *et al.*, 2012; Berge & Van Laerhoven, 2011).

Already in 1990, Ostrom developed design principles for robust forest institutions, which are still relevant nowadays. Other CPR literature has built on the work of Ostrom (1990) and much is known now about the circumstances under which these forest institutions can be developed, as well as about the key factors for successfully governing the commons (Agrawal, 2001; Pagdee *et al.*, 2006; Cox *et al.*, 2010; Agrawal, 2014). One of the next steps would be to find out more about how external actors can intervene in community forestry to support communities in developing these institutions, as it is not yet clear how they can intervene successfully. It must be noted however, that when external actors focus almost

exclusively on forest institutions, this could undermine other goals regarding the improvement of people's livelihoods. Very frequently there is a tension between directing external intervention either at forest conditions, or at livelihoods improvement (Barnes & Van Laerhoven, 2016). For this reason, this study looks at both.

## 1.2 Research objective and central research question

An analytical, practice-oriented research is conducted. The research objective is to make recommendations to the NGO "Conserve Natural Forests" and similar external actors on how to improve intervention designs by external actors that support forest dependent communities in improving biodiversity conservation as well as improving their livelihoods. The research aims to achieve this by making an assessment of two forest dependent communities in Northern Thailand of which one has been receiving interventions from an external agent and one has not. In section 3 it is explained why Northern Thailand is chosen as the research area. Studying these two cases could make a valuable contribution to understanding the added value of the intervention activities of external actors on forest communities in reaching sustainable forest management. To achieve this objective, the following research question will be answered:

*How can external actors support local communities in Northern Thailand to solve collective action dilemmas, in order for them to achieve both livelihood- and forest condition improvements?*

The sub questions will be brought forward in chapter 2 after going through the relevant theories.

## 1.3 Relevance

### **Societal relevance**

Studies on the commons have mostly been focusing on self-governance, in other words how communities themselves can overcome collective action dilemmas. Less attention has been given to external actor intervention and how these actors can help communities to overcome these dilemmas (Van Laerhoven & Barnes, 2014). This is however relevant to study, as a lot of communities still find it difficult to effectively self-govern their commons without external support or intervention, despite the fact that there are many cases where communities have shown to be able to effectively and sustainably do so (Ostrom, 1990; Berge & Van Laerhoven, 2011; Van Laerhoven & Berge, 2011). Next to that, it is not certain what the best approach for external actors would be to intervene in community forestry. The reason for this, is that it has been proven difficult to design external agent interventions, that are both trying to improve biodiversity conservation as well as improving livelihoods of forest dependent communities (Gibson *et al.*, 2005; Bauch *et al.*, 2014). It is therefore socially relevant to study how to improve intervention designs of external agents.

### **Scientific relevance**

There is a multitude of studies written already about the causes of deforestation in general as well as specifically in Thailand (Sato, 2000; Geist & Lambin, 2002; Johnson & Forsyth, 2002; Roth, 2004; Yasmi *et al.*, 2010; Hares, 2009; DeFries *et al.*, 2010; Dhialulhaq *et al.*, 2014; Leblond, 2014; FAO & RECOFTC, 2016). There are also multiple studies about conflicts and conflict management in forests, again both in general as well as in Thailand (Sato, 2000; Castro & Nielsen, 2001; Johnson & Forsyth, 2002; Roth, 2004; Roth, 2008; Hares, 2009; Yasmi *et al.*, 2010; RECOFTC, 2013). Next to that, there are several extensive studies on the role of institutions in forest management (Agrawal & Gibson, 1999; Ghatge & Nagendra, 2005; Poteete & Ostrom, 2004). Furthermore, there is a great amount of literature on governing the commons, of which Berge and Van Laerhoven (2011) give a clear overview. Also, there are a lot of studies on community forest management in varying countries (Arora, 1994; Amornsanguansin & Routray, 1998; Ellis & Porter-Bolland, 2008; Gomontean *et al.*, 2008; Tole, 2010; RECOFTC, 2013). Finally, there are a few studies on the role of external agents like NGOs in forest management (Duthy & Bolo-Duthy, 2003; Ito *et al.*, 2005; Barnes & Laerhoven, 2014). Not much literature is written on the added value of external agents trying to support forest dependent communities in improving forest conditions as well as their livelihoods at the same time. However, Barnes & Van Laerhoven (2016) constructed an integrated framework in their research to study this. In this thesis, the same framework is tested as it only has been used once before. It is therefore scientifically relevant to establish its applicability. Another goal with regard to scientific relevance is to contribute to the existing literature and debates on the role of external agents in environmental governance and their role in CPRs such as forests (Bebbington *et al.*, 2007; Edwards, 2009; Mansuri & Rao, 2013; Wright & Andersson, 2013). The findings of this research won't be fully generalizable, because it is an in depth case study



specifically dealing with this issue in Northern Thailand. The findings can however be used in cases with a comparable situation.

#### 1.4 Reading guide

In chapter 2 the relevant theories for this research are discussed, which then results in an integrated analytical framework and four sub questions to answer the central research question. In chapter 3 it is explained and justified which methods are used for this research. Chapter 4 contains the findings of this research in which the sub questions are answered. Finally, chapter 5 entails a conclusion, discussion, and recommendations in which the findings are interpreted and the central research question is answered.

## 2. Theoretical Framework

In this chapter the relevant concepts and theories necessary for this research are discussed. First, the concept of community forestry and its importance is discussed. Second, it is shortly explained what sustainable forest management entails. Third, the problem of collective action dilemmas and how communities can overcome them by investing in institutions are brought forward. After this, the importance of looking through both CPR lens as well as a Sustainable Livelihoods Approach (SLA) lens is explained. It is furthermore explained which approaches to institutional change an external actor can choose. The aforementioned together leads to an Integrated Framework which will be used in this research. The chapter concludes with the formulation of the sub questions necessary for answering the central research question, which follow logically from the theories discussed.

### 2.1 Community Forestry

As many communities live in and depend on forests, it is of importance that these people are involved in reforestation and conservation practices. They know the forests well, and because they are depending on them for their livelihoods, it is assumed that they have great incentive to sustain them (Wily & Mbaya, 2001; Larson, 2004; Shrestha & McManus, 2007; Maryudi *et al.*, 2012; Baynes *et al.*, 2015; FAO & RECOFTC, 2016). Many forest communities possess local ecological knowledge of their surrounding forests, and have conventional institutions for managing their forests, which has led to instrumental examples of sustainable forest management (Clay, 1988; Posey & Balée, 1989; Redford & Padoch, 1992; Colfer *et al.*, 1997). This local or indigenous knowledge might even be indispensable to the success of reforestation and conservation projects (Tendler 1975; Howes & Chambers, 1979; Richards, 1985; Jagannathan, 1987; Ostrom *et al.*, 1993; Arora, 1994; Agrawal & Gibson, 1999; Roth, 2004).

Increased community participation in forest management is becoming more important and has developed in response to concerns that centralized forest ownership has been unable to promote sustainable forest management in developing countries (Sunderlin, 2006; FAO, 2010; Casse & Milhøj 2011; Maryudi *et al.*, 2012; Baynes *et al.*, 2015). Therefore, it has become a broad approach worldwide to make a shift from state-managed forestry to increased community participation and decentralization in order to combat forest degradation (Bixler, 2014; Baynes *et al.*, 2015). Charnley and Poe (2007) state however that - even though community forestry can be seen as a feasible strategy to improve forest conservation and restoration, as well as development of local communities – the shift of forest management authority from states to communities often has been disappointing. According to Pardo (1995), a key factor to overcome this problem, is to have a clearly identifiable community to which this forest management authority can be delegated. In this research, the most commonly used definition of the term “community” will be used, which is that it is “place based and geographically delineated, with local institutions functioning as the interface between community members and the state in forest management (Charnley & Poe, 2007, p. 313)”.

To conclude this paragraph, there are many definitions and terms for community forestry and when used in practice it can take on many forms (Glasmeier & Farrigan, 2005). In this research the following definition will be used: “community forestry refers to forest management that has ecological sustainability and local community benefits as central goals, with some degree of responsibility and authority for forest management formally vested in the community (Charnley & Poe, 2007, p. 301)”.

### 2.2 Sustainable Forest Management

When communities want to effectively govern their commons, it is important that they manage their forests sustainably. The United Nations General Assembly defines sustainable forest management (SFM) as follows: “it is a dynamic and evolving concept, which aims to maintain and enhance the economic, social and environmental values of all types of forests, for the benefit of present and future generations (FAO, 2016)”. By maintaining the full range of these economic, social and environmental values, SFM contributes to livelihoods, income generation and employment, as well as contributing to ecosystem services (Australian Forestry Standard, s.a.; Grumbine, 1994; Slocombe, 1998; Gomontean

*et al.*, 2008; Hickey, 2008; Groselj *et al.*, 2016). There are scientists who state that biodiversity can only be conserved without humans using the forest (Oates, 1999; Terborgh, 1999). But, CPRs such as forests have always been and will always be used by humans as they are complex spaces where multiple interests meet, such as conservation goals as well as the livelihoods of local communities and the rural poor (Sunderlin *et al.*, 2005; Agrawal, 2007). SFM is therefore aimed at striking a balance between these different interests. This balance is crucial for the survival of forests and the livelihoods of forest-dependent communities (Robinson & Redford, 1991; Elkington, 1997; McDonald & Lane, 2004; Gomontean *et al.*, 2008). For this reason, it is relevant to improve intervention designs that focus on biodiversity conservation as well as improving livelihoods of forest dependent communities instead of focusing on only one of them (Gibson *et al.*, 2005; Bauch *et al.*, 2014).

### 2.3 Collective action dilemmas

As came forward in the introduction, many scholars and practitioners agree after numerous empirical observations that communities can be very effective in governing their commons (Ostrom, 1990; Berge & Van Laerhoven, 2011; Van Laerhoven & Berge, 2011). However, in order for a community to do so, it is necessary that they overcome certain collective action dilemmas within the community (Olson, 1965). Evidence has shown though that community-led institutions often even deal better with collective action dilemmas to stay clear of resource collapse than would be the case with privatization or nationalization (Porter-Bolland *et al.*, 2012; Berge & Van Laerhoven, 2011). The two most important collective action dilemmas within a community that is trying to self-govern their commons, have to do with appropriation and provision (A&P) problems. Firstly, provision problems emerge “when the costs of providing a common public good (..) are private while the benefits are shared (Van Laerhoven & Barnes, 2014 p. i123)”. Secondly, appropriation problems emerge “when benefits from harvesting resource units are private while costs are shared (Van Laerhoven & Barnes, 2014 p. i123)”. Thus the issue with collective action dilemmas, is that the benefits associated with pursuing a collective goal, cannot be made exclusive (Olson, 1965). The risks that are accompanied with this can result in appropriation and provision problems. Therefore it is essential that communities try to overcome these dilemmas in order to effectively and sustainably self-govern their commons (Van Laerhoven & Barnes, 2014).

### 2.4 Institutions in a CPR context

An important strategy for communities to overcome collective action dilemmas is to develop forest institutions. Such institutions could cause individuals within a community to invest in their CPR instead of overharvesting as these institutions can neutralize the risks and triggers that individuals experience when confronted with appropriation and provision dilemmas. A reason for this neutralization is that institutions can create trust and norms of reciprocity in a community, which are necessary for collective action (Cox *et al.*, 2010). CPR scholars even argue that forest institutions are a requirement for the prevention of appropriation and provision dilemmas (Barnes & Van Laerhoven, 2016). Next to that, the existing CPR literature shows that communities who develop proper forest institutions, are better able to deal with these dilemmas (Gardner *et al.*, 1990; Dietz *et al.*, 2003). The following definition of an institution is used in this research: “the prescriptions that humans use to organize all forms of repetitive and structured interactions (Ostrom, 2005, p.3)”.

According to Gibson *et al.*, (2005), proper forest institutions are important for individual forest users, in order for them to trust that other forest users are putting in the same effort for maintenance and are also not overharvesting. Cox *et al.* (2010) explains that collective action dilemmas can be overcome if these institutions are built on trust, communication, and mutual norms. They also explain that these institutions should take into account and fit the local conditions of a community. Furthermore, Dietz *et al.* (2003) state that the structure of appropriation and provision dilemmas changes over time and that it is therefore necessary that the institutions develop over time as well.

It is for these reasons that community-led forest institutions -and how to deal with collective action dilemmas- play a central role in the existing CPR literature (Westermann *et al.*, 2005; Agrawal, 2007). Already in 1990, Ostrom developed design principles for robust forest institutions, which are still relevant nowadays. Other CPR literature has built on the work of Ostrom (1990) and much is known now about

the circumstances under which these forest institutions can be developed, as well as about the key factors for successfully governing the commons (Agrawal, 2001; Pagdee *et al.*, 2006; Cox *et al.*, 2010; Agrawal, 2014). One of the next steps would be to find out more about how external actors can intervene in community forestry to support communities in developing these forest institutions, as it is not yet clear how they can intervene successfully. This study attempts to contribute to this.

It must be noted however, that when external actors focus almost exclusively on forest institutions, this could undermine other goals regarding the improvement of people's livelihoods. Very frequently there is a tension between directing external intervention either at forest conditions, or at livelihoods improvement. This will be further elaborated on in section 2.7 in which the Sustainable Livelihoods Approach is discussed. Section 2.8 explains why a combination of both approaches is necessary.

## 2.5 Intervention activities towards institutions

It is established in the former sections that appropriation and provision dilemmas can lead to a tragedy of the commons and that developing institutions within a community can be used as a strategy to overcome these dilemmas. To help communities develop such institutions, external actors can use different intervention activities to do so. A distinction can be made between three different intervention activities, namely: activities directed at forest institutions, activities directed at service provision, and activities directed at community institutions (Barnes & Van Laerhoven, 2016).

First of all, examples of activities directed at forest institutions consist of informing the community about government policies and going over institutional aspects. This type of activities focus on stimulating durable collective action and can be categorized into the development of community capacities, as well as developing relations with external institutions (Barnes & Van Laerhoven, 2015). Another activity of this type done by external actors consist of engaging the community to participate in forming user associations in order to create rules about using the forest (Pretty & Ward, 2001). Thin & Van Gardingen (2004) explain that these activities could create short- as well as long term incentives for communities, if they are combined with providing complementary technical knowledge.

Secondly, activities directed at service provision are aimed at for instance the provision of knowledge, resources, and technology in order to stimulate either one or more of the five livelihood capitals, or a livelihood strategy, or both (Berkes, 2007). These livelihood capitals and -strategies are explained and elaborated upon in the next paragraph (Sustainable Livelihoods Approach).

Thirdly, activities directed at community institutions could help making participation in service provision more equally distributed. They could also help in distributing and sustaining the benefits of participation more widely across the community (Mansuri & Rao, 2013; Ingram *et al.*, 2015). Bebbington & Perreault (1999) state that in order for all individuals within the community to access the five capitals, there should be a bigger focus on the support of institutional reconfiguration. Edwards (1999) and Scoones (1998) claim that this would lead to more effective and efficient interventions by external actors. This does however require a long-term multidimensional approach (Berkes, 2007; Hulme, 2000; Westermann *et al.*, 2005). For this reason, Thin & Van Gardener (2004) explain that it is of importance that external actors combine service provision activities with activities for institutions from the start of the intervention.

## 2.6 Motivation and approaches to institutional change

The actual intervention activities that an external actor chooses to carry out are influenced by their motivation to intervene in a community and their approach to institutional change. There are several approaches which an external actor can choose to use. Barnes & Van Laerhoven (2016) created a table with four archetypical approaches towards institutional change, which are based on interventions towards forest institutions as well as community institutions. When the institutional change is led by the external actor itself it is deemed an objective approach, and when the community itself leads the change it can be seen as a subjective approach. Next to that, a distinction can be made between institutional crafting in which the external actor focuses on the agency of the villagers to bring about change, and institutional design in which the external actor determines the rules. An overview including examples of application is displayed in the table (1) below.

Table 1: Archetypical approaches to institutional change (Barnes & Van Laerhoven, 2016, p. 8)

Approach to institutional change	Description	Examples of application	
		Forest institution (CPR)	Community institutions (SLA)
<b>Objective institutional design</b>	Generic approach driven by external actor and applied to create rules	Forest use rules determined by external actor	Quotas for minorities to participate in committees/ trainings set by external actor
<b>Objective institutional crafting</b>	Generic approach driven by external actor and applied to empower forest users	Application of participatory appraisal techniques with a focus on forest use	Application of participatory appraisal techniques to develop interest areas of minority groups/ change status quo institutions
<b>Subjective institutional design</b>	Community engages in reflective dialogue process promoted by external actor to discuss rules	Facilitation of discussions on forest rules	Facilitation of discussions on committee/ training minority participation rules
<b>Subjective institutional crafting</b>	Community engages in reflective dialogue process promoted by external actor to empower forest users	Exposure visits to successful forest dependent communities	Discussions and support of minority groups according to their interests (e.g. women self-help groups)

## 2.7 Sustainable Livelihoods Approach

Next to the CPR literature, there is an abundance of SLA literature on this subject. Whereas the interventions that support the development of forest institutions are looked at through a CPR lens (Wright & Andersson, 2013; Barnes & Van Laerhoven, 2014), the SLA literature aims at interventions that improve the livelihoods of forest communities (Berkes, 2007). SLA has been widely used in development thinking for around two decades (Chambers & Conway, 1992, Scoones, 2009), and has been rather influential in studies on livelihood interventions in forests. The SLA lens focuses on more than just the economic aspects of livelihood development as opposed to former approaches and in that way aims to be more holistic (Scoones, 2009). In SLA livelihoods consist of two elements. Firstly, the approach looks at the five different capitals that communities or households can access (Chambers & Conway, 1992; Scoones, 2009). These five capitals are defined by Serrat (2010, p. 2) as follows:

**1. Human capital:** e.g. health, nutrition, education, knowledge and skills, capacity to work, capacity to adapt.

**2. Social capital:** e.g. networks and connections (patronage, neighbourhoods, kinship), relations of trust and mutual understanding and support, formal and informal groups, shared values and behaviors, common rules and sanctions, collective representation, mechanisms for participation in decision-making, leadership.

**3. Natural capital:** e.g. land and produce, water and aquatic resources, trees and forest products, wildlife, wild foods and fibers, biodiversity, environmental services.

**4. Physical capital,** e.g. infrastructure (transport, roads, vehicles, secure shelter and buildings, water supply and sanitation, energy, communications), tools and technology (tools and equipment for production, seed, fertilizer, pesticides, traditional technology).

**5. Financial capital:** e.g. savings, credit and debt (formal, informal), remittances, pensions, wages.”

Secondly, next to the capitals, the approach studies the strategies that communities can apply in order to improve their livelihoods (Chambers & Conway, 1992; Scoones, 2009; Serrat, 2010). According to Scoones (2009), strategies can be seen as a complex bricolage of activities. In a forest context, examples of strategies consist of cultivation and market based collective action (Ingram *et al.*, 2015). Most literature suggests that strategies are mostly economic decisions. Bebbington (1999) explains however, that strategies not only consist of such instrumental action (i.e. making a living). He states that other types of strategies which are also of importance in this context, consist of hermeneutic action (i.e. making living meaningful), and emancipatory action (i.e. challenging the structures under which one makes a living).

To conclude, the SLA helps to improve our understanding of the livelihoods of poor communities and can be used to assess the contribution that certain activities of for instance external actors have made to sustain or improve these livelihoods (Serrat, 2010). However, collective action dilemmas have often been overlooked in this approach, which brings us to the next section (Ingram *et al.*, 2015; Thin & Van Gardingen, 2004).

### 2.8 Integrated Framework

Barnes & Van Laerhoven (2016) explain that most studies look either through a CPR lens or through a Sustainable Livelihoods Approach (SLA) lens. Even though they are both important, separately these approaches give an incomplete representation of the complex situation and they could easily overlook relevant aspects and their interplay. By putting them together, they state that a much more nuanced understanding of intervention approaches, activities and outcomes in community forestry can be gained (Barnes & Van Laerhoven, 2016). For this reason, they constructed an integrated framework that uses aspects from CPR as well as SLA literature, by means of which intervention approaches, activities and outcomes in community forestry can be analyzed. By using this framework, the ability to critically research external agent interventions could be improved, which in turn could lead to an improvement in intervention designs by external agents. The integrated analytical framework is shown in figure 1 and is also used in this research.

The different aspects of the framework should be read as follows: The *outcome* variable is defined as “sustainable livelihoods in a CPR context”, consisting of two elements which are interlinked in both directions, namely: a community’s ability to deal with appropriation and provision dilemmas, and its livelihoods portfolio. The *output* variable entails the choice of intervention activities that could change the outcome variable. Lastly, the *input* variable contains the motivation of external actors and their approach to institutional change, which in turn determines the *output* variable.

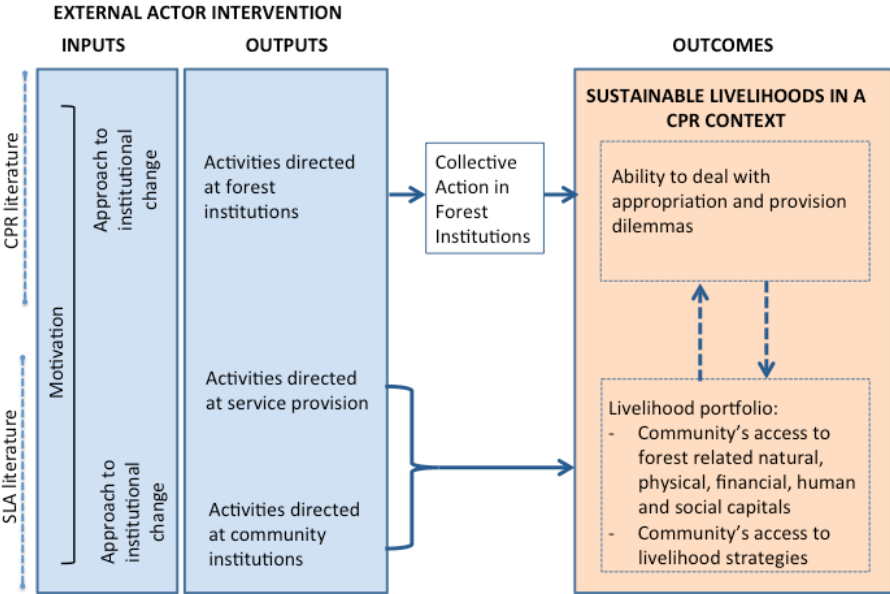


Figure 1: Integrated Analytical Framework (Barnes & Van Laerhoven, 2016)

## 2.9 Central research question and sub questions

In order to obtain sufficient knowledge to reach the research objective, the following research question and its subsequent sub questions are drafted, following logically from the discussed theories. As will become clear in the case selection in the methods section, the research area is the sub district Wat Chan in Northern Thailand. For this reason, the questions below are specified to this region.

### **Research question**

*How can external actors support local communities in Northern Thailand to solve collective action dilemmas, in order for them to achieve both livelihood- and forest condition improvements?*

### **Sub questions**

1. To what extent do external interventions add to the ability of forest dependent communities to deal with appropriation and provision dilemmas in the sub district Wat Chan, Northern Thailand? (*outcome*)
2. To what extent do external interventions add to the improvement of the livelihoods portfolio of forest dependent communities in the sub district Wat Chan, Northern Thailand? (*outcome*)
3. Which external intervention activities are directed at institutions and to what extent do these activities add to the institutions present in forest dependent communities in the sub district Wat Chan, Northern Thailand? (*output*)
4. What are the motivations for intervention and what is the approach to institutions of the Royal Project Wat Chan, Northern Thailand? (*input*)

### 3. Methods

#### 3.1 Case and sample selection strategy

This research aims to give specific recommendations to Conserve Natural Forests and similar external agents on how to improve intervention designs by external agents that support forest dependent communities in improving biodiversity conservation as well as improving their livelihoods. For these external agents to be able to apply such recommendations, in depth findings rather than broad findings are necessary. Therefore, a practice-oriented qualitative empirical research is conducted in the form of a comparative case study, using the hierarchic method. First two separate forest-dependent communities are studied to collect in depth data per case. In the second stage, the aim is to find similarities and differences between the two cases that have emerged from the first stage. Below it is justified why Thailand is chosen and which two cases are studied.

##### 3.1.1 Thailand

This section discusses why Thailand is a relevant area to study for this research. Until the 1930s over 70% of Thailand’s area was covered with forests and in 1960 it was still over 50% (Delang, 2002). In 1998 there was only 25% left. Even though it varies each year, on average the deforestation rate in Thailand was over 3 percent annually between 1961 and 2004 (FAO & RECOFTC, 2016). In the 1990s, Thailand even had the highest rate of deforestation in Southeast Asia. By 2008 forest cover had slightly increased again to a total of 33% of the land area due to intensive reforestation efforts (Royal Forest Department, 2011). Deforestation has taken place in the entire country, though with different intensities between its regions. The Eastern and Northeastern regions have seen the most severe deforestation, as they roughly lost half of their forests between 1973 and 2008 (Royal Forest Department, 2011; FAO & RECOFTC, 2016).

A great amount of inhabitants and animals is affected by deforestation in Thailand, as there are over 9000 villages and 1715 species that are supported by the Thai forests (Gershkovich, 2014). It is often the communities from these villages who are blamed for deforestation in Thailand, because they are practitioners of shifting cultivation. These minority groups have been accused by inter alia the Royal Forest Department (RFD), NGOs, academics, the media, and politicians (Kleinman *et al.*, 1995; Hongladarom, 2000; Delang, 2002). It is however outdated to blame solely these practices for deforestation. Shifting cultivation is even considered a relatively sustainable means of forest agriculture as opposed to permanent and commercial agriculture as it does not depend on outside inputs based on fossil energy for fertilizers, pesticides and irrigation (Kidd & Pimentel, 1992; Kleinman *et al.*, 1995; Fox, 2000).

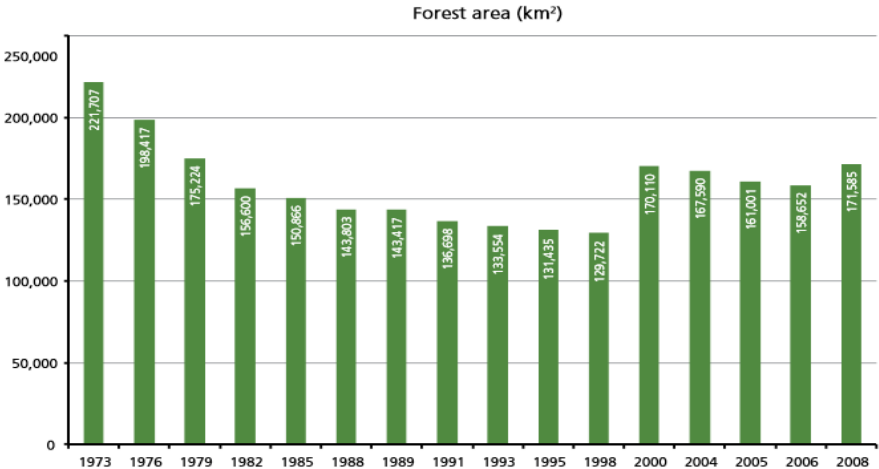


Figure 2: Forest cover in Thailand from 1961 to 2008 (Royal Forest Department, 2011).

If shifting cultivation has not been the sole driver of the loss of Thai forests, then what has been? Deforestation in Thailand has been caused by a highly complex range of factors and a large number of



groups in the last century. Among these factors are: colonization of the periphery, highland colonization, (illegal) logging, communism and road construction, failure of law and enforcement, economic development policies supporting extensive development of cash crop farming, market failure due to undervaluing of forests, and reclassification of forest areas by the government without recognition of forest dwellers rights. Also the failure of offering clear tenure rights to forest communities has led to many conflicts, resulting in an escalation of deforestation (Sato, 2000; Johnson & Forsyth, 2002; Roth, 2004; Yasmi *et al.*, 2010; Hares, 2009; Dhiaulhaq *et al.*, 2014; Leblond, 2014; FAO & RECOFTC, 2016).

Thailand's history of state-managed forestry has not solved the issue, as a high amount of deforestation has still happened since the government tried to halt it. Many of these state-managed forest projects were and are not working because of the aforementioned complexities and conflicts in Thai forests (Amornsanguansin & Routray, 1998; Gershkovich, 2014). Delang (2002) explains that the solutions provided by the Thai government are not addressing the actual causes of deforestation, because it has a misunderstanding of what the causes of Thai deforestation are. Their efforts have therefore often been counterproductive.

Another important issue is that the reforestation practices of the Thai government have often been conflicting with the livelihoods of many forest-dependent communities (Amornsanguansin & Routray, 1998; RECOFTC, 2013). With at least 5 million people living in and depending on the Thai forests, it is of importance that these communities are involved in reforestation and conservation practices. Increased community participation in forest management is becoming more important and has developed in response to concerns that centralized forest ownership has been unable to promote sustainable forest management in developing countries (Sunderlin, 2006; FAO, 2010; Casse & Milhoj, 2011; Maryudi *et al.*, 2012; Baynes *et al.*, 2015). Therefore, a shift from state-managed forestry as the primary management system in Thailand to an emphasis on community forestry and collaboration of all the main stakeholders would be a step in the right direction (Ongprasert, *s.a.*; Hares, 2009; RECOFTC, 2013). Around the globe this has become a broad approach to combating forest degradation (Bixler, 2014; Baynes *et al.*, 2015).

Even though community forestry is already growing in importance in Thailand, forest communities do not always manage to craft institutions for collective action that would prevent them from underinvestment and overharvesting. There are several external agents that have tried to intervene in these communities in an attempt to support them in sustainable forest management, but there are no good or transparent track records of (the success of) their interventions, and therefore little is known about the approaches that they are using and the subsequent results. For this reason, Thailand is a relevant area to study.

### 3.1.2 The two cases

In this section it is explained which cases are studied and why they are suitable to answer the research question. The reason why a small domain with a number of two cases was chosen, is because the research goal and empirical factors show more affinities with a case study with a small N than with a cross case study (Table 2). Next to that, it is not feasible within the given timeframe to study a large N and two cases is still enough to make a good comparison in order to give meaningful recommendations.

By using a case study method, it was tried to gain an overall and holistic picture of the research objective. Verschuren and Doorewaard (2010) explain that with case studies a researcher will obtain much more knowledge by focusing on various aspects than would be the case with a survey or experiment. They state that having a general picture can be advantageous during a research project aimed at changing an existing situation, which is the case in this research. Attempts to change this situation are usually risky if one has insufficient knowledge of the object as an integrated whole, and of the context in which the object is embedded. For this reason, a case study has been an appropriate choice.

Table 2: Affinities of a case study versus a cross-case study (Van Laerhoven, 2015)

	Affinity	
	Case study (N=1, or small N)	Cross case study (or large N, in general)
RESEARCH GOAL		
1. Hypothesis	Generating	Testing
2. Validity	Internal	External
3. Causal insight	Mechanisms	Effects
4. Scope of proposition	Deep	Broad
EMPIRICAL FACTORS		
5. Population of cases	Heterogeneous	Homogeneous
6. Causal strength	Strong	Weak
7. Useful variation	Rare	Common
8. Data availability	Poor	Rich

Of the two cases, the only difference is that one consists of a forest dependent community who has received external agent intervention (the intervention case), and one without such an intervention (the control case), but are as similar as possible regarding relevant control variables (see table 3) to be able to obtain meaningful findings about causal mechanisms. A strategic sample and a selection of maximally similar instead of minimally similar cases is done, because if the cases are rather different it is difficult to obtain generally descriptive assertions and it is hard to link up the various phenomena, which would make it more difficult to make a meaningful comparison of the cases (Verschuren & Doorewaard, 2010).

Two communities in the Province of Chiang Mai are studied. Chiang Mai is the neighbouring Province of where CNF is based, namely Mae Hong Son. Deforestation has been a major issue in inter alia the Northern provinces, making it a relevant research area. It was necessary to select two cases that are situated close to CNF. There are several reasons for this. First, because of time constraints the cases had to be of close proximity to be able to complete the project in time, as data had to be collected on site. Second, because the people in the selected villages only speak Thai and Karen -a hill tribe language- it was necessary that the Regional Director from the organization always had to come along to the villages for the interviews and household surveys, as she is the only one from CNF that speaks these languages. This could only take place in some mornings in the week, as she had to work during the day. It was for this reason logistically impossible to travel far every time to collect the data. Third, because CNF wants to support communities in the future in this region, it is considered relevant to study cases in this same region, making it more likely that they would be able to work with them in the future.

For the selection of the two cases in this region, the Forest Department is contacted, as their consent and that of the chosen villages was needed in order to conduct the actual research in those cases. Also, because it was assumed that they are most aware of what villages received intervention from an external actor already, and which village without such intervention would be most similar to study as a control case. In table 3, the two selected cases and their characteristics are being displayed. The names of the villages are Huay Hom and Ban Den and are both part of the Wat Chan sub district. The treatment village has received external intervention from a governmental actor in the form of the Royal Project Wat Chan.

Table 3: Village profiles

Attribute	Control Village (Huay Hom)	Treatment Village (Ban Den)
Number of households	117	180
Population	417	560
Languages spoken	Karen, Lanna, Thai	Karen, Lanna, Thai
Literacy	60%	60%
Houses	Partly half cement half wood, partly wood or bamboo	Partly half cement half wood, partly wood or bamboo
Average individual landholding	1040m <sup>2</sup>	1600m <sup>2</sup>
Crops grown	Mainly pumpkin, turnip, coriander & eggplant. Plus a variety of seasonal fruits and vegetables.	Mainly pumpkin, chili & turnip. Plus a variety of seasonal fruits and vegetables.
Classification of forest	National Forest/Park	National Forest/Park
Forest type	No plantations, only natural forest. A combination of pine-, deciduous-, and rainforest.	No plantations, only natural forest. A combination of pine-, deciduous-, and rainforest.
Forest size	3000 ha	2400 ha
Per capita forest area	7,19 ha per capita	4,29 ha per capita
Forest dependence	Firewood for cooking and heating, house building, NTFP collection for subsistence and sometimes for sale, cattle grazing, and hunting.	Firewood for cooking and heating, house building, NTFP collection for subsistence and sometimes for sale, cattle grazing, and hunting.
Sources of income	Agriculture, selling livestock animals, sell some NTFP's, and daily wage labour.	Royal project employment, agriculture, selling livestock animals, sell NTFP's, and daily wage labour.

### 3.2 Operationalization

In this paragraph the operationalization of the different variables is discussed. Because in this research the framework made by Barnes & Van Laerhoven (2016) is being tested, the same operationalizations are used as in their study, which are displayed in a table in appendix I. The table is copied and only adjusted if necessary for this specific context. Below it is shortly described which indicators are used to be able to measure the outcome-, output-, and input variables. The *outcome* variable is defined as "sustainable livelihoods in a CPR context", consisting of two elements which are interlinked in both directions, namely: a community's ability to deal with appropriation and provision dilemmas, and its livelihoods portfolio. The *output* variable entails the choice of intervention activities that could change the outcome variable. Lastly, the *input* variable contains the motivation of external actors and their approach to institutional change, which in turn determines the *output* variable.

#### 3.2.1 Indicators outcome variable

##### *Ability to deal with A&P dilemmas*

As becomes clear in appendix I, the indicators that are being used to determine the ability to deal with appropriation dilemmas consist of the changes in distance to harvest non-forest timber products

(NTFPs) and their changing quality since 5 years. The indicators that are being used to determine the ability to deal with provision dilemmas consist of investment by the community in forest stocks as well as monitoring of the forest by the community.

*Livelihoods portfolio*

Barnes and Van Laerhoven (2016) used the existing SLA literature to create the indicators for the livelihoods portfolio. In this selection process they looked at their relevance to forest dependent community situations and if the indicators together cover the capitals and strategies. For each of the five capitals, four indicators were constructed which are displayed in figure 3. Per indicator a clear description is given in Appendix I on how the scoring is done, with 1 meaning a low level, 2 a medium level, and 3 a high level of access to that particular capital. As this study is qualitative of nature, it is decided that no more than 3 different levels can be distinguished upon. Next to the capitals, also the livelihood strategies are being operationalized in appendix I. A distinction is made between instrumental, hermeneutic, and emancipatory strategies.

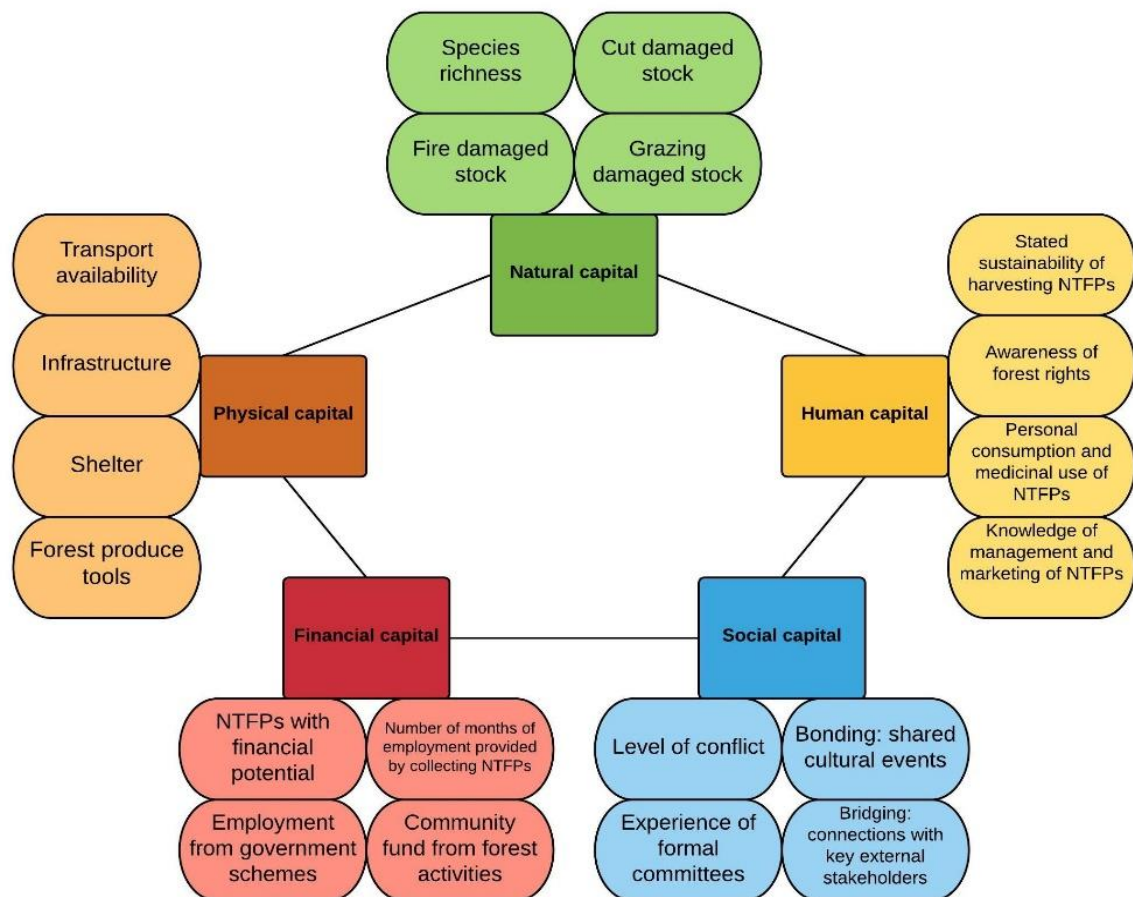


Figure 3: Livelihood capitals and their subsequent indicators

The natural capital is the only capital that is not measured in the same way as Barnes & Van Laerhoven (2016) have done. The reason for this is that -being a social scientist- this falls outside the author's area of expertise. To still be able to study all five capitals, including the natural capital, it is chosen to collect the data on this capital in an anecdotal manner. It is tried to gain knowledge on the state of the forest and its consequent trends via interviews with the elderly people from both villages, as it is assumed that they know the forest best within the community, and also an interview with the Forest Department of the Wat Chan sub district is done. The questions asked, followed the same type of indicators as Barnes & Van Laerhoven (2016), to stay as close to their operationalization as possible. These indicators include: species richness, cut damaged stock, grazing damaged stock, and fire damaged stock. Barnes & Van Laerhoven (2016) explain that these indicators generate an understanding of forest stand biodiversity as well as indicating the possibility for generation of the forest stock.

### 3.2.2 Indicators output and input variables

#### *Output variables*

To measure the output data on intervention activities directed at forest institutions, the same indicators are used as Barnes and Van Laerhoven (2016), consisting of a list of most commonly influenced manipulable indicators of collective action, namely:

1. Well-defined boundaries of the resource
2. Frequent meetings
3. A&P rules-in-use present
4. Graduated sanctions for rule infractions
5. Locally devised rules
6. Accountability of monitoring system
7. Understanding policies
8. Awareness of rules high
9. Confidence in allocation of benefits
10. Perceived management capacity

To measure the output data on intervention activities directed at service provision and community institutions, it is determined through interviews which activities the external actor directs at the different livelihood capitals and strategies.

#### *Input variables*

The input data is determined in interviews in which the interviewees can explain the motivations and approach of the intervention. To measure the collected data, a classification of approaches to institutional change is used, shown below in table 4.

Table 4: Approaches to institutional change (Barnes & Van Laerhoven, 2016)

Approach to institutional change	Description
<i>Objective institutional design</i>	Generic approach driven by external actor and applied to create rules
<i>Objective institutional crafting</i>	Generic approach driven by external actor and applied to empower forest users
<i>Subjective institutional design</i>	Community engages in reflective dialogue process promoted by external actor to discuss rules
<i>Subjective institutional crafting</i>	Community engages in reflective dialogue process promoted by external actor to empower forest users

### 3.3 Data collection

The depth in the research is realized by using various and intensive methods for generating data and also by using a triangulation of methods and sources. Data collection for the theoretical framework consisted of expert interviews and desk research. For the latter, well known scientific databases such as Scopus, ScienceDirect and GoogleScholar were consulted. Reference lists of the relevant literature found through these databases were also searched for more literature. For the interviews to be conducted for preliminary research, experts of presumably relevant organizations were contacted such as the Forest Restoration Research Unit (FORRU), the Centre for People and Forests (RECOTFC), the International Union for Conservation of Nature (IUCN), the Center for International Forestry Research (CIFOR) and the Food and Agriculture Organization of the United Nations (FAO). In table 5, a list of experts is shown, which have been interviewed for preliminary research.

Regarding data collection for answering the research question a triangulation of sources is used. For the outcome variables, a mixture of a household survey, interviews with villagers and the village chiefs,

and observation on site was being used. For this household survey, 100 households in the control village participated, and 126 households in the intervention village. With regard to the collection of natural capital data, interviews with elderly people from the villages and with the Royal Forest Department were being conducted. For the output and input data, an interview with a representative of the external actor was conducted. Also the village chief of the intervention case was able to provide some insights on the output and input data.

Table 5: Expert interviews for preliminary research

Interview	Name	Organization
1	Indah Waty	Center for International Forestry Research
2	Steven Lawry	Center for International Forestry Research
3	Kenichi Shono	Food and Agriculture Organization
4	Ratthaphon Amphon	Forest Restauration Research Unit

In table 6, a list is shown with a description of the interviews conducted to collect the above mentioned data. The respondents in the table are chosen for the following reasons: it was assumed that the Director of the Royal Project Wat Chan would be able to give insights in the intervention activities that they are doing, and that he would know a lot about the motivations behind the project, as well as about the approach that they have been using. Furthermore, an employee of the Royal Forest Department was thought to be able to give insights about the state of the forest in both villages, the sub district as a whole, and to know about trends regarding this subject. The village chiefs together with a small group of interested villagers who showed up at the interviews, were thought to have good knowledge about for instance the institutions or activities in their village and to be able to answer questions about livelihoods in their village. Finally, the elderly people in both villages were interviewed as it was told through the snowball method that they have the most knowledge about the state of their forest including trends, as they have known their forests for longer than anybody else.

Table 6: Interviews for the studied cases

Interview	Description
1	Director of Royal Project Wat Chan (Addisak Kammabut)
2	Forest officer at Royal Forest Department (Phongsak Attawuttikun)
3	Village Chief Huay Hom (together with a small group of interested villagers)
4	Village Chief Ban Den (together with a small group of interested villagers)
5	Small group of elderly villagers of Huay Hom (control case)
6	Small group of elderly villagers of Ban Den (intervention case)

All of the interviews were conducted in a structured manner. A semi-structured manner was preferred, because in that way all the relevant and necessary topics could be covered, and it would also have left space for extra information and explanation. However, because the questions needed to be prepared and translated in Thai or Karen language beforehand, it has proven to be difficult to deviate too much from an original format. Therefore, it was inevitable to conduct the interviews in a structured manner. Finally, the snowball method was used for contacting more interviewees and respondents. The interviews are not recorded and transcribed, but the answers to the questions were written down on site as the Regional Director from CNF translated the answers to English. She also translated all the answers in the household surveys.

### 3.4 Data Analysis

It has been of importance to clearly structure the data to get a grip on all the collected data before starting the analysis. The collected data is analyzed qualitatively, by reviewing both the interviews as well as the household surveys. To begin with, a comparison between the intervention- and the control case is employed in order to reveal the differences in outcome variables. To further analyze the data, Gerring’s (2007) pathway case study method is chosen, as this method can be used to clarify causal mechanisms between the external interventions and the outcome variables. Following arguments by leading scholars in this field of study, it is assumed that when all other factors are held constant, external interventions (the causal factor) are strongly associated with both new institutional arrangements as well as access to livelihood assets (the outcome variables). This method helped to elucidate the steps between the interventions and the outcome variables (Barnes & Van Laerhoven, 2016).

## 4. Findings

### 4.1 Outcome

In this section it is shown first how both cases are able to deal with A&P dilemmas and a comparison is made between the villages. Hereafter, the livelihood portfolios of both villages are compared. First the scores on livelihood capitals are discussed, after which the different livelihood strategies are reviewed. Together this will answer the first two sub questions of this research:

- 1. To what extent do external interventions add to the ability of forest dependent communities to deal with appropriation and provision dilemmas in the sub district Wat Chan, Northern Thailand?*
- 2. To what extent do external interventions add to the improvement of the livelihoods portfolio of forest dependent communities in the sub district Wat Chan, Northern Thailand?*

#### 4.1.1 Ability to deal with A&P dilemmas

In table 7 it is shown how both the intervention case as well as the control case are able to deal with appropriation and provision dilemmas within their village. As regards to appropriation dilemmas, overharvesting is present in both cases. It is interesting to note that only 35% of the households in the control village have claimed that the distance to harvest NTFPs has increased. The other 65% all stated that the distance has been unchanged. Even though these numbers do point to an appropriation dilemma, it is not overly prevalent when just looking at these numbers. In the intervention case however, nearly half of the households had to go further to collect their NTFPs. Though it must be mentioned that there was also quite a proportion of households that stated that the distance had actually decreased, making the differences between the cases relatively smaller.

With regard to the quality of the collected NTFPs, both villages saw a substantial amount of households collecting NTFPs of worse quality than 5 years ago. Taking into consideration both the changed distance as well as the quality of the collected NTFPs, both villages show that they are experiencing overharvesting and thus having trouble dealing with appropriation dilemmas, with the intervention case doing slightly worse than the control case.

The latter finding is rather surprising as the intervention case is the village that has received help from an external actor for the last few decades, as opposed to the control case. This is a good example that external interventions -despite their intentions- are not always working well. Common pool resources are very complex environments, and it is therefore relevant to find out what is and what is not working, as a lot is still unknown about what the best approaches would be.

In this case, a reason could be that the intervention activities have only recently started to focus on sustainable forest use and the environment. The Director of the Wat Chan project mentioned this in his interview and he stated that the prime focus has been mainly economic with a strong focus on livelihood improvement of the villagers. As becomes clear later on in this chapter, they did manage to improve the livelihoods of the villagers in the intervention case, especially economically as compared to the control case, but probably at the expense of the forest.

As appropriation dilemmas are more prevalent in the intervention case than in the control case, this shows once more the importance of balancing the social, ecological, and economic values of forests, as discussed in section 2.2. All three are necessary to support livelihoods as well as conserving the forest, and focusing too much on one of these three could impair the outcomes elsewhere.

Both villages are able to deal with provision dilemmas to some extent. In both cases monitoring works rather well, using a very similar system in which everybody keeps an eye out and with the board of directors and the village chief paying extra attention on top of that. Furthermore, in both villages there are clearly defined areas in which everybody knows what is allowed in which specific area and everybody keeps an eye out to make sure others are not breaking the rules specific to each area.

However, it was mentioned in the interviews that it is not determined how much of the different NTFPs each person is allowed to take from the forest. These points will be discussed in more detail in section 4.2.1 on which forest institutions could be influencing appropriation and provision behaviour.

Table 7: Ability to deal with A&P dilemmas

Indicators		Control case	Intervention case
<b>Appropriation</b> (% of respondents agreeing)	Distance to harvest NTFPs has increased over past 5 years	35%	49%
	Quality of NTFPs harvested has decreased over past 5 years	52%	62%
<b>Provision</b>	Evidence of stock maintenance	Protection line from forest fires	Protection line from forest fires  Elderly teach the villagers how to correctly cut wood
	Active community monitoring	Yes, set up from within the community and works well	Yes, set up from within the community and works well

Both cases display limited evidence of community efforts for stock maintenance. What both villages have in common is that the community makes a protection line against human induced fires so that their forest cannot be damaged by these fires. In all of the interviews, everybody stated proudly that this was the first year that there was not a single reported human induced fire in their village and the Wat Chan region as a whole. This is indeed assumed to be outstanding, as great amounts of human induced fires each year form a serious problem in inter alia the province of Mae Hong Son and other Northern provinces, resulting in the so called “smokey-season” from February till April. Having no reported fires in the villages can thus be seen as some evidence of stock maintenance.

The evidence of stock maintenance does not go further than this in the control village and is thus rather limited in this case. The intervention case does have some more evidence of stock maintenance, namely correctly cutting trees. The elderly people from this village stated in their interviews that not too long ago, most villagers were cutting the trees in the wrong way, giving the trees no chance to grow back. With population growth this problem grew bigger, and therefore the elderly people taught the rest of the village how to cut trees correctly. It is thus only recently that they started doing this in the right way, but a good development nonetheless in terms of stock maintenance.

To conclude, both villages are able to some extent deal with provision dilemmas, with the intervention case doing slightly better than the control case.

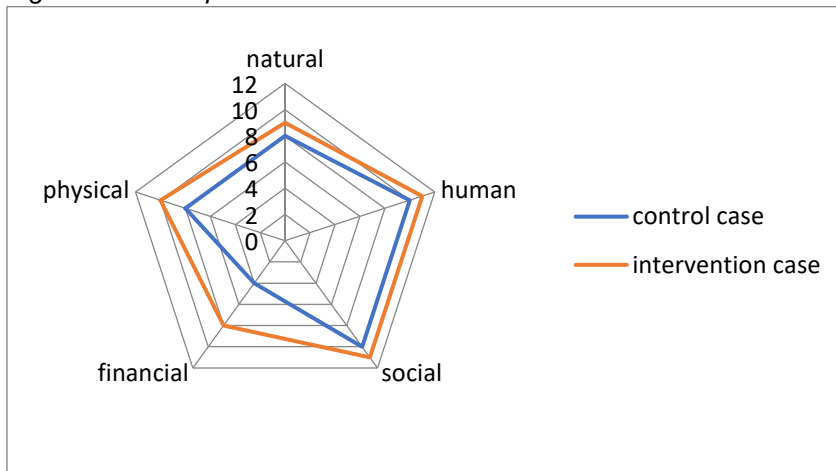


#### 4.1.2 Livelihood portfolios

##### Livelihood capitals

In the figure below it is shown how much both the intervention case as well as the control case have scored on each of the different livelihood capitals. As becomes clear, the intervention case scores higher on all the livelihood capitals. What furthermore can be seen, is that the intervention case is not overly consistent with their scoring: scores for each of the capitals differ between 8 and 11. The control case is a bit more consistent regarding 4 of the 5 capitals - with two times scoring 8 and two times scoring 10 - but has a very irregular score for the financial capital compared to the other capitals, namely scoring the absolute minimum. Lastly, it can be noted that both the intervention as well as the control case score rather well on the human and social capital. Beneath figure 4, each of the capitals is briefly discussed regarding their scoring by going into the most important differences between the cases. Table 10 in section 4.2.2 displays the scoring per indicator to support these findings.

Figure 4: total capital scores for the intervention and control case



##### **Natural capital**

Both cases score rather mediocre on the natural capital with the scores for fire damaged stock and grazing damaged stock being equal. The intervention village scores considerably better regarding cut damaged stock. In the interviews an explanation came to the fore, namely that the elderly in the intervention village are teaching the rest of the village how to cut sustainably in order for the trees to be able to grow back. On the other hand, the control village scores slightly better on species richness, which resonates with the finding that this case also scores better on appropriation dilemmas than the intervention case. Both can be explained by the fact that the control case is using the forest and its NTFPs mainly for personal consumption, whereas the households in the intervention case are also collecting NTFPs for commercial purposes to a greater extent, and thus taking more from the forest overall.

##### **Human capital**

Both cases score rather high on this capital. The households in the intervention case are more aware of their forest rights and possess more knowledge of management and marketing of NTFPs. The latter can be explained by the fact that the external actor has tried to expand this knowledge in the intervention village through the Royal Project Wat Chan. This will be discussed in more detail in section 4.2.2. However, the intervention case scores slightly lower than the control case on stated sustainability of harvesting NTFPs. This can explain why they also have more appropriation dilemmas as they have to go further for less quality NTFPs. This also explains why they score lower on species richness -they have to go further because less species in lesser amounts can be found- which thus inter alia could be caused by less stated sustainability of harvesting NTFPs. As in a later section will become clear, the Royal Project Wat Chan has been mainly focusing on sustainable agriculture, and not so much yet on sustainable harvesting in the forest. This could explain why the external actor did not have much

influence on this indicator yet, even though overall the intervention case is scoring rather high on this capital already.

### **Social capital**

Both cases also score rather high for this capital, with again the intervention case doing slightly better than the control case. They both have the maximum score on three of the four indicators. The control case only receives the minimum score for bridging, as they are only having some contact with neighbouring communities and not with an external actor which is not surprising as they are also not receiving external intervention activities. As the households in the intervention case have contact with neighbouring communities as well as with the external actor, they are scoring better on this indicator.

### **Financial capital**

This capital clearly shows the biggest gap between the two cases with a scoring difference of four points. The control case scores the bare minimum on all indicators. The intervention case has a mediocre score but is still doing considerably better than the control case. The most important difference is that the households in the intervention village receive a lot of employment from government schemes, coming from the Royal Project Wat Chan. The other difference is that the control case sells a very limited amount of their collected NTFPs, whereas collecting NTFPs for commercial purposes plays quite an important role in the intervention case to generate more income.

### **Physical capital**

With regard to the physical capital, both villages score very high on infrastructure and shelter, but at the same time both are very primitive in their forest produce tools. The only difference in scoring is transport availability, with the intervention case having regular public transport and is situated next to a main road and many people also having their own means of transportation. This is not the case for the control case, which is not situated next to a nearby road, where there is no public transport available and many people don't have their own means of transportation.

### Livelihood strategies

The second concept of the livelihood portfolio consists of livelihood strategies, which is discussed in this sub section. A distinction can be made between instrumental, hermeneutic, and emancipatory strategies. However, as no emancipatory strategies came to light in the conducted interviews and surveys in both cases, only the instrumental and hermeneutic livelihood strategies are discussed. A clear overview of these strategies for both cases is shown in table 8.

### **Instrumental**

It holds for both the control village and the intervention village that households are highly focused on instrumental livelihood strategies. Firstly, every household in both villages engages in livestock keeping. Secondly, almost every household of both villages engages in daily wage labour. Thirdly, in the intervention village 90% engages in agricultural cultivation, whereas just over half of the households in the control village do so. A reason for the fact that a significantly larger proportion of the intervention village relies on agricultural cultivation, could be that the Royal Project Wat Chan is highly focused on agricultural activities to improve the livelihoods of the villagers. This will be further elaborated on in section 4.3.1.

In the interviews as well as the surveys, it came to the fore that nobody from both villages processes and sells their collected NTFPs. However, a large proportion of the households in the intervention village partly sells their collected NTFPs to generate extra income. In the control village, only 20% of the households sell their NTFPs, as it became evident that they mostly use them for personal consumption.

Table 8: Activities directed at livelihood strategies

Strategy type	Control village	Intervention village
<b>Instrumental</b>		
<u>Cultivation</u> 1. % of households engaging in cultivation 2. Average size of agricultural land/household 3. Main crops	1. 60% 2. 1040 m2 3. Turnip, pumpkin, coriander, eggplant	1. 90% 2. 3500 m2 3. Pumpkin, chili, peanut
Daily wage labour (% of households)	99%	95%
Livestock (% of households owning 3 or more of either cow, buffalo, ox or calves)	100%*	100%*
Processing and selling NTFPs	0%	0%
Collecting and selling NTFPs without processing	20%	64%
<b>Hermeneutic</b>		
Cultural continuation	Collection of NTFPs to support own livelihood  Use herbs from forest for medicine  Spirituality: importance of taking good care of the forest in Karen culture	Collection of NTFPs to support own livelihood  Use herbs from forest for medicine  Spirituality: importance of taking good care of the forest in Karen culture
Expanding skills/increase knowledge	Increasing knowledge about human-induced forest fires	<u>From within village:</u> Increasing knowledge about human-induced forest fires  Expanding skills on how to correctly cut trees  <u>From external actor:</u> Expanding skills for sustainable agriculture  Increasing knowledge about how and why to take care of the environment

### Hermeneutic

Some hermeneutic strategies came forward in both cases. In the control case, the focus in this type of strategy mainly lays on cultural continuation. Examples are that for many generations, households collect NTFPs to support their own livelihoods, and that they use herbs from the forest for medicinal purposes. Next to that, the control village consists of Karen hilltribe people, and therefore has a Karen culture deeply rooted in their community. It came to the fore in several interviews that in Karen culture, it has always been important to take good care of the forest, because of spiritual motivations. During the data collection period, the staff of CNF was invited to attend an important cultural gathering to pray together for the forests. This was a shared cultural event in which Karen people, Buddhists and Christians from the whole village prayed together to God or the Gods of the forests. This event, together with the statements in the interviews, show that Karen culture is still important. Lastly, the control village is very limited in expanding skills or increasing knowledge as a hermeneutic strategy, with the only thing noteworthy, is the effort they put in keeping out forest fires and not inducing forest fires by increasing knowledge on this matter.

In the intervention village, the same cultural continuations could be found as in the control village, but it has become clear that expanding skills and increasing knowledge are also rather important strategies in which the external actor has been able to assist a lot. First of all, within the community, the elderly people have recently taught the younger generations how to cut wood correctly, for the trees to be able to grow back and thereby taking care of the forest. Another example regards increasing knowledge about human-induced forest fires on how to keep them out of the village's forest and why not to engage in this activity. This has been extremely successful as not a single human induced forest fire has occurred this year in this village and the sub district, which is exceptional. This hermeneutic strategy is a result of the work of the board of directors in the village together with a government campaign. Furthermore, the external actor has been working for decades through the Royal Project Wat Chan to increase knowledge of the villagers and to expand their skills. They have been educating and teaching the villagers about sustainable agriculture -including marketing and selling- since the beginning and as time passed, it became ever more important to teach about the environment and taking care of the forest as well, inter alia to improve their livelihoods.

## 4.2 Output

This section delves into the output variables, namely: the different activity types present in the control village as well as the treatment village. The first part of this section discusses the activities directed at forest institutions by looking which of the ten different manipulable indicators are present in both villages and if the external actor had any influence on this in the intervention case. The second part of this section treats the activities directed at service provision and community institutions. Together this will answer the third sub question of this research:

*3. Which external intervention activities are directed at institutions and to what extent do these activities add to the institutions present in forest dependent communities in the sub district Wat Chan, Northern Thailand?*

### 4.2.1 Activities directed at forest institutions

In this section, it is shown which activities directed at forest institutions are present in both villages. Each of the ten manipulable indicators of collective action is discussed respectively. The status of their presence in both villages is treated, as well as the potential influence of intervention activities of the external actor in the intervention village. In the conclusion & discussion chapter of this thesis, it will be further elaborated on why most indicators were already present and very similar in both villages, and why the external actor had only limited influence on this, as can be seen in the table (9) below.

*Table 9: Status of manipulable indicators and influence of the external actor*

Manipulable indicator of collective action	Status control village	Status intervention village	Influence external actor
1. Well-defined boundaries of the resource	Present	Present	Improving the already used system.
2. Frequent meetings	At least once per month	At least once per month	Increasing the amount of meetings.
3. A&P rules in use present	Present to some extent	Present to some extent	No influence.
4. Graduated sanctions for rule infractions	Present	Present	Only influence on sanctions concerning the Royal Project.

5. Locally devised rules	Present	Present	No influence.
6. Accountability of monitoring system	Well-working system from within	Well-working system from within	No influence.
7. Understanding policies + 8. awareness of rules high	Awareness and understanding is high	Awareness and understanding is high	Increasing the awareness of the rules and policies of the Royal Project by education. No influence on the rules and policies of the village itself.
9. Confidence in the allocation of benefits	Villagers believe that everybody gets their fair share	Villagers believe that everybody gets their fair share	Treating every member the same and making sure the Royal Project is fair for everybody who is participating.
10. Perceived management capacity	Strong and committed village chief as leader	Good village chief as well as a strong leader of the Royal project	Only influence on the perception of the leader of the Royal Project.

### 1. Well-defined boundaries of the resource

In both villages a very similar system is used to define the boundaries of their forest. Not only is it clear what the outside boundary of the forest is, but also within the resource, there are many clear boundaries set. In the interviews the village chief of the control village showed a big map in which it was specifically stated what areas of their forest the villagers are allowed to use for what purpose.



Figure 5 & 6: boundaries of the forest and the subsequent different usages of the forest.

Examples of types of usage are: water, agriculture, hunting, grazing, collecting NTFPs etcetera. The legend of this map can be seen in figure 5 and 6. The chief village of the intervention village said that they use the same system. Both chief villages stated that all the villagers know these boundaries very well as they are so clearly defined. They have been using this system for a long time already, even long before the intervention started. However, the chief/director of the project mentioned that the external actor helped to make the boundaries and their subsequent usages better and guided the village in this process.

## 2. Frequent meetings

In both villages there are meetings held at least once per month. Under normal circumstances, the control village has a village meeting once a month, but if there are pressing issues there can be more. The chief village explains that in every meeting they talk a lot about the jungle, how they should live together, and for instance about safety. For these meetings, at least one person per household is obliged to attend for every family to be up to date on village matters. Another reason for this is that every household needs to agree if new rules or agreements are proposed in these meetings.

The intervention village also has meetings at least once a month, in which also one person per household must attend for the same reasons as the control village. Meetings can however be more frequent if there are important issues to be discussed right away. This was already done so before the external actor intervened with the Royal Project Wat Chan. However, the project increased the number of meetings. They have meetings for different subjects concerning the project, which are held for everybody to be updated and to agree with each other on what to do.

## 3. A&P rules-in-use present

Both villages have some A&P rules-in-use present. This partly goes together with manipulable indicator one (see figure 5 and 6). There it became clear already that both villages have clear boundaries on which resources the villagers can extract and from which specific area in the forest. Also in both villages, they have the rule that people from outside the village cannot use their forest. The village chief of the intervention village states though that they don't have specific rules about picking up NTFPs from the jungle, but they do have rules about which areas people can go to or not and for what purpose. Furthermore, there are no rules about how much NTFPs each villager can take. The control village goes a bit further and also have rules about how much the villagers can extract of the different resources from the forest. In the interview with the village chief of the intervention village as well as with the director of the Royal Project Wat Chan, it became clear that the external actor did not have any noticeable influence on the status of this manipulable indicator.

## 4. Graduated sanctions for rule infractions

Both villages have a 3-step system with graduated sanctions when a villager breaks the rules. When someone breaks the rules in the control village, the first time they get a warning, the second time the rule infraction will be discussed in a village meeting, and the third time the Police and the Forest Department will come to take measures. In the intervention village, the first time will also result in a warning, the second rule infraction by the same person means that he or she cannot go to the jungle for one month, and the third time the Forest Department and the Police will come and this person has to pay a fine. This 3-step system for sanctions was already in place before the start of the intervention by the external actor. However, the Royal Project Wat Chan also has its own sanctions for not following their rules. They are for instance very strict on the use of chemicals, as the products need to be organic and sustainably produced. If members of the project not follow the rules, they will also get a warning first, and can be excluded from the project if they continue to break the rules.

**5. Locally devised rules**

Both villages use the same system for locally devised rules. In both cases the chief village together with the board of directors from the village create new rules. In the control village, the board of directors consists of 20 villagers, and in the intervention village it consists of 15 villagers. The rules that they set up are only applied once the whole village has decided to agree to these rules. Without the agreement of every household, there will be no such rule. The discussion and potential agreement on these rules takes place in the monthly village meetings. The external actor did not have any influence on this system, as the villages have been applying this system for a long time already.

Figure 7 shows a part of a big map that is displayed in the control village, in which all the local rules about the use of their forest are put in writing. Figure 8 shows the signatures of all the important people in the region, for example the village chief, and people from the Forest Department, the Police, the Army, and the Government. These signatures represent the agreement and approval of these locally devised rules.

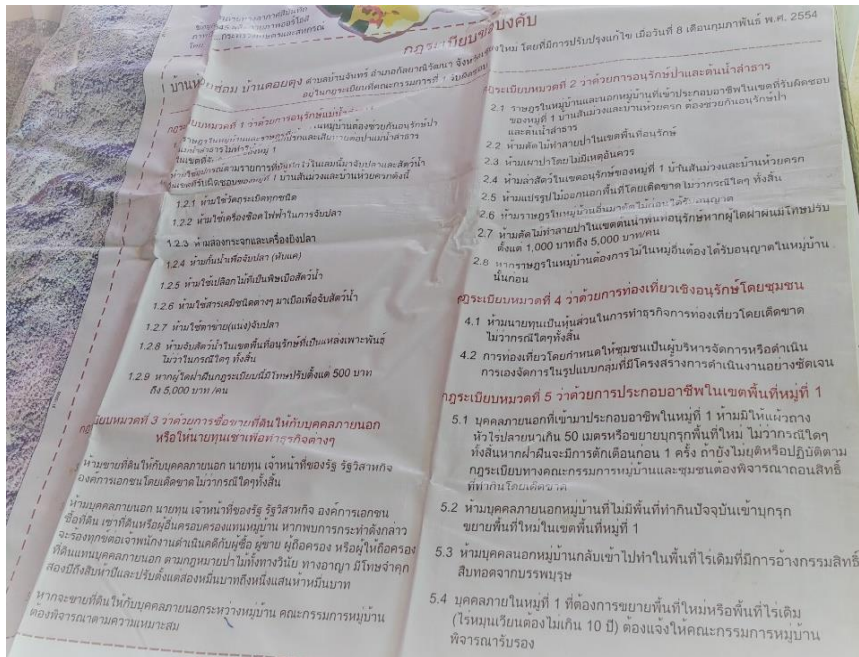


Figure 7: locally devised rules in the control village.

**6. Accountability of monitoring system**

In both villages there is a simple monitoring system set up from within the village. In both villages, it is the board of directors including the village chief who check in the forest if everybody is living up to the rules. Next to that, the rest of the villagers help each other and keep an eye out. The chief village of the intervention case says that this system works, because everyone helps to follow the rules. He also explains that in their culture people are very scared to lose face and therefore will not easily break community rules. The external actor did not have any influence on the monitoring system in the intervention village.



Figure 8: Signatures for forest rules

The village chief and other villagers who are interviewed in the control case state that a monitoring system such as theirs works much better than a monitoring system set up from outside, for instance by the government. The reason for this is that these people from outside the village are not close to them and the villagers don't feel like their forest belongs to the government. They explain that when the villagers themselves take care of the monitoring, people feel more connected to each other and close to each other. This causes people to want to protect and take care of their jungle and their livelihoods together as a community. The interviewees explained that this is the reason that this monitoring system works very well.

#### 7. Understanding policies + 8. Awareness of rules high

Manipulable indicator 7 and 8 are treated together, because in the interviews policies and rules were considered similar and the answers to the questions about these indicators were the same. This might have something to do with the difficulty of precisely translating into Thai and Karen language for the interviews. This issue is elaborated on in the discussion.

The understanding of policies as well as the awareness of the rules is considered very high as stated by the interviewees of both villages. This can be explained by the following. The rules or policies that are in place in both villages are agreed upon in the monthly village meetings. As it is obliged to have at least one person per household present in these meetings, every household knows about these rules and policies as they themselves have agreed upon them while attending these meetings. The external actor did not have any influence on the awareness of these particular rules and policies.

However, apart from the village rules and policies, there are other rules set up by the external actor concerning the Royal Project Wat Chan, as discussed in manipulable indicator 4. The village chief and the Director of the project state that the members of this project are aware of these rules or policies, because they are being educated extensively at the start of their membership as well as continuously during their membership, as it is very important to the project that people understand and apply these rules. Other villagers who are not members and therefore not part of the project, don't need to be aware of these rules or policies.

#### 9. Confidence in the allocation of benefits

According to the interviewees in both villages, there is a lot of trust in their communities. One major reason for this trust are the monthly meetings which every household attends to make agreements together. It is stated by all villager interviewees that people believe that everybody gets their fair share from either the forest or agricultural activities because of these meetings and subsequent agreements. It is furthermore noted that there are no villagers from the communities who are excessively taking products from the jungle. Many villagers just collect NTFPs for their own livelihoods, such as food and medicine. The interviewees explain that other villagers who also want to sell, also need to put in more effort to collect and sell these products, making it fair if they make more money from it as long as it stays within the limits of the village agreements. Lastly, it was explained that it is Karen culture that everybody helps each other and that everyone shares with the rest of the community. An example that was named a few times is the following. If somebody needs either a minor or major repair to their home, everybody from the village will help together to rebuild that home. There is no community fund in either of the villages, but the villagers will share in the costs and efforts to support each other.

Above concerned the confidence in the allocation of benefits within the village communities, on which the external actor did not have any influence. The following is about the perceived fairness of the Royal Project Wat Chan. The Director of the project states that since the beginning, the project focuses very much that everyone gets the same treatment and the same rewards for their efforts, as fairness is extensively important to them. Relatively, everybody who participates gets the same share. Of course, in absolute sense it depends on how much land you have and how much you can do. For the people to believe in the fairness of the project, the group meetings are considered rather important. In these meetings, it becomes clear that everybody needs to help each other to make the project work, and that everybody gets the same for a similar effort. The Director of the project as well as the village chief and the villagers of the intervention case state that the people are very content with this project and believe in the fairness of it. The fact that more and more people are interested in the project every year and that a great majority of the households is already a member of the project as they understand the benefits,



supports this statement. An example which furthermore shows that the project tries to give everybody an equal opportunity is the following. The project also includes the villages which are far away and difficult to reach, to also give them the opportunity to participate in order to profit from the project as well.

#### 10. Perceived management capacity

In both villages there is a board of directors, which counts 20 villagers in the control case and 15 villagers in the intervention case. The village chief in either of the cases functions as the chairman of this board and is also considered the leader of the village. In the control village people stated that their village chief is very committed to the community and that he is trusted very much by the villagers. The reason for this is that he works strongly together with the rest of the board of directors, and because every household has a saying in the village meetings. The village chief in the intervention case is also perceived as a strong leader, who works closely together with the rest of the board of directors and focuses on the interests of the community. The external actor did however not have any influence on the perceived management capacity of their village leader. What is furthermore mentioned in the interviews, is that there also is a good district leader, who in turn helps to guide the village leaders. This is one reason why this district has managed to have zero human-induced forest fires this year, as opposed to all the surrounding districts in the wider region.

Next to the village leaders, the Royal Project Wat Chan also has its own leader. It is stated in the interviews with villagers and the village chief of the intervention case that the members of this project also believe in this leader and how this project is managed and set up. The external actor did have an influence on the latter, through transparency of the project and because the members have been experiencing the results of their participation over time.

#### 4.2.2 Activities directed at service provision and community institutions

In this section it is reviewed which activities are directed at service provision and community institutions. Firstly, the five livelihood capitals are looked at and which intervention activities of the external actor are focused on each of these capitals. Secondly, the activities directed at the instrumental as well as the hermeneutic livelihood strategies are discussed.

##### Activities directed at livelihood capitals

Below, each of the five livelihood capitals is discussed separately. As will become clear, the activities are for the greatest part directed at the financial capital. The human-, social-, and natural capital are also aimed at, but to a lesser extent. There are no activities directed at the physical capital. Table 10 shows a clear overview of the scores for each of the livelihood capitals per case as well as which intervention activities are directed at each of these capitals. If an indicator of these livelihood capitals is not discussed, it means that there are no activities mentioned in the interviews that are directed at this specific indicator.

##### **Natural capital**

The indicators of the natural capital are particularly influenced by the external actor through education and trainings provided. The Chief Director of the Royal Project Wat Chan explains in his interview that next to training the members of the Royal Project how to do sustainable agriculture, the external actor is paying increasingly more attention to educating people on how to sustainably make use of the forest. Furthermore, there has been extensive government advertising by the external actor about human-induced fires, which is a good example of an intervention activity directed at the natural livelihood capital.

##### **Human capital**

Both the Chief Director of the Royal Project and the village chief of the intervention village explained that the external actor helps a lot with marketing and selling products and increasing people's knowledge thereof. However, it must be noted that this activity is mainly directed at sustainable agriculture rather than NTFPs, even though the latter has also received more and more attention over time. As it has become increasingly more important in the Royal Project to teach people about the environment and how to sustainably use the forest, one of their activities consists of educating people on how to sustainably harvest NTFPs.

##### **Social capital**

Regarding activities directed at the social capital, the external actor especially aims at bridging and committees. The external actor works closely together with the villagers in the Royal Project and both are therefore highly connected. Furthermore, the external actor has set up several committees within the Royal Project in which villagers working on the same theme or specialty can work together and continuously update each other. Examples of themes within the Royal Project are: vegetables, fruits, livestock, fisheries, or handicrafts. Next to the committees within the project, the external actor has also stimulated and promoted committees in the village, such as youth-, women-, or anti-drug groups.

##### **Financial capital**

The activities of the external actor are for a large part aimed at the financial capital, as there always has been an important focus on economic improvement of the villagers. The Royal Project has created a lot of jobs for the community ever since the start of the intervention, and with that increasing the income of the villagers. When people become a member of the project they start to have a stable job with a continuous income throughout the year, provided that they work according to the agreed plan. The activities are not necessarily focused on NTFPs, but primarily on jobs regarding organic agricultural products.

##### **Physical capital**

Nothing came forward from the interviews that pointed at activities directed at the physical livelihood capital. However, in chapter 5 it is discussed why the intervention activities indirectly could have influenced the physical capital.

Table 10: Activities directed at livelihood capitals by the external actor

Indicator for each capital	Scores		Intervention activities
	Control	Intervention	
<i>Natural capital</i>			
Species richness	2	1	Indirectly by providing education and trainings.  Government advertising.
Cut damaged stock	1	3	
Grazing damaged stock	2	2	
Fire damaged stock	3	3	
Total	<b>8</b>	<b>9</b>	
<i>Human capital</i>			
Stated sustainability of harvesting NTFPs	3	2	Educating about sustainably using the forest.  Increasing knowledge of and helping with marketing and selling (but not of NTFPs).
Awareness of forest rights	2	3	
Personal consumption and medicinal use of NTFPs	3	3	
Knowledge of management and marketing of NTFPs	2	3	
Total	<b>10</b>	<b>11</b>	
<i>Social</i>			
Level of conflict	3	3	Creating committees within the Royal Project.  Stimulating and promoting village committees.  Bridging by working closely together with villagers.
Bonding: shared cultural events	3	3	
Experience of formal committees	3	3	
Bridging: connections with key external stakeholders	1	2	
Total	<b>10</b>	<b>11</b>	
<i>Financial</i>			
NTFPs with financial potential	1	2	Providing stable jobs and continuous incomes throughout the year for members of the Royal Project.
Number of months of employment provided by collecting NTFPs	1	2	
Employment from government schemes	1	3	
Community fund from forest activities	1	1	
Total	<b>4</b>	<b>8</b>	

<i>Physical</i>			
Transport availability	1	3	No activities directed at physical capital
Infrastructure	3	3	
Shelter	3	3	
Forest (produce) tools	1	1	
Total	8	10	

#### Activities directed at livelihood strategies

Below, the activities of the external actor which are aimed at livelihood strategies are reviewed. Table 11 gives an overview of the discussed intervention activities directed at the instrumental as well as hermeneutic livelihood strategies.

#### **Instrumental strategy**

The activities of the Royal Project are for the largest part directed at increasing agricultural cultivation, and in particular sustainable agriculture. At the beginning, one of the important reasons to start the project was to eliminate the cultivation of opium by giving the villagers the opportunity to grow and sell alternative and more profitable crops. Every year more and more people joined the Project and started cultivating organic vegetable crops. Over time, fruits and animals also became part of the project and thus the activities started to include keeping more and qualitatively better livestock and fisheries as well. These activities are also meant to give the villagers the opportunity to have a stable job with a continuous income throughout the year. In the interviews and household surveys it became clear that nobody from the village processes and sells NTFPs. There are also no activities mentioned in the interviews which are directed at this instrumental strategy. On the other hand, 64% of the households do sell collected NTFPs without processing them, but also for this instrumental strategy no activities came to the fore in the interviews.

#### **Hermeneutic strategy**

The external actor puts a lot of effort in educating and training the villagers in order to increase their knowledge and expand their skills. When a villager becomes a member of the Royal Project, the external actor starts to teach them their system and how to organically grow crops, i.e. how to do sustainable agriculture, through trainings. In this way, the members also learn how to work with systems, which is an important component of the Royal Project. Over time they keep educating the members and updating them. There are frequent obligatory meetings organized for this purpose. Next to cultivating these crops, the external actor also educates members about and assists them with marketing and selling these products as part of the system. Finally, the external actor has recently started to increase knowledge of the villagers through education about the environment and how to use the forest in a sustainable way that benefits the forest as well as their own livelihoods.

Table 11: Activities directed at livelihood strategies by the external actor

Livelihood strategies	Intervention activities
<i>Instrumental</i>	-Create opportunities for stable jobs throughout the year -Increase and improve agricultural cultivation (sustainably) -Increase and Improve livestock keeping
<i>Hermeneutic</i>	-Expand skills on sustainable agriculture through trainings -Teach people to work with systems through trainings -Increasing knowledge about marketing and selling through education -Increase knowledge about the environment and sustainably using the forest through education



As the Royal Project brought alternative and more sustainable sources of income, the production and consumption of opium has been eliminated from the hilltribe communities in Northern Thailand. Therefore, opium is not an issue anymore nowadays. However, the motivations for the continuation of the external intervention are still aimed at sustainable development through the improvement of livelihoods by providing stable jobs and continuous incomes, and at the same time protecting and restoring natural resources and the environment.

#### 4.3.2 Approach to institutions

In order to employ influence on institutions in the intervention village, the external actor mostly applies a rules determining structure, which points at an institutional design rather than institutional crafting. Furthermore, the institutional changes are mostly led by the external actor and not by the community itself, pointing at an objective approach instead of a subjective approach. Together these findings result in a predominantly objective institutional design.

It must be noted however, that there is not much of an approach at all regarding forest institutions. In this particular case, the villagers themselves have already created forest institutions as a community. This makes either subjective or objective institutional crafting more or less unnecessary, as they already did so themselves. But this is not the reason for the external actor to not focus on forest institutions. It already became clear in their activities and motivations that taking care of the forest is a secondary and indirect focus of the project. The external actor does teach the villagers about the environment and the importance of taking care of the forest, but it doesn't go further than that in the form of forest institutions. However, the external actor does support the village to keep creating and updating these institutions, but without telling them how to do so.

Thus, the objective institutional design mentioned before refers to the approach of the external actor towards service provision and community institutions. In the interview the Director of the Royal Project Wat Chan explained that they use this approach as they have done a lot of research beforehand to find out what works in this particular area, types of forests, climate, and with these particular crops, fruits and animals. This research is part of the Royal Project and is done in four Royal Project Research Stations (figure 10). Only when they think the results of their research are 100% to their wishes and standards, they will use it and teach the villagers who are a member of the Royal Project.



Figure 10: Royal Project Research Stations in Northern Thailand

Because of this extensive research, the external actor likes to work according to these results and works with a system that everybody must apply. Especially as all products need to meet international standards for organic produce, and food safety and hygiene. The Director also explained that a large proportion of hilltribe people don't have a lot of education and knowledge about sustainable agriculture, and states that local people often like to do things the easy way, making it even more important to use a system. To teach the members the system and the rules, the external actor sets up many group meetings for inter alia education, as well as trainings and evaluations.

As has become clear, the external actor determines the rules and these changes are led by the external actor and not by the community itself. However, the villagers themselves can decide if they become a

member of the Royal Project. Therefore, it is not completely imposed on them, but only if they choose to be part of the Project.

Even though the objective institutional design is the predominant approach, there is also a hint of subjective institutional crafting found. This can be seen in their support and promotion of inter alia women's-, youth-, and anti-drug groups in the villager to create a stronger community and empower these villagers. The groups themselves create their own institutions and are supported in this by the external actor. Furthermore, every villager -young or old, male or female, Buddhist or Christian- gets the same treatment and opportunities within the Royal Project, provided that everyone puts in the same amount of effort. Next to that, everybody can choose their own theme within the Project to work on, such as vegetables, fruits, livestock, fisheries, or handicrafts. However, after they have chosen, they must apply to and work according to the aforementioned rules and system of the external actor.

## 5. Conclusion, Discussion & Recommendations

Section 5.1 consists of a conclusion in which each of the four sub questions is answered by presenting the most important findings. In section 5.2, a discussion and recommendations are given by means of an interpretation of the findings, a description of the difficulties during the research process, as well as a reflection on the relevance of this research. Throughout this final chapter, an answer to the central research question is given: “*How can external actors support local communities in Northern Thailand to solve collective action dilemmas, in order for them to achieve both livelihood- and forest condition improvements?*”

### 5.1 Conclusion

#### 1. To what extent do external interventions add to the ability of forest dependent communities to deal with appropriation and provision dilemmas in the sub district Wat Chan, Northern Thailand?

##### **Appropriation dilemmas**

As regards to appropriation dilemmas, overharvesting is present in both the intervention as well as the control village. After taking into consideration both the increased distance to harvest NTFPs by the villagers as well as the decreasing quality of the collected NTFPs, it has become clear that both villages are experiencing overharvesting and thus having trouble dealing with appropriation dilemmas, with the intervention case doing slightly worse than the control case.

##### **Provision dilemmas**

Furthermore, both villages are able to some extent to deal with provision dilemmas, with the intervention case doing slightly better than the control case. In both cases monitoring works rather well, using a very similar system. In both villages there are clearly defined areas in which everybody knows what is allowed in which specific area and everybody keeps an eye out to make sure others are not breaking the rules specific to each area.

Next to that, both cases display limited evidence of community efforts for stock maintenance. Having no reported human induced forest fires this year in both villages (which is considered truly outstanding in the region), can be seen as some evidence of stock maintenance. The evidence of stock maintenance does not go further than this in the control village and is thus rather limited in this case. The intervention case does have some more evidence of stock maintenance, namely knowing how to correctly cut trees. It is only recently that they started doing this in the right way, but a good development nonetheless in terms of stock maintenance.

#### 2. To what extent do external interventions add to the improvement of the livelihoods portfolio of forest dependent communities in the sub district Wat Chan, Northern Thailand?

##### **Livelihood capitals**

As has become clear, the intervention case scores higher on all the livelihood capitals. What furthermore was noted, is that the intervention case is not overly consistent with their scoring. The control case is a bit more consistent, but has a very irregular score for the financial capital. The financial capital clearly shows the biggest gap between the two cases. The control case scores the bare minimum on all indicators. The intervention case has a mediocre score but is still doing considerably better than the control case. Continuing with the other capitals, both the intervention as well as the control case score rather well on the human and social capital. On the other hand, they score rather mediocre on the natural capital. Lastly, the intervention case scores quite well on the physical capital, whereas the control case scores rather mediocre on this capital as well.

##### **Livelihood strategies**

When studying the livelihood strategies a distinction was made between instrumental, hermeneutic, and emancipatory strategies. However, in both cases no emancipatory strategies came to light. It holds for



both the control village and the intervention village that households are highly focused on instrumental livelihood strategies. In both villages there is an excessively high proportion of the households engaging in daily wage labour and livestock keeping. Agricultural cultivation is also a very important strategy in the intervention village and to a lesser extent in the control village, but still rather important. Furthermore, nobody from both villages processes and sells their collected NTFPs. However, a large proportion of the households in the intervention village partly sells their collected NTFPs without processing to generate extra income and only a small proportion of the control village does this. Lastly, some hermeneutic strategies came forward in both cases. In the intervention as well as the control village, cultural continuation is an important hermeneutic strategy. In the intervention village, expanding skills and increasing knowledge are also rather important strategies in which the external actor has been able to assist a lot. This strategy has been almost absent in the control village.

3. Which external intervention activities are directed at institutions and to what extent do these activities add to the institutions present in forest dependent communities in the sub district Wat Chan, Northern Thailand?

**Activities directed at forest institutions**

In both villages, all ten manipulable indicators of collective action are present to at least some extent. These indicators concern the presence of forest institutions in the villages. These institutions are very similar in both villages and were already present without the intervention of the external actor. The external actor only had some minor influence on these institutions. It can be concluded that the external actor is only to a minimum extent aimed at forest institutions, and almost solely focused on activities towards service provision and community institutions, which becomes clear below.

**Activities towards service provision and community institutions**

The analysis reveals that the activities of the external actor are for a great part directed at the financial capital. The aim of the external actor through their activities, has been to improve the economic situation of the villagers by providing stable jobs and a continuous income. A possible explanation for the focus on this capital could be the need for economic improvement of villages in this area. The control village scores the absolute minimum on this capital, and even though the intervention case scores double, it is still a rather mediocre score.

The activities are also rather importantly aimed at the social capital. Working closely together as an external actor with the villagers and the community is assumed to have improved the social capital of the intervention village. This also holds for creating, encouraging and promoting committees within the Royal Project as well as within the village itself.

Furthermore, the activities are aimed at the natural capital to some extent and are becoming increasingly more important within the Royal Project. However, as these activities are a relatively recent development, it would take a longer period of time to see the possible effects on the natural capital scores. It could therefore be relevant to study this case again in the future to see if the natural capital scores improve as a possible consequence of these intervention activities.

There are also some activities aimed at improving human capital. However, these activities are not specifically enough aimed at NTFPs, but rather on agricultural products. A shift in focus towards NTFPs is assumed to be able to positively influence the human capital scores of this village. However, it should be noted that the recent development of educating villagers about sustainably using the forest is already a step in the right direction to accomplish this.

Nothing came forward from the interviews that pointed at activities directed at the physical livelihood capital. However, the intervention activities could indirectly have influenced the physical capital nonetheless. Especially the indicator "transport availability" scores considerably higher in the intervention case than the control case. This will be elaborated on in the discussion of this chapter.

The intervention activities towards livelihood strategies seem to be mostly directed at the financial and human capital. This is reflected in the strong focus on improving and increasing livestock keeping and

agricultural cultivation and marketing, as well as expanding skills on these strategies, in order to create opportunities for stable jobs throughout the year. Next to that, increasing the villagers' knowledge through education on how to use the forest sustainably is becoming a more and more important activity directed at this hermeneutic strategy. Therefore, it can be stated that the natural component is becoming increasingly more important as well.

#### 4. What are the motivations for intervention and what is the approach to institutions of the Royal Project Wat Chan, Northern Thailand?

##### **Motivation**

The most important motivation at the start of the project was the eradication of opium, as hilltribe communities in Northern Thailand were notorious for the production and consumption of opium, causing widespread narcotic issues. Next to impairing the country socially as well as economically, the farming methods used were also rapidly destroying forest resources and damaging the environment. The aim and motivation of the external actor was to minimize the opium cultivation by rural communities, in order to empower and improve the quality of life of the hilltribe people, as well as to revive forest and water resources.

As the Royal Project brought alternative and more sustainable sources of income, the production and consumption of opium has been eliminated from the hilltribe communities in Northern Thailand. Therefore, opium is not an issue anymore nowadays. However, the motivations for the continuation of the external intervention are still aimed at sustainable development through the improvement of livelihoods by providing stable jobs and continuous incomes, and at the same time protecting and restoring natural resources and the environment.

##### **Approach**

In order to employ influence on institutions in the intervention village, the external actor mostly applies a rules determining structure, which points at an institutional design rather than institutional crafting. Furthermore, the institutional changes are mostly led by the external actor and not by the community itself, pointing at an objective approach instead of a subjective approach. Together these findings result in a predominantly objective institutional design.

It must be noted however, that there is not much of an approach at all regarding forest institutions. In this particular case, the villagers themselves have already created forest institutions as a community. It already became clear in the external actor's activities and motivations that taking care of the forest is a secondary and indirect focus of the project. The external actor does teach the villagers about the environment and the importance of taking care of the forest, but it doesn't go further than that in the form of forest institutions. Thus, the objective institutional design only refers to the approach of the external actor towards service provision and community institutions.

Even though the objective institutional design is the predominant approach, there is also a hint of subjective institutional crafting found. This can be seen in their support and promotion of inter alia women's-, youth-, and anti-drug groups in the villager to create a stronger community and empower these villagers.

## 5.2 Discussion & Recommendations

### 5.2.1 Interpretation of the findings

#### **Balancing economic, social, and ecological values**

It was concluded that both villages show that they are experiencing overharvesting and thus having trouble dealing with appropriation dilemmas, with the intervention case doing slightly worse than the control case. This finding is rather surprising as the intervention case is the village that has received help from an external actor for the last few decades, as opposed to the control case. This is a good example that external interventions -despite their intentions- are not always working well.

In this case, a reason could be that the intervention activities have only recently started to focus on sustainable forest use and the environment. The prime focus of the external actor has been mainly economic with a strong focus on livelihood improvement of the villagers. As has become clear, the external intervention did manage to improve the livelihoods of the villagers in the intervention case, especially economically as compared to the control case, but probably to some extent at the expense of the forest.

As appropriation dilemmas are more prevalent in the intervention case than in the control case, this shows once more the importance of balancing the social, ecological, and economic values of forests as discussed in the theoretical framework. All three are necessary to support livelihoods as well as conserving the forest, and focusing too much on one of these three could impair the outcomes elsewhere (Robinson & Redford, 1991; Elkington, 1997; McDonald & Lane, 2004; Gibson *et al.*, 2005; Gomontean *et al.*, 2008; Bauch *et al.*, 2014).

Considering the answers in the interviews and the motivations that the external actor has to start and continue this intervention, it would seem that they are trying to find a balance between the three values. However, they are not there yet. Even though they state that the environment and the protection of the forest have always been motivators and becoming increasingly more important, their activities are still very much focused on service provision and community institutions, and very minimally directed at forest institutions. When looking at the actual intervention activities, they are for a great deal focused on the economic value and to some extent on the social value as well, while the environmental value stays in the background. To create a balance, the external actor should focus its activities more equally on improving the livelihoods portfolio as well as the protection of the forest and environment.

#### **Forest institutions and self-governance**

As furthermore came forward in the conclusion, both cases are very similar in their forest institutions and even have all manipulable indicators for collective action present in their villages. A possible reason for this could be that they are both Karen hilltribe villages. The villagers explained that in Karen culture taking care of the forest and working together as a community is very important. For this reason they already had many of these forest institutions present without the external intervention, which they created together as a community. In fact, the external actor has had barely any activities directed at forest institutions ever since the beginning. Therefore these institutions are all the result of the communities themselves working together.

As mentioned before, many scholars and practitioners agree that communities can actually be very effective in governing a commons, proving wrong Hardin's claim that communities are not able to do so (Ostrom, 1990; Berge & Van Laerhoven, 2011; Van Laerhoven & Berge, 2011). In 1965, Olson already stated that communities can sustainably govern a commons such as a forest, if they can overcome collective action dilemmas. He stated that as a strategy to avoid a tragedy of the commons, communities should invest in institutions for collective action, which is exactly what happened in both villages. All ten manipulable indicators of collective action are present. Even though there are some appropriation and provision issues, the state of the forest is not really alarming as a consequence of these forest institutions. Therefore, these cases could to some extent be seen as examples of effective self-governance.

### **Activities directed at livelihood capitals**

As was already discussed, the activities of the external actor are very limitedly directed at forest institutions. However, almost all of their activities are focused on service provision and community institutions. When looking at these activities, they are for a great deal focused on the financial capital, and only to some extent directed at the human, social, and natural capital. A reason for this could be the following: the scores for the human, social, physical and natural capital are not too bad or too different in the control and the intervention case. The same could not be said about the financial capital however. This could be a possible explanation that the intervention activities are for the greatest part directed at the financial capital, because this capital needed the biggest improvement. Another important explanatory factor could be that the focus of the project has been very much focused on economic improvement and improving agricultural activities ever since the beginning of the intervention.

What is furthermore noteworthy, is that there are no activities directed at the physical livelihood capital. However, the intervention activities could indirectly have influenced the physical capital nonetheless. Especially the indicator "transport availability" scores considerably higher in the intervention case than the control case.

The intervention was already situated next to a main road and already had some public transport, but in the data collection period a new bigger road was being build which is to be connected to a road to Chiang Mai (the biggest city in Northern Thailand). This is told to be a consequence of the improved economic situation of the village. One could also argue, that the external actor chose this village, as it already scored high on the physical capital, because the village was perhaps already situated to a nearby road at the start of the intervention as opposed to the control case which is still rather hard to reach. There are cases known of NGOs or other external actors, in which they choose the easier option, to be able to show better results to the outside world for a variety of reasons (Wright & Andersson, 2013).

However, it is believed that this is not the case for this intervention village for two reasons. Firstly, in the interviews it became clear that the Royal Project also includes far away and hard to reach villages in order to give them the same opportunities as the villages which are easier to reach. Secondly, one of the main motivations to start this project in this village was to tackle the issue of opium as a lot of opium was being cultivated here. It is therefore assumed that this was the primary motive for the external actor to start the intervention here, rather than considering it an easy case.

### **Activities directed at livelihood strategies**

The external actor has some activities directed at livelihood strategies, of which (sustainable) agricultural cultivation is by far the most prevalent. This could be a reason that 30% more households are engaging in agricultural cultivation in the intervention case than in the control case. Also, the intervention case is more focused on hermeneutic strategies than the control case. This specifically becomes clear when looking at the trainings and educational activities provided by the external actor in order to increase knowledge and expand skills of the villagers. It must however be noted, that these skills are very much focused on agricultural activities, and not on how to use the forest sustainably. This could be a reason that the scores on the natural capital are rather mediocre and not that different in both cases and that the intervention village is still having more or less the same amount of appropriation and provision issues as the control village. In order to improve this, the external actor could focus more on expanding skills on sustainably using the forest as well.

Correspondingly, when looking at the activities directed at the different strategies, it is interesting to note that no activities are mentioned to be directed at collecting, processing, and selling NTFPs as an instrumental strategy. This is rather striking, because 0% of the villagers processes and sells NTFPs at the moment. Here lies an opportunity for the external actor to start directing its activities at this instrumental strategy in the future as well.

### **Approach to institutions and including the community**

As was concluded, the external actor mostly applies a rules determining structure, and the institutional changes are mostly led by the external actor and not by the community itself, pointing towards a predominantly objective institutional design. With regard to sustainable agriculture and the extensive research they conducted to create their systems and teach their members, this seems to have worked well. However, if the external actor would choose to focus its activities more on sustainably using the forest and forest institutions as well, a more mixed approach would be advised. There are still appropriation and provision dilemmas and the natural capital is still scoring rather mediocre.

In the theoretical framework it already came to the fore that forest-dependent communities should be involved in reforestation and conservation practices, because they know the forests well and as they are depending on them for their livelihoods it is assumed that they have great incentive to sustain them (Wily & Mbaya, 2001; Larson, 2004; Shrestha & McManus, 2007; Maryudi *et al.*, 2012; Baynes *et al.*, 2015; FAO & RECOFTC, 2016). It was also mentioned that many forest communities possess local ecological knowledge of their surrounding forests, and have conventional institutions for managing their forests, which has led to instrumental examples of sustainable forest management (Clay, 1988; Posey & Balée, 1989; Redford & Padoch, 1992; Colfer *et al.*, 1997). As was just discussed under “forest institutions and self-governance”, this is also the case in both studied villages. The theoretical framework continued that this local or indigenous knowledge might even be indispensable to the success of reforestation and conservation projects (Tendler 1975; Howes & Chambers, 1979; Richards, 1985; Jagannathan, 1987; Ostrom *et al.*, 1993; Arora, 1994; Agrawal & Gibson, 1999; Roth, 2004). For these reasons, the external actor could choose to work together with the community and mix the scientific knowledge of the external actor with the indigenous knowledge about the forest of the community, instead of just teaching them how to do it “the right way”.

On top of that, according to Andersson and Van Laerhoven (2007), and Andersson *et al.* (2009), there is still a lot of room for solutions that include community participation in order to sustainably govern a commons, and people and communities are more and more seen as potential participants in solution strategies. Berge & Van Laerhoven (2011) and Porter-Bolland *et al.* (2012) even state that evidence has shown that community-led institutions often even deal better with collective action dilemmas than would be the case with for instance privatization or nationalization.

This corresponds with the explanations by the villagers that they think that many of their forest institutions work so well, because they are not set up from outside, but from within the village. Because the community itself takes care of such things, people feel more connected to each other and more close than would be the case with an outsider telling them what to do. They explained that this causes the people to want to protect and take care of their forest and their livelihoods together as a community.

Taken the above together, the approach that they chose with regard to the agricultural activities seems to work well. However, if they would choose to also focus their activities more on sustainably using the forest and forest institutions, a more subjective institutional design approach is advised, in which the community plays an active role and can create new or improve existing institutions but with help from or facilitation by the external actor.

### **5.2.2 Difficulties during the research process**

#### **Language barriers**

During the data collection phase there were some issues that are discussed here. Firstly, there was the issue of language. None of the respondents could speak English, and some of them could also not speak Thai, as many people in these villages only speak their hilltribe language such as Karen. Luckily, the Regional Coordinator of Conserve Natural Forests speaks English and Thai, but Karen to a lesser extent. Therefore, for the interviews and surveys with respondents that could just speak Karen, another translator was needed to translate from Karen to Thai first, as this translator did not speak English. In those cases, the answers to the interview questions were translated twice: first from Karen to Thai, and then from Thai to English. This could have had negative consequences for precise and correct translations and interpretations. However, this was the only way to speak to the chosen respondents,

and therefore it was necessary to trust that the translations were as correct as practically possible.

An example of a translation error, is that the respondents understood “rules” and “policies” as being the same thing. This was noticed as their answers to both questions were exactly the same and because in some cases they would for instance state that they already answered that question. For this reason, the manipulable indicators “understanding policies” and “awareness of rules high” are taken together during the analysis, as it was not possible to treat them separately because of this translation error.

Also, because of the language barrier, the interviews needed to be structured and the questions were translated as completely and precisely as possible beforehand to try to make sure we would ask exactly what we meant to ask. The downside of this is that there was not much room for discussing unexpected information or going into a lot of detail. For this reason, without this language barrier, a semi-structured interview style would have been preferred.

Another issue with language is that not all respondents seemed to completely understand all the questions in the survey. It was tried to translate the questions in the easiest language possible in order to minimize this issue. As a consequence, most questions were understood correctly, but in some cases there were still some confusions and irregularities between different answers from the same household. An example is that some people stated that they don’t engage in agricultural cultivation, but later they answered that they have agricultural land and cultivate certain crops. In such a case, the answer about whether or not they engage in agricultural cultivation was adjusted. For this reason, it was sometimes chosen to ask similar questions in a different way, to check if the answers were matching.

#### **Discrepancies between answers**

Another issue that was encountered during the data collection and analysis, was that some discrepancies were noticed between the answers in the interviews and surveys. A good example of this is that in the surveys, practically every household claimed that they only owned pigs, chickens, or ducks. Close to none of the households in both villages stated that they own cows or buffalos. However, in the interviews with the elderly people and the forest department, the respondents explained in one of their answers that people let their cows and buffalos graze in the community forest. Because of this, the honesty of the answers in the survey about this particular subject was questioned. As a consequence, the village chiefs of both villages were contacted to ask for a possible explanation. They explained that every household owns at least 4 or 5 cows or buffalos and about 15% even 20, but that they might be scared to tell this to outsiders and for this reason not tell the truth about the amount and type of livestock that they own. This was the most noticeable discrepancy between answers and it was tried to find out the correct answer in order to have as reliable findings as possible. However, whenever working with people there is a possibility of dishonesty or selective answering and this once more shows the importance of a triangulation of data collection methods.

#### **Single moment in time**

Another issue was that the measurements and data collection were conducted in just a single moment in time. With more time available it would be better to do a long-term research in which measurements are taken during several moments in time to be able to observe trends or possible cause-effect relationships. It would for instance be useful to measure everything at the start of an intervention, and then keep track over time. However, this was not possible during this research due to time constraints and because this particular intervention already started decades ago.

An example that caused some difficulties in interpreting the findings, is that the activities directed at the natural capital only relatively recently started. Because of this, no direct changes as a consequence of these activities can be established yet. It would therefore for future research be interesting to perform the same measurements in order to see if there are changes that followed the activities.

#### **Anecdotal measurement of natural capital**

The data for the natural capital is collected in an anecdotal matter instead of quantitatively, as explained in the methods section. A quantitative approach would have been preferred as this would have resulted in more precise and reliable data. However, this was not possible for this thesis, as this lies outside the

area of expertise of the researcher. Therefore, if it is possible for future research, it would be better to work in an interdisciplinary team with social- as well as natural scientists in order to be able to combine research methods.

### 5.2.3 Reflection on the relevance of this research

As mentioned in the introduction, studies on the commons have been mostly focusing on self-governance, while a lot of communities still find it difficult to effectively self-govern their commons without external support or intervention. It is thus highly relevant to study which approaches for external intervention have potential to employ significant improvement and how interventions can be improved. However, it has been proven difficult to design interventions that are both trying to improve biodiversity conservation as well as improving livelihoods of forest dependent communities. Very frequently, there has been a tension between directing external intervention either at forest conditions, or at livelihoods improvement. For this reason, Barnes & Van Laerhoven (2016) constructed an integrated analytical framework which looks at both, in order to be able to improve intervention designs.

As this framework has only been used once before, it was scientifically relevant to test it in this research in order to establish its applicability. It can be concluded that this framework has proven very useful for the purpose of this research as it helped in forming a nuanced comprehension of the studied approach, activities, and outcome. This holistic understanding would not have been acquired from a single perspective framework. A single perspective framework might have led to different or more positive conclusions, and would not be representing reality as it would have left out relevant aspects due to its singular focus in a complex and dynamic interrelationship. The framework thus increased the ability to critically study these cases and with that assisted in improving knowledge on intervention designs.

As was mentioned in the problem description of this thesis, there are no convincing studies yet that show that external actors -through their activities directed towards institutions- contribute to a significant improvement to forests as well as livelihoods of forest dependent communities. This research is yet another example that shows that external intervention did not bring any significant change or improvement, except economically speaking. In other words, it is again not clear if, how, and to what extent external actors can actually make a difference. These findings can contribute to the current debate, as this research confirms what the current literature already says: external actor interventions could have potential to effectively assist forest dependent communities who are not yet able to self-govern their forest, but it is unclear if and to what extent they actually can make a difference and what the best approach would be for them to intervene.

This study furthermore contributes to the existing literature and debates, by clarifying the used approach in this case, to what extent it works or not, and what would be advised to do differently in order to become more effective. The findings of this research are thus highly relevant, as the aforementioned contributes to accumulating knowledge in order to improve intervention designs for external actors.

It is considered greatly relevant for future research to continue performing similar case studies with the use of this integrated analytical framework, as all these studies combined would contribute to an increasingly better understanding of effective and ineffective intervention designs.

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## Appendix I: Operationalization table

In the table below the operationalization table for the outcome variables is displayed. The indicators and motivation for selection are exactly cited from Barnes & Van Laerhoven (2016, p. 24-29). However, the scoring and motivation for scoring are adjusted to some extent to the specific context of this research.

*Appendix I: Operationalization table for the outcome variables (Barnes & Van Laerhoven, 2016)*

Indicator		Motivation for selection	
<b>Ability to deal with appropriation dilemmas</b>			
Distance to harvest NTFPs has increased over past 5 yrs (% respondents)		Indicators of the degree of overharvesting (in % of respondents)	
Quality of NTFPs harvested has decreased over past 5 yrs (% of respondents)			
<b>Ability to deal with provision dilemmas</b>			
Evidence of stock maintenance		Indicator of the degree to which the community invests directly in maintaining the forest stock	
Active community monitoring		Indicator of the degree to which the community invests in the monitoring system to maintain the forest stock	
Indicator	Motivation for selection	Scoring	Motivation for scoring
<b>Livelihoods portfolio: Capitals</b>			
<b>Natural</b>			
Species Richness	The number of different species in a forest plot. Generates an understanding of forest stand biodiversity.	3 = The number of different species in the village's forest has not declined since 5 years. 2 = The number of different species in the village's forest has declined to some extent since 5 years. 1 = The number of different species in the village's forest has declined drastically since 5 years.	It is believed that 5 years is the maximum period that could be reliably recalled by interviewees. Because of the qualitative nature and anecdotal method of scoring, a maximum of three scoring categories is chosen.

Cut damaged stock	Unsustainable cutting, grazing and fire damage are the three most common stressors in forests. Measuring all three stressors in the village's forest indicates the possibility for regeneration of forest stock.	3 = Almost everyone in the village knows how to correctly cut trees and plants. 2 = Some people from the village know how to correctly cut trees and plants. 1 = Most people in the village don't know how to correctly cut trees and plants.	Because of the qualitative nature and anecdotal method of scoring, a maximum of three scoring categories is chosen.
Grazing damaged stock		3 = There are close to no forest areas that show evidence of grazing. 2 = There are some forest areas that show evidence of grazing. 1 = There are lot of forest areas that show evidence of grazing	Evidence of grazing in this research refers to the presence of grazing animals.  Because of the qualitative nature and anecdotal method of scoring, a maximum of three scoring categories is chosen.
Fire damaged stock		3 = No recorded fire in the forest this year. 2 = Some recorded fires in the forest this year. 1 = A lot recorded fires in the forest this year.	Because of the qualitative nature and anecdotal method of scoring, a maximum of three scoring categories is chosen.
<b>Human</b>			
Stated sustainability of harvesting NTFPs	Assesses knowledge of sustainable harvesting practices  We equate stated harvesting behaviour with knowledge of sustainable harvesting. The indicator cut damaged stock under natural capital indicates whether this knowledge is actually carried out in practice.	3 = >50% of households state that they harvest NTFP species unsustainably 2 = >50% of households state that they harvest NTFP species unsustainably 1 = >50% of households state that they NTFP species unsustainably	The unit of analysis is the household as this research is interested in how widespread knowledge of sustainable harvesting practices is.



Awareness of Forest Rights	Assesses community's awareness of their land rights, critical for livelihood development	<p>3 = &gt;67% of households are aware of their forest rights</p> <p>2 = 33-66% of households are aware of the forest rights</p> <p>1 = &lt;33% of households are aware of their forest rights</p>	
Personal consumption and medicinal use of NTFPs	Health is seen as an important indicator in the SLA. Here we focus on access to food and medicine from the forest given the location of the cases and local preference for avoiding hospitals.	<p>3 = &gt;67% of households collect &gt;67% of NTFPs at least partly for subsistence and bartering purposes</p> <p>2 = 33-66% of households collect &gt;67% of NTFPs at least partly for subsistence and bartering purposes</p> <p>1 = &lt;33% of households collect &gt;67% of NTFPs at least partly for subsistence and bartering purposes</p>	<p>This research includes barter as the NTFPs were only bartered for rice and salt – i.e. essential foods they couldn't produce themselves.</p> <p>NTFPs could be used for subsistence <i>and</i> commercial purposes. Therefore the scoring includes NTFPs that are <i>at least partly</i> used for subsistence and bartering. The cut off is put at 67% as an indication of a high level of access to NTFPs for personal consumption.</p>
Knowledge of management and marketing of NTFPs	These skills are considered to be important for livelihood development in a forest-based economy	<p>3 = &gt;50% of households held secondary education or higher AND &gt;1 people with specific resource management knowledge</p> <p>2 = EITHER, &gt;50% of households held secondary education AND &gt;1 person with specific resource management knowledge OR &gt;50% of households held secondary education or higher AND 0 or 1 person with specific resource management knowledge</p> <p>1 = &gt;50% of households held secondary education AND 0 or 1 person with specific resource management knowledge</p>	<p>This research uses two different types of knowledge. A general secondary education should mean the individual has knowledge of how to systematically keep records and the basic skills needed to market NTFPs.</p> <p>This research specifies 2 people with specific resource management knowledge as this means there is a back up if 1 person chooses not to engage in NTFP management.</p>

Social			
Level of conflict	Presence of conflict is indicative of low level of trust within the community (Henry & Dietz, 2011).	<p>3= &lt; 33% stated that there is some or a lot of community conflict</p> <p>2= 34-66% stated that there is some or a lot of community conflict</p> <p>1 = &gt;67% stated that there is some or a lot of community conflict</p>	The respondents were asked if there was a lot, some or no conflict in their community. Given the sensitive and subjective nature of perceptions on conflict, in the scoring there is not distinction made between some or a lot of conflict.
Bonding: shared cultural events	Represents the building of specific reciprocity and mobilizing solidarity within a community to facilitate cohesion and internal knowledge sharing (Bebbington & Perreault, 1999).	<p>3 = Possibility to meet as a subgroup of the whole community &gt; once a month</p> <p>2 = Possibility to meet as a subgroup of the whole community between once a month and every three months</p> <p>1 = Possibility to meet as a subgroup &lt; every three months</p>	This research deems shared cultural events to be often when they are held at least once per month, and infrequent when they are held less than every three months.
Experience of formal committees	This indicates whether the community is used to determining formal positions within groups (such as chair, secretary).	<p>3 = Experience of &gt;1 formalised active groups with no outspoken negative experiences of working in such formal groups</p> <p>2 = EITHER 1 formalised active group with no outspoken negative experiences of working in such formal groups OR &gt;1 formalised active groups with negative experiences of working in such formal groups</p> <p>1 = 0 or 1 active formalised group with outspoken negative experiences of working in such formal groups</p>	<p>This research includes groups formed for any goal or purpose.</p> <p>By 'negative experience of such groups' we refer to any such groups in the community (including now defunct)</p>

<p>Bridging: connections with key external stakeholders</p>	<p>This gives an indication of the ability of the community to expand its network, and ability to interact with groups of diverse interests, which is critical to the diffusion of knowledge (Bebbington &amp; Perreault, 1999)</p>	<p>3 = Independent relationship with both types of key external stakeholders</p> <p>2 = Independent relationship with 1 type of key external stakeholders</p> <p>1 = No external relationships.</p>	<p>An independent relationship means community members have direct contact with a key external stakeholder.</p> <p>The two types of key external stakeholder are an NGO or governmental actor, or neighbouring communities.</p>
<p><b>Financial</b></p>			
<p>NTFPs with financial potential</p>	<p>NTFPs present a potentially useful cash income source in forested areas where there are little alternatives (Chhetri et al., 2012). We measure the variety of NTFPs that generate income for the community (Bauch et al., 2014). The actual value gained from commercial NTFPs can only be determined through a longitudinal study in which quantities of NTFPs harvested can be reliably obtained.</p>	<p>3 = &gt;67% of households collect &gt;67% of NTFPs at least partly for a commercial purpose</p> <p>2 = 33-66% of households collect &gt;67% of NTFPs at least partly for a commercial purpose</p> <p>1 = &lt;33% of households collect &gt;67% of NTFPs at least partly for a commercial purpose</p>	<p>NTFPs could be used for subsistence <i>and</i> commercial purposes. Therefore the scoring includes NTFPs that are <i>at least partly</i> used for commercial purposes. The cut off is put at 67% as an indication of a high level of access to NTFPs for commercial purposes.</p>
<p>Number of months of employment provided by collecting NTFPs</p>	<p>This indicates whether income from NTFPs is spread throughout the year, which increases the potential for employing wider livelihood strategies.</p>	<p>3 = ≥6 months per year during which &gt;3 NTFPs are collected for commercial purposes by ≥ 50% of households</p> <p>2 = 3-5 months per year during which &gt;3 NTFPs are collected for commercial purposes by ≥ 50% of households</p> <p>1 = &lt;3 months per year during which &gt;3 NTFPs are collected for commercial purposes by ≥ 50% of households</p>	<p>This research considers &gt;3 NTFPs being collected for commercial purposes as a substantial portion of time in the month being invested. This research chooses ≥ 50% as a cut off for determining the score as when the majority of households are involved this indicates the potential access to this capital the rest could enjoy.</p>

Employment from government schemes	This represents the other employment option in the area. It provides an indication of the level of income generating activities.	<p>3 = Average day rate of the schemes provided is around the WB Global Poverty Line and reliable work is available for <math>\geq 4</math> months per year,</p> <p>2 = EITHER average day rate of the schemes provided is less than the WB Global Poverty Line OR reliable work is available for <math>&lt; 4</math> months per year</p> <p>1 = BOTH the average day rate of the schemes provided is less than the WB Global Poverty Line AND work is available for less than 4 months per year</p>	This research compares to the World Bank Global Poverty line, namely: 1,90 US dollars, or 65 Thai baht.
Community fund from forest activities	Access to credit or bank accounts is a frequently used indicator for financial capital because it provides a buffer in hard times. Whether the community pools money from collective forestry endeavours is therefore appropriate in this context.	<p>3 = Present and regular significant income</p> <p>2 = Present but no significant or irregular income</p> <p>1 = Not present</p>	Significant is in relation to the World Bank global poverty line of 65 baht per day.
<b>Physical</b>			
Transport availability		<p>3 = Near road, own transport or frequent public transport options</p> <p>2 = Near road, reliant on irregular public transport</p> <p>1 = Isolated from a road, limited public transport on nearest road</p>	
Infrastructure		<p>3 = Two of the three types of infrastructure present</p> <p>2 = One of the three types of infrastructure present</p> <p>1 = None of the three types of infrastructure present</p>	The three types of infrastructure are lights, irrigation and water supply. They are understood as being the basic locally appropriate infrastructure in rural areas aside from roads

Shelter		3 = Appropriate housing and can maintain 2 = Have appropriate housing, lack of ability to maintain 1 = Lack of appropriate housing	
Forest produce tools	Access to communal and individual physical capitals increases the livelihood strategy options available.	3= Focus group respondents own value addition tools 2= Focus group respondents own tools to increase efficiency and/or effectiveness of traditional practices 1= Focus group respondents own simple traditional tools	This indicator was scored in focus group discussions as NTFP collection and processing is done in groups and therefore ownership within the community rather than per household is sufficient to determine secure access.
<b>Indicator</b>		<b>Motivation for selection</b>	
<b>Livelihoods portfolio: Strategies</b>			
<b>Instrumental (surviving)</b>			
Cultivation: % households engaging in cultivation, average size of agricultural land per household (acres) , main crops		Cultivation is a locally appropriate strategy. The total of the separate indicators give an impression of the degree to which households engage in cultivation.	
Daily wage labour: % households engaging in this form of employment		This is common in rural areas. It does not provide secure income. The source could be government or private contractors.	
Livestock: % households owning ≥3 of either cow, buffalo, ox or calves		Most households will own a few chickens but for livestock to represent a significant strategy this research states that the households must own at least 3 animals which potentially create more significant ongoing benefits.	
Processing and selling NTFPs		This is a strategy to add value to the NTFPs available.	
Collecting and selling NTFPs without processing		This is a strategy to generate an extra income.	
<b>Hermeneutic (adding meaning) and emancipatory (changing structures under which livelihoods are determined)</b>			
Determined through interviews apart from education level which was part of the household survey			