

Strengthening local institutions for the transition to oil palm agroforestry in Central Kalimantan, Indonesia

MASTER THESIS

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Abstract

Palm oil is an increasingly hot topic in Indonesia. While it is a strategic commodity for the country and provides jobs for millions of people, the rapid expansion of oil palm has brought environmental and social concerns: deforestation, land clearing, loss of biodiversity, land degradation, increase in greenhouse gas emissions, as well as land conflicts, human rights violations and challenges around food security. Although there are efforts towards more sustainable production of Indonesian palm oil, none of them deal with the existing 3.4 million hectares of oil palm plantations located in the forest areas, largely without clear land statuses and license to operate. According to current regulations, all of those plantations would need to be removed, cutting the livelihoods of 6 million rural Indonesians. The Strategi Jangka Benah was developed to reconcile the reduction of negative environmental impacts with maintaining the livelihoods of smallholder farmers whose plantations are in designated forest areas by implementing oil palm agroforestry. In order to be successful, Strategi Jangka Benah's role will need to extend beyond sustainable forestry design, it needs to be embedded into the institutional system within which it operates. This requires institutional change. This research explored how local institutions can better facilitate the transition of smallholder oil palm farmers from monoculture plantations to oil palm agroforestry through a three-step institutional analysis process, starting with an actor analysis, followed by an analysis of the rules of the game. The last step was a capacity analysis for institutional innovation. The institutional analysis process conducted for the Strategi Jangka Benah also served as an experiment to review the existing processes, tools and academic literature related to institutional analysis, concluding that there is a need for shared understanding of institutions and institutional capacity across Development Studies, and for more research to understand how to facilitate the process of an institutional system adopting to change.

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List of abbreviations

ARC	Agrarian Resource Centre			
BPDASHL	Balai Pengelolaan Daerah Aliran Sungai dan Hutan Lindung			
	(Watershed and Protection Forest Management Centre)			
BPHP	Balai Pengelolaan Hutan Produksi (Production Forest Management Office)			
BPKH	Badan Pengelola Keuangan Haji (Forest Area Consolidation Centre)			
BPSKL	Balai Perhutanan Sosial dan Kemitraan Lingkungan (Directorate General of Social Forestry and Environmental Partnerships)			
BPTP	Balai Pengkajian Teknologi Pertanian (Institute of Agricultural Crops Research)			
CO ₂	Carbon Dioxide			
COVID-19	Coronavirus Disease of 2019			
СРО	Crude Palm Oil			
Disbun	Dinas Perkebunan (Provincial Plantation Service)			
Dishut	Dinas Kehutanan (Provincial Forestry Service)			
FAO	Food and Agriculture Organization of the United Nations			
FKT-UGM	Fakultas Kehutanan Universitas Gadjah Mada (Faculty of Forestry, Gadjah Mada University)			
FMU	Forest Management Units (also KPH)			
GAPKI	Indonesian Palm Oil Association			
GGGI	Global Green Growth Institute			
GHG	Greenhouse gases			
GLF	Global Landscapes Forum			
IAD	Institutional Analysis and Development framework			
IFAD	International Fund for Agriculture Development			
Inpres	Presidential Instruction No. 8/2018 on Postponement and Evaluation of O Palm Plantation Permit and Improving Productivity of Oil Palm Plantation			

ILUC	Indirect land use change			
IPCC	Intergovernmental Panel on Climate Change			
IPPG	Research Programme Consortium for Improving Institutions for Pro-Poor Growth			
ISPO	Indonesian Sustainable Palm Oil			
JAVLEC	Java Learning Centre			
Kalteng	Kalimantan Tengah (Central Kalimantan)			
KBCF	Kawal Borneo Community Foundation			
KEHATI	Indonesian Biodiversity Conservation Trust Fund			
KKPA	Koperasi Kredit Primer Anggota (Credit for Cooperative Primary Members)			
KPH	Kesatuan Pengelolaan Hutan (Forest Management Unit)			
KTH	Kelompok Tani Hutan (Forest Farmers' Group)			
LEI	Indonesian Ecolabelling Institute			
LTKT	Sustainable Districts Association			
NGO	Non-governmental organization			
OPAF	Oil palm agroforestry			
Perpres	Presidental Regulation			
PIR	Perkebunan Inti Rakyat (Nucleus Estate and Smallholder program)			
PIR-Trans	PIR with a Transmigrant focus			
PNP	Perusahaan Negara Perkebunan (state-owned plantation company)			
POFCAP	International Palm Oil Free Certification Trademark			
PTP	Perseroan Terbutas Perkebunan (semi-public plantation company)			
RACA	Rapid Agrarian Conflict Appraisal Institute			
REDD+	Reducing Emissions from Deforestation and Forest Degradation			
RSPO	Roundtable for Sustainable Palm Oil			
SJB	Strategi Jangka Benah (Long-term Rehabilitation Strategy)			
SPKS	Oil Palm Farmers Union			
SPOS	Strengthening Palm Oil Sustainability in Indonesia			

UKaid	UK Aid Direct		
UMP	Universitas Muhammadiyah Palangka Raya (Palangka Raya Muhammadiyal University)		
UNDP	United Nations Development Programme		
UNEP	United Nations Environment Programme		
UNFCCC	United Nations Framework Convention for Climate Change		
UN-REDD	United Nations Programme on Reducing Emissions from Deforestation and Forest Degradation		
UPR	Universitas Palangka Raya (Palangka Raya University)		
UTP	Unit Pelaksana Teknis (Technical Implementation Unit)		
WHO	World Health Organization		
WUR	Wageningen University and Research		

Taka da rotan, akar pun jadi.

When there is no cane, use the root instead.

(Indonesian proverb)

Introduction

Today, palm oil makes up over 30% of all vegetable oil consumed across the world (Shahbandeh, 2020; Susanti & Maryudi, 2016). The commodity, originating from West Africa, has taken over the world over the last few decades: it can be found in over half of all products on the shelves of the supermarkets globally (Oosterveer, 2015). It is widely used for cooking, food processing, feeding livestock, as well as for the production of cosmetics, plastics and biofuel (Gatto, et al., 2015; Nomanbhay, et al., 2017; Oosterveer, 2015). Versatility is not its only strength. Oil palm is also the most efficient oilseed crop in the world, producing up to eight times more oil per hectare than any other leading oilseed crop (Nomanbhay, et al., 2017). It is also perennial₁, offering a steady source of oil production throughout the year, while its production costs are relatively low (Oosterveer, 2015). With such properties, it is no wonder that palm oil has been in great demand, and oil palm plantations have been expanding across the tropical belt of Africa, Southeast Asia and Central and South America.

Over half of all global palm oil exports come from Indonesia (Jelsma, et al., 2017). Oil palm has been cultivated on the archipelago since the middle of the nineteenth century (Caroko, et al., 2011), and large-scale commercial production started in the 1910s, on the island of Sumatra (Sheil, et al., 2009). As of today, an estimated 16 million hectares of land is used for oil palm cultivation (Suwastoyo, 2020). The palm oil industry is Indonesia's biggest earner of foreign exchange revenue; therefore, it is of strategic importance to the country. Also 17 million people are employed directly or indirectly in palm oil production. Especially in rural areas, palm is an important tool for development. With over 40% of all oil palm area cultivated by smallholder farmers, palm oil offers a livelihood to many, lifting millions out of poverty (Ma'ruf, et al., 2019).

While a success story in economic terms, the rapid expansion of oil palm has brought numerous environmental and social concerns. To make space for new oil palm plantations, large areas of peatland and primary rainforests have been cleared. This has caused a significant loss of biodiversity, soil erosion and land degradation, increase in greenhouse gas emissions, as well as land conflicts, human rights violations and challenges around food security (Oosterveer, 2015; Ma'ruf, et al., 2019). An estimated 3.4 million hectares of oil palm plantations are located illegally in forest areas, mainly in Sumatra and Kalimantan (Ma'ruf, et al., 2019). While it looks like the world's insatiable hunger for palm oil is to blame for all of

¹ Perennial is a plant that lives longer than two years

this, in reality unclear land statuses, lack of law enforcement, and challenges concerning plantation productivity are also key drivers of deforestation (Ma'ruf, et al., 2019).

Over the last two decades, the government of Indonesia has been making a series of commitments to make Indonesian palm oil more sustainable. The country is part of the REDD+ initiative since 2009 (Cadman, et al., 2019), and in 2011 the Indonesian government introduced the Indonesian Sustainable Palm Oil (ISPO) standard, a mandatory certification program (Hospes, 2014). The Roundtable on Sustainable Palm Oil (RSPO) is another voluntary certification program that has seen numerous plantations across Indonesia certified (RSPO, 2019). The government has also implemented several policy changes to address those challenges (Ma'ruf, et al., 2019). However, none of these initiatives can effectively deal with those plantations that are already cultivated in forest areas, largely without permits, clear land statuses and license to operate. According to current regulations, all of those plantations would need to be cut down – which would mean cutting the livelihoods of hundreds of thousands of smallholder farmers and their families, who depend on palm oil income (Ma'ruf, et al., 2019).

The Strategi Jangka Benah (SJB), or Long-term Rehabilitation Strategy was developed to address this problem: how to reconcile the reduction of negative environmental impacts with maintaining the livelihoods of smallholder farmers whose plantations are in designated forest areas (SPOS, 2019). This alternative solution, initiated by the Faculty of Forestry of the Universitas Gadjah Mada and the KEHATI Foundation, aims to improve environmental, social, and economic aspects of disturbed forest areas by adopting oil palm agroforestry (OPAF) (Strategi Jangka Benah, 2020). Agroforestry is a diversified land use system, mixing oil palm groves and other crops such as cocoa, coffee, and rubber with other native, perennial trees. Several studies suggest that agroforestry can help restore the biodiversity and microclimate, increase species richness and improve soil fertility, and benefit the local community, as the additional tree species can provide farmers with further sources of income (Bhagwat & Willis, 2008). It has the potential to offer the best of both worlds: restoring forests while maintaining livelihoods. The SJB was launched in 2019 and is currently in a pilot implementation phase in a few selected locations (SPOS, 2019). However, oil palm in forest areas is currently against the law, even if it done in the form of agroforestry (Ma'ruf, et al., 2019).

While agroforestry in general is a well-researched and understood approach to agriculture, there is little data, evidence or best practices available on oil palm agroforestry (Miccolis, et al., 2019). There are examples of oil palm agroforestry across the world, and in Indonesia (Budiadi, et al., 2019), but these are few and not well documented. Many across the oil palm industry, especially in Indonesia, believe that oil palm is not suitable for agroforestry, and

can only be grown in a monoculture approach (Miccolis, et al., 2019). This, along with the legal barriers, is a major obstacle to overcome. Strategi Jangka Benah's role will need to extend beyond sustainable forestry design: institutionalising the initiative will be one of the most important tasks ahead to make it successful.

Institutionalising is an important process for sustainability innovations. On its own, a technological innovation cannot achieve society-wide change, it needs to be embedded into the institutional system within which it operates. This often requires institutional change. The meaning of 'institutions' goes beyond organizations and policies. Institutions are the sum of all elements that define the 'rules of the game', including formal and informal organizations, rules, norms, beliefs, and routines of behaviour that govern life of any community (van Westen, 2019). Organizations and individuals are the 'players' within an institutional system (North, 1993). Thus, when trying to understand how institutions change, how the players interact with each other and with the institutional system as a whole, and what are the elements or factors that will hinder or enable a particular innovation or change must be considered (Woodhill, 2010).

In the context of the Strategi Jangka Benah, we will look at institutional change on a local level, zooming into the institutional system at the provincial, district and village levels, surrounding one of the SJB pilot locations in Central Kalimantan. In a decentralized Indonesia local and national governments have relatively equal authority over land-use allocation (Setiawan, et al., 2016) and institutional change at the local level can be as impactful as on the national level. This translates to the main question of this research: *How can local institutions better facilitate the transition of smallholder oil palm farmers from monoculture plantations to oil palm agroforestry?* To be able to answer this question, the following four questions will lead the way:

- What are the local institutions involved with the transition of oil palm monoculture to oil palm agroforestry and how do they influence it?
- Who are the players involved and how do they relate to each other?
- What are the capacity gaps for the local institutions to effectively facilitate the transition to oil palm agroforestry?
- How to develop the necessary institutional capacity to effectively facilitate the transition to oil palm agroforestry?

Such an in-depth institutional assessment is still rarely conducted in the context of environmental innovations for international development. Although there seems to be a consensus that institutions are more than just the sum of organisations, most related research does not go beyond assessing the (formal) 'players' or (formal) rules of an institutional system. The problem with this is that without the complete overview, it is easy to miss crucial bits of information as to why a certain technical solution may or may not work in a specific local context (Pritchard, 2014). As IFAD describes it: "*this lack of analysis of such informal rules and organizational cultures has, in some circumstances, led to implementation problems for IFAD projects and programmes*" (Pritchard, 2014). An in-depth institutional assessment is not easy to conduct and takes time and effort, data is 'soft' and difficult to measure (Pritchard, 2014). There is also a lack of comprehensive tools to facilitate such a process. This research is an attempt to provide an in-depth institutional assessment to understand how local institutions can better facilitate the transition of smallholder oil palm plantations from monoculture to oil palm agroforestry, as well as to provide a critical review of the institutional analysis process itself.

We will start by outlining the theoretical framework and the research methodologies. These chapters will give an overview of theories and concepts that will be used for the analysis, as well as the research methodology and tools used for gathering and processing data. Then we will deep-dive into the Regional thematic framework, providing the reader with an indepth insight into the situation of palm oil in Indonesia. Following these introductory chapters, the results for each sub-question will be presented: first, an overview of the players involved, then outlining the findings for the overall institutional analysis, and finally, discussing the capacity gaps and potential capacity strengthening strategies for the transition of oil palm agroforestry in Indonesia. The Conclusions chapter will provide a summary of all of the above, as well as the learning points regarding conducting an in-depth institutional assessment, and some thoughts on possible improvements.

Theoretical Framework

"'Path dependency' and 'institutional stickiness' can often hinder, limit, undermine or compromise institutional reform or innovation." (IPPG, 2010)

This chapter aims to provide an in-depth understanding of the theoretical concepts that will be used throughout this research, the various debates and research gaps around these concepts. It will also explain why certain concepts or frameworks have been chosen and how they will be employed. The first set of concepts will explore 'institutions', providing the backbone of this research. In the second section, we will discuss (oil palm) agroforestry and the current theoretical debates around this approach.

1. Institutions

1.1. Sustainability Transitions and Institutional Innovation

The palm oil sector can be conceptualised as a socio-technical system, consisting of institutions, actors, material products and knowledge. These elements of the system interact with each other and are interrelated and interdependent. Sustainability transitions are long-term, multi-dimensional and fundamental processes, through which an existing, institutionalised socio-technical system transforms towards more sustainable modes of operation (Markard, et al., 2012). While several conceptual frameworks have been developed to understand these processes, the 'socio-technical regime' is a central concept to all of these, with the idea that technical solutions and practices are socially embedded, and closely entangled with institutional structures, infrastructure, the beliefs and expectations of users in the system. 'Niche' is another important concept in sustainability transitions. It is defined as the protected space in which innovations, disruptive alternatives can develop (Markard, et al., 2012). And finally, the 'landscape' is the macro level of the process: the internal or external sources of pressure on the established socio-technical niche, including the broader political, social and culture context (Foxon, et al., 2009) or unpredictable events that act on the system as exogenous shocks (Morone & Lopolito, 2015).

In the context of the Strategi Jangka Benah, monoculture plantations and the surrounding institutional setting are the established socio-technical regime, and oil palm agroforestry is the disruptive alternative. The landscape includes national commitments to decreasing greenhouse gas emissions and deforestation, as well as an international pressure to make palm oil production more sustainable. While analysing the transition process itself is not the objective

of this research, this setting is important to establish, as it will provide both the context and broader objective for the research. This means that for the transition to OPAF to be successful, a systemic approach is necessary, addressing the entire socio-technical system connected to oil palm cultivation. After presenting an overview of the current landscape, this research will focus on analysing the established institutions, with particular attention to institutional innovation and capacities necessary to achieve the objectives set out in the SJB.

Institutional innovation, in this context, is closely connected to sustainability transitions. According to Woodhill (2010), "*for societies to prosper, adapt and cope with problems and crises, they need both 'hardware' and 'software"*. While 'hardware' typically refers to the technical solution to needs and problems (the disruptive alternative), the 'software' is the socio-political aspect of a change or transition process. This institutional innovation is necessary and allows the disruptive alternative to become the mainstream. It includes elements such as societal norms, values, government policies, political systems, and organisational processes (Woodhill, 2010). Woodhill (2010) also outlines four capacities necessary for players engaged in driving institutional innovation: navigating complexity, learning collaboratively, engaging politically, and being self-reflective (we will talk about these more in section 1.4. of this chapter).

1.2. Institutional and organisational theory

"It is not possible to develop a theory of institutional change that mixes up the rules of the game and the players. Institutions are the rules of the game and organizations are the players and they entail different modelings to understand the way they operate and interact." (North, 1993)

Before we dive further into analysing institutions, we need to spend some time on establishing the meaning of the term 'institution'. Samuel P. Huntington describes institutions as "*stable, valued, recurring patterns of behaviour*" (Huntington, 1973). One of the key debates around institutional theory concentrates on the role of institutions in organizing social life. Douglas North (1989) views the role of institutions as constraining people's behaviour to a certain direction, to increase efficiency, trying to block negative types of behaviour. Granovetter (1992) approaches institutions from a different angle and places the emphasis on networks and social cohesion that facilitate positive behaviour and thus allow people to be more effective. In either approach, institutions, in essence, are structures to organize life, providing an integrated set of societal rules of conduct for a given community (Woodhill, 2010). They are the sum of organizations, rules, routines of behaviours and norms that shape the life of a community (van Westen, 2019). The term 'institution' applies to both the formal, visible

structures, systems and rules; as well as the informal, invisible, unwritten ones that govern life.

As North highlighted, there is an important distinction to be made between '*institutions'* and '*organisations'*. Institutions are "*the rules and norms that constrain human behaviour*" (North, 1993). Organisations are the 'players' (North, 1993), with formal structures and functions and specific objectives to achieve, and they use resources to perform activities towards achieving their objectives (Howard E., 2007). They have internal rules, and an internal system of authority, hierarchy and command. Organisations may also be formal or informal. Formal organisations typically operate in the public domain and under formal rules, while informal organisations typically arise and operate more spontaneously out of social networks and are not bound by formal regulations (Clarke, 1991). Organisations are influenced by, and may influence the institutional context they operate within, and in some cases may even represent the 'rules of the game', for example in the context of governmental organisations (Pritchard, 2014).

In Indonesia, complex traditional, religious and ethnicity specific institutions often overlap and even conflict with state regulations and involvement of local communities varies (Mehring, et al., 2011). As this research focuses on strengthening local institutions in their role of facilitating the transition from oil palm monoculture to oil palm agroforestry, we will explore both this complex institutional system, as well as the organisations that play a role within it. Importantly, this research will engage critical institutionalism, acknowledging the "*messy complexity of institutional life, ingrained in everyday practices and imbued with power relations and cultural meaning*" (Whaley, 2018).

1.3. Institutional and organisational analysis

"*The continuous interaction between institutions and organizations* [...] *is the key to institutional change*" (North, 1993). In other words, the way organizations interact with each other and with the institutional context plays an essential role in institutional change (Greenwood, et al., 2014; Hollingsworth, 2000).

Over the last couple of decades, the development sector has put a strong emphasis on institutional development, as it is key to social development and change (Woodhill, 2008). To understand how institutions influence a particular situation, and when, how and why institutions work, we need to analyse how they evolve, interact, how they are negotiated and what conditions influence them (Woodhill, 2010; Hollingsworth, 2000). Institutional analysis is understood as the assessment of the 'rules of the game' that influence society, organisations and individuals. Organisational analysis focuses on how organisations are

structured and function. While it is essential to differentiate between the two concepts, both institutional and organisational analysis is important to gain a full picture, as their interaction is at the heart of development (Greenwood, et al., 2014). The question is, of course, how to go about each.

While there are plenty of analytical frameworks and models available for analysing organisations, and the 'actors' (or stakeholders) of an institutional system, when it comes to frameworks and models for an in-depth institutional analysis, the list is quite short. The most commonly recognized framework is Elinor Ostrom's Institutional Analysis and Development framework (IAD), that has been widely employed to study local management of common resources (Grossman, 2019). It looks at the exogenous context through the biophysical conditions, attributes of the community, and rules that influence the core of the framework, the 'Action arena', that is composed of actors and action situations. Actors are the participants of a situation, while 'Action situations' refers to the social space where they interact. The patterns of interaction and outcomes are then analysed and evaluated (Ostrom, 2011). The main question of the framework is how people organize themselves to manage common resources (Grossman, 2019).

Woodhill (2008) developed another framework for exploring the complexity of institutions, by "*asking critical questions about different types of institutions and how they interact*" (Woodhill, 2008). The framework is based on four domains, each with two sub-domains, altogether structuring social interactions. The four domains are 'meaning' (beliefs, norms and values, as well as ideas about how the world works), 'association' (organisations, networks and relationships), 'control' (mandates, policies, strategies and rules), and 'action' (the resulting functions, products and services carried out, along with regular practices and behaviours) (Woodhill, 2008). This approach has been gaining traction in particular in complex, multi-stakeholder context where the main question is how institutions influence a particular situation or outcome. Further to this framework, Woodhill (2010) also emphasizes the importance of embracing the complexity of institutions and social change, and accepting that there are no simple answers. Institutions have evolved organically, without planning, over a long time, responding to all sorts of internal and external influences, and hence are unpredictable (Woodhill, 2010).



Figure 1 A framework for exploring the complexity of institutions (Woodhill, 2008)

For this research, we will be using Woodhill's framework, as it better suits the a complex, dynamic and multi-stakeholder context, and allows more space for understanding how institutions may influence an outcome, in this case the wide-scale adoption of the Strategi Jangka Benah.

1.4. Institutional capacity development

The term 'capacity' has been extensively used in the context of international development during the last three decades and is charged with controversies. First, what is meant by 'capacity' is vague and without a widely accepted definition (Potter & Brough, 2004). It is a buzzword without much meaning attached to it, originating from the concept of institution building. At its best, it translates to organisational development (Eade, 2007), more often it is "*an over-pompous synonym for training*" (Potter & Brough, 2004). While at its worst, it is seen as "*a technology of neoliberal rule*" (Phillips & Ilcan, 2004). This brings us to the other key critique about capacity: capacity building, in essence, is about the exercise of power, with more often than not Northern 'experts' providing support to Southern organizations, reflecting the imbalances of power between the North and the South (Girgis, 2007). This has also led to an assumption that there are 'right answers' regardless of the circumstances and needs of a particular situation (Woodhill, 2010).

To clarify the meaning of capacity, we need to address the questions 'whose capacity' and 'capacity to do what' (Caffentzis, 2000). As for 'whose capacity', it is useful to differentiate three levels of capacity: individual, organisational and institutional (Petruney, et al., 2014). At the individual level, capacities are the knowledge, skills, abilities and experiences of people (Pritchard, 2014). These are also called competencies. At organisations' level we talk about capabilities: the sum of both individual competencies as well as organisation's structures, systems, roles, infrastructure, tools and other resources (Potter & Brough, 2004). Capacity on a macro level refers to the larger systems' ability to achieve an objective, or "*the ability of a society to organize itself and manage its affairs for the collective greater good*" (Woodhill, 2010).

Woodhill (2010) also suggests looking at capacity development as a broader political exercise, addressing global development, i.e. tackling issues such as social justice and environmental sustainability in an increasingly globalized, fast changing, and complex context, as opposed to a North-to-South transfer of expertise. As discussed earlier, for societies to cope with such issues, they need more than just technological innovation: the socio-political aspect of the innovation process is just as important. In this context, capacity development can be defined as the "*process of strengthening relationships that enable innovation and resilience in communities, organisations and societies*" (Woodhill, 2010). Walters (cited in Pritchard, 2014) adds that capacity building is an "*endogenous process*" in which the "*main actor takes responsibility for the process of change*". 'Endogenous' is important: institutions cannot be changed in a planned, top-down manner by outsiders. The goal should be to "*enable societies to be learning-oriented and highly adaptive*" (Woodhill, 2008).

Acknowledging the baggage that comes with it, this research builds on the idea that 'capacity development' does not have to be a covertly normative term to pursue an ideological agenda through a top-down approach. Instead, it can be an institutional system's collaborative process to solve a shared problem. Hence, throughout the analytical process, the focus will be on the endogenous process: how the players of the institutional system perceive the system, what common objectives can be drawn upon, and what they think is necessary for the desired change to happen.

1.5. Power Relationships

Power is a multidimensional social phenomenon, core to all human relationships. Power can take many forms and can be understood and reacted to in different ways (Pettit & McGee, 2019). Power is present in all relationships and institutions and it is an important element of human societies and cultures (Balan, 2010). There is no unified definition of what power is: how we perceive, and address power depends on what perspective we approach it from.

When it comes to power and institutions, one of the points of departure is Max Weber's approach, linking power with the concepts of authority and rule (Sadan, 2004). Foucault also uses power analysis to understand how various institutions maintain control or influence over others (Balan, 2010); but it can also help explain social theory and social change (Pettit & McGee, 2019). Power can be formal or informal, seen either as a result of formal institutions, such as rules, or deliberate acts of coercion, or of informal relationships, such as cultural, social and internalized norms. Formal power is seen as the visible and recognized structures of power, while informal power is referred to as the invisible part of our everyday lives, socialised norms, discourses and cultural practices (Pettit & McGee, 2019). Power can also be positive or negative. Power over can take the form of oppression or repression (Balan, 2010), and, in extreme cases, even of organized crime, with elite groups dominating over the rest of the society. It can also be a positive, necessary force for good, by effective and legitimate public authority, that can create an enabling environment for its citizens. The other positive forms of power include power to (the ability to do something), power with (collective action), and power within (dignity and self-worth) (Pettit, 2013).

To better understand the ways actors relate to and interact with each other, and the frameworks of understanding of the actors involved, this research explores power relations in the context of transitioning from oil palm monoculture to agroforestry, and what roles the various 'players' have in the power dynamics that enable or hinder change, as well as their capacities to drive the transition process.

2. Agroforestry

In addition to the concepts related to institutions, the last concept to discuss is agroforestry. There have been a wide range of meanings attached to agroforestry. It has been used as a collective name for practices involving farming and trees (plot and farm level), for multifunctional landscapes (landscape and livelihood level), and also as a domain for coherent policies for all land uses (policy level) (van Noordwijk, et al., 2019). The Food and Agricultural Organisation of the United Nations works with the plot and farm level definition, and describes agroforestry as a land-use system approach where woody perennials are deliberately grown on the same land unit as agricultural crops and/or animals, thus allowing for ecological and economical interactions between the different components (FAO, 2015). Although it is not widely recognized, agroforestry is common practice: in 2010, more than 40% of agricultural land across the world had at least 10% tree cover (Zomer, et al., 2016).

Agroforestry as a concept exists since the 1970s, as an alternative to intensified monocultural forms of agriculture as well as recognizing the failure of interactions between forest authorities and farmers (van Noordwijk, et al., 2019). Over the last decades, substantial research has been done to determine agroforestry's viability. Results of these studies suggest that, unlike monoculture plantations, agroforestry systems can contribute to social and ecological sustainability in numerous ways: it can help improve soil composition and fertility; reduce insect pests and associated diseases; improve water retention of the soil (Karki, n.d.); conserve biodiversity (Bhagwat & Willis, 2008); improve crop yield (Miccolis, et al., 2019); and allow for income diversification by producing a variety of produces such as fruits and timber (Strategi Jangka Benah, 2020). According to the 2019 IPCC report, while agroforestry takes time to deliver results, it provides multiple ecosystem services and functions, helps combat desertification, can substantially reduce erosion and nutrient leaching while building soil carbon, and it can contribute to food security (Smith, et al., 2014).

Agroforestry is already spread in the case of crops such as coffee, cocoa and rubber, however, the approach is quite new when it comes to oil palm. Archaeological records of oil palm in West and Central Africa suggest that oil palm groves were maintained among other secondary forest species - today's oil palm agroforestry systems are similar to this prehistoric approach (Bhagwat & Willis, 2008). But as oil palm agroforestry is still in its infancy, there are concerns regarding its viability, and how sustainable agroforestry is (Miccolis, et al., 2019). Feasibility of oil palm agroforestry can be tested directly in the field by establishing long-term experiments, so-called demonstration plots, however, these are costly and require a lot of time. *Photo 1* shows such a demonstration plot in Karang Sari village, Central Kalimantan, established in 2019. Intercropping oil palm with certain other crops, such as cocoa has already found to be feasible, but it requires advanced technical expertise and supply-chain engagement, a potential barrier for many smallholder farmers (Khasanah, et al., 2020).



Photo 1 Monitoring and evaluation of the demonstration plot in Karang Sari, Kotawaringin Timur. Photo by: Strategi Jangka Benah team

As mentioned earlier, oil palm agroforestry can be seen as a technological innovation, in the context of sustainable development in Indonesia. It could serve as a climate adoption strategy on both local and national level, and it offers a potential solution to the notorious land-use issues Indonesia has been facing for decades, without compromising palm oil income neither at the state's level nor for the individual farmers. However, to achieve these objectives, institutional change is also required, not only on policy level (although those are also important), but across the institutional system surrounding oil palm plantations. This research will focus on analysing the current state of the institutional system and on understanding what institutional level changes will be necessary for a transition to oil palm agroforestry.

Methodology

The goal of this chapter is to present the analytical process used during this research, and the limitations of both the process and the results. We will start with the conceptual framework, and operationalization of the variables, then review the research methods, and, finally, we will discuss limitations and reflections.



1. Conceptual Framework

Figure 2 Conceptual framework

The conceptual framework (as shown in Figure 2) translates the research questions into conceptual nodes to see the linkages and process of analysis. The focus of the research is to deliver an institutional analysis process, outlined by the blue nodes; while the green nodes will provide the practical backdrop and context to the analysis. Through this, there are two objectives to be achieved: the first is the results of the analysis, providing input for the implementation of the Strategi Jangka Benah; the second is to provide a critical review of the institutional analysis process itself.

To answer the main research question "*How can local institutions better facilitate the transition of smallholder oil palm farmers from monoculture plantations to oil palm agroforestry?*", first the actors of the institutional context will be identified and analysed:

which players are involved, which ones are not, how they are involved, how they relate to each other and how they influence the outcome of the initiative. Second, we will analyse the rules of the game that are involved with the transition to oil palm agroforestry, and how they materialize in the functions of meaning, association, control and action. These two analyses then provide the basis for the third step, the capacity analysis. This step involves identifying the capacity gaps of the local institutional system towards effectively facilitating the transition to oil palm agroforestry, and what strategies may exist to develop the necessary capacity.

The overall research methodology has been designed based on the landscape governance approach of the Wageningen University (WUR) and the Global Landscape Forum (GLF) (WageningenX, 2020). This methodology has been chosen as its main objectives are most closely aligned with the needs of the Strategi Jangka Benah, namely, to understand the role and influence of local institutions on a desired outcome and to analyse what capacities need improvement to better facilitate the change process. The WUR-GLF approach is a two-step process. It starts with a stakeholder analysis based on the Power-Interest grid, followed by an overall institutional analysis based on Woodhill's institutional analysis framework. However, the WUR-GLF approach to stakeholder assessment misses out contextual information, so it will be integrated it with other approaches (see under the section 'Operationalization of variables'). Also, instead of stakeholder analysis, we will call it an 'actor' analysis, for the reason that we want to analyse the actors (or players) of an institutional system, rather than the stakeholders of the project, even though there is significant overlap between those categories. For the institutional analysis step the WUR-GLF approach will be followed, guided by Woodhill's institutional analysis framework. Finally, the WUR-GLF approach has the capacity analysis built *into* the institutional analysis process, offering a simple strength-weakness analysis, thereby overlooking the interactions between and complexity of elements. As such, Woodhill's capacities for institutional innovation will be deployed for this step and is used as a basis for the capacity analysis (Woodhill, 2010).

2. Operationalization of variables

One of the key difficulties of institutional analysis is measurement. This research is looking at aspects such as beliefs and values, frameworks of understanding, informal control mechanisms and informal relationships, among other things. The collected data is 'soft', and, as such, is difficult to quantify. Another challenge is the level of complexity. An institutional system is complex by definition, and an institutional analysis is also context-dependent, therefore the outcome will depend on the change we want to achieve. However, it is possible to define variables to guide the analytical process, as shown in the following sections.

2.1. Actor Analysis

The actor analysis is the necessary first step of the process, as institutional change is the result of actors' interactions with each other and with the institutional context. Also, we need to know the set of actors that form an institutional system to be able to further identify and analyse other institutional functions such as frameworks of understanding, practices and control mechanisms. The actor analysis aims to identify the players within the institutional system, providing a detailed overview of each organization, formal or informal, their place within the institutional system, as well as their relationship with the initiative and with each other, if relevant. Actors and interactions will also re-appear under the section 'Association' within the Woodhill framework, where we will look at them on a collective, macro level, with a focus on understanding the *patterns* of their involvement and relationships.

A combination of three tools will be used for conducting the actor analysis. The first is the influence network mapping tool called NetMapping (Schiffer, 2007), which works with four questions: (1) who is involved, (2) how they are linked, (3) how influential they are, and (4) what their goals are. These questions allow us to systematically explore actors in the institutional system and will be used to provide a detailed description of the actors. We will then use this information to draw a Power-Interest Grid (WageningenX, 2020), and the Stakeholder Analysis (van Noorloos, 2020). We layer these two tools because the Power-Interest Grid helps understand actors' relative positions regarding the Strategi Jangka Benah, while the Stakeholder Analysis facilitates the categorizing of actors of the institutional system, according to their level of involvement. Such an analysis will allow us to understand which actors or groups of actors the initiators of the Strategi Jangka Benah need to focus their attention to.

2.2. Institutional Analysis of 'the rules of the game'

The institutional analysis process will be guided by Woodhill's previously mentioned institutional analysis framework (Woodhill, 2008). The framework suggests that institutions have four different functions: first, they give meaning to a community; second, they define the control mechanisms; third, they help people get organised and build associations; and fourth, they consist of practices and behaviours. They help answer the questions: what are the institutions under each of these aspects, and how do they influence a particular situation or outcome?

To be able to answer these questions, the concepts of 'meaning', 'association', 'control' and 'action' needed to be translated into simpler concepts and ideas that can be observed or discussed, which was done as follows:

Туре	Description	Examples for oil palm agroforestry
Meaning		-
Beliefs and values	The underlying and often deeply held assumptions on which people base decisions	 Religious beliefs and values Beliefs about oil palm growing Attitudes towards oil palm (agroforestry)
Frameworks for understanding	Language, theories and concepts used to communicate, explain phenomena and guide action	Historical background• Cultural and ethnical settings• Frameworks of understanding of oil palm and oil palm agroforestry by the different players
Association		-
Organizations and networks	Organizations created by government, business and civil society	 Governmental organizations (national, provincial, district and village level) KPH/FMU• Farmers' associations •Community-based organizations NGO's• Universities• Other forums and organizations involved with oil palm growing and coordination
Relationships and transactions	The ways and means of building and maintaining relationships between individuals and among organizations	 Organizational networks and collaborations Who is involved / who is left out Ways of communication and interaction Content of communication and interaction
Control		-
Mandates, policies and strategies	The mandates given or taken by particular groups and organizations, the positions and policies they adopt and the strategies the try to follow	 Various forms of government policy around oil palm, forestry and agriculture National and local strategy on oil palm Land rights Mandates of various government bodies
Formal and informal rules	The formal and informal rules that set the constraints for how organizations and individuals can behave in given situations	 Oil palm, forestry and agriculture related rules and regulations Environmental regulations Enforcement (or not) of rules Players' responses to rules
Action		- -
Functions, products and services	The functions carried out and products and services delivered by government, private and civil society organizations	 Functions and services of involved organizations Palm oil as a product of the small holder farmers Functions and services of small buyers and farmer groups
Regular practices and behaviors	The practices and behaviors that individual repeat in social, economic and political life	 Patterns of oil palm growing Regular behaviors of actors in palm oil markets Practices of law enforcement regarding oil palm growing in forest areas Practices and behaviors of involved local organizations Interactions of practices and behaviors

Table 1 Institutional Assessment concepts with examples for oil palm agroforestry

The data collected will be analysed to understand which are the institutions that facilitate the desired change; which ones might hinder it; and which ones may be ambivalent or dynamic.

2.3. Capacity Analysis

As discussed in an earlier chapter, 'capacity' on an institutional level is systemic, and it refers to the sum of policies, rules, norms, values, priorities, modes of operation, as well as resources, leadership and practices. Capacity development, then, is understood as the process of enabling the institutional system to learn and adapt, to achieve a desired change. Capacity analysis, in a broader context, will focus on the question: "*what are the mechanisms for such a guided change?*" (Woodhill, 2008) In the context of the Strategi Jangka Benah, this translates as: how to enable change in the institutional system to facilitate the transition from smallholder oil palm monoculture plantations to oil palm agroforestry?

To answer this question, we will rely on Woodhill's (2010) definition of capacity building as the "*process of strengthening relationships that enable innovation and resilience in communities, organisations and societies*" within which the goal should be to "*enable societies to be learning-oriented and highly adaptive*" (Woodhill, 2008). He suggests four capacities that are necessary for institutional change: navigating complexity, learning collaboratively, engaging politically and being self-reflective. We will review each of these capacities from the perspective of the institutional system in the context of the Strategi Jangka Benah, identify the strengths and weaknesses for each capacity, and point towards opportunities for improvement.

3. Research methods and instruments

Initially, this research was planned as a participatory action research, with highly participatory research methods and action-oriented results, based on a thirteen-week fieldwork. However, the emergence of COVID-19 as a global pandemic interfered with these plans, shortening the fieldwork to one month. A part of this month was spent in Yogyakarta, with representatives of the Universitas Gadjah Mada who make up most of the Strategi Jangka Benah team. The rest of the fieldwork took place in Karang Sari village, Central Kalimantan province, which is one of the pilot locations of the SJB. The time spent on the field allowed for relationships to be built, for experiencing life in an oil palm farming village, as well as for gaining an initial insight into the project and its circumstances, which would have not been possible otherwise.

The rest of the research was conducted remotely from the Netherlands and, as the research moved into the virtual sphere, the research methods and techniques had to be adjusted to the new realities. The next sections will discuss the final approach.

3.1. Participant recruitment

The participants for this research are all representatives of the players included within the local institutional system for the transition to oil palm agroforestry. Local institutional system, in this case, means the provincial, district and village level actors, with a focus on the Central

Kalimantan province, Kotawaringin Timur district, and Karang Sari village. Relevant actors from other districts have also been included in the research.

The initial target participant list consisted of representatives of the village, district and provincial government bodies, as well as of the Forest Management Units. This list was provided by the host organisations, and the plan was to rely on the snowball sampling method to learn about and reach out to further formal and informal organisations, even individuals that would be relevant to talk to. However, due to the premature return from Indonesia to the Netherlands, the snowball sampling method worked only to a very limited extent. After the initial list of target research participants to contact was assembled, a team member of the Strategi Jangka Benah team, stationed locally in Central Kalimantan, expanded this initial list with her contacts, as well as through snowball sampling of her own, until we had a list of over sixty people. She was also the main contact to research participants. The list of people invited to participate in the research included representatives of relevant government bodies at all levels, NGOs, universities and research institutions, community-based organizations and large-scale palm oil companies. Although individual farmers were not in the scope of this research, they are represented in the research on an organizational level, by the Village Chief (who himself is also an oil palm farmer) and the Chair of the Forest Farmers' Group of Karang Sari.

Although the initial responses were positive and invited people expressed the will to participate in the research, not all them responded to the more specific invitations for interviews and questionnaires, usually due to their busy schedules. With 40 research participants, our response rate was over 60%. Half of the respondents are representatives of relevant government bodies, another 35% are from universities, research institutes and NGOs, while the rest are representatives of the village farmers' community, an intergovernmental organization, as well as large oil palm plantation companies. While not all of them are directly involved with the Strategi Jangka Benah or oil palm agroforestry, all research participants' organizations are involved with and knowledgeable about one or more aspects of oil palm plantations, such as forestry, plantation management, local farmer communities, environmental sustainability, and food security, to mention a few. In the result chapters, research participants are referred to with codes. The participant list and codes table with their organization, type and level of operation, and involvement in the SJB can be found under the Appendices chapter.

While the response rate can be considered relatively high, it still left us with some gaps in the data. Some groups of organisations, for example national government bodies have not provided us with data at all, hence we had to rely on the comments from other research participants and other secondary data sources (detailed below). In the results chapters, it will be indicated where direct input from an organisation or group of organisations is missing.

3.2. Research instruments

The research instruments had to change most significantly during the redesign, as new factors, such as time zone differences, internet bandwidth, and, altogether, access to participants in a time of lockdowns, movement restrictions and moving work to home offices had to be considered. Also, with the changing situation, plans had to be re-adjusted repeatedly. Due to these factors, primary research data was difficult to access, so secondary research instruments were also deployed to fill in the gaps. The following list describes both primary and secondary data collection methods used during the research.

Semi-structured interviews: Three semi-structured interviews were conducted at the start of the research period, allowing in-depth conversations with the two initiating organizations, and with a representative of a partner organization, JAVLEC, whose own research team was also located in Karang Sari village at the time. All of these interviews were conducted in English and lasted for about an hour. The first interview conducted in person, and recorded with notes, drawings and pictures (see *Photo 2* below). The other two were conducted online via Skype, with full-length audio-video recordings. The interviews focused on understanding the larger context and circumstances, and key players surrounding oil palm cultivation and the Strategi Jangka Benah, from the perspective of the initiating and partner organizations. All of these interviews generated further contact details of people to invite to participate in the research.



Photo 2 Interview notes on a white board, in Karang Sari village, March 2020

Epistolary Interviews: Epistolary interviews are one-on-one, asynchronous interviews assisted by technology. During epistolary interviews, the interviewer and research participant do not need to be present at the same time, in the same space, and interview participants can choose when they respond, while still allowing for a two-way communication and probing in case the interviewer wants to follow up on some of the responses given (Lupton, 2020; Debenham, 2001). Debenham (2001) recommends the use of email for such interviews, however, other tools such as mobile apps could be also used. Given that the possibility of conducting phone or video interviews was limited due to the time zone difference and language barriers, a decision was made to build the interview questions from the interview guide into a Google Form and distribute the link to research participants so that they could complete the questionnaire in their own time.

The 'interview form' was designed to gather data around the various aspects of the institutional and actor analysis, based on the variables that had been described previously. The last question of the interview form was whether the participant was comfortable to be

contacted for additional questions. We received 37 responses to the interview form, from a diverse mix of governmental bodies, representatives of Forest Management Units, village organizations, as well as universities, research institutes, NGOS and large-scale palm oil companies. Some of these were already involved with the Strategi Jangka Benah, while others were not. Based on the responses, a follow-up interview questionnaire was created and sent to a smaller number of interview participants whose organizations were involved in the SJB, to find out more about the power dynamics between the various actors, that influence the initiative. Three research participants responded to these follow-up questions.

Observation: Although time in the field was cut short, it still allowed for some observations that were useful for the research. Participating in village life, informal conversations, and witnessing the interactions brought some important insights, in particular regarding the aspects of power relationships, administrative processes, and relationships between actors.

Secondary data sources: to fill in the gaps of information left by primary data collection methods and some direct input from certain groups of actors, secondary data sources such as project documentation from the Strategi Jangka Benah team, online sources such as organizations' websites, and information from other participants were also used. These sources of information were mostly concerning the profiles and mandates of actors that could not be reached, their involvement or planned involvement in the SJB, and cooperation between various actors.

3.3. Analysing data

For the actor analysis, the first set of questions from the interviews (organization name, level of operation, respondent's work, and their organization's profile), along with input from the follow-up interviews, and secondary data were used. While these sets of data were summarized to help determine the typology of actors, the data was not coded. Rather, it was used to provide an insight into the various actors of the institutional system, as much from their own perspective as possible. For the second part of the analysis ('the rules of the game'), a qualitative data analysis process was used, whereby, based on the data from all interviews, codes were developed, leading to the categorization and conceptualization of the data. Both inductive and deductive codes were used: deductive codes provided the broader structure of the coding tree based on *Table 1* (page 26), while inductive codes captured the more detailed insights for the research, from the participants' perspective. Finally, for the Capacity Analysis chapter, the analyses from the previous two chapters served as input and were analysed based on Woodhill's (2010) capacities for institutional innovation. In the results chapters, there will be clear references made to the sources of the data.

4. Limitations

However well thought-out, most research face challenges and limitations, and this research is no exception. While each of the following challenges was handled with care, and the research aims to provide as accurate a representation of the situation as possible, it is important to acknowledge and reflect on them.

As already mentioned, this research was meant to be based on a thirteen-week long fieldwork in Central Kalimantan, Indonesia, between February and May 2020. The first challenge was that due to delays with visas and research permits, arrival to the field was delayed by several weeks. This was followed by the COVID-19 pandemic spreading across the world in the first months of 2020, shortening the fieldwork to one month, and making it necessary to change the originally planned research approach and methodology. As discussed in the previous section, factors such as time zone differences, internet bandwidth, and access to research participants had to be considered. Indonesia, and in particular, Central Kalimantan were under a strict lock-down, the provincial borders were closed, and all means of public transport, including flights, were shut down for several weeks. People started working from home instead of going to their offices, bringing a variety of challenges to accessing the target participants of this research. Also, the local Indonesian team of the Strategi Jangka Benah project were facing challenges due to their reduced mobility. With limited access to research participants, one of the most significant limitations of this research is the lack of completeness of primary data, although secondary data sources helped overcome this challenge.

The language barrier was also a challenge, especially in the context of the epistolary interviews: translating the interview questions to Indonesian, and then the answers from Indonesian to English, there is a risk for information to be 'lost in translation'. Language barrier also made it difficult to look for information from secondary sources: although online translation programs are fairly reliable, it took a significantly more effort even to decide what documents and websites were relevant to translate.

Further to language barrier, epistolary interviews might also lack the depth and width of discussion that may occur during a face-to-face conversation. Although some people may have found it easier to provide detailed, well-considered answers in writing, some gave brief, one-line responses. This can happen in real-life interviews too, but it is more difficult to follow up with them through epistolary interviews.

Another limitation, that was factored in from the beginning, was that as the research timeframe and circumstances only allowed to research one pilot location of the SJB. While

the formal organizations, rules, policies, the general frameworks of understanding, etc. are the same across Indonesia, relationships, informal institutions, even some of the beliefs and values, and power dynamics might be different from one province to another. However, although the specific results may not apply at every location, the research process, lessons learnt, and conclusions will be generally useful.

Finally, the limitations regarding the objective to provide a critical review of the institutional analysis process need to be mentioned. Even under the best circumstances, conducting such a research is a complex, time-consuming matter – and the circumstances for this research have been extraordinarily challenging. In 'normal times' the exact process, and the inputs might differ from what was possible for this research. Thus, instead of trying to reach overarching conclusions, this research is an attempt to explore how the process works, what tools are available to facilitate the process, how much support those tools provide, what challenges are experienced throughout the process (besides the ones caused by the ongoing pandemic), and what can be recommended for further research on this topic.

5. Reflection on positionality as a researcher

"*Research represents a shared space, shaped by both researcher and participants*" (England, cited in Bourke, 2014).

Our identities, biases and perspectives impact the research process, and thus recognizing and reflecting on these is an important part of the process (Bourke, 2014). In my case, there are two aspects of my identity that have come into play during the research, influencing the way I experienced and translated situations or reacted to them.

The first, and most obvious of these is my position as a foreign woman – as part of a research team of three foreign women. Upon arriving to Karang Sari village, we were told that were the first foreigners ever stepping foot in the village, causing quite an excitement. Locals reacted to our presence in different ways: some were shy, especially due to the language barrier. Others took us under their wings, ensuring that we were cared for and supported. Again others, children, in particular, hung out around our house, overexcited, and keen to create connection with us. Although we were warmly welcome, our presence may have been disturbing for some, as it changed the normal dynamics of village life. The situation required us to reflect on our positionality and privileges, especially as researchers, to avoid creating unwanted power dynamics between us and the locals. Being a foreigner also made it more difficult to build relationship with and gain the trust of my research participants, especially

after leaving Indonesia. With the local SJB team managing the contact with my research participants, I had little to no direct contact with most of them.

The other aspect to mention relates to my thinking and working patterns: I have started studying again after a ten-years break since my Bachelors' degree, with a decade of consulting experience behind me. As a consultant, I work towards practical outcomes: I usually assess the situation, identify the challenges, and then work together with my clients to find and implement solutions. It has been a steep learning curve to adjust that pattern, letting go of my expectations and the ideas of what needs to change, and instead, applying an iterative approach based on the data and information I get. This also meant accepting that I had less control over data collection and some parts of the research process than I am used to. The result, hopefully, is a research with less of my own bias, allowing the research participants to take the centre stage and to tell us how they see the situation.

Regional Thematic Framework

The purpose of this chapter is to provide context to the research and the results. After reviewing some necessary information about palm oil, we will walk through the history of oil palm development in Indonesia, examine the problems surrounding oil palm cultivation, and look at some of the most important approaches in the effort to address those problems. This will lead us to a detailed description of the Strategi Jangka Benah. Finally, we will discuss the local governance framework of Indonesia, introducing some of the most important actors for the following chapters.

1. Understanding palm oil

The global demand for vegetable oil is projected to double by 2050, driven by the increasing global wealth and population growth (Jelsma, et al., 2017). Most vegetable oil types can serve two functions: they can be used for cooking, as well as for biofuel production. Of all vegetable oil types, palm oil is the most common: over 30% of global vegetable oil consumption comes from palm oil (Shahbandeh, 2020). To meet this demand, global palm oil production quadrupled between 1995 and 2015 and it is expected to quadruple again by 2050 (Tullis, 2019). Indonesia and Malaysia dominate the global palm oil market, together producing approximately 85% of the global crude palm oil (CPO). The world's largest producing and export country of palm oil is Indonesia, with 54% of the global market share, most of which is exported (Jelsma, et al., 2017). In the last decade, Indonesian palm oil production has almost doubled (Barrientos & Soria, 2019), and it is expected to increase further, driven by demand from India, China, Pakistan, the European Union and African countries (McDonald & Rahmanulloh, 2019).

Palm oil can be produced in two ways: crude palm oil is extracted from the flesh of the palm fruit, while palm kernel oil comes from crunching the kernel of the fruit (Ghani, n.d.). Palm oil is extremely versatile in both the food and non-food industries (Jelsma, et al., 2017). More than two-thirds of palm oil is used for cooking and food processing (Tullis, 2019). However, palm oil is also used for producing of cosmetics and plastics, feeding livestock, as well as biofuel (Nomanbhay, et al., 2017; Gatto, et al., 2015; Oosterveer, 2015), and altogether, it can be found in half of all products available in supermarkets worldwide (Oosterveer, 2015). It is resistant to oxidation which gives it a longer shelf-life, it is stable at high temperatures, and it is odourless and colourless (Ghani, n.d.).

Besides its versatility and benefits as a product, it also has numerous benefits as a crop. As a perennial crop, it offers a steady source of production compared with other, seasonal crops such as soybean or rapeseed (Oosterveer, 2015). It is also the most efficient oilseed crop in the world, producing up to eight times more oil per hectare than other leading oil seed crops (Nomanbhay, et al., 2017). Its low production costs make it an attractive alternative on the global vegetable oil market. And finally, governments around the world have used oil palm as a vehicle for rural socio-economic development, creating an attractive income opportunity for rural farmers (Rist, et al., 2010).

2. The history of oil palm in Indonesia

The history of Indonesian palm oil is closely embedded into Indonesia's history and politics since the 19th century. Oil palm was introduced to the Indo-Malayan region by the Dutch during the colonial times in 1848 (Caroko, et al., 2011). Initially oil palms were planted for their ornamental character. From the early 20th century palm oil was used for making soap and candles, then later for heating, cooking, and various products (Sheil, et al., 2009). The first large scale oil palm plantation was created in 1911 in Sumatra (Rafiie, 2018), by the colonisers. As these plantations started facing labour shortages, the Dutch implemented the 'Kolonisatie program', moving landless people from Java to the less populated areas of Borneo and Sumatra, initiating the 'transmigration' process that would become a rural development strategy for Indonesian governments for decades to come. The goals of the transmigration program were two-fold: to reduce the pressure on over-populated Java, and to produce food crops on the outer islands (Baudoin, et al., 2017). Large-scale, global expansion of palm oil consumption was driven by the Anglo-Dutch conglomerate, Unilever, and the introduction of margarine in the 1930s. To replace butter, which was believed to be a leading contributor to heart diseases, they needed a cheap, efficient vegetable oil for producing margarine, and found palm oil (Tullis, 2019). The Second World War put a halt to the expansion of oil palm as Indonesia was occupied by the Japanese between 1942 and 1945, making transportation and export increasingly difficult (Baudoin, et al., 2017).

Indonesia declared its independence in 1945 (effective as of 1949), and President Sukoro became the first president of independent Indonesia. In the 1950s and 1960s, oil palm plantations were managed by demobilized soldiers who had no knowledge or experience in managing oil palm plantations. Corruption and lack of effective management led to the stagnation of the Indonesian oil palm industry (Baudoin, et al., 2017). During this period, transmigration was presented as the social development program to fight the growing unemployment, rather unsuccessfully (Budidarsono, et al., 2013). The failures of the 'Old
Order', as Sukoro's presidency is called, led Indonesia to a new era. In 1967, President Suharto took over, introducing the 'New Order' in Indonesia. Transmigration became a strategy to achieve self-sufficiency in rice production and transmigrant families were sent to Sumatra and Kalimantan to start establishing rice cultivation there (Baudoin, et al., 2017). However, neither of these islands have the appropriate soil structure (large parts of them are peat lands, where rice does not grow (Jong, 2020)), and with the lack of results, the focus shifted towards oil palm (Baudoin, et al., 2017).

In the 1960s, oil palm cultivation was led by public companies called PNPs (Perusahaan Negara Perkebunan). In the 1970s, PNPs were turned into PTPs (Perseroan Terbutas Perkebunan), or semi-public companies – the majority of oil palm cultivation was managed by these up until the 1990s, although over time the private sector also started to get involved. In 1978 the Indonesian government introduced a scheme to stimulate oil palm cultivation, called PIR (Perkebunan Inti Rakyat, or Nucleus Estate and Smallholder program), through which they defined the 'nucleus' as the core plantation of an oil palm company, and the 'plasma' as the periphery of the nucleus, allocated to outgrowers but under the company's supervision (Baudoin, et al., 2017; Budidarsono, et al., 2013; Jelsma, et al., 2017). Under the PIR-Trans, the government relocated rural villagers, mostly from Java, to oil palm growing areas, giving two hectares of land to each family: 0,25 hectare for housing, 0,75 hectare for cropland to cultivate food, and another 1 hectare of cropland for long-term investment (Potter, 2016). Some of the newly allocated lands were State forest areas. The company (public or privately owned) could receive a permit comprising both state-owned and private land, having to convince landowners to either participate in the scheme as outgrowers, or sell their land to the company (Baudoin, et al., 2017). In several cases, companies took over smallholder croplands not allocated for oil palm but food production, offering smallholders to share profits with them (Prabowo, et al., 2017). Not only was this illegal, but it also reduced local food production, driving up food prices which remains a problem until today. Furthermore, many smallholder farmers could not afford the initial investments necessary to start oil palm cultivation, so the government introduced the Koperasi Kredit Primer Anggota (KKPA) scheme to support smallholder oil palm farmers by creating farmer cooperatives that would serve as intermediaries between the company and the plasma planters, and would help manage the plasma as well as provide credit for smallholders (Budidarsono, et al., 2013; Baudoin, et al., 2017).

As the Asian economic crisis hit in 1998, Indonesia was one of the most negatively impacted countries, a situation further exacerbated by a draught the same year, followed by large-scale social unrest. President Suharto eventually resigned, and the presidency was taken over by Jusuf Habibie. This marks the beginning of the 'Reformasi' era (Baudoin, et al., 2017).

Habibie's government introduced a laissez-faire approach, marked by increasing liberalisation, democratisation, and de-centralisation efforts (Budidarsono, et al., 2013). Instead of being directly involved, the government started establishing a regulatory framework and institutional context for the economy. However, this has left smallholder oil palm farmers in a difficult situation. Firstly, during the economic crisis several oil palm companies collapsed, leaving smallholder farmers with oil palm plantations but no knowledge, skills, experience, or capital to manage those plantations. Furthermore, smallholders lacked the capital or available credit to enter or remain in the KKPA and were forced to sell their lands before they could profit from their oil palm plantations. In response to this, the government initiated the 'Plantation Revitalisation Program' to boost the palm oil sector with credit, and to stimulate partnerships between smallholders, companies and the government (Baudoin, et al., 2017).

The Plantation Revitalization Program, along with the liberalisation of the national palm oil market has led to a significant growth of the Indonesian palm oil industry. The surface area planted with oil palm has grown from 1.8 million hectares in 1994 (Ma'ruf, et al., 2019) to 16 million hectares by 2019 (Suwastoyo, 2020). While 60% of Indonesian crude palm oil is produced by private or state-owned companies (RSPO Indonesia , 2014), small-holder farmers play an important role in palm oil production: they own and/or manage more than 40% of the total oil palm area (Ma'ruf, et al., 2019). The oil palm plantations according to ownership & productivity can be seen on *Figure 3*, along with the average productivity values of each ownership types: with a lower productivity, smallholders produce only 35% of Indonesia's total CPO output. Smallholders, as per the Indonesian Sustainable Palm Oil certification programme, are defined as those with farms smaller than 25 hectares. With approximately 2,67 million smallholder farmers (Jong, 2020), over 6 million people depend on and benefit from smallholder oil palm farming (Daemeter Consulting, 2015).



Figure 3 Oil Palm Plantations According to Ownership & Productivity in 2017 (KEHATI, UKaid, 2018)

3. The problems surrounding palm oil

Palm oil has become a strategic commodity for Indonesia, and the biggest contributor to Indonesia's foreign exchange earnings. It has also contributed to the growth of the rural economy, as well as to poverty reduction, and the palm oil industry, directly or indirectly employs to 17 million people in the country, including 6 million poor people in rural Indonesia (Ma'ruf, et al., 2019). However, the expansion of oil palm plantations in Indonesia has caused an array of social and environmental problems. The most important concerns related to environmental and socio-economic sustainability are described in this section.

3.1. Changes in land use

To make space for new oil palm plantations, changes in land use need to take place. In the most extensive oil palm growing areas such as Sumatra and Kalimantan, this often means the conversions of forests or peatland into oil palm plantations, both with major impacts on global CO2 emissions and on biodiversity (Sumarga & Hein, 2014).

Since 1990, more than half of the plantation development was on previously converted primary or secondary forests. Deforestation is the main source of greenhouse gas (GHG) emission, although peatland conversion also contributes considerably (Ramdani & Hino, 2013). According to Mukherjee and Sovacool (2014), peatlands have some of the world's richest carbon-storing capacity, and their degradation results in extensive release of trapped carbon (Mukherjee & Sovacool, 2014). Draining peatlands also increases the risk of fire and exacerbates the impacts of draughts (Ramdani & Hino, 2013).

Besides the direct land use changes, it is important to mention indirect land use changes (ILUC) associated with the production of biofuels. ILUC occurs "*when pasture or agricultural land previously destined for food and feed markets is diverted to the production of fuels for biomass*" (European Commission, 2019). This is particularly problematic because the demand for food still needs to be met, either by intensification of the current production or by creating more production land by direct land use changes (i.e. conversation of non-agricultural land).

3.2. Ecosystem implications

Indonesia is one of the world's most biodiverse countries, with a wide variety of endemic species. Also, an estimated 40 million people in rural Indonesia rely on biodiversity for their livelihoods (Convention on Biological Diversity, n.d.). The most commonly cited problem with palm oil is that the expansion of oil palm plantations occurred at the cost of tropical forests (Oosterveer, 2015), and the loss of virgin forest areas contributes to the loss of biodiversity and ecosystems, as well as land degradation and decreased soil fertility.

Since 1985, protected forest areas have been reduced by over 50% on Kalimantan (Sheil, et al., 2009). Several species are facing severe threats by the loss of habitat, landscape changes, land degradation, forest and land fires, as well as by conflicts between humans and wildlife (Convention on Biological Diversity, n.d.). Furthermore, monoculture plantations are unable to attract rich biodiversity, and this encourages the spread of pest insects and plant diseases, putting the plantation itself at risk. The pesticides used for dealing with the increasing pest problem contribute to the pollution that is already produced through oil palm production, transporting and processing activities (Oosterveer, 2015), causing further reduction of biodiversity.

Apart from biodiversity loss, large-scale oil plantations can also cause significant damage to the soil. Oil palm trees' roots are shallow and do not facilitate the water retention of the soil, hence oil palm monoculture plantations lead to soil erosion and loss of soil fertility. In addition, plantation practices, including pesticide use and the disposed of, untreated wastewater generated from palm oil processing deteriorate water quality, further threatening both biodiversity as well as human health (Mukherjee & Sovacool, 2014).

3.3. Greenhouse gas emissions

As of 2018, Indonesia was one of the top then CO₂ emitters in the world, based on their share of global CO₂ emissions. The country's CO₂ emissions have been steadily growing over the last five decades, more than doubling since the 1990s (Crippa, et al., 2019). This, as explained previously, is largely due to forest and peatland conversations: land use change accounts for 75% of the national GHG emissions (Ma'ruf, et al., 2019). However, clearing the

land for oil palm plantation often happens through fire, and the illegal burning of forests further increases the CO₂ emissions (Sheil, et al., 2009). According to studies, 80% of forest and peatland fires across Indonesia involved oil palm companies (Ma'ruf, et al., 2019).

Further to the land use changes and related fires, the entire chain of palm oil production contributes to GHG emissions. Tilling the soil, the agricultural machinery used, transportation, and in particular, the fertilizers used, given that "*nitrous oxide associated with certain fertilizers has a global warming potential 300 times more potent than CO2*" (Mukherjee & Sovacool, 2014) contribute to this problem.

3.4. Livelihood impacts

Oil palm cultivation requires significant investments and expertise, and the benefits of oil palm farming are not inclusive. On Kalimantan in particular, the transmigrant farmers reap the benefits of oil palm, as opposed to the indigenous people (Obidzinski, et al., 2012). Large-scale oil palm plantations have also been expanding into the lands of indigenous communities, triggering conflicts between the plantations and communities about land ownership and access (Oosterveer, 2015; Obidzinski, et al., 2012; Sumarga & Hein, 2014). Additionally, forest-dependent communities have been severely impacted by the loss of wood and other produce they used to gain from forest areas that are now replaced by oil palm monoculture. Human rights abuses against local communities are common too, and traditional cultures and customs are under threat by oil palm companies (Sheil, et al., 2009).

Food versus fuel is a dilemma related to the price of oil palm. With the rise of the biodiesel sector and increasing demand for palm oil as biofuel, exporting countries like Indonesia benefit from high palm oil prices. At the same time, millions of poor Indonesian households who are reliant on palm oil for cooking have suffered from the increasing price of palm oil, causing a significant surge in expenditures on food (Mukherjee & Sovacool, 2014).

3.5. Land ownership issues

Land management is key to sustainable palm oil. Historically in Indonesia, conversions of forest areas into oil palm plantations have resulted in chaotic land allocation arrangements. The land system in Indonesia is not integrated between the various levels of governance, with complex and overlapping regulations, and with stakeholders whose authorities and interests are misaligned, or even contradictory to each other's (Ma'ruf, et al., 2019). Land related conflicts are very common, including indigenous communities' struggle for the recognition of customary land rights (Mukherjee & Sovacool, 2014).

Contributing to this problem is the lack or incompleteness of land records, and inconsistent maps between the various government authorities. According to the World Resource Institute, it can happen that "*different government agencies grant competing companies rights to operate in overlapping jurisdictions*" (MacDonald, 2017). With the absence of complete records and an appropriate control system over the licensing process, many oil palm farmers and companies tend to violate the provisions of spatial planning, resulting in some 3.4 million hectares of oil palm cultivated inside forest areas (Ma'ruf, et al., 2019).

3.6. Smallholder production

Smallholder oil palm farming is linked with a variety of challenges. The first of these is land productivity: smallholder oil palm plantations in Indonesia are underperforming, producing up to 25-50% less palm oil than company plantations. This is the result of lack of technical knowledge of oil palm cultivation as well as low quality seeds. Farmers also tend to be unaware of sustainable oil palm cultivation techniques. To further add to this problem, the life span of oil palm trees is 25 years, and oil palm plantations require regular replanting. Nearly 30% of all smallholder farmer areas will need to be replanted before 2025 – the cost of this is prohibitive for many smallholder farmers, which can lead to further productivity challenges or even increased deforestation (Daemeter Consulting, 2015).

Another problem is illegal deforestation. Studies suggest that large forest areas have been cleared out by smallholder farmers illegally (Daemeter Consulting, 2015), although it is not known exactly how large due to lack of available spatial data on the extent of oil palm cover inside forest areas (Ma'ruf, et al., 2019). Part of the problem is the previously mentioned lack of clarity around land statuses and ownership. These oil palm plantations that have encroached into forest areas need to be cut and restored with forest plant species (oil palm trees are not considered as a forest plant species), but this would result in the loss of livelihood for thousands of households that depend on their income from palm oil.

3.7. Palm oil price volatility

Lastly, it is important to mention the problem of crude palm oil price volatility. As discussed previously, due to the increasing demand for biodiesel from palm oil, the price of the palm oil on the global market has suffered from major fluctuations. This not only impacts the price of food, as earlier described, putting pressure on poor households, but it also makes smallholder farmers more vulnerable to the global market dynamics (Mukherjee & Sovacool, 2014). As many smallholder farmers are reliant on income from palm oil, which is typically just enough to cover their day-to-day needs, any drop in the global palm oil price can significantly impact their livelihoods.

4. Palm inside forest areas – Policy overview

As explained previously, an estimated 3.4 million hectares, or over 20% of oil palm plantations are located inside forest areas across Indonesia. As shown on *Figure 4*, almost all of these plantations are in Sumatra and Kalimantan (KEHATI, et al., 2018), with 65% of oil palm plantations in forest areas in just two provinces, Riau (Sumatra) and Central Kalimantan (Ma'ruf, et al., 2019). Nearly 10% of these forest areas are nature reserve areas or protected forests (KEHATI, et al., 2018). Out of the 3.4 million hectares, an estimated 1.2 million are cultivated by smallholder farmers (Ma'ruf, et al., 2019). This is quite a challenge for authorities to resolve. There are several policy instruments in place attempting to manage the difficulties surrounding this situation – this chapter will outline the most important ones.



Figure 4 Oil palm in Forest Areas in Indonesia (KEHATI, et al., 2018)

To start with, it is important to explain the designations of forest areas in Indonesia. Land can be designated as state forest, non-state forest, areas for other purposes, and private and community lands. State forests are then further categorized as production, protection and conservation forests. Production forests are designated for forest products (for example timber, or forest food), and cover over half of all state forest areas. Protection forests are designated for watershed protection, protecting life support systems, such as hydrological cycle, flood control, erosion control, etc. These forests make up about a quarter of all state forests. Companies and communities manage production and protection forests under various schemes issued by the government. Conservation forests are designated to preserve biodiversity and the ecosystems, and cover another 18% of state forests, and are mostly

managed by the government (Rakamata & Pandit, 2020; Brockhaus, et al., 2012; Ma'ruf, et al., 2019). The remaining small percentage of state forest areas are limited production forests, where logging is meant to be accompanied by measures to counter soil erosion; and conversion forests, which are degraded production forests that can be converted to agricultural or other uses (Brockhaus, et al., 2012).

To cultivate oil palm, one needs to obtain a set of permits. These include location permits, environmental permits, plantation business permits, and a decree on the release of forest areas and utilization rights. These permits can only be obtained, when the oil palm plantation is proven to be outside of forest areas. In case a plantation is located inside a converted production forest area, the planter must obtain a decree, stating that the area has been released for plantation purposes, and is no longer designated as a forest area. Location permits also must be in accordance with the regional spatial plan (Ma'ruf, et al., 2019). This is where the problems start though, given that, as explained above, spatial planning and maps are often incomplete and inconsistent, especially on a provincial level, where many provinces have not completed their spatial planning. The One Map Policy, introduced in 2011, aims to collect all geospatial data from across the country (Ma'ruf, et al., 2019) then integrate and correct thematic maps based on a basic map and finally, synchronize and resolve overlapping land uses. All integrated thematic maps are then made available through the One Map Policy Geoportal (Mufti, 2018).

When licensing and spatial planning processes are problematic, there is a high likelihood that violations will occur. While *Law No 18/2013 on Prevention and Eradication of Forest Destruction* very clearly prohibits any forest destruction activities, this does not seem to stop corporations and communities from utilizing forest areas. As such, deforestation driven by oil palm plantations is an ongoing process to date. Law enforcement, however, is not functioning optimally, for various reasons that include technical obstacles and cultural factors (Ma'ruf, et al., 2019), as well as the fact that forest area violations by oil palm plantations has been so common, that if prosecuted, millions of people's livelihoods would be cut. To address this, in 2015 the government issued the *Government Regulation PP No 104/2015 concerning Procedures for Changing the Designation and Function of Forest Zone*, in an attempt to resolve problems around already invaded forest areas through policy instruments rather than law enforcement, however, it was seen a permission for oil palm corporations to continue with deforestation (Ma'ruf, et al., 2019).

In 2016, the Indonesian government introduced social forestry through *Permen LHK 83/2016 concerning Social Forestry*, a set of community-based forest management schemes. Social forestry makes it possible to legalise the situation for people and communities who have been

illegally utilising forest areas (Ma'ruf, et al., 2019). The policy includes five social forestry schemes: community forests (*hutan kemasyarakatan*), community plantation forests (*hutan tamanan rakyat*), village forests (*hutan desa*), forestry partnerships (*kemitraan kehutanan*) and customary forests (*hutan adat*). Each of the schemes offer partial of full transfer of forest management rights to communities (village, non-village or customary communities) for a set period (except in the case of customary forests, where it transfers ownership rights) (Rakamata & Pandit, 2020), allowing greater access to forest areas for communities. However, according to the Social Forestry Policy oil palm is not a forest crop and can only be grown in forest areas up to 12 years of tree age, making it difficult for oil palm farming communities to benefit from Social Forestry (Ma'ruf, et al., 2019).

In addition to the Social Forestry Policy, the *Presidential Regulation No 88/2017 (Perpres 88/2017) concerning Settlement of Land Tenure in Forest Estate*; and the *Presidential Regulation 86/2018 (Perpres 86/2018) concerning Agrarian Reform* offer solutions for forest land tenure. *Perpres 88/2017* intends to provide legal protection for communities who cultivate land inside forest areas. It offers, depending on the type of forest and specific situation the community is in, to (a) release parcels of land inside forest areas by changing the boundaries of the area; (b) exchange forest areas; (c) provide access to forest management through social forestry; or (d) offer resettlement. However, once again, the Perpres 88/2017 does not accommodate oil palm inside forest areas. *Perpres 86/2018*, the 'Agrarian Reform' aims to achieve more equitable utilisation of land through the restructuring of land control, land ownership, and land utilization. Asset restructuring, in the context of the Agrarian Reform, means to redistribute land that has been released from state forest areas, and/or comes from changing forest boundaries, and provide legal certificate over these newly redistributed lands (Ma'ruf, et al., 2019).

In a relatively recent development, in September 2018 the President of Indonesia ratified an important document related to resolving the issues around licenses and legal certainty: the *Presidential Instruction No. 8/2018 (Inpres) on Postponement and Evaluation of Oil Palm Plantation Permit and Improving Productivity of Oil Palm Plantation* (or, in short: 'Oil Palm Moratorium'). This *Inpres* puts a moratorium on new permits related to oil palm plantations, to evaluate existing permits and to improve legal certainty over land rights. The implications can be seen on *Figure 5.* It also aims to improve smallholder oil palm farmers' capacity, improve sustainable plant management, and ultimately to increase Indonesian oil palm production capacity (KEHATI & UKaid, 2018). The Oil Palm Moratorium is valid for three years; and is lauded as a policy breakthrough and a momentum for improvement (Ma'ruf, et al., 2019).



Figure 5 The Inpres Moratorium as a momentum for improvement (Ma'ruf, et al., 2019)

5. Sustainable palm oil

With all the challenges, the situation begs the question: can we eliminate palm oil? Many organisations and movements advocate the complete elimination of palm oil from the market, such as the Dutch NGO "*Go Palm Oil Free*" (Go Palm Oil Free, n.d.), or the International Palm Oil Free Certification Trademark by POFCAP (POFCAP, n.d.). However, Food Navigator (Southey, 2019) points out that oil palm plantations are more efficient in terms of both land use as well as yield than any other vegetable oil on the market. New Strait Times (Kadir, 2020) adds that "*palm oil plays an irreplaceable role in ensuring global food security*" not least because, as mentioned earlier, millions of households across South East Asia are reliant on palm oil for cooking. Additionally, palm oil is an important commodity in Indonesia as it is one of the drivers of its national as well as regional economies, and it provides employment in rural areas (Ma'ruf, et al., 2019).

The solution, instead, seems to lie in making palm oil more sustainable. Besides the previously listed policies aiming to resolving the challenges around licensing and legal certainty, there are several initiatives, both global and national, that aim to improve the sustainability of palm oil production, and in particular, to stop deforestation caused by oil palm cultivation (Ma'ruf, et al., 2019). According to Ma'ruf et al. (2019), sustainable approaches need to address four

dimensions to succeed, including: environmental, social, economic and legal. The three most prominent initiatives towards sustainable palm oil are the following:

• REDD+

The agreement on Reducing Emissions from Deforestation and Forest Degradation (REDD+) is a mechanism developed by the Parties to the United Nations Framework Convention on Climate Change (UNFCCC), offering financial incentives for developing countries to reduce or remove carbon emissions from forested lands and invest in low-carbon solutions (UN-REDD, 2019). In the recent years, REDD+ has been emerging as a potential solution to reducing GHG emissions as well as for biodiversity and ecosystem conservation. In September 2009, Indonesia announced plans to voluntarily reduce emissions by 26% by 2020, with 14% of this reduction coming from the forestry sector. To support the implementation efforts, Norway signed a Letter of Intent, offering to transfer US \$1 billion over time, followed by pledges from numerous other countries. Up to today, REDD+ has not been fully implemented in Indonesia, and the results achieved over the past decade, since the commitments were made, are rather unclear (Cadman, et al., 2019).

RSPO certification

The Roundtable for Sustainable Palm Oil, a global partnership established in 2004 by Malaysian and Indonesian companies (Sheil, et al., 2009), uniting stakeholders from all across the palm oil industry, has developed a set of environmental and social standards for palm oil growers to become RSPO certified (RSPO, n.d.). RSPO today is the most widely recognized palm oil sustainability standard across the world, although it is yet to be adapted across the industry (Pacheco, et al., 2018). As of 2019, 13% of the Indonesian oil palm cover, with 20% of the total CPO production is RSPO certified, and over 2700 smallholder farmers are certified under RSPO's Independent Smallholder Standard (RSPO, 2019).

• ISPO

The Indonesian Sustainable Palm Oil standard was launched in March 2011 by a ministerial decree, to support the commitments made earlier for reducing GHG emissions. It was also to overcome perceived weaknesses of the RSPO standard, namely that due to the voluntary aspect of the RSPO, its implementation would be slow, if not unachievable. The terms and conditions of ISPO are very similar to those of the RSPO standards. The only major difference lies in ISPO's mandatory nature (Hospes, 2014). Initially only major plantation companies were required to be certified, however, in a 2020 update of the

ISPO standards, the government announced that smallholders will also have to seek certification, and will have five years to comply (Jong, 2020).

The above initiatives show impressive progress towards GHG reduction and sustainable palm oil production. However, they are not without challenges and obstacles, especially when it comes to smallholder oil palm plantations in forest areas. None of the three initiatives are currently able to include such plantations, for the following main reasons: (1) the damage is already done, especially in Sumatra and Central Kalimantan, and with existing oil palm plantations in forest areas smallholders automatically fall short in some of the criteria that would allow them to be involved in the initiatives (Hutabarat, 2017; Ma'ruf, et al., 2019; Purwanto & Tjawikrama, 2019); (2) all of these options rely on clarity of land ownership which, as described previously, has not yet been achieved (Brockhaus, et al., 2012; Hutabarat, 2017; Purwanto & Tjawikrama, 2019); (3) they are too costly for smallholder farmers upfront; and require smallholder farmers to have the adequate knowledge, technology and resources, which they often do not (Pacheco, et al., 2018; Hutabarat, 2017; Purwanto & Tjawikrama, 2019). Another criticism all of these solutions receive is the lack of proper control and monitoring which would be essential especially in the case of smallholder farmers to stay on the right track (Jong, 2020; Ruysschaert & Salles, 2014).

Resolving these challenges requires a different approach. An alternative option has been developed by the Faculty of Forestry of the Universitas Gadjah Mada (FKT UGM) and the KEHATI Foundation: the Strategi Jangka Benah (SJB), or Long-term Recovery Strategy. The SJB is specifically targeted at existing smallholder oil palm plantations in and around forest areas. The initiative aims to improve the environmental, social and economic aspects of forest areas disturbed by monoculture oil palm plantations. "*Jangka Benah refers to the period of time needed to achieve desired forest structure and ecosystem functions*", explains SPOS, one of the initiating organizations (SPOS, 2019). This is achieved by changing existing smallholder monoculture oil palm plantations into oil palm agroforestry, in the first phase, and improving the structure and function of the oil palm agroforestry ecosystem in the second phase so that it resembles natural forests (shown on *Figure 6*). This solution restores the forests' ecosystem functions while maintaining and stabilizing smallholder farmers' livelihood. It is also a "*series of strategies to improve oil palm governance in Indonesia*" (SPOS, 2019).

In Indonesia, oil palm agroforestry has not been widely adopted; only a few cases are known in Sumatra and Kalimantan. Budiadi et al. (2019) have analysed three cases of OPAF, all in the context of privately owner smallholder farms. While smallholder farmers have differing motivations in adopting oil palm agroforestry, improved household resilience is a common reason (Budiadi, et al., 2019). However, challenges, such as lack of expertise in species selection, as well as unknown quality of planting materials can hinder productivity of the smallholder OPAF farms. There is also a lack of institutional support to promote and facilitate the adoption of agroforestry (Budiadi et al, 2019).



Figure 6 Implementation phases of the Strategi Jangka Benah: from monoculture to oil palm agroforestry to natural forest (Strategi Jangka Benah, 2020)

Implementation of the SJB started in 2019, with two pilot sites, one in Jambi (Sumatra), and another one in Central Kalimantan. The implementation activities include setting up demonstration plots for oil palm agroforestry, promotion of the concept, as well as supporting the local communities in the adoption process (SPOS, 2019).

The location of this research is Karang Sari village, in Central Kalimantan province, East Kotawaringin (*Kotawaringin Timur*) district. Central Kalimantan (*Kalimantan Tengah*, or *Kalteng*) is Indonesia's third largest province, a lowland forest area in Indonesian Borneo (Scherr, et al., 2015). Indonesian Borneo is one of the most biodiverse places on the planet and is home to large mammals which are very rare, such as the Borneo orangutan, the Asian elephant, the Sumatran rhinoceros, the Borneo clouded leopard, the Borneo banteng, and the sun bear (Loucks, n.d.). Central Kalimantan's surface is also covered by one of the largest oil palm areas of the country, with 1.78 million hectares of oil palm plantations (Suwastoyo, 2020), more than half of which, nearly 1 million hectares, are inside forest areas (Ma'ruf, et al., 2019). Amongst the districts, East Kotawaringin is the top offender hosting 9% of all of Indonesia's oil palm cover in forest areas (Ma'ruf, et al., 2019).

6. Local governance structure

For the Strategi Jangka Benah (or any sustainable palm oil initiative) to be successful, it is not enough to have an appropriate technical solution for the problem, usually a socio-political transformation is required. Institutional innovation needs to be part of this transformation. As discussed in the Theoretical Framework chapter, institutions are understood as the sum of organizations, rules, routines of behaviours and norms that shape the life of a community (van Westen, 2019); in this case the community of smallholder oil palm farmers cultivating in forest areas in East Kotawaringin district in Central Kalimantan. Since the local governance structure is part of the institutional system, taking a closer look at it will provide a greater understanding of the context.

Indonesia is a vast archipelago of more than 17,000 islands, over 900 of which are inhabited, with over 250 million inhabitants. Indonesia has a highly diverse population both ethnically and culturally, with around 580 languages spoken across the country, and 13 of these are spoken by more than a million people (Embassy of Indonesia Washington D.C., 2017). Governing under such complex circumstances is not easy, and since declaring its independence, Indonesia has wrestled to find an appropriate governance model. After decades of a strong central state, with the start of the Reformasi era in 1999, and as part of the broader democratisation efforts, Indonesia has eventually embarked on a process of decentralization (Baudoin, et al., 2017). This process started with replacing the hierarchical governance system, that linked local governments to the centre by granting local governmental bodies greater autonomy, as well as establishing greater accountability towards the local population, with the objective of the government becoming more responsive to local needs (Holzhacker, et al., 2016).

Currently Indonesia is divided into five levels of government: central government, the provinces, districts (or regencies), sub-districts and villages. The central government retains power over five broad areas: monetary policy, foreign affairs, defence, religion, and justice. All other services are the responsibilities of the local governments. Indonesia has 33 provinces (Embassy of Indonesia Washington D.C., 2017). Provincial governments act as autonomous regional governments as well as regional representatives to the national government and are responsible for supervisory functions and intervening in matters requiring cross-jurisdictional cooperation. However, they have no hierarchical authority over the lower government levels. Instead, they perform a coordinating role, making decentralization work more effective. Districts (or regencies) and municipalities are at the same level of governance, with some differentiation between rural and urban areas. District heads are directly elected and, quite uniquely compared to other decentralized countries, districts have the authority to determine

the size and structure of their budget expenditures (Nasutiun, 2016). Districts and municipalities are then further divided into smaller administrative units called sub-districts and villages (Simanjuntak, et al., 2012).



Figure 7 Government levels in Indonesia (Simanjuntak et al, 2012)

Villages in Indonesia have been subject to the changing political orders of the country's history. Between 1979 and 1999, a unified village governance model was imposed on the approximately 74,000 villages of Indonesia. This law was later overwritten by the 1999 law on regional governance, allowing villages to change back to traditional governance, however, they remained largely dependent on the district governments. In 2014, the new Village Law No. 6 was introduced with three distinct goals: to make village governance more participatory; to strengthen village governments; and finally, to respect the cultural diversity of village organization approaches (Berenschot & Val, 2017; Bebbington, et al., 2006). This means that today villages are largely self-governing and have a great diversity in how they are organized.

Forest Management Units are also part of the local governance structure: the oil palm plantations, especially in Central Kalimantan, are located inside forest areas (Strategi Jangka Benah, 2019), which fall under the responsibilities of the local FMUs (*KPH*, in Bahasa

Indonesian) in terms of day-to-day management. However, while village governance is getting more de-centralized and participatory, the establishment and direction of FMUs is driven by national-level priority and related strategic plans, and FMUs operate on the provincial level. The first pilot FMU was established in 2009, based on the German sustainable forest management model, supported by the GIZ (German International Cooperation agency). A total of 600 FMUs are planned by the Indonesian government, covering Indonesia's 120 million hectares of state forest. While the initiative has been a great success, implementation is still ongoing, and there are constraints in the way, including limited resources, a lack of clarity over roles and responsibilities, regulations and forest boundaries, conflicts of interest regarding land use, and a lack of effective and operational management tools, policy and management models (FORCLIME, 2015).

A side effect of the decentralization process is fragmentation and less coordination, both in development efforts as well as policy and execution. On occasion, this ends in redundancy, overlapping or contradictory policies and mandates, and diverse approaches to governance at the local level (Holzhacker, et al., 2016). This trend is particularly prominent concerning to land allocation and spatial planning. Authority over land-use policy overlaps between the Ministry of Environment and Forestry and local governments (provincial and district), often with conflicting agendas, allowing provincial and district governments to pursue their own objectives (Setiawan, et al., 2016).

Institutional Analysis: Actors

Now that we have a good understanding of the context, we can move on to analysing the institutions surrounding the Strategi Jangka Benah. The following chapters will present the results of the institutional analysis process. We start with the actor analysis, followed by the analysis of the 'rules of the game' as perceived by the actors. These will be complemented by a capacity analysis, looking at the way forward for the institutional system surrounding the initiative.

To systematically understand actors within the institutional system, the actor analysis will be start with set of questions based on the NetMapping tool (Schiffer, 2007): (1) who is involved, (2) how they are linked, (3) how influential they are, and (4) what their goals are. First a detailed description is provided of the known actors of the local institutional system, which will be followed by an analysis and categorizing of the actors, using the Power-Interest Grid and Stakeholder Analysis. This process of analysing actors will allow us to understand which actors might be more inclined to support or resist the change, and why, and which actors or groups of actors the initiators of the Strategi Jangka Benah needs to focus their attention on. The inputs for this analysis come from interviews, responses to the interview form and follow-up questionnaire, information from villagers and the local research teams on the field, as well as project documentation provided by the SJB team.

1. The initiating organizations

The two organisations initiating the Strategy Jangka Benah are the Faculty of Forestry at the Universitas Gadjah Mada (FKT-UGM) and the SPOS of the KEHATI Foundation.

UGM is the oldest and one of the most highly regarded universities in Indonesia, opening its doors right after the country's Independence, in 1949, and the Forestry Division was established soon after, in the early 1950s. UGM is a Tridarma Higher Institution (Tridarma Perguruan Tinggi), which means that they are involved in teaching, research, as well as community services, and the FKT-UGM is committed to contributing to resolving Indonesia's challenges on the field of forestry. The Faculty of Forestry of UGM developed the initial concept of the Strategi Jangka Benah, that was born out of a Focus Group Discussion in early 2018, attended by representatives of various organisations working on sustainable palm oil. The concept was then proposed to the KEHATI Foundation and the two organisations signed a Memorandum of Understanding to start implementing the pilot concept. Currently the SJB team is led by the FKT-UGM, and most of its 9 core team members are also members of the

Faculty. Their main project activities include developing demonstration plots of oil palm agroforestry; allowing farmers to practice with OPAF; providing technical support for farmers; and providing policy assistance and advocacy.

Yasayan KEHATI is the Indonesian Biodiversity Foundation that was established as a result of the Rio Earth Summit in 1992 and the Tokyo Declaration in 1993. It aims to act as a catalyst for the conservation, management and utilization of Indonesia's biodiversity in a sustainable way. Strengthening Palm Oil Sustainability in Indonesia (SPOS) is a program established by the KEHATI Foundation, with the aim to support the Indonesian government concerning sustainable palm oil. They do this by promoting legal compliance, promoting good agricultural services, and through international diplomacy on palm oil. The SPOS team is made up of 12 people, and their Steering Committee is made up of representatives of 6 different ministries from the central government. They work closely together with UGM's Strategi Jangka Benah team in starting up the pilot initiative, and their main role regarding SJB is policy advocacy and popularizing the concept.

Both organisations view themselves as initiators of the SJB, and although they have been leading the implementation, the hope is to transfer the running of the project to the local stakeholders such as the FMUs and the local universities.

2. Village actors

Karang Sari village is located 170 km East from the provincial capital, Palangka Raya, in East Kotawaringin regency, Paranggean sub-district. There are about 2000 inhabitants, or 500 families, nearly all of which cultivate oil palm. Some of these plantations are on legal grounds, while many are on land that used to be a state forest – although by now only a very small patch of the original forest remains, home to only three orangutans and three gibbons. According to locals, these animals have suffered not only from the decreasing size of the forest but also from stress due to human contact; and today stand as a stark reminder of the consequences of unsustainable human activity.

As the initiating organizations explained, Karang Sari was originally not on the list of villages for the Strategi Jangka Benah pilot. Having heard of the initiative, the Village Chief contacted the SJB team and the village volunteered to become part of the pilot program, which is now running in five villages in the sub-district. The Chief, who is also an oil palm farmer himself, offered a part of his own plantation as a location for a demonstration plot, as well as one of the village office buildings for the project office. After an initial readiness appraisal in the village, the SJB implementation in Karang Sari was launched in December 2019. The village is also in the process of applying for the Social Forestry permit, and the FKT-UGM is assisting these efforts. The Chief has expressed, both in an informal conversation as well as in the interview form, that he is keen to create a balance between the livelihoods of his villagers and nature, and he sees oil palm agroforestry as a solution towards this. Along with the Chief, the entire village government is supportive of the Strategi Jangka Benah, and they maintain a good relationship with the SJB team located in the village.

Another important actor within the village is the Forest Farmers' Group (*Kelompok tani hutan*, or *KTH*). Smallholder farmers form farmers' groups: there is one large farmers' group in each village, made up for several smaller groups – in Karang Sari village there are 14 small farmers' groups, one of these is the KTH. Farmers' groups in a village act as farmers' collectives, supporting farmers in oil palm cultivation and in selling the oil palm fruits to small buyers. Farmers tend to rely on the farmers' groups for information and reassurance. The KTH in Karang Sari is specific to farmers who cultivate in forest areas, and as such, is an important stakeholder for the SJB. If convinced and supportive, the KTH can promote the initiative and support the SJB team in providing guidance for the farmers. The chief concern of the Chair of the KTH in Karang Sari, expressed in the interview form, is the unstable selling prices, and the community's overdependence on palm oil for their income, which is something that the SJB has the potential to address. However, he also conveys that the community needs more information, examples and guidance to be confident in SJB as a solution.

As mentioned earlier, the farmers, on an individual level, were not in the scope of this research, and instead were represented by the Village Chief and the Chair of the KTH. However, the SJB team has recently (between April and June 2020) surveyed farmers to determine the factors that influence farmers in making decisions in adopting this oil palm agroforestry. They did this by analysing four factors: household characteristics, biophysical characteristics, risks and uncertainties, and external support. 28 farmers from Karang Sari village were surveyed, out of whom 8 have already adopted oil palm agroforestry. Over 80% of all respondents have their oil palm plantations located in forest areas, and most of them use uncertified seedlings for planting. Almost all respondents faced risks and uncertainties due to the price volatility of palm oil, which they would handle either by cutting their expenditures or taking on additional jobs. The majority of the respondents recognized the negative impacts caused by monoculture oil palm plantations, including problems around the condition of the soil, biodiversity as well as the stability of their household income. Over half of the respondents (both adopters and non-adopters) believed that oil palm agroforestry could contribute to resolving these problems, and 80% of respondents from the non-adopter group stated that they would be interested in adopting oil palm agroforestry in the future. However, over 50% of the respondents stated that they know little about the Strategi Jangka Benah and they do not know how to obtain information about the initiative (Strategi Jangka Benah, 2020). Another survey, conducted by a fellow IDSM student, assessing the decision-making processes of oil palm farmers regarding the adoption of oil palm agroforestry, indicates an even stronger eagerness: over 85% of 37 respondents showed positive interest in adopting oil palm agroforestry, with the main reasons being increased income stability, protection of the environment, and resolving land use conflicts with the government. The ones less keen typically cite the more complex nature of agroforestry as opposed to managing monoculture plantations, as well as their lack of knowledge and need for support regarding oil palm agroforestry (Amyot, 2020).

3. District level actors

According to research participants, the role of the districts (i.e. regencies) has changed over the last few years, and district governments do not have authority over the forestry sector anymore. However, they play an important role in development planning and agricultural development of the district and as such as are significant partners to the Strategi Jangka Benah.

The *BAPPEDA* is the Regional Development Planning Board of the East Kotawaringin district. Their role is to integrate, harmonize and synergize cross-sector development planning of the district with provincial and central level plans; and to establish linkages and consistency between planning, budgeting, implementation and supervision. They manage the long-, mid-, and short-term planning of the district. They are also involved with land area mapping.

Another district organization to highlight is the Office of Agriculture (*Dinas Pertanian*) of East Kotawaringin Regency: it is responsible for increasing food self-sufficiency to meet aliment needs of the district. This means, for example, the increased production of agricultural and plantation crops, with focus on oil palm, cocoa, coffee, corn, and rice.

While district level actors are not as closely involved with the Strategi Jangka Benah as some others, their cooperation and support are essential to build a wide-scale consent around the project. The Regent was represented by his Deputies during launch events of the SJB, and according to the SJB team, the district is supportive of the initiative. However, as the representatives of the various district organizations were too busy at the time of the research, we do not have their direct input on this topic.

4. Provincial level actors

There are several organisations on the provincial government level of Central Kalimantan that are involved with the Strategi Jangka Benah.

The first, and one of the most important of these is the Provincial Forestry Service of Central Kalimantan, or *Dinas Kehutanan (Dishut)*. The Forestry Service manages the protection and production forest areas in Central Kalimantan on a provincial level. Their main responsibilities are the formulation of technical policies in the forestry sector in accordance with policies determined by the Governor, organizing forest area management, forest utilization, forest development, forest security and disaster management, forest preservation and protection; and managing licenses in the field of forestry. They have been involved in the Strategi Jangka Benah since May 2019 when the project was still in the early stages. They expect the SJB "to be able to answer problems related to the management and use of forest areas, the impact of releasing forest areas for oil palm plantation activities, resolution of conflicts of interest (community gardens) in forest areas, and be able to encourage the government to make regulations that provide solutions related to the problems above and support forestry programs, one of which is social forestry" (RP4). One of their representatives said that The Forestry Service, as a main agency in the field of forestry within the Province, needs to take a leading role in the SJB. They want to achieve this by forming an SJB forum that can connect actors such as environmental observers, researchers and academics, and also by facilitating SJB activities and bridging the gaps between the communities and the SJB. They also collaborate with various stakeholders to promote the program towards both the government and communities.

The Forest Management Units (FMUs) are technical implementation units (*UTP*) of the *Dinas Kehutanan*, but due to their central role in the Strategi Jangka Benah we need to discuss them in more detail. The FMU's carry out monitoring and evaluation of the implementation of forest management activities in their areas, including preparation of forest management plans, utilization of forest areas, forest rehabilitation and reclamation, forest protection and conservation of natural resources, as well as counselling and community empowerment in the forestry sector. They are also involved in the settlement of land disputes. They manage production forests, limited production forests, and protection forests. Normally, they would not be involved in oil palm cultivation, as oil palm plantations should only occur in conversion forest areas they manage, typically without licenses. As the FMU's are, in the words of one of our research participants, the "*landlords of the area*" (RP1), they are responsible for dealing with the situation. As such, the FMU's are expected to take over and manage the SJB

implementation on the long-term and assist and coach smallholder farmers in managing oil palm agroforestry. FMU representatives, who have participated in the research, are aware of this and welcome the initiative, however, they highlight the need for more clarity around the project, and for successful demonstration plots, funding, as well as strengthening their human resource capacity through training.

Another provincial agency to discuss is the Plantation Service of Central Kalimantan, or *Dinas Perkebunan (Disbun)*. The Plantation Service carries out coaching and supervision of oil palm plantations, both at the level of businesses and smallholder farmers. For the private sector, the *Disbun* functions as a supervisor and licensing service, while for community plantations they provide assistance in oil palm plantation development. They do this by formulating basic policies and technical policies in the plantation sector in accordance with policies determined by the governor, proposing a budget plan for the implementation of regional plantation development, using of non-fiscal funds for the development of plantation business investment, and coordinating regional plantation development activities and budgets. As one of the department heads within *Disbun* used to work at the *Dishut* at the time the SJB team contacted them, there is awareness of, and some support towards the Strategi Jangka Benah, however, according to an interview participant representing the *Disbun*, it is not yet involved on an agency level. According to the responses to the interview form, there is also a general concern within the agency about the potential productivity drop if oil palm is planted in agroforestry, and a perception that productivity can only be guaranteed if grown in monoculture plantations.

There are also *UTP's* that operate on a provincial level under various Directorates of the Ministry of Environment and Forestry, whose work is relevant to the SJB and have been targeted to become part of the SJB Task Force. The Kahayan River Watershed and Protected Forest Management Agency (*BPDASHL*), under the Directorate General of Watershed Control, carries out the preparation of plans, the implementation of forest and land rehabilitation, soil and water conservation, land water damage control, evaluation of watershed, and protected forest management based on statutory provisions. The *BPDASHL* has an important role in implementing reforestation and distributing seeds to the communities. They also provide financial support for the SJB demonstration plots in the East and West Kotawaringin regencies. The Forest Area Consolidation Centre (*BPKH*) is a technical implementation unit under the Directorate General of Forestry, with the task of stabilizing of forest areas, evaluating changes in the status and function of forests, and presenting data and information on forest resources. The Production Forest Management Office (*BPHP*) has the task to facilitate the planning and implementation of production forest management, as well as monitoring and evaluating the implementation of the production forest businesses and the

forest product industry based on statutory provisions. The Directorate General of Social Forestry and Environmental Partnerships (*BPSKL*) is tasked with carrying out the formulation and implementation of policies in the field of increasing community participation in forest management, handling of customary forests, and environmental partnerships. They are also responsible for the implementation of the Social Forestry Program. The Institute of Agricultural Crops Research (*BPTP*) of Central Kalimantan is responsible for the inventory, management and development of agricultural resources, analysis of agricultural development policy based on agricultural innovation, research and development of agricultural innovations, and mentoring strategic programs of the Ministry of Agriculture. While the Head of *BPDASHL* was present at the official launch event of the Strategi Jangka Benah in December 2019, and signed the cooperation agreement, *BPDASHL* did not respond our information requests. The rest of these organizations, who did respond, seem to know little about the Strategi Jangka Benah but, are keen to receive more information and become involved.

5. Other actors

One of the frequently discussed actors in the context of the Strategi Jangka Benah is Indonesia's national government. They are responsible for setting the national level policies and regulations in terms of development, agriculture, forestry and environment, creating the wider policy framework and legitimacy within which the rest of the actors operate. The two ministries closest involved with the SJB are the Ministry of Environment and Forestry, and the Ministry of Agriculture. The two initiating organizations, KEHATI and the FKT-UGM have drafted a concept to promote the SJB as a national strategy which has been positively received, however, no action has been taken yet. Resolving the legislation related challenges would be an essential step ahead for the project, as it would create a legitimacy for the SJB. While this research would have benefitted from direct input from the respective ministries, the representatives were too busy at the time of the research and were therefore unavailable to answer questions.

Besides the Universitas Gadjah Mada, there are two other, local universities involved with the Strategi Jangka Benah, the University of Palangka Raya (UPR) and the Muhammadiyah Palangka Raya University (UMP). The purpose of involving local universities is to increase local university capacities in the field of oil palm agroforestry, as well as to encourage stronger local collaboration for smoother implementation of the SJB. Local universities are expected to take more responsibility and ownership over the implementation of the project over time. To achieve this regular workshops and presentations are held at these universities; and students from UPR have been involved with the SJB by collecting survey data and assisting

research work. The research questionnaire was sent to several universities operating in areas targeted for SJB pilot locations, and while UPR and UMP were not among the respondents, others answered. Most of them are aware of the initiative but are not yet actively involved.

In addition to universities, there are several research institutions and non-governmental organizations to be discussed in relation to the Strategi Jangka Benah. The SJB team already involves some of the KEHATI partners, such as the Sustainable Districts Association (LTKT), the AURIGA Foundation, the Kawal Borneo Community Foundation (KBCF), the Agrarian Resource Centre (ARC), the Indonesian Ecolabelling Institute (LEI), the Java Learning Centre (JAVLEC), and the Oil Palm Farmers Union (SPKS). Currently the role of these organizations vis-à-vis the SJB is limited to sharing information and feedback. Most of these organizations, with the exception of JAVLEC, were not involved with this research. Other organizations who operate in areas related to palm oil or forest management, such as the GGGI Kalimantan Tengah (the local branch of the Global Green Program Indonesia, a joint program by the Government of Indonesia and the Global Green Growth Institute), the Indonesian Palm Oil Association (GAPKI), Fairventures Indonesia, the RACA Institute, and the MAP Institute were involved, and have reported a varied level of awareness of the SJB and little or no involvement.

6. Actor analysis

To summarize the previous sections, we can group actors involved with the SJB based on their functions: (1) governmental bodies at various levels of governance (national, provincial, district); (2) NGOs, universities, research institutes; (3) local community, including the farmers' groups. The role of governmental bodies would be to provide the policy framework, support the funding, promotion of initiative, and, eventually, take ownership of it. NGOs, universities and research institutes would work together to research oil palm agroforestry, to contribute to forming the policy framework necessary for wide-scale adoption, as well as to support the process of promoting oil palm agroforestry. Local community organisations, such as the farmers' groups, formed by and in close collaboration with the farmers, would contribute to the process of adoption and implementation by the smallholder farmers.

Based on the information we have collected we can draw up the Power-Influence Grid regarding the actors in the institutional system in the context of the Strategi Jangka Benah as follows:



Figure 8 Power-Influence Grid of the actors of the institutional system surrounding the Strategi Jangka Benah

This grid tells us that there are numerous actors who have relatively high level of interest and influence in the institutional system, and none of the identified actors would fall under the Low Interest – Low Influence category (although some of the specific NGOs may, in reality, be in this category, as a group, the listed NGOs can have an influence on the desired outcome, this will be explained later in this section). Those in the High Interest – High Influence quadrant will be most important to keep involved and engaged, however, the High Interest – Low Influence and the Low Interest – High Influence groups should not be neglected either.

To further layer this, we can use a Stakeholder Analysis tool to divide the actors into three categories: (1) key actors: those who can significantly influence the initiative, or without whose support it would not be successful; (2) primary actors: those who are directly affected by the initiative, positively or negatively; (3) secondary actors: those who have an interest or role in the initiative but are not directly affected. Such a categorization brings together the key aspects discussed earlier, led by the questions: their functions, their interest in and influence over the Strategi Jangka Benah, their involvement in the project and the project's potential impact on them. It also allows us to have an overview of how the various actors

relate to the initiative and thus consider how best to engage them, as seen on *Figure 9* and explained below.



Figure 9 Categorization of actors based on the analysis

Among the key actors, the role of the two initiating organisations, the Faculty of Forestry at UGM and the KEHATI Foundation are the most obvious, as they currently run the SJB. However, it may be useful to note that once they transition running the project to local stakeholders, such as the Forest Management Units and local universities, their role will eventually change too. Another group of actors that play a key role in the success of the SJB is the provincial government bodies, among them the most influential are the *Dinas Kehutanan*, the *Dinas Perkebunan* and the *BPDASHL* – the functions of these three organizations closely relate to the areas of changes that are necessary for the success of the SJB, and they are important influencers of regional policy and budgets. On a similar note, the respective ministries on the national level need to be part of the group of key actors due to their influence on national policy and regulations, and their role in promoting the SJB as a national strategy.

Actors within Karang Sari village (farmers, village government, Forest Farmers' Group), and the Forest Management Units are not only key actors, but also primary ones: while their support is elemental for the success of the Strategi Jangka Benah, the initiative also has a direct impact on them in return. As Forest Management Units are expected to eventually manage the initiative in the future, it will impact their day-to-day operations significantly – and they will need to be provided the necessary knowledge and skills to do this well. As for the village, implementing the SJB means a fundamental change in farmers' plantation and cultivation practices, and it might also influence the yield of oil palm fruit they can harvest, for better or worse. However, practicing oil palm agroforestry might also positively impact their livelihoods: by diversifying the crops they grow, they can achieve better income stability and become less vulnerable to the price volatility of palm oil. At the same time, the more smallholder farmers adopt oil palm agroforestry, the more likely it is for the project to succeed, as it would lead to more data, evidence and examples of the approach, and would potentially further influence both other farmers as well as policy makers.

Secondary actors, while not directly affected by the initiative, can still play important roles, including providing support and input, promoting oil palm agroforestry, and influencing other actors. District governments, local universities and the various research institutes and NGOs all fall under this category. The district level government bodies, although not involved directly with forestry, are responsible for district's plans including its agricultural strategy, and can play a role in encouraging oil palm farmers' groups to adopt agroforestry. Local universities can act as promoters of the initiative, and, along with research institutions, can support the research efforts and build further demonstration plots to establish the effects of oil palm agroforestry. And finally, the various non-governmental organisations, programs and associations can provide input and feedback over the project; influence their own target audiences, be it local communities, oil palm farmers, policy makers or others, and create links between various actors in their unique ways, that the project team and other key actors might not be able to do by themselves. Thus, engaging a wide scale of secondary stakeholders can provide a meaningful contribution to the success of the initiative.

Institutional Analysis: The rules of the game

This chapter focuses on the question: *What are the local institutions involved with the transition of oil palm monoculture to oil palm agroforestry and how do they influence it?* We will gain insight into the intangible: the rules of the game, beyond the formal laws and policies, that influence the success of a sustainable development initiative, such as the Strategi Jangka Benah. We will deep-dive into the existing perceptions of the actors of the institutional system, about oil palm and oil palm agroforestry. Such an analysis can help us understand not only what is happening but also why it happens the way it does.

The structure of this chapter will follow the four aspects of Woodhill's institutional analysis framework (Woodhill, 2008): meaning (frameworks of understanding), association (relationships), control (mechanisms of control) and action (practices and behaviours). Analysing the responses from the interviews and the interview form, complemented with observations, the objective of the analysis is to identify the major rules, norms, beliefs, values, mindsets, behaviours and relationships that, according to research participants, are likely to impact the implementation of the Strategi Jangka Benah. Research participants are referred to with codes. The codes table including their organization, type and level of operation, and involvement in the SJB can be found under the Appendices chapter.

1. Frameworks of understanding

'Meaning' is the aspect of institutions that refers to the mental models that people use to interpret the world around themselves, and to make sense of events, relationships, natural phenomena and time (Pritchard, 2014). It includes values and beliefs, deeply held assumptions on which people base their decisions, as well as language, theories and concepts that people use to communicate and to guide action (Woodhill, 2010). In the context of the SJB, 'meaning' will refer to the values, beliefs, assumptions and concepts that people associate with palm oil and oil palm agroforestry. Research participants were asked to describe these elements, guided by questions such as what their most important concerns regarding oil palm cultivation are, how they see the future of oil palm growing, the challenges they see, and how they understand oil palm agroforestry.

When describing the importance and concerns around oil palm in general, the responses can be grouped into categories. The first of these is the economic and development value of palm oil. Palm oil is seen a strategic commodity for Indonesia, as it is a main source of state income and it improves foreign exchange. It is also a major source of food and biofuel. Several research participants believe that it has a promising and prospective future and will continue to grow. Palm oil is seen as a key source of livelihood for local communities, as it is a major provider of labour and income. There is a strong concern for local community welfare and community involvement among research participants: "*My hope is that in the future palm oil in Indonesia can become one of the economic backers, especially for the surrounding community that is in direct contact with palm oil*" (RP9).

Another category includes comments detailing the various challenges around oil palm cultivation: the environmental damage caused by expanding plantations, issues around legality, regulations and control, and the perception of a technological and productivity gap between large companies and smallholders. Nearly all research participants discuss environmental damage, and while most of them highlight deforestation within this context, several people also mention the problems surrounding turning peatlands into oil palm plantations. Closely related to this, land related issues are also a frequent association. Although this theme (land issues, legality, and regulations) is closely related to 'control' and will be discussed in detail under that section, it is the most frequently mentioned concept among research participants, and as such, is likely to hold a great importance as to how participants think about palm oil. The third theme here is the perceptions that research participants hold around smallholder farmers. The productivity gap between large companies and smallholders is a frequently mentioned point, as well as smallholder farmers' practices that are thought of as contributors to the problems. As one research participant puts it "smallscale farmers who, in calculating their income, are not economical (low yields, low quality) and even make a debt in the process of planting" (RP25).

There is a generic perception among research participants that palm oil production needs to become more sustainable in the future, and there is a need to balance economic, social and environmental impacts and benefits. As one research participant says, summarizing all of the most important points in one sentence, "*for me the most important thing is that planting oil palm must be suitable to pay attention to the suitability of the land used, orderly, able to improve the welfare of local communities and still pay attention to the values of conservation of natural resources*" (RP7).

How research participants see oil palm agroforestry's role towards sustainable palm oil was another important consideration for 'meaning'. The large majority of research participants have heard of the concept of oil palm agroforestry, although their extent of understanding varies greatly, with some clear gaps in knowledge as for what agroforestry is. The most commonly quoted benefits of OPAF are reducing the environmental damage caused by deforestation (through, for example, increasing biodiversity, and reducing the risk of land fires) and the economic and social benefits for the local communities, by reducing their dependence on palm oil income. Resilience and increased land productivity are also often mentioned. Some participants, however, comment that currently oil palm is associated with monoculture, which they see as a potential challenge for implementing oil palm agroforestry.

There are three other concerns commonly highlighted: yield concerns, ecological concerns, and the lack of research and data around oil palm agroforestry. The concerns around decreasing yield as a result of agroforestry, and the ecological viability of agroforestry are closely linked, as one research participant explains: "*Forest plants, as a child, they need shade, after they grow up, they need big light. Palm from small to large needs full abundance of light so if the conditions are not ideal it will reduce the productivity of the palm itself"* (RP21). Others argue, however, that "*there are currently no studies and models for managing oil palm agroforestry in Central Kalimantan*" (RP18) and suggest to focus on this first: "*pilot units need to be made with truly scalable management so that the success of their implementation can be known so that they can be made an example for other communities*" (RP20). This need for more research and examples is the most commonly shared comment regarding the future of oil palm agroforestry.

2. Relationships of actors

'Association' within an institutional system refers to the organisations: relationships that people form to work towards achieving shared social, economic or political objectives. These can be formally organised, such as government bodies, business and civil society organisations, or informal, such as friendship groups or informal networks. Besides this, we also need to understand the arrangements and interactions between organisations (Pritchard, 2014), the ways and means they build and maintain these relationships (Woodhill, 2010). To discover 'association' in the context of the SJB, we will rely on information from the SJB team, as well as research participants' responses regarding questions such as who is involved, who should be involved, and how they work together with other involved actors towards achieving the objectives of the SJB. This section does not mean to analyse the involved organisations individually – that has been done under the Stakeholder Analysis chapter –, rather to provide an insight into patterns of involvement and of relationships and their potential impacts on the Strategi Jangka Benah.

In terms of formal collaboration, a Memorandum of Understanding has been signed by the two initiating organisations, the FKT-UGM and the KEHATI Foundation, as well as the Watershed and Protection Forest Management Centre (*BPDASHL*) and the Provincial Forestry Service (*Dinas Kehutanan Provinsi*) about supporting SJB demonstration plots in Central

Kalimantan. Efforts have been made to establish a Task Force that would include the organisations who signed the MoU, besides other provincial governmental agencies, and the *Forum CSR* (CSR Forum – a partnership network organisation). However, this has been delayed due to the COVID-19 outbreak. The objectives of the Task Force are to facilitate the readiness of the Forestry Management Units to take over the lead in implementing the SJB, to encourage policy dialogue to support the implementation of the SJB in Central Kalimantan, and to facilitate the cooperation with various parties to provide input and promote the SJB. The SJB team also cooperates closely with the FMUs in the pilot districts. When interviewing the initiating organisations, the representatives of both the FKT-UGM and the KEHATI Foundation highlighted two categories of organisations as the most important ones to involve in the SJB: governmental organisations (in particular, national and provincial government bodies and the FMUs), and the village communities. They both list the following two key challenges in the cooperation: (1) the difficulty of navigating national politics to gain national-level policy support for the initiative; and (2) provincial-level government agencies and the FMU's, while supportive, are relying on the initiating organisations to run the initiative.

It is interesting to see then the perspectives of other research participants on this matter. First of all, while most research participants, based on their organisations' functions and responsibilities, represent organisations that could or should be involved with the SJB, responses to the questionnaire and interviews reveal that involvement in the initiative is not a straightforward matter. Although over half of the research participants are aware of the Strategi Jangka Benah, only about a third of them claim that their organisations who, according to the initiators, should be involved, say that they are not, while some other organisations who currently are not involved, would like to be involved. One of the reasons for this apparent confusion is that the SJB, as the initiating organisations say, is still "*only a concept*". It is in an early phase of implementation, therefore involving the various actors is still in progress.

Participants knowledgeable about the SJB were also asked about who *should* be involved. One of the most frequent suggestions to this was to involve local communities, including farmers whose plantations are targeted for oil palm agroforestry, as well as indigenous communities: "*Indigenous peoples must be involved because they have been the priority of plasma2 in Kalimantan*" (RP21). Another commonly mentioned group is the government. Most respondents see government, in particular central and regional (provincial) governments as key actors for SJB and suggest that gaining their support and involvement would be essential

² In the Nucleus Estate and Smallholders program, 'plasma' as the periphery of the nucleus (company-managed oil palm plantation), allocated to outgrowers but under the company's supervision (Baudoin, et al., 2017)

for the success of the initiative: "*SJB must be included in the regional government program, so that it can get political support and funding from the APBD (Regional income and expenditure budget)*" (RP10). Some research participants propose that universities, research institutes and NGOs should work together with the government in setting the strategy. Some others think large-scale palm oil companies should be also involved, as part of the wider stakeholder group.

Besides 'who is involved', another question to consider is 'how they interact'. Research participants who have knowledge of the SJB have provided a wealth of insight and recommendations on what is necessary to make collaboration around the Strategi Jangka Benah work successfully. "If it is considered as a solution to the conflict of sustainability of oil palm exploitation in the forest area, then all stakeholders must acknowledge it" (RP5). Several others echoed this suggestion from a research participant, citing the need for "seriousness and commitment" (RP12) of all relevant parties, directly or indirectly involved in the SJB. Another set of recommendations is summarized by a research participant as "the challenge is coordination, harmonization in achieving common goals" (RP17). Many research participants suggest that alignment of policies and regulations, as well as of roles, responsibilities and tasks, and creating cohesion between all involved actors is necessary. There is also an apparent need to improve stakeholder literacy around the SJB, by increasing knowledge and understanding of the initiative and its objectives among involved actors, according to respondents. Further to clarity, 'socialising' is also often mentioned. By the term 'socialising', respondents refer to raising public awareness to the negative impacts of oil palm plantations and possible solutions such as the SJB, and to promoting oil palm agroforestry.

3. Control mechanisms

'Control' is the most commonly understood aspect of institutions: it refers to how institutions maintain control over the actions and behaviours of individuals and organisations. It includes formal elements of control such as laws, rules, regulations, policies, mandates, positions and strategies (Pritchard, 2014), as well as informal ones, for example norms that are unwritten but are guiding the behaviour of community members, customary laws, and other aspects of social control that are often unwritten but significantly contribute to maintaining a certain social order. It is important to understand that formal rules and regulations may stand in contrast with informal ones, and can be difficult, or even impossible to enforce. In these cases, informal rules or directives may have a stronger control over individuals' and organisations' actions than formal ones. In the Regional Thematic Framework chapter we have discussed the formal policies and regulatory framework around oil palm cultivation in Indonesia, this section will focus on how research participants see these formal rules and

policies interact with and influence the Strategi Jangka Benah, and whether there is any informal element of control that is apparent to have an impact.

To understand control, research participants were asked about their opinions of the current oil palm governance, as well as what they think is necessary to be done to successfully implement the SJB. Five themes that influence the initiative stand out. The first of these is spatial planning and the problems around land statuses: there is a unanimous agreement between research participants that the land statuses need to be clarified, ensuring legal certainty regarding land statuses for everyone involved. Secondly, research participants also find that (smallholder) farmers do not keep rules especially regarding land borders and planning within forest areas: "people who plant oil palm usually do not know the boundaries of the area on the ground so they do planting in the area" (RP9). At the same time, they regard law enforcement as weak, with the government unable to monitor and uphold its own regulations. Related to and contributing to the above challenges is the lack of available and reliable mapping and data on land borders, plantation and forest areas, a problem also mentioned by research participants: "weaknesses: lack of orderly data collection and handling of land status issues both on company scale and community oil palm" (RP11). One research participant suggests these problems to be a priority to handle: "*first resolve [issues] (if any*) related to community land / garden tenure. Do not allow, that one day there would be legal issues related to this matter" (RP10). However, several research participants also comment that this can be resolved on a regional and district level: "the Regional Spatial Plan must be *clear first, and so there is legal certainty*" (RP28).

The fourth, very frequently mentioned element of control is related to a perceived inconsistency of government regulations: "*1. policies that are still not synchronous and overlapping; 2. licensing processes that have not been integrated between related ministries / agencies*" (RP30). Many research participants raise the issues of government regulations not being maximized, as they are not aligned (or even conflicting) between the various sectors and levels of governance, and there are inconsistencies in the various oil palm and land related policies. Additionally, licensing and permit processes as well as any other administrative tasks that involve the government tend to be lengthy and cumbersome, and often unclear, adding to the impression of inconsistency and inefficiency. On the other hand, it is mentioned by several respondents that there is support for sustainable palm oil at both central and regional government levels. The moratorium on new licenses, the Presidential Instruction on sustainable oil palm management, the Indonesian Sustainable Palm Oil certification, and the Social Forestry scheme are mentioned as examples. One research participant suggests the following set of solutions: "*1. an increase in productivity of oil palm plantations (same land area with larger amount of production); 2. an evaluation of all existing*

licenses so that in the future it will be more directed and sustainable 3. coordination and integration in the one-stop licensing and supervision process 4. acceptance of all parties for the SJB initiative and oil palm agroforestry" (RP30).

4. Practices and behaviors

The interaction between meaning, association and control result in 'Action': the patterns of practices and behaviours that individuals and organisations repeatedly perform, as well as the provision of functions, products and services by the government, private and civil society organisations (Woodhill, 2010; Pritchard, 2014). While actions are the outcomes of the other three institutional aspects, they also influence those: for example, a certain recurring behaviour can trigger new regulations or policies. In this section we will look at 'action' in the context of the Strategi Jangka Benah, as it will help us gain a more detailed understanding of what happens and why.

The first set of practices and behaviours to look at is that of the smallholder farmers and the processes of palm oil production in their context. A research participant (RP40) described that in villages like Karang Sari the typical production process starts with the smallholder farmers who cultivate the oil palm plantations, harvesting their trees 2-3 times each month. It is the farmers' groups that sell the oil palm fruit to small buyers (*pengepul*), of which there are usually 10-15 per village. The small buyers then sell the fruits to CPO producing companies who take care of the further stages of production and trading.

It is important to note that most of the oil palm farmers in the SJB pilot area in Central Kalimantan are transmigrant farmers, having arrived from Java between 1980 and 1992. Initially each family received the 2 hectares land promised by the government, but in the 1990s a large proportion of these lands were given to large-scale palm oil companies to cultivate oil palm on it, in exchange for some share of the profit. After the Asian economic crisis in 1998 many of the large-scale companies went bankrupt and the farmers were left with the oil palm plantations but lacked knowledge on how to cultivate them. This problem persists until today, and, as research participants describe, smallholder farmers lack the knowledge of appropriate cultivation techniques, including selecting the right seeds, planting, fertilizing and maintaining their plantations: "cultivation techniques, soil fertility, cropping patterns, fire issues will be a challenge" (RP11). This leads to low productivity, which can mean, according to a research participant very familiar with the local situation (RP40), up to 50% less oil palm fruits than in company plantations in the same area. With a typical parcel size of about 2-4 hectares per famer, smallholder farmers harvest about 2-3 tons of oil palm fruit per month, generating just enough income to cover for day-to-day costs, as long as there are no urgent, unexpected or outstanding expenses such as sickness, damage or

education fees for older children. In case such expenses occur, farmers would usually borrow money either from one of the small buyers in the village, or from a bank. However, the bank is usually more difficult, both because it means more administrative efforts, but also because bank loans are not always afforded to smallholder farmers. Hence, small buyers have an important role not only in buying the oil palm fruits but also ensuring a certain financial stability of the farmers.

Smallholder farmers are also described as focusing on a single crop: "*local people focus more on only one commodity whose market price is better. So that it will arise the biological child and or stepchild. The result is that at the end they only focus on certain commodities at the expense of others*" (RP21). However, as the global market price of palm oil is volatile, this acts as a destabilizing factor to smallholder farmers' livelihoods as they are overdependent on a single crop, and when prices drop, it can seriously affect their income. This problem is recognized by most research participants as well as the farmers themselves, as described at the previous chapter, and is an important reason why research participants (as well as farmers themselves) would find agroforestry a desirable solution.

The low oil palm productivity of smallholder farms, and unstable income, along with the increasing difficulty to obtain land in Central Kalimantan, and the unclear status of land areas, currently cause smallholder farmers to clear forest areas (for example by burning it) and replant with oil palm trees. This, as mentioned earlier, is illegal, however, still a regular practice: "*many plantations encroach on forest areas which have an impact on forest areas which should have a heterocultural composition of plants and types into monocultures. This has a big influence on the balance of nature and its environment (plants, animals and nature as a whole)*" (RP25).

Research participants also mention that the increasing pressure from the international community to improve the sustainability of palm oil has an impact on the national government's actions: "*Due to the pressure from the EU to improve the sustainability of palm oil, the government has realized that they have to improve*" (RP2). This can be seen in the various policy initiatives towards sustainable palm oil production, and the central government is reportedly open to work together with the civil society in finding solutions. However, concrete steps have not been taken. Based on research participants' responses, it is also clear that the provincial government is aware of the complexity of the problems and are willing to resolve them – although the lack of evidence, funding and human resources are often-cited barriers towards action. Also, while in principle supportive, some research participants mention that local government agencies might also be afraid of promoting oil

palm agroforestry for plantations in forest areas due to fear of retribution by the law enforcement authorities.

5. Institutional analysis in a summary

Figure 9 below shows a summary of the analysis of the rules of the game, the institutions in the system representing the functions 'meaning', 'control', 'association' and 'action':



Figure 10 Institutional analysis: the rules of the game

Such a detailed insight can help us better understand which of these institutional elements will hamper or facilitate a sustainable innovation effort. Using the above, we can draw up the driving and restraining institutions for the transition smallholder oil palm plantations from monoculture to oil palm agroforestry. This is shown in *Figure 10*:


Figure 11 Analysis of the rules of the game: driving and restraining institutions

Amongst the institutions hindering the change is the understanding of oil palm plantations as monoculture, and doubts regarding the viability of oil palm agroforestry. While there is a general sense of openness towards the approach, the lack of sufficient amount of data, evidence and examples create a bottleneck in shifting people's mindset. Another challenge, according research participants, is the collaboration around the SJB, such as the lack of information and clarity around involvement and the objectives, and the lack of understanding of roles and responsibilities regarding the initiative. Thirdly, the often-mentioned legality problems, such as the regulations not allowing oil palm in forest areas, overlapping regulations, the unclear land statuses and land rights, and the lack spatial data are a threat to the SJB's success. And finally, smallholder farmers' practices that lead to low productivity, and ultimately, to encroaching on forest areas, further expand the list of hindrances.

On the other hand, there is a general awareness of palm oil's benefits and challenges, a shared acknowledgement of the need for more sustainable approaches in oil palm cultivation, as well as a sense of openness towards oil palm agroforestry as a potential solution, as long as its viability can be proven. The already formalized cooperation around the Strategi Jangka Benah, for example the signed Memorandums of Understanding to support the creation of demonstration plots, are a major step ahead towards success and pave the way for further collaboration. With the ongoing international pressure for sustainable palm oil, and with the newly introduced policy initiatives of the government, that include the Oil Palm Moratorium, as well as the ISPO certificate, there is a momentum for change across all levels of governance. Research participants also offer a wealth of recommendations and opportunities for the SJB, which implies openness and willingness to think of solutions together, that can be tapped into by the SJB team.

Capacity Analysis: The way forward

After identifying and analysing the actors and institutions involved with the transition to oil palm agroforestry, we arrive to the final two sub-questions of this research: What are the capacity gaps for the local institutions to effectively facilitate the transition to oil palm agroforestry? And how to develop the necessary institutional capacity? In essence, these mean: what is necessary for the change to take place? It is critical to note here, that, regardless of the practicalities of the Strategi Jangka Benah, the main objective behind the initiative is to resolve the complex challenge of recovering the ecosystem function of the land disturbed by oil palm cultivation-driven deforestation, while improving the livelihoods of smallholder oil palm farmers. While there is a technical solution that the initiating organisations believe could solve this challenge, this is neither absolute nor restrictive – instead, it is viewed as the best option that is nuance because when we ask ourselves: 'capacity to do what?', what we are looking at, really, is capacity to achieve the objective rather than to implement the technical solution.

How do we develop institutional capacity to achieve such an objective? As discussed in the Methodology chapter, we will use Woodhill's (2010) definition of capacity building as the "*process of strengthening relationships that enable innovation and resilience in communities, organisations and societies*". He suggests four capacities that are necessary for institutional innovation: navigating complexity, learning collaboratively, engaging politically and being self-reflective (Woodhill, 2010). What does this mean? First, the goal of capacity building is to enable innovation and resilience, implying that the change needs to come from within the system, as opposed to being imposed on it. Second, the way to do this, is by strengthening relationships, which can be done when the actors in an institutional system can (1) navigate complexity; (2) learn collaboratively; (3) engage politically; and (4) be self-reflective.

Navigating complexity entails recognizing complexity, testing out a range of interventions, understanding the implications of these, and embracing unpredictability – as opposed to linear, cause-and-effect solutions. In the case of the Strategi Jangka Benah, our starting point is promising: most research participants acknowledge palm oil as a double-edged sword, i.e. beneficial for the development of local communities but harming the environment, and believe that a more sustainable solution is necessary, that balances out the social, economic and environmental aspects. Some research participants also recognize the complex causes of deforestation, that there is no simple solution, and that the lack of clarity regarding land rights and statuses, among other things, contributes to the encroaching on forests. Others

only focus on the practices of smallholders and their lack of compliance with the regulations. Thus, when looking at 'meaning', a common understanding of the starting situation and a shared awareness of the complexities involved is yet to be established. An interesting aspect in relation to the institutional system's ability to navigate complexity is 'control'. It is well-recognized that national and regional mandates regarding land management are overlapping and is usually seen as a weakness. However, this is one of the aspects of complexity, that, if embraced, can even prove useful by approaching the change from the level that the institutional system is most responsive to. This could mean focusing on change on provincial instead of national level. Lastly, it was frequently mentioned by research participants that the viability of oil palm agroforestry is yet unknown, as there is little data available on the approach as of now. To address this, the SJB team has started the development of several demonstration plots across the pilot locations, testing the solution and providing examples. Adoption by smallholder farmers has been progressing too. For the institutional system to process and work with these developments, however, there is a need to increase awareness of the progress, and to create a shared understanding of the implications.

The second capacity, 'learning collaboratively' is about acknowledging the roles and interdependence of actors in an institutional system and engaging them in a multistakeholder process. There are some important collaborations and interactions that already exist: relationship between some of the key provincial governance bodies, close collaboration between the SJB team and the various Forest Management Units across the pilot locations, and collaboration with local universities in the research and implementation work. The representation of several key actors at the launch events of the Strategi Jangka Benah, and the Memorandums of Understanding signed between various parties are also positive developments. For a multi-stakeholder engagement process, however, a wider-scale collaboration is necessary. Currently there is a wide range of actors who are not or only slightly aware of the initiative, or who are aware but not included yet, although there is willingness to participate. The actor assessment exercise, conducted in the previous chapter, could serve as a basis for creating a wider-scale engagement strategy, in order to define the role of various groups of actors and to create space to collaborate and learn together.

Such an approach could also provide further insight into the needs and motivations of the various actors, and the existing power dynamics in the institutional system. As institutional innovation involves disrupting dynamics of power, it is necessary to understand existing power relations, what sort of political engagement is appropriate, and how to influence policies. This is the third capacity, 'engaging politically'. For the Strategi Jangka Benah, a great deal of power lies in the national government and their mandate to change policies and promote the SJB as a national strategy. However, engaging with provincial and district level

politics, and recognizing sources and motivations of power on these levels will be key to success. When asked who has the biggest influence on the success (or failure) of the SJB, and what are the most significant threats to the initiative, there seems to be a tendency among the various actors in the system to point the finger towards each other. The scope of this research did not allow for a more in-depth investigation of this situation; therefore, it will be an important task ahead to uncover the sources and motivations of power and engage power dynamics in the change process.

Finally, being self-reflective implies creating a safe space for human relations, emotions regarding the change, as well as for giving and receiving feedback throughout the change process. It is about recognizing that change, even on an institutional level, happens through human beings, and that going through a change process can be uncomfortable, or even threatening for the individuals involved in it. One of the most obvious examples is that of the smallholder farmers, as reported by several research participants. They worry about the potential drop of productivity of their oil palm plantations by implementing oil palm agroforestry. One representative of an FMU also highlights that agroforestry is more complicated to manage than monoculture, and farmers who already lack appropriate cultivation knowledge and skills, might find this risky and intimidating. Such emotional reactions occur at every level of the institutional system: someone in a governmental body might be afraid of conflicts or feel that their position might get threatened if they push for change, even if they believe in it. The Strategi Jangka Benah team has already started exploring some of these positions through surveying farmers, as well as through including partner organisations in some of the project update meetings, allowing them to share their feedback and input. While it will not be possible to deal with every involved individual's set of emotions during the change process, creating such spaces also for the various groups of actors, encouraging feedback and acknowledging this human aspect will help with engaging individuals across the institutional system.

Conclusions and Discussion

With over 16 million hectares (Suwastoyo, 2020), or nearly 20% of the total agricultural land area of Indonesia (KEHATI, UKaid, 2018) being used for oil palm cultivation, palm oil is an increasingly hot topic in Indonesia. While it is the country's biggest earner of foreign exchange revenue and provides jobs for 17 million people (Ma'ruf, et al., 2019), the rapid expansion of oil palm has brought numerous environmental and social concerns: deforestation, land clearing, loss of biodiversity, soil erosion and land degradation, increase in greenhouse gas emissions, as well as land conflicts, human rights violations and challenges around food security (Oosterveer, 2015; Ma'ruf, et al., 2019). An estimated 3.4 million hectares of oil palm plantations are located illegally in forest areas, mainly in Sumatra and Kalimantan (Ma'ruf, et al., 2019).

Although efforts are being made towards a more sustainable production of Indonesian palm oil, none of these deal with the existing plantations in the forest areas, largely without permits and clear land statuses. According to current regulations, all of those plantations would need to be cut, which would mean cutting the livelihoods of hundreds of thousands of smallholder farmers and their families, who depend on palm oil income (Ma'ruf, et al., 2019). The Strategi Jangka Benah (SJB), or Long-term Rehabilitation Strategy was developed to address this problem: to reconcile the reduction of negative environmental impacts with maintaining the livelihoods of smallholder farmers whose plantations are in designated forest areas (SPOS, 2019) by implementing oil palm agroforestry.

Several studies suggest that agroforestry can help restore the biodiversity and microclimate, can increase species richness and improve soil fertility, as well as benefit the local communities by diversifying their sources of income (Bhagwat & Willis, 2008). However, there is little data and evidence available specifically on oil palm agroforestry (Miccolis, et al., 2019), which, along with the fact that cultivating oil palm inside forest areas is currently against the law, provides significant barriers towards implementing the Strategi Jangka Benah. The SJB can be viewed through the lenses of the sustainability transitions theory, whereby it is understood that a technological innovation is usually not sufficient for sustainable change: institutionalizing the initiative will require institutional change.

The aim of this research was two-fold: first, to conduct an analysis of the local institutions surrounding one of the Strategi Jangka Benah's pilot sites in Central Kalimantan province, to understand how local institutions can better facilitate the transition of smallholder oil palm plantations from monoculture to oil palm agroforestry. Second, through conducting the

analysis, to provide a critical review of the institutional analysis process itself. The analytical process consisted of three main steps. The first was an actor analysis, to identify and understand the positions of the various actors involved in the institutional system, their influence over the SJB as well as the initiative's potential impact on them. This was followed by an analysis of the 'rules of the game' to identify the formal and informal institutions involved with or influencing the SJB. The final step was an institutional capacity assessment to review what capacities of the institutional system need to be improved to better facilitate the transition to oil palm agroforestry.

While an understanding of how local institutions can better facilitate the transition of smallholder oil palm plantations from monoculture to oil palm agroforestry is far from simple, data from this research point toward two key themes: information and engagement. Local institutional actors need to get information both on the problem that needs to be resolved, as well as on the solution offered, and the progress that is being made. They also need to be involved in that progress and find their role and contribution to start taking some level of ownership over it. A common understanding of the starting situation and a shared awareness of the complexities involved needs to be established, along with an increased level of awareness of the progress, and a shared understanding of the implications. It also seems necessary to create a wider-scale engagement strategy based on the actor analysis, defining the role of various groups of actors and to create space to collaborate and learn together. Engagement with provincial and district level politics and recognizing sources and motivations of power on these levels will be key to success. And finally, it is recommended to create spaces for human relations and for giving and receiving feedback, acknowledging that change can be uncomfortable.

At an early stage of this research, representatives of both initiating organisations of the SJB were interviewed, and when asked about the challenges the SJB faces, they both talked in length about the struggles around national level policy and regulatory changes to legalize the concept. However, while changes are indeed important and would give a significant boost to the implementation efforts, the results of this research imply that tackling the change process bottom-up, by creating a common understanding and improving collaborative learning across a wide range of actors would be a better suited approach in the decentralized and complex environment that the Strategi Jangka Benah operates within. Although, based on the available data, the statements above are quite possibly true for implementing the SJB across Indonesia, it is also recommended to repeat the institutional analysis exercise for each province, as power dynamics, interactions between institutions, values, beliefs, and interests of the various actors might differ from region to region, so the specific approach for engagement and implementation might need to be adjusted.

While the results are specific to this research, the theory and process of the research is relevant in the context of any sustainability transition. The institutional analysis process conducted for the Strategi Jangka Benah can be seen as an experiment by using a real-life example to review the existing processes, tools and academic literature related to institutional analysis, and to see what learning points arise. It was apparent from the beginning of the research process, that although there seems to be a widely accepted consensus that the term 'institution' includes both formal and informal aspects, most of the research that has been done to date focus on the formal aspects only, in the form of policy reviews, stakeholder analyses, or governance reviews. There is relatively little attention paid to the informal aspects, and the interplay between the formal and informal aspects, for example how common beliefs and norms could influence policy making. Similarly, when discussing sustainability innovations, the focus tends to be on the technical solutions and the surrounding policy environment, with much less consideration to how change happens in an institutional system and how this can contribute to the success or failure of a particular technical solution or set of policies. However, rarely does a sustainability transition succeed through a technical solution and policy change only: in a complex world, filled with meanings, beliefs, informal networks, unwritten rules, and set practices, more is needed to change in order to achieve the desired outcome (Woodhill, 2010).

There is not a lot of guidance available as to how to conduct an in-depth institutional analysis exercise. The two more comprehensive, widely used frameworks are Ostrom's Institutional Analysis and Development framework, and Woodhill's Institutional Analysis framework, and their variations that have been developed over time. Although both of them have 'Institutional Analysis' in their title, they serve different purposes. While Ostrom's IAD focuses on how people organize themselves to manage common resources, Woodhill's framework looks at how institutions influence a particular situation or outcome. With the Woodhill framework's objective better suiting the objectives of this research, it was used as our point of departure. The framework is a useful starting point and guideline in the process of identifying the institutions that influence a desired outcome. It also helps us gain an overview as to how some of those institutions are interconnected and influence each other. It is not without shortcomings though. It does not appropriately facilitate the in-depth actor analysis that is necessary to gain a full picture, nor does it answer the question of 'so what', following the identification of the institutions.

To fill in these gaps, an additional actor analysis was integrated into the process of this research, answering questions such as who is involved, how they are linked, how influential they are and what their objectives are. This was done using a combination of the NetMapping tool, the Power-Interest Grid and Stakeholder Analysis. This combination helped focus on the

right questions to ask and understand how actors of institutional system fit into the system. Together, the institutional and actor analyses provide a sufficient basis for understanding the current state of the institutional system and some of the changes (gaps, weaknesses) that might be necessary to move forward. However, a question remains unanswered: what to do with the information we have gathered from the institutional and actor analyses? To answer this in a satisfactory manner, we need to know what capacities are necessary for an institutional system to be able to innovate and change itself from within?

Answering this question poses a significant challenge. The definitions for the term 'capacity' tend to be rather vague, when it comes to institutions. When discussing the development of institutional capacity, most of the currently available literature refer to organizational capability development. This can be explained by the understanding that institutional change occurs through the interactions of the actors of an institution (Hollingsworth, 2000), however, it is questionable whether developing the capabilities of organizational actors will lead to changes in the way they interact, and, ultimately, to institutional change. The next question is then, how to facilitate the interactions between the actors of an institutional system, and between the actors and the institutional system in order to foster change? Woodhill's response to this question is the four capacities for institutional innovation: navigating complexity, learning collaboratively, engaging politically, and being self-reflective (Woodhill, 2010). Analysing these capacities for an institutional system help bring data from the previous analytical steps into a thorough understanding of how the parts fit together and support a system-wide change that is necessary to achieve the desired outcome. However, there is very little guidance regarding what these capacities mean, and they are difficult to operationalize.

In a complex environment there are no one-size-fits-all solutions, and it is important to remember that an institutional analysis is not a magic wand that fixes all problems and finds quick answers. In fact, it serves exactly the opposite purpose: to uncover the difficult-to-deal with, often uncomfortable complexities of change; to show us how much we do not know; and to allow us to embrace the unpredictable nature of institutions and societies. This research has explored one institutional analysis process in the context of a technological innovation in a sustainability transition process. However, it also underscores the need for a shared understanding of institutions and institutional capacity across Development Studies, in a language that embraces complexity and variations and avoids relying on linear, mechanical approaches for institutional innovation and change. This way an institutional analysis process could become a meaningful, in-depth tool for understanding institutional systems. Additionally, more research is recommended in order to understand how change

happens in complex environments in the context of sustainability transitions, and how to facilitate the process of an institutional system adopting to change.

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Appendices

1. Interview Guides

Three interview guides were developed: the first one for used for the semi-structured interviews (conducted face-to-face and via video calls), while the second one was a slightly altered version of this, for the first round of epistolary interviews, added into an online Google Form (the 'interview form'). The third interview guide was used for a set of follow-up epistolary interviews with a short list of research participants who had already answered the first interview form (for more details, see the 'Methodology' chapter). All three interview guides were created in English but translated to Bahasa Indonesian for the research participants, thus both English and Indonesian versions are shared below.

Research participants, whose comments are not made anonymous in the text, have been asked for and they have granted permission to use their comments along with their names. (This was done via text messages with the assistance of the SJB team.)

1.1. Interview guide (English)

Interview Guide

Researcher: **Viktoria Vero** Research assistant: **Kartono Aprilianto** Utrecht University & Universitas Gadjah Mada Under the supervision of: **Dr. Murtah Shannon** *Utrecht University*

Hero Marhaento & Dwiko Budi Permadi

Universitas Gadjah Mada

About the interview:

- Date of the interview:
- Name of organization:
- Level (provincial / district / other):

Introduction:

My name is Viktoria Vero. I am a Masters' student in International Development Studies at Utrecht University, in the Netherlands. This research is realized in the context of my Masters' degree and is in collaboration with Universitas Gadjah Mada. I am conducting research related to the Strategi Jangka Benah that has been started several villages in Paranggean sub-district by members of the Faculty of Forestry of Universitas Gadjah Mada and the KEHATI Foundation. As part of my research, I would like to understand the role that the various actors play in facilitating the implementation of Strategi Jangka Benah.

Thank you so much for agreeing to Everything you tell me will be kept confidential, and your name is not going to be shared with others. Only me, my research assistant and my supervisors will have the detailed transcript of this interview, and your answers will be collated with those of others.

Do you have any questions or comments before we start?

Contextual questions:

- 1. Please tell me a bit about yourself. What do you do in your work? <u>Probes</u>: role; key activities; level of responsibility
- Can you tell me a more about your organization?
 <u>Probes</u>: what they do; key responsibilities; where they are located; level of influence (national/provincial/district/...)

Questions to understand their stand related to oil palm

3. How is your organization involved with oil palm growing? <u>Probes</u>: their role; responsibilities; their influence; their stand regarding oil palm

- 4. What are the most important considerations for your organization regarding oil palm growing? Probes: what is important to them; what worries them
- 5. How does your organization see the future of oil palm growing? <u>Probes</u>: vision for future; how to get there; gaps
- What key challenges do you see regarding oil palm growing in Central Kalimantan at the moment?
 <u>Probes</u>: at which level the challenge exists; any existing solutions; constraints to potential solutions
- 7. What do you know about oil palm agroforestry?
- 8. In your opinion, what are the potential benefits of oil palm agroforestry? <u>Probes</u>: why those benefits are important; who benefits;
- 9. What do you see as key challenges regarding oil palm agroforestry? Probes: why those challenges; any possible solutions; what has been tried already

Questions about the Strategi Jangka Benah and actors involved

- 10. Do you know about the Strategi Jangka Benah?
- 11. Is your organization involved with the Strategi Jangka Benah? If so, in what way? <u>Probes</u>: knowledge of the SJB; level and nature of involvement; what decisions they make
- 12. What needs to be done in order for the SJB to be successful? <u>Probes</u>: success factors; why those; who needs to do what; any bottlenecks or risks
- 13. How can your organization contribute to SJB's success? Probes: responsibilities; actions; reasons for those; limitations
- 14. Which are main actors involved with the SJB in Central Kalimantan, to your knowledge?
 <u>Probes</u>: names and roles of organizations; levels of governance (provincial/district/local); what their responsibility is; what is their influence
- 15. Which other organizations do you cooperate with regarding the SJB? <u>Probes</u>: how do they cooperate; roles and responsibilities in partnership / who does what; importance of partnership; how they are dependent on each other; how do they communicate and work together
- 16. What other actors, in your opinion, should be involved in the SJB?

<u>Probes</u>: at which levels; names and roles of institutions; why should be involved; why not involved currently

17. What do you see as the strengths and weaknesses of current oil palm governance? <u>Probes:</u> decision making; cooperation; information sharing; shared or conflicting interests

Closing questions

- 18. What are your personal wishes for the future of oil palm growing in Indonesia?
- 19. Do you have any colleagues / contacts / people you can recommend for further interviewing?
- 20. Do you have any last questions before we close the interview?

1.2. Interview guide (Indonesian)

Panduan Wawancara

Peneliti: **Viktoria Vero** Asisten peneliti: **Kartono Aprilianto** Utrecht University & Universitas Gadjah Mada Dibawah pengawasan: **Dr. Murtah Shannon** *Utrecht University*

Hero Marhaento & Dwiko Budi Permadi Universitas Gadiah Mada

About the interview:

- Tanggal wawancara:
- Nama Lembaga:
- Tingkat (provinsi / kabupaten / lainnya):

Pengantar:

Nama saya Kartono Aprilianto lulus dari Universitas Palangka Raya dengan gelar sarjana kehutanan. Saya bekerja dengan Viktoria Vero yang merupakan mahasiswa Master dalam Studi Pembangunan Internasional di Universitas Utrecht, Belanda. Penelitian ini diwujudkan dalam konteks gelar Masternya dan bekerja sama dengan Universitas Gadjah Mada. Kami sedang melakukan penelitian terkait Strategi Jangka Benah yang telah dimulai beberapa desa di Kecamatan Paranggean oleh anggota Fakultas Kehutanan Universitas Gadjah Mada dan Yayasan KEHATI. Sebagai bagian dari penelitian, kami ingin memahami peran yang dimainkan oleh berbagai aktor dalam memfasilitasi implementasi Strategi Jangkauan Benah. Terima kasih banyak untuk menyetujui wawancara ini. Segala sesuatu yang Anda katakan kepada kami akan dirahasiakan, dan nama Anda tidak akan dibagikan kepada orang lain. Hanya kami berdua dan supervisor Viktoria yang akan memiliki transkrip terperinci dari wawancara ini, dan jawaban Anda akan disusun dengan jawaban orang lain. Apakah Anda memiliki pertanyaan atau komentar sebelum kami mulai?

Pertanyaan Kontekstual:

- Tolong beritahu saya sedikit tentang diri Anda. Apa yang Anda lakukan dalam pekerjaan Anda?
 Probe: peran; kegiatan utama; tingkat tanggung jawab
- 2. Bisakah Anda memberi tahu saya lebih banyak tentang organisasi Anda? Probe: apa yang dila lakukan; tanggung jawab utama; lokasi lembaga/organisasi berada; tingkat pengaruh (nasional / provinsi / kabupaten / ...)

Pertanyaan untuk memahami pendirian mereka terkait dengan kelapa sawit

3. Bagaimana Lembaga Anda terlibat dalam pertumbuhan kelapa sawit?

Probe: peran mereka; tanggung jawab; pengaruh mereka; pendirian mereka tentang kelapa sawit

- Apa pertimbangan paling penting bagi lembaga Anda terkait dengan penanaman kelapa sawit?
 Probe: apa yang penting bagi mereka; apa yang membuat mereka khawatir
- 5. Bagaimana Lembaga Anda melihat masa depan pertumbuhan kelapa sawit? Probe: visi untuk masa depan; bagaimana menuju ke sana; kesenjangan
- Tantangan utama apa yang Anda lihat terkait dengan pertumbuhan kelapa sawit di Kalimantan Tengah saat ini?
 Probe: pada tingkat apa tantangan itu ada; solusi yang ada; kendala untuk solusi potensial
- 7. Apa yang kamu ketahui tentang agroforestri kelapa sawit?
- 8. Menurut Anda, apa manfaat potensial dari wanatani kelapa sawit? Probe: mengapa manfaat itu penting; siapa yang diuntungkan;
- 9. Apa yang Anda lihat sebagai tantangan utama terkait agroforestri kelapa sawit? Probe: mengapa tantangan itu; solusi yang memungkinkan; apa yang sudah dicoba

Pertanyaan tentang Strategi Jangka Benah dan orang yang terlibat

- 10. Apakah kamu tahu tentang Strategi Jangka Benah?
- 11. Apakah lembaga Anda terlibat dengan Strategi Jangka Benah? Jika demikian, dengan cara apa?Probe: pengetahuan tentang SJB; tingkat dan sifat keterlibatan; kekuatan pengambilan keputusan
- 12. Apa yang perlu dilakukan agar SJB berhasil? Probe: faktor keberhasilan; mengapa itu; siapa yang perlu melakukan itu; apa hambatan atau risiko
- 13. Bagaimana lembaga Anda berkontribusi terhadap kesuksesan SJB? Probe: tanggung jawab; tindakan; alasan untuk itu; keterbatasan
- 14. Siapa saja orang utama yang terlibat dengan SJB di Kalimantan Tengah, sepengetahuan Anda? Probe: nama dan peran lembaga; tingkat pemerintahan (provinsi / kabupaten / lokal); apa tanggung jawab mereka; apa pengaruh mereka
- 15. Lembaga lain apa yang bekerja sama dengan Anda mengenai SJB? Probe: bagaimana mereka bekerja sama; peran dan tanggung jawab dalam kemitraan

/ siapa yang melakukan apa; pentingnya kemitraan; bagaimana mereka saling berkaitan; bagaimana mereka berkomunikasi dan bekerja bersama

- 16. Siapa Orang lain, menurut Anda, yang harus dilibatkan dalam SJB? Probe: di tingkat mana; nama dan peran lembaga; mengapa harus dilibatkan; mengapa tidak terlibat saat ini
- 17. Apa yang Anda lihat sebagai kekuatan dan kelemahan tata kelola kelapa sawit saat ini?

Probe: pengambilan keputusan; kerja sama; Berbagi informasi; kepentingan bersama atau bertentangan

Pertanyaan Penutup

- 18. Apa keinginan pribadi Anda untuk masa depan penanaman kelapa sawit di Indonesia?
- 19. Apakah Anda memiliki kolega / kontak / orang yang dapat Anda rekomendasikan untuk wawancara lebih lanjut?
- 20. Apakah Anda memiliki pertanyaan terakhir sebelum kami menutup wawancara?

1.3. Interview form (English)

Written interview questionnaire

Introduction:

My name is Viktoria Vero and I am a Masters' student in International Development Studies at Utrecht University, in the Netherlands. This research is realized in the context of her Masters' degree and is in collaboration with Universitas Gadjah Mada. We are conducting research related to the Strategi Jangka Benah that has been started several villages in Paranggean sub-district by members of the Faculty of Forestry of Universitas Gadjah Mada and the KEHATI Foundation. As part of the research, we would like to understand the role that the various actors play in facilitating the implementation of Strategi Jangka Benah. Thank you so much for agreeing to this interview and we appreciate your time writing down your answers. Everything you tell us will be kept confidential, and your name is not going to be shared with others. Only me, my research assistant and my supervisors will have the detailed transcript of this interview, and your answers will be collated with those of others.

Research details:

Researcher: Viktoria VeroResearch assistant: Kartono ApriliantoUtrecht University & Universitas Gadjah MadaUnder the supervision of:Dr. Murtah ShannonUtrecht UniversityUtrecht UniversityUniversitas Gadjah Mada

Introductory questions:

- Name of organization:
- Level of operation (provincial / district / other, please specify):

Questions:

- 1. Please tell me a bit about yourself. What do you do in your work?
- 2. Can you tell me a more about your organization? What does your organisation do?
- 3. How is your organization involved with oil palm growing?
- 4. What are the most important considerations for your organization regarding oil palm growing?
- 5. How does your organization see the future of oil palm growing?
- 6. What key challenges do you see regarding oil palm growing in Central Kalimantan?
- 7. What do you know about oil palm agroforestry?

- 8. In your opinion, what are the potential benefits of oil palm agroforestry?
- 9. What do you see as key challenges regarding oil palm agroforestry?
- 10. Do you know about the Strategi Jangka Benah?
- 11. Is your organization involved with the Strategi Jangka Benah? If so, in what way?
- 12. In your opinion, what needs to be done in order for the SJB to be successful?
- 13. How can your organization contribute to SJB's success?
- 14. What support does your organization need to contribute to SJB's success? From whom?
- 15. Which are main actors involved with the SJB in Central Kalimantan, to your knowledge? In what way are they involved?
- 16. Which other organizations do you cooperate with regarding the SJB? How do you work together?
- 17. Are there any challenges that you observe regarding working together with other actors? If so, what are these?
- 18. What other actors, in your opinion, should be involved in the SJB? Why?
- 19. What do you see as the strengths and weaknesses of current oil palm governance?
- 20. What are your personal wishes for the future of oil palm growing in Indonesia?
- 21. Do you have any colleagues / contacts / people you can recommend for further interviewing?
- 22. Do you have any additional comments or questions?
- 23. May we contact you if we have follow-up questions?

1.4. Interview form (Indonesian)

Kuesioner wawancara tertulis

Pengantar:

Nama saya Viktoria Vero dan saya mahasiswa S2 dalam Studi Pembangunan Internasional di Universitas Utrecht, Belanda. Penelitian ini diwujudkan dalam konteks gelar Masternya dan bekerja sama dengan Universitas Gadjah Mada. Kami sedang melakukan penelitian terkait Strategi Jangka Benah yang telah dimulai beberapa desa di Kecamatan Paranggean oleh anggota Fakultas Kehutanan Universitas Gadjah Mada dan Yayasan KEHATI. Sebagai bagian dari penelitian, kami ingin memahami peran yang dimainkan oleh berbagai aktor dalam memfasilitasi implementasi Strategi Jangkauan Benah.

Terima kasih banyak telah menyetujui wawancara ini dan kami menghargai waktu Anda menuliskan jawaban anda. Segala sesuatu yang Anda katakan kepada kami akan dirahasiakan, dan nama anda tidak akan dibagikan kepada orang lain. Hanya saya, asisten peneliti dan penyelia saya yang akan memiliki transkrip terperinci dari wawancara ini, dan jawaban anda akan disusun dengan jawaban orang lain.

Detail penelitian::

Peneliti: **Viktoria Vero** Asisten Peneliti: **Kartono Aprilianto** Utrecht University & Universitas Gadjah Mada Dibawah Pengawasan: **Dr. Murtah Shannon** *Utrecht University* University

Hero Marhaento & Dwiko Budi Permadi Universitas Gadjah Mada

Pertanyaan Pengantar:

- Nama Lembaga:
- Tingkat (provinsi / kabupaten / lainnya, sebutkan):

Pertanyaan:

- 1. Tolong beritahu saya sedikit tentang diri Anda. Apa yang Anda lakukan dalam pekerjaan Anda?
- 2. Bisakah Anda memberi tahu saya lebih banyak tentang lembaga Anda? Apa yang dilakukan lembaga Anda?
- 3. Bagaimana lembaga Anda terlibat dengan pertumbuhan kelapa sawit?
- 4. Apa pertimbangan paling penting bagi lembaga Anda terkait dengan penanaman kelapa sawit?
- 5. Bagaimana lembaga Anda melihat masa depan pertumbuhan kelapa sawit?

- 6. Apa tantangan utama yang Anda lihat terkait penanaman kelapa sawit di Kalimantan Tengah?
- 7. Apa yang Anda ketahui tentang agroforestri kelapa sawit?
- 8. Menurut Anda, apa manfaat potensial dari agroforestri kelapa sawit?
- 9. Apa yang Anda lihat sebagai tantangan utama terkait agroforestri kelapa sawit?
- 10. Apakah Anda mengetahui tentang Strategi Jangka Benah?
- 11. Apakah lembaga Anda terlibat dengan Strategi Jangka Benah? Jika demikian, dengan cara apa?
- 12. Menurut Anda, apa yang perlu dilakukan agar SJB menjadi sukses?
- 13. Bagaimana lembaga Anda dapat berkontribusi terhadap kesuksesan SJB?
- 14. Dukungan apa yang dibutuhkan lembaga Anda untuk berkontribusi pada kesuksesan SJB? Dari siapa?
- 15. Siapa saja orang utama yang terlibat dengan SJB di Kalimantan Tengah, sepengetahuan Anda? Dengan cara apa mereka terlibat?
- 16. Lembaga apa yang bekerja sama dengan Anda mengenai SJB? Bagaimana Anda bekerja bersama?
- 17. Adakah tantangan yang Anda amati terkait bekerja sama dengan orang lain? Jika demikian, apakah itu?
- 18. Menurut Anda, Orang lain seperti apa yang harus dilibatkan dalam SJB? Mengapa?
- 19. Apa yang Anda lihat sebagai kekuatan dan kelemahan tata kelola kelapa sawit saat ini?
- 20. Apa harapan pribadi Anda untuk masa depan penanaman kelapa sawit di Indonesia?
- 21. Apakah Anda memiliki kolega / kontak / orang yang dapat Anda rekomendasikan untuk wawancara lebih lanjut
- 22. Apakah Anda memiliki komentar atau pertanyaan tambahan?

23. Bolehkah kami menghubungi Anda jika kami memiliki pertanyaan tindak lanjut? *1.5. Follow-up interview guide (English)*

Interview Guide for follow-up interviews

My name is Viktoria Vero and I am a Masters' student in International Development Studies at Utrecht University, in the Netherlands. This research is part of my studies, in collaboration with the Faculty of Forestry of Universitas Gadjah Mada. We are conducting research related to the Strategi Jangka Benah that has been initiated by the Faculty of Forestry of UGM and the KEHATI Foundation. As part of the research, we would like to understand the role that various actors play related to the SJB. You have already completed a questionnaire related to the research, thank you! This follow up interview aims to clarify some further details. Everything you tell us will be kept confidential, and your name is not going to be shared with others outside of our research team. Your answers will be collated with those of others.

- 1. How did you hear about the Strategi Jangka Benah? <u>Clarification</u>: when, from whom, in what context
- 2. Why did your organization decide to get involved with the SJB? <u>Clarification</u>: trying to understand their motivation
- 3. What are you hoping the SJB to achieve? <u>Clarification</u>: what do they want from the SJB? How does SJB contribute to their organization's goals?
- 4. What are the opportunities for the SJB? <u>Clarification</u>: anything that can support the SJB, for example a new regulation; or a person in a high position who supports it; or a great collaboration of actors, etc.
- 5. What are the possible threats for the SJB? <u>Clarification</u>: anything that stands in the way of the SJB, for example an important organization is not involved or against the SJB; or lack of funding; or bad weather; etc.
- 6. In your opinion, who are the more influential actors / organizations that could influence the implementation of the SJB, either positively or negatively? Why? <u>Clarification</u>: People or organizations who could influence the success. Or who could block the SJB from being successful.
- What are the potential conflicts of interest that you see, regarding the implementation of the SJB? <u>Clarification</u>: Could any actor/organization be negatively influenced by the SJB? For example: lose resources; political power; partnerships; etc
- How do you work together with other organizations to support the implementation of the SJB? How exactly do you collaborate? <u>Clarification</u>: flows of information, advise, resources; strategy and planning; etc.

1.6. Follow-up interview guide (Indonesian)

Panduan wawancara lanjutan

Nama saya Viktoria Vero dan saya mahasiswa S2 dalam Studi Pembangunan Internasional di Utrecht University, Belanda. Penelitian ini adalah bagian dari studi saya yang bekerja sama dengan Fakultas Kehutanan Universitas Gadjah Mada. Kami melakukan penelitian terkait dengan Strategi Jangka Benah yang telah diprakarsai oleh Fakultas Kehutanan UGM dan Yayasan KEHATI. Sebagai bagian dari penelitian, kami ingin memahami peran yang dimainkan berbagai aktor terkait dengan SJJ. Saudara telah mengisi kuisioner terkait penelitian, terima kasih! Wawancara lanjutan ini bertujuan untuk memperjelas beberapa perincian lebih lanjut dari pernyataan saudara pada kuisioner yang teah dikirimkan. Segala sesuatu yang Saudara katakan kepada kami akan dirahasiakan, dan nama Saudara tidak akan dibagikan kepada orang lain di luar tim peneliti kami. Jawaban Saudara akan disusun secara kolektif dengan jawaban orang lain.

- 1. Bagaimana Saudara mendengar atau mengetahui tentang Strategi Jangka Benah? Klarifikasi: kapan, dari siapa, dalam konteks apa
- 2. Mengapa organisasi Saudara memutuskan untuk terlibat dengan SJB? Klarifikasi: berusaha memahami motivasi mereka
- 3. Apakah yang diharapkan dari program SJB termasuk harapan terhadap kontribusinya ke organisasi Saudara? Klarifikasi: apa yang mereka inginkan dari SJB? Bagaimana SJB berkontribusi pada sasaran organisasi mereka?
- Apa saja peluang atau faktor pendukung program SJB? Klarifikasi: apa pun yang dapat mendukung SJB, misalnya peraturan baru; atau seseorang pada posisi tinggi yang mendukungnya; atau kolaborasi aktor yang hebat, dll.
- 5. Apa saja kemungkinan hambatan untuk keberhasilan program SJB? Klarifikasi: apa pun yang menghalangi SJB, misalnya organisasi penting tidak terlibat atau menentang SJB; atau kurangnya dana; atau cuaca buruk; dll.
- Menurut Saudara, siapakah aktor / organisasi yang berpengaruh pada keberhasilan maupun kegagalan pelaksanaan SJB? Dan apa alasan pengaruh yang diberikan tersebut baik positif maupun negatif? Klarifikasi: Orang atau organisasi yang dapat mempengaruhi kesuksesan. Atau siapa yang bisa memblokir SJB agar tidak berhasil.
- 7. Apakah ada potensi konflik kepentingan yang Saudara lihat, terkait implementasi SJB? Klarifikasi: Bisakah ada aktor / organisasi yang secara negatif dipengaruhi oleh SJB? Misalnya: kehilangan sumber daya; kekuatan politik; kemitraan; dll

8. Bagaimanakah Saudara bekerja bersama dengan organisasi lain untuk mendukung implementasi SJB? Bagaimanakah cara Saudara berkolaborasi? Klarifikasi: aliran informasi, saran, sumber daya; strategi dan perencanaan; dll.

2. List of research participants

Participant code	Organization name	Organization type	Organization level *	Involved in SJB? **
RP1	FKT-UGM / Faculty of Forestry, University of Gadjah Mada)	University & Research	n/a	Yes
RP2	SPOS-KEHATI / Strengthening Palm Oil Sustainability in Indonesia	NGO	n/a	Yes
RP3	BTPT Kalimantan Tengah / Institute of Agricultural Crops Research Central Kalimantan	Government	Province	No
RP4	Dinas Kehutanan Kalimantan Tengah / Provincial Forestry Service Central Kalimantan	Government	Province	Yes
RP5	INSTIPER Yogyakarta	University & Research	n/a	No
RP6	BPKSL Kalimantan Tengah / Directorate General of Social Forestry and Environmental Partnerships Central Kalimantan	Government	Province	No
RP7	Universitas Kapuas Sintang Kalimantan Barat	University & Research	n/a	No
RP8	Dinas Lingkungan Hidup Kalimantan Tengah / Environmental Agency Central Kalimantan	Government	Province	No
RP9	KPH (Gerbang Barito) / Forest Management Unit (district: Gerbang Barito)	Government	District	No
RP10	Global Green Growth Institute, Central Kalimantan	Inter-governmental organization	Province	No
RP11	Dinas Perkebunan Kalimantan Tengah / Provincial Plantation Service Central Kalimantan	Government	Province	Yes
RP12	Global Green Growth Institute, Central Kalimantan	Inter-governmental organization	Province	No
RP13	Dinas Perijinan dan Penanaman Modal / Licensing and Investment Office	Government	Province	No
RP14	Karang Sari Village	Government	Village	Yes
RP15	KPH (Kotawaringin Barat) / Forest Management Unit (district: Kotawaringin Barat)	Government	District	Yes
RP16	Dinas Kehutanan Kalimantan Tengah / Provincial Forestry Service Central Kalimantan	Government	Province	Yes
RP17	Balai Penelitian dan Pengembangan Lingkungan Hidup Dan Kehutanan / Forestry and Forestry Research and Development Center	Government	n/a	Yes
RP18	Dinas Kehutanan Kalimantan Tengah / Provincial Forestry Service Central Kalimantan	Government	Province	Yes
RP19	Dinas Perkebunan Kalimantan Tengah / Provincial Plantation Service Central Kalimantan	Government	Province	Yes
RP20	KPH (Kotawaringin Barat) / Forest Management Unit (district: Kotawaringin Barat)	Government	District	Yes
RP21	Fakultas Kehutanan Universitas Tanjungpura / Faculty of Forestry, Tanjungpura University	University & Research	n/a	No
RP22	Pimpinan PT BGA Perkebunan Kelapa sawit Besar di Kotawaringin Timur dan Barat / Large palm oil plantation company	Company	n/a	No
RP23	Kotawaringin Barat District Government	Government	District	No
RP24	Universitas Sumatera Utara / Sumatera Utara University	University & Research	n/a	Yes
RP25	Dinas Lingkungan Hidup / Provincial Environmental Services	Government	Province	No
RP26	Everlasting Palm Indonesia Consulting	Company	n/a	No
RP27	BPKH / Forest Area Consolidation Centre	Government	Province	No
RP28	PT NISP Kotawaringin Timur / Large palm oil plantation company	Company	n/a	No

RP29	INSTIPER Yogyakarta	University & Research	n/a	No
RP30	RACA Institute	NGO	National	No
RP31	Fakultas Kehutanan Universitas Lambung Mangkurat / Faculty of Forestry, University of Lambung Mangkurat	University & Research	n/a	No
RP32	Dinas Ketahanan Pangan Provinsi Kalimantan Tengah / Food Security Service of Central Kalimantan	Government	Province	No
RP33	Universitas Nusa Bangsa	University & Research	n/a	No
RP34	Kelompok Tani Hutan (Forest Farmers' Group) Karang	Community	Village	Yes
	Sari			
RP35	MAP Institut	NGO	National	No
RP36	KPH (Mentaya Tengah Seruyan Hilir) / Forest Management Unit (district: Mentaya Tengah Seruyan Hilir)	Government	District	Yes
RP37	Fairventures Worldwide	NGO	National	No
RP38	Yayasan Tambuhak Sinta	NGO	Province	No
RP39	BPKH / Forest Area Consolidation Centre	Government	Province	No
RP40	JAVLEC / Java Learning Centre	NGO	National	Yes

* For Universities level of operation is not an applicable category as their mandate is usually not limited to administrative boundaries.

** Involvement of their organization, as per research participants' answers to the question "Is your organization involved with the Strategi Jangka Benah?"

3. Codebook

	Code Tree	Description	Examples from data	Туре
Category	Code			
Palm oil		Comments, perceptions, values, and beliefs attached to palm oil		Deductive
	Economic value	Palm oil as a strategic commodity: source of state income, foreign exchange, future growth / potential. References to labour opportunities provided by palm oil.	"Palm oil has become a strategic commodity for the people, nation and state, all of which will continue to maintain its sustainability."	Inductive
	Vehicle for local community development	Concerns for local community welfare and community involvement.	"The interest of the cultivating community is one of our considerations"	Inductive
	Deforestation and environmental damage	Oil palm as a danger: encroaching into forest areas, causing deforestation and land degradation. Includes mentions of growing oil palm on peatland.	"Triggering deforestation and forest degradation. The needs of the world market and as an alternative to the livelihoods of people in the interior. So if it is not controlled, many primary or secondary forests will be converted into oil palm plantations."	Inductive
	Aspects of legality and management	Land issues as an association to palm oil (unclear land statuses, land rights, tenure issues, etc.). Includes adherence to regulations, management systems for oil palm, and control and law enforcement.	"aspects of the legality of the area, not to plant oil palm in forest areas or in deep peat areas"	Inductive
	Smallholder versus large company plantations	Comparing large oil palm plantations with smallholder farmers; mentions of technological and productivity gaps between large companies and smallholders.	"The technological mastery gap between the private oil palm plantations and the people's palm oil plantation"	Inductive
	Oil palm is monoculture	Mentions of the perception that oil palm is only suited for monoculture plantations and that productivity would drop otherwise.	"so far oil palm is more identical with monoculture plantations"	Deductive
	Sustainable palm oil as generally desired future	Wishes that palm oil production needs to be more sustainable, and mentions of balancing the economic, social and environmental impacts and benefits	"for me the most important thing is that planting oil palm must be suitable to pay attention to the suitability of the land used, orderly, able to improve the welfare of local communities and still pay attention to the values of conservation of natural resources."	Inductive
Oil palm agroforestry (OPAF)		Comments, perceptions, values, and beliefs attached to oil palm agroforestry		Deductive
	Awareness of OPAF	Answers to the question: "What do you know about oil palm agroforestry?"	"Integrated oil palm management with forest plants"	Deductive
	Benefits of OPAF	References made regarding the positive aspects and potential benefits of OPAF	"based on my knowledge that agroforestry is the management of natural resources by combining forest management with agricultural or plantation commodity commodities in community forests, forests or forest areas. what I know is that oil palm agroforestry on land is enriched with other plants to restore forest functions and can	Deductive

			improve the economy of the community."	
	Ecological concerns	The concern is whether oil palm can be grown together with other plants and if so, which ones. Also includes the question of OPAF on peatland, and the regulation against planting oil palm in forest areas.	"The sjb theory is beautiful, but the practice is very challenging and even difficult. Why is it certain that palm productivity per hectare decreases to 50%. Forest plants as a child they need shade, after they grow up they need big light. Palm from small to large needs full abundance of light so that if the conditions are not ideal will reduce the productivity of the palm itself."	Inductive
	Palm oil yield concerns	The perception that oil palm fruit yields might decrease if planted in agroforestry. It appears more as a concern or question rather than a statement. (As opposed to "oil palm is monoculture" where it appears as a statement or firm belief)	"There was a rejection from oil palm owners regarding the reduced production potential"	Inductive
	Need more data and examples	Citing the lack of success stories and the need for more research and data around oil palm agroforestry	"The success of the SJB model demonstration plot in Karang Sari village will make it easier for the FMU to contribute, by providing information to PS permit holders who have palm oil sustainability."	Inductive
Involvement of actors		Respondents' perceptions on who is and who should be involved in the SJB		Deductive
	Current involvement	Answers to the question "Is your organization involved with the Strategi Jangka Benah? If so, in what way?"	"Yes, through coaching to the community for the cultivation of oil palm commodities"	Deductive
	Awareness of involved actors	Answers to the questions asking participants to list which actors are involved in the initiative	"(1) Local government for political, budget and program support, (2) Private / association for financial and technical support, (3) community / farmers, (4) Others: development partners, universities, industry, traders, etc."	Deductive
	Local Communities	On the question "who should be involved?" highlights regarding local communities and farmers and indigenous communities	"Indigenous peoples must be involved because they have been the priority of plasma in Kalimantan"	Inductive
	Government bodies	On the question "who should be involved?" highlights regarding the government as key actors	"the willingness of the parties, especially the Regional Government (provincial / district) to include the SJB in the regional development plan."	Inductive
	NGOs and universities	On the question "who should be involved?" highlights regarding NGOs, environmentalists and research institutes	"Environmentalists who are truly concerned without looking at personal interests or groups who are pure in seeing this landscape are used as well as possible for the welfare of society"	Inductive
	Companies	On the question "who should be involved?" highlights regarding large oil palm companies, and investment companies	"If oil palm companies are involved in the SJB process and the transfer of oil palm agroforestry on their unproductive oil palm plantations will be better"	Inductive

Collaboration		Challenges regarding collaboration around the SJB		Deductive
	Commitment	Mentions of the need for "seriousness and commitment" of all relevant parties, directly or indirectly involved in the SJB	"If it is considered as a solution to the conflict of sustainability of oil palm exploitation in the forest area, then all stakeholders must acknowledge it"	Inductive
	Alignment	Suggestions regards alignment of policies and regulations, roles, responsibilities and tasks, and creating cohesion between involved actors	"The challenge is coordination, harmonization in achieving common goals"	Inductive
	Clarity	Mentions of the need to improve stakeholder literacy around the SJB, increasing knowledge and understanding of involved actors	"Yes, the need to equate perceptions related to what will be cooperated"	Inductive
	Socialisation	Raising public awareness to the negative impacts of oil palm plantations and to possible solutions such as the SJB	"what is really needed is the collaboration of Social Institutions and the central and regional government through the related agencies to go down to increase socialization to the community about the importance of all of us, our Nature Preservation"	Inductive
Control mechanism		Comments regarding policy, rules, regulations, law enforcement related to oil palm plantations		Inductive
	Policy support for sustainable palm oil	Support for sustainable palm oil at both central and regional governance levels.	"Strengths: there is policy support at the central and regional levels for sustainable palm oil development"	Inductive
	Spatial planning and land statuses	Mentions regarding land statuses to be clarified, legal certainty and various land conflicts.	"The main problem in terms of spatial use between oil palm and other space users, especially for forest areas (calculation and certainty of central kalimantan spatial planning), involvement of local communities (land conflicts)"	Inductive
	Inconsistent government regulations	The issues of government regulations not being maximized, not aligned or conflicting, between the various sectors and levels of governance, and inconsistencies in the various policies.	"1. policies that are still not synchronous and overlapping; 2. licensing processes that have not been integrated between related ministries / agencies"	Inductive
	Compliance	Issues regarding keeping rules especially regarding land borders and planning within forest areas, regarding law enforcement, and monitoring regulations.	"people who plant oil palm usually do not know the boundaries of the area on the ground so they do planting in the area"	Inductive
	Lack of data	The challenge of the lack of available and reliable mapping and data on land borders, plantation and forest areas.	"Weaknesses: lack of orderly data collection and handling of land status issues both on company scale and community oil palm"	Inductive
Smallholder farmers' practices		Descriptions and perceptions of smallholder farmers plantation practices		Inductive
	Cultivation techniques	Smallholder farmers lack of knowledge of appropriate cultivation techniques, selecting the right seeds, planting, fertilizing and maintaining their plantations, etc.	"cultivation techniques, soil fertility, cropping patterns, fire issues will be a challenge"	Inductive
	Low productivity	Smallholder oil palm plantations having lower productivity than corporate plantations.	"Community plantations are not good, low productivity due to poor technical structure"	Inductive
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	Forest clearing	Practice of smallholder farmers encroaching into forest areas by clearing the forest (for example by burning it) and replanting with oil palm trees.	"many plantations encroach on forest areas which have an impact on forest areas which should have a heterocultural composition of plants and types into monocultures. This has a big influence on the balance of nature and its environment (plants, animals and nature as a whole)"	Inductive
	Focus commodity	Smallholder farmers' a tendency to focus on a single commodity	"local people focus more on only one commodity whose market price is better. So that it will arise the biological child and or stepchild. The resultant that happens finally only focus on certain commodities and at the expense of others"	Inductive
Market conditions and behaviour		Comments regarding market conditions, external to the institutional system itself		Inductive
	Palm oil price	Volatility of palm oil market price and its consequences	"Its strengths are fixed and regular income. The disadvantage is the unstable selling price."	Inductive
	Global market pressure	Pressure from the international community to improve the sustainability of palm oil, and the market acceptance for sustainable oil palm certifications	"Due to the pressure from the EU to improve the sustainability of palm oil, the government has realized that they have to improve"	Inductive
Support & Resources		Resources and support that participants find important in order for the SJB to become successful		Deductive
	Funding & Resources	Need for funding the initiative, in particular research and implementation efforts. Mentions of regional government's budget. Mentions of human resource capacities for implementation.	"Funds to conduct socialization and assistance as well as assistance with infrastructure for communities whose oil palm plantations are located in forest areas, as non- binding donor agencies"	Inductive
	Guiding farmers	Guidance and support for farmers in the adoption of appropriate cultivation techniques and agroforestry	"Guiding farmers in the cultivation of agroforestry and the selection of high-value forest plant species that are of interest to the market"	Inductive
	Management and monitoring practices	Mentions regarding management and monitoring practices, skills for management and monitoring.	"Providing advice regarding the management of areas, especially those that enter the forest area"	Inductive