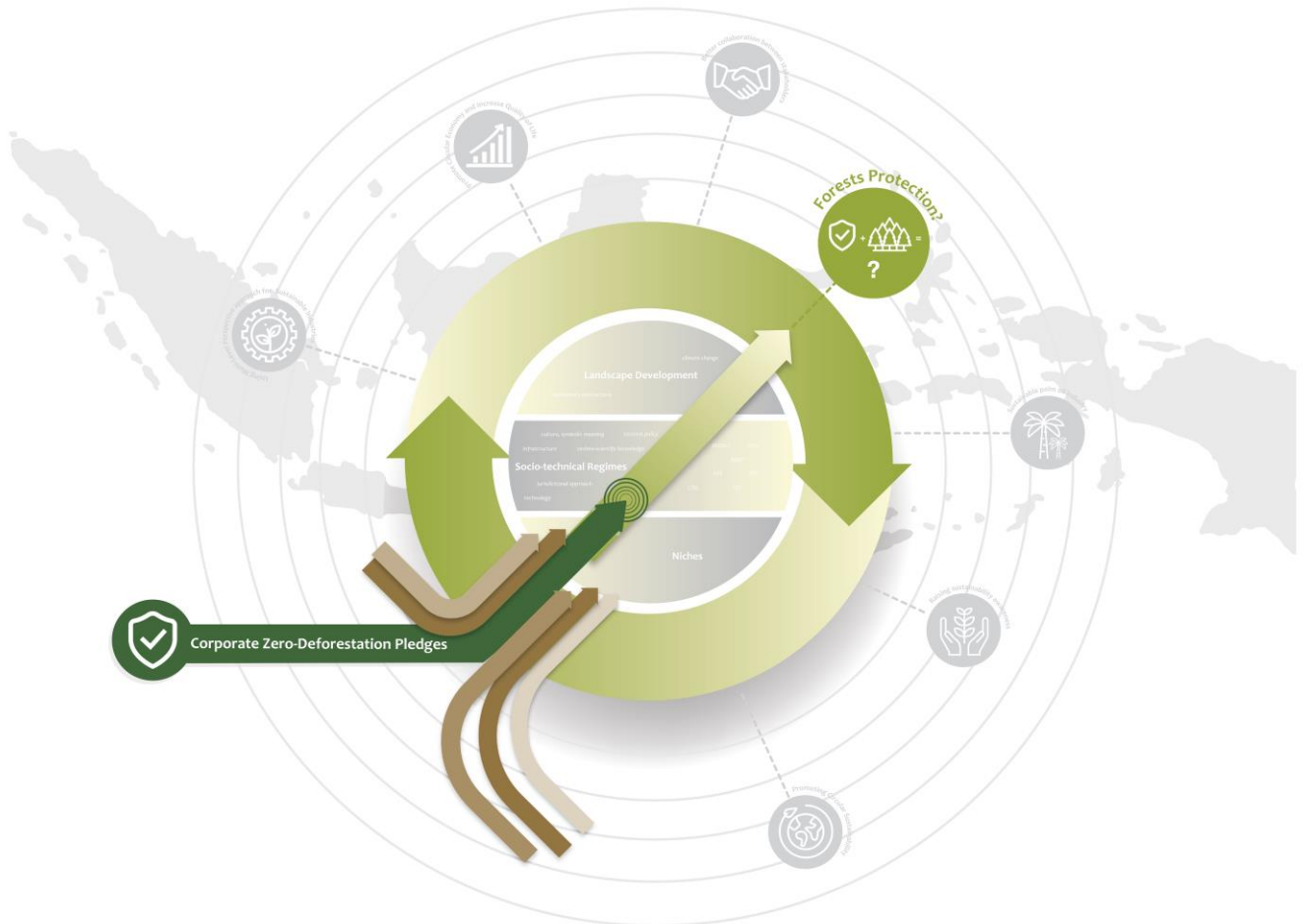




CHALMERS
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Assessing Corporate 'Zero-Deforestation' Pledges in the Palm Oil Industry in Indonesia Using the Multi-Level Perspective Framework

Master's Thesis in the Master's Programme Industrial Ecology

OKITA MIRANINGRUM NUR ATSARI

MASTER'S THESIS

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Cover:

An illustration of the Multi-Level Perspective framework assessment to the deforestation issue caused by oil palm plantations in Indonesia. Designed by Alberta Maria Titis Rum Kuntari based on the author’s request.

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ABSTRACT

Much attention has been put on the issue of forests loss due to its contribution to global green house gases (GHGs) emissions and ecosystem function loss, especially when it occurs in the tropical forests. Tropical forests hold more carbon content compared to other types of forests, hence their loss leads to higher carbon emissions released to the atmosphere (Baccini et al., 2012). The two countries in the spotlight for immense tropical forests loss are Brazil and Indonesia. Annual primary forests loss in Indonesia by 2012 had exceeded Brazil, and the primary culprit was the expansion of oil palm plantation.

To hold the palm oil producers and their buyers accountable, some environmental activists initiated brand-shaming campaigns. As a result, the public demanded a complete change in the business practice. Due to the market pressures, those companies began to embrace zero-deforestation pledges. Initially, many publications brought up different definition of deforestation, e.g., primary forests loss and trees loss within a certain area – regardless the function. Corporate zero-deforestation pledges, however, has found an unifying perception in order to harmonize the action among the business actors, which is the action to protect High Conservation Value (HCV) forests and High Carbon Stock (HCS) area. Hence, the prominent translation of zero-deforestation pledges is “HCV and HCS area protection”.

Using the Multi-Level Perspective (MLP) framework, this thesis aims to understand whether corporate zero-deforestation pledges have brought a transition towards sustainability in the palm oil industry in Indonesia by examining the pledges as a social innovation. The analysis builds upon semi-structured interviews with 18 relevant actors covering perspectives from companies, Non-Governmental Organizations (NGOs), academics, and researchers. The analysis resulted in a conclusion that the pledges have induced transformation on the existing system, e.g., regulation changes and the appearance of supporting factors to increase transparency in the palm oil supply chain. Two regulation changes found in term of on-going discussion are the incorporation of HCV principles to the national regulation and the Indonesia Sustainable Palm Oil (ISPO) empowering program. One of the supporting factors to increase transparency in the palm oil supply chain showed by the decision of many palm oil buyers companies to publish their palm oil supplier lists, leaving an option to the public to evaluate whether their products are related to deforestation.

Keywords: deforestation, palm oil, sustainability transitions, Indonesia

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Gothenburg, August 2018
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Nomenclature

Acronyms

APKASI	<i>Asosiasi Pemerintah Kabupaten Seluruh Indonesia</i>	MSPO	Malaysia Sustainable Palm Oil
COP	Conference of Parties to the United Nations Framework Convention on Climate Change	MtCO ₂	Million tons of carbon dioxide
CPO	Crude Palm Oil	NGOs	Non Governmental Organizations
CSO	Civil Society Organization	NPP	New Planting Procedure
EU	European Union	NYDF	New York Declaration on Forests
FFB	Fresh Fruit Bunches	PKO	Palm Kernel Oil
GCF	Governor's Climate Forests	PPI	Production, Protection, and Inclusion
GIS	Geographical Information System	RED	Renewable Energy Directive
HCS	High Carbon Stock	REDD+	Reducing Emissions from Deforestation and Degradation
HCV	High Conservation Value	RSPO	Roundtable on Sustainable Palm Oil
ILUC	Indirect Land Use Change	SDGs	Sustainable Development Goals
IPOP	Indonesia Palm Oil Pledge	SHM	<i>Sertifikat Hak Milik</i> (Freehold Title)
ISCC	International Sustainability and Carbon Certification	SKT	<i>Surat Keterangan Tanah</i> (Certificate of Land)
ISPO	Indonesia Sustainable Palm Oil	SNM	Strategic Niche Management
JA	Jurisdictional Approach	SVLK	<i>Sistem Verifikasi Legalitas Kayu</i> (Timber Legality Assurance System)
KADIN	<i>Kamar Dagang Indonesia</i> (Indonesia Chamber of Commerce)	TFA	Tropical Forests Alliance
KEE	<i>Kawasan Ekosistem Esensial</i> (Ecosystem Essential Zones)	TIS	Technological Innovation System
LTKL	<i>Lingkar Temu Kabupaten Lestari</i> (the Circle of Green Regency)	TM	Transition Management
Mha	Million hectare	UNFCCC	United Nations Framework Convention on Climate Change
MLP	Multi-Level Perspective	VSA	Verified Sourcing Area

1 Introduction

This chapter introduces the preliminary of the study and delineates the scope of the research.

1.1 Background and problem statement

Forests play an essential role in combating climate change and protecting biodiversity. The loss of tropical forests, in particular, causes larger carbon emissions emitted to the atmosphere as they contain more carbon content compared to other types of forests (Baccini et al., 2012). In 2000 – 2012, 32%¹ of gross forest cover loss² occurred (Hansen et al., 2013). Forests destruction contribute to the elimination of wildlife habitat and the function to protect biodiversity.

Vast tropical forests are distributed in the Amazon basin, South East Asia, and the Congo basin. In the Congo basin, the deforestation rate is lower, indicating a lack of forest conversion for commercial purpose (Hansen, Stehman, & Potapov, 2010). Indonesia and Brazil set their foot in the international spotlight due to enormous forest conversion as depicted by their national greenhouse gas emissions data. In 2014, forests land and burning biomass from the two countries constituted 1638 MtCO₂ and 421 MtCO₂ emissions respectively (FAO, 2017). In Brazil, deforestation is associated with land clearing for soybean and pasture while in Indonesia it is driven by oil palm plantation and timber production. These four products are known to be primary driving factors of deforestation, although some underestimated activities such as mining and infrastructure development could be contributing factors in massive forest conversion as well (Indrarto et al., 2012).

In 2012, the data produced by satellite monitoring showed that annual primary forest loss in Indonesia had surpassed Brazil. At that point, annual primary forest loss in Indonesia was 0.84 Mha per year compared to Brazil with 0.46 Mha per year (Margono, Potapov, Turubanova, Stolle, & Hansen, 2014). Oil palm plantations in Indonesia have been the leading cause of forests conversion in the last two decades, driven by growing global demand of palm oil and high crude palm oil prices (Austin et al., 2017; Indrarto et al., 2012).

Palm oil is widely found in various products, ranging from prepackaged-food products, cosmetics, soap, detergent, and biofuel. For food industries, palm oil has unique properties sought by processed-food companies, such as the capability to be stable under high temperatures and contribute to creamy texture in the final product (European Palm Oil Alliance, 2016).

Indonesia has been gradually increasing palm oil production since the 1980s and marking its leading global position in 2006. In 2014, Indonesia's crude palm oil production reached 29 million tonnes, accounting for half of the world palm oil production (FAO, 2017). The palm oil industry has become very important for the Indonesian economy. This sector employed around 3 million people and generated 3%

¹ The number is actually lower compared to the previous publication by Hansen, Stehman, & Potapov (2010) which shows 47% of forest cover loss in 2000-2005. This number reflects the fact that Brazil had successfully reduced forest loss over the past decade, despite the forest loss in other tropical areas offsetted this declining.

² Gross forest cover loss is defined as "the area of forest cover removed because of any disturbance, including both natural and human-induced causes" (Proforest, 2014)

of the national gross domestic product (GDP) in 2015 (Aurora, Palmer, Paoli, Prasodjo, & Schweithelm, 2015). The economic benefits are distributed to many actors along the supply chain, including the farmers. As opposed to the popular opinion that palm oil only benefits companies, Kubitza, Krishna, Alamsyah, & Qaim (2018) found that this business provided significant improvement to the livelihood of farmers. However, the industry comes at the expense of high environmental impacts.

Aside from the environmental damage caused by forests loss, land preparation for plantation purpose is usually conducted through forests burning that leads to additional emissions (Indrarto et al., 2012). Carbon emissions from forest fires in 2015 were 1.2 billion tCO₂eq as observed over the maritime of Indonesia (Huijnen et al., 2016) with 33% of the burned area took place in peatland (LAPAN, 2015). This number of emissions equals 3% of global carbon emissions from fossil fuel use and industrial processes³ in 2015 which was 3.6 ktCO₂eq (EDGAR, 2016). Burned peatland released more emissions because peatland has higher carbon content compared to the mineral soil (Purnomo et al., 2017).

International attention to end deforestation gained its momentum when it was acknowledged as one of the primary contributors to greenhouse gas emissions. Emissions from deforestation are estimated to be responsible for 6%-17%⁴ of the global emissions (van der Werf et al., 2009). The action to reduce emissions from deforestation is understood to be among the most cost-efficient climate change mitigation practices (Enkvist, Nauc  r, & Rosander, 2007). Seymour & Busch (2016) confirmed this suggestion by presenting a model that shows 28% cheaper cost of greenhouse gas abatement to reach global warming below 2  C target by halving emissions from tropical deforestation.

Reducing Emissions from Deforestation and Degradation (REDD) is a program offered by international agenda under the United Nations Framework Convention on Climate Change (UNFCCC) umbrella. The concept was initiated during Kyoto Protocol meeting in 1997 when forests were identified as valuable carbon sinks (Holloway & Giandomenico, 2009), but no further action was observed until its formalization during Conference of Parties (COP)⁵ 13 in Bali in 2007. A notable outcome of REDD agenda for the future of Indonesia's forests was a Letter of Intent between the government of Norway and the government of Indonesia. It was signed in May 2010 and contains an agreement for funding support to reduce emissions from deforestation in Indonesia. In 2011, a program called "moratorium on primary natural forest clearing and conversion of peatlands" was regulated as an implementation of REDD+ agenda.

Around seven years after REDD was established, a non-binding declaration was proclaimed in New York. The lack of private sector involvement in the REDD agenda had raised an initiative to increase the role of individual actors outside of the governments on deforestation issue. The action statement is called "The New York Declaration on Forests", which is identified as the first international agenda to halt deforestation with a clear timeline. The objective is to halve deforestation by 2020 and end it by 2030. This political declaration came during the climate summit before the Paris Agreement to

³ The calculation of global carbon emissions by European Commission, Joint Research Centre (JRC)/PBL Netherlands Environmental Assessment Agency was excluding short-cycle biomass burning, biomass burning, and land use, land use change and forestry.

⁴ The wide range of variation reveals uncertainties emerge from the lack of carbon quantification data on forestry sector (van der Werf et al., 2009).

⁵ Conference of Parties is an annual meeting of countries member of UNFCCC to ratify legal instruments for environmental agenda.

“raise political momentum for a meaningful universal climate agreement in Paris 2015” (United Nations, 2014). The agreement highlights the action agenda requiring active engagement from various stakeholders, including private companies, governments, indigenous communities, and non-governmental organizations (NGOs).

In addition to the agenda initiated under the United Nations body, brand-shaming campaigns were rising and creating pressure for corporations. No-deforestation actions among private actors can be understood as a response to the rapid emergence of media campaign regarding the impact to biodiversity, hence jeopardizing the companies’ images to the customers and investors (Pirard, Gnych, Pacheco, & Lawry, 2015). For example, in April 2008 some environmental activists protested in front of Unilever’s office in London wearing orangutan costumes to raise the issue on how the company’s demand for palm oil have threatened the life of orangutans in Indonesia since the plantations were concentrated in the habitat of orangutans in Sumatera and Kalimantan (The Economist, 2010). In 2011, Golden Agri Resource (GAR) became the first palm oil company in Indonesia to encapsulate “forest conservation policy” onto sustainability policy due to a direct accusation by Greenpeace regarding illegal clearing in high conservation value (HCV) areas (Cheam, 2011).

Experts discovered that corporate zero-deforestation pledges were translated into a varied level of ambition that could complicate the impact assessment (Pirard et al., 2015). Some companies and institutions stated “zero net deforestation” goal. The goal by definition allows deforestation by replanting trees in another location to compensate forests clearing. On the other hand, some other did not describe their ambition any further or just briefly mentioned “no deforestation footprint” (Brown & Zarin, 2013). On top of that, corporate commitments would mean nothing if the system does not allow behavioral changes. Thus, this thesis explores the transformation brought by the pledges.

1.2 Purpose and research questions

1.2.1 Aim

This thesis aims to analyze whether corporate zero-deforestation commitment has brought changes linked to the sustainability transitions in the palm oil industry, particularly in Indonesia as the current world’s largest producer of palm oil.

1.2.2 Research questions

This study is carried out based on the research question below:

Are zero-deforestation pledges a promising effort to change unsustainable practice linked to land clearing activity in the global supply chain of the palm oil industry?

To help answering the overarching question, the question is broken down into following sub-questions:

1. What pressures have led to the emergence of zero-deforestation commitment in the palm oil industry?
2. How does the current Indonesian government responds to the zero-deforestation commitments that have been individually or collectively pledged by private companies?
3. What components (e.g., regulations, norms) constitute the current socio-technical system of the palm oil industry in Indonesia?

4. What are the barriers and supports for the implementation of corporate zero-deforestation pledges in Indonesia?

1.3 Scope and limitations

Among four primary deforestation-linked products, this thesis research focuses on the palm oil industry in Indonesia. Individual commitments raised by plantation and consumer-facing companies are assessed as a social innovation that may contribute to the sustainability transition process in the palm oil industry. Peatland burning and peatland loss, despite its association with the unsustainable practice of land clearing activity, is not elaborated any further in this report. Instead, the study only focuses on forests protection agenda encapsulated in the zero-deforestation pledges. Sustainability transitions theory is used as a proposed framework since the commitments are analyzed as a form of innovation.

1.4 Thesis outline

This thesis is structured as follow:

1. Chapter 1: Introduction
This chapter provides the basis for the study, explaining how the research is built upon a problem.
2. Chapter 2: Theoretical Framework
The theory related to innovation is described in this chapter, followed by an explanation of sustainability transitions frameworks.
3. Chapter 3: Method and Materials
This chapter explains the way this study was carried out, from data collection until the operationalization of sustainability transitions framework for analysis purpose.
4. Chapter 4: Multi-Level Perspective
The analysis of how corporate zero-deforestation pledges were affecting the sustainability transition in the industry are contrasted to the Multi-Level Perspective framework in this chapter.
5. Chapter 5: Conclusion
This chapter provides the conclusion with regards to research questions.

2 Theoretical Framework

This chapter provides an introduction to the innovation theories and sustainability transition frameworks.

2.1 Innovation and sustainability transition

Principles of sustainability, according to Azar, Holmberg, & Lindgren (1996) consists of four criteria: (i) no accumulation of extracted substances from the lithosphere; (ii) no accumulation of man-made substances in the ecosphere; (iii) physical condition of the ecosphere must be kept well; (iv) efficient usage of resources with respect to human needs. Deforestation has caused irreversible damage to the earth's landscape and disturbing carbon sequestration, which appears as at least two violations to the principles of sustainability.

An attempt to divert an unsustainable condition involves innovation. The rationale of innovation enters when employment of radical changes is demanded to achieve desirable future by replacing incumbent technologies or policies. In the paper about low-carbon transition energy system, Unruh (2000) described the predecessor condition as locked-in. Three concomitant problems with this locked-in situation are (Unruh, 2000):

1. The mechanism of innovation for sustainability is different from another form of innovation because the environmental sustainability goal does not provide individual benefits.
2. There are uncertainties present to a greater extent in term of market and regulation.
3. Lock-in mechanism hinders a new technology or policy to diffuse.

Typologies of innovations are divided into social innovation and business innovation. Traditionally, they are classified according to motivation. Mulgan, Tucker, Ali, & Sanders (2008) explained that a social innovation emerges as a response to social demands while a business innovation is solely a profit-driven policy. In the sustainability transition frameworks, both types of innovations are assumed to be navigating towards sustainability goal. The roles of innovation studies to address environmental issues are well described in the paper by Geels, Hekkert, & Jacobsson (2008). According to their analysis, although progress on "green technology" is visible, i.e., an advanced technology that reduces – if not eliminates – carbon footprint, further analysis about the development and the diffusion of a new technology or policy is necessary.

Corporate zero-deforestation pledges can be understood as a form of social innovation. Social innovation itself has a broad definition depending on the references (e.g., Mulgan et al., (2008) and Nicholls & Murdock (2011)). However, those scientific papers have a similar understanding that a social innovation comprises a systemic change in norms, beliefs, or societal system with unproven results that are motivated by social demands. The pledges are found suitable to the context of social innovation because the dominant stimulation is coming from pressures that grew from emerging environmental campaign, although inevitably profit maximization is another inspiration since the demand puts risk at the companies' business.

Consequences of sustainability challenges have led the research about sustainability transition to gain more attention. Sustainability transition is an intervention process by emerging innovation to the general locked-in systems (Unruh, 2000). It is a long-term and multi-dimensional process that alters the whole socio-technical system to a

sustainable pattern of production and consumption (Markard, Raven, & Truffer, 2012). This process is noticeably affiliated with behavioral changes in a system. Geels (2011) summarized the unique characteristics of sustainability transition that makes it stands out among another transition process:

1. It focuses on sustainability goals, and the process has the consistency to solve environmental problems.
2. The absence of individual incentive makes economic impetus must accompany the innovation.
3. Large actors involvement is crucial because they are the main subjects of the transition process.

Sustainability transition theories conceptualize the process of achieving a sustainable society by putting the process into frameworks. There are four salient frameworks in the sustainability transition field: Transition Management (TM), Strategic Niche Management (SNM), Multi-Level Perspective (MLP), Technological Innovation Systems (TIS). Each will be described in section 2.2.

2.2 Sustainability transition frameworks examined

2.2.1 Transition Management (TM)

Stephens & Graham (2010) described that the notion of Transition Management (TM) encapsulates both prescriptive and descriptive dimensions. An example of TM operationalization on prescriptive dimension is a governance approach for sustainable development, which was done by Loorbach (2010) to assess the Dutch low-carbon energy transition program and Kemp, Loorbach, & Rotmans (2009) in the Dutch waste management system transition. This prescriptive dimension helps to create strategies to prepare the societies to transform the incumbent system. The strategies include integrating long-term and short-term planning and determining clear-cut instruments to expedite the uptake of new policies or technologies. According to Stephens & Graham (2010), the prescriptive dimension of TM seizes an opportunity to optimize the adoption process during the cycle of learning and innovation by influencing the transition.

The descriptive characteristic of TM analyzes the transition process at different levels. Stephens & Graham (2010) explains that TM performs similar examination as Multi-Level Perspective (MLP) (see 2.2.4) in the sense that it identifies the trajectories of niche accumulation, regime development, and pressures at the landscape to proceed transition towards sustainability.

2.2.2 Strategic Niche Management (SNM)

Strategic Niche Management (SNM), along with Transition Management (TM), is developed to direct rules changing upon the entering of a new policy (Markard et al., 2012). The prominent distinction of SNM is that it acknowledges a shared learning process among different niche actors as a crucial step to support knowledge accumulation (Stephens & Graham, 2010). This transition framework tries to explain the effort for protecting the niche so that the niche accumulation is ready to break the prevailing inert system (Kemp, Schot, & Hoogma, 2007).

SNM stands out among sustainability transition frameworks due to its accentuation on the learning stage by protecting the niche to provide an opportunity to develop. Not only securing a chance for a promising technology to develop, but SNM also eliminates the weaker initiatives through a selection process. This framework could help to manage the

sustainability transition by acknowledging the important role of niche development process.

2.2.3 Technological Innovation Systems (TIS)

The concept of Technological Innovation System (TIS) is based on the understanding that institutional and networks system must be transformed along with the appearance of new technologies or policies (Markard et al., 2012). Bergek, Jacobsson, Carlsson, Lindmark, & Rickne, (2008) assessed the role of TIS to examine the factors that are influencing the uptake of new technologies. According to them, TIS could help to examine the progress of innovation in a system rather than focusing only on the structural changes.

The literature of TIS mentioned that the framework has a similar understanding as MLP (see 2.2.4) to explain sustainability transition through the accepted concept of the socio-technical system (Bergek et al., 2008; Coenen, Benneworth, & Truffer, 2012; Suurs & Hekkert, 2009). The operationalization of TIS is useful to define the existing system which departs upon innovation theory, for example by doing historical analysis of events (see Suurs & Hekkert, 2009), and thus help to identify the system failure (see Bergek et al., 2008). Here, TIS is useful to base strategies for future policymaking.

2.2.4 Multi-Level Perspective (MLP)

Multi-Level Perspective offers a perspective that innovation happens as a socio-technical transition, which is portrayed as a concrete idea of system changes (Geels et al., 2008). The socio-technical system consists of many elements, e.g., regulations, markets, infrastructure, and norms. This statement implies that MLP acknowledges the role of multi-actors interaction in proceeding transition. Geels (2005) described that a transition occurs as a result of correlated changes at multiple levels of society.

MLP describes a transition in three levels: landscape, regime, and niche as depicted in figure 2.1. Niche is a protected space for the learning process that also works as a network of the individual on a system to support innovation, e.g., between a researcher and fund manager. The regime is a stable system where the “locked-in” situation survives. Landscape development gives pressures to the regime to create locations for innovation creation and development. (This explanation appears in Geels, 2004; Geels, 2005; Geels, 2006)

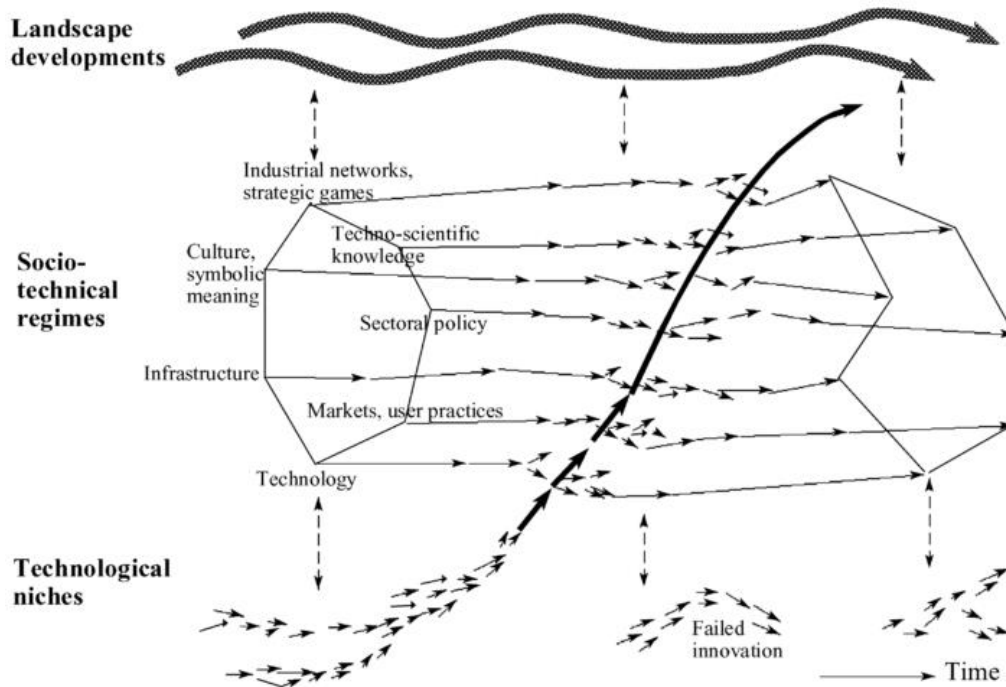


Figure 2.1 Transition process as explained by MLP theory (Geels, 2002)

MLP combines two perspectives on evolution: the selection process and the configuration scheme. The selection process explains how a particular technology or policy is chosen, and the configuration scheme demonstrates the process of technology diffusion or policy implementation. The landscape refers to the exogenous environment, characterized by a stronger structuration of activities compared to the regime (Geels, 2004). The change in the landscape triggers the emergence of a niche due to the breaking of the former regime.

The niche on MLP works to protect the innovation, hence providing an opportunity for it to be developed apart from the current market preference at the regime (Geels, 2002). MLP elaborates more than innovation theory, which is why it admits having Strategic Niche Management (SNM) as part of the study (Geels, 2005). Although MLP recognizes the different level of society, it understands that each level cannot be distinguished clearly, later referred to as a “nested hierarchy”.

Within MLP theory, there are two possible routes of system innovations (Geels, 2005). The first one is “technology substitution route”. This pattern draws the breakthrough of a novelty into a predominant stable regime. The breakthrough appears as a sudden change that is triggering a transformation in the regime. Once a new policy or technology is widely accepted, the regime is back into a stable mode. The second route is the “wider transformation route” which encounters constant pressures from the landscape in the beginning. Due to these pressures, the regime opens up quite early and followed by a gradual change in the socio-technical system. The transformation process in the regime helps the innovation to diffuse and later create a sustainable system.

2.2.5 Sustainability transitions frameworks: summing up

Sustainability transitions frameworks in practice are overlapping theories that to a great degree exhibit similarities. All frameworks are examining socio-technical transition, a concept that is distinctly different from a solely technological transition. Markard et al., (2012) described that a socio-technical transition is a process where societal changes

(e.g., culture, norms, institutional, user practices) accompany the technological changes. However, each framework has different emphasis on the practicalities and purpose of the study. TM lays out on the creation of strategies to support the diffusion of particular innovation in the future. The core of SNM study is a grassroots analysis of niche formation. TIS framework, according to Markard et al., (2012), typically performs an identification process on potential drivers and barriers to innovation and explicitly designed to inform policymaking. MLP, on the other hand, generally executes a constructive analysis by investigating the historical transition trajectories.

Employing MLP framework in this study can be of great value as the theory deems the historical analysis of innovation through multi-level hierarchies. Analysis regarding the palm oil industry in Indonesia cannot leave the historical perspective because the industry came through a long development process after experiencing several events such as financial crisis and democracy development. MLP through its regime perspective offers an opportunity to describe the governance system of forests and its implication to the palm oil industry in Indonesia. Studying the governance system is of the essence as it can serve as an inspiration to analyze the response of the regime to the emerging novelty. MLP identifies different layers in the analysis, thus giving room for a further elaboration of interaction between each level. It also includes a broader context (landscape development) as part of the catalyst for innovation.

2.3 Implications of MLP framework for this research

Findings from the application of MLP framework for socio-technical transitions show that little research is employing MLP to assess innovation that is not taking place in a physical form, i.e., technology innovation. Generally, studies using MLP concept are about socio-technical aspects in technology evolution, e.g., historical analysis of Dutch wastewater transition. An example of social innovation analysis in the context of sustainability transition was written by Marselis (2017). The research applied Technological Innovation System (TIS) approach to examine Ecovillage as social innovation and argued that the employment of MLP was not suitable because the dynamics could not be assumed to be analogous with technology transition. Therefore, this report will carefully handle the part in the elaboration of the socio-technical system and niche creation as they may differ with technology transition.

As explained earlier, Strategic Niche Management (SNM) is commonly part of the MLP study. The author decided to not perform SNM analysis due to the complexity and time-constraining issue. Also, similar to MLP, SNM is generally used in technology transition analysis.

MLP is one way to approach this research. Another possible framework is Technological Innovation System (TIS) to analyze the factors undermining and supporting the innovation. Both TIS and MLP can be used to advise policymaking as they contain lessons-learned. The outcomes will be likely similar as all frameworks provide arguments about drivers and enablers of the innovation.

3 Method

This chapter explains research methodology as was undertaken for this research.

3.1 Study design

This study employs qualitative research to accomplish the aim to understand the sustainability transition in the palm oil industry linked to land clearing activity. The study began by designing research questions. Mason (2002) explains that research questions should reflect “intellectual puzzles”⁶, e.g., how and why something is developed, or how something works. This report intends to seek sustainability transitions in the supply chain of the palm oil industry in Indonesia by questioning if zero-deforestation pledges could transform the unsustainable practice in land-clearing activity. The main research question implies a combination of “developmental puzzles” and “causal/predictive puzzles” as characterized by Mason (2002) which aspires to understand how and why zero-deforestation commitments is developed, and what have influenced the emergence of the commitments.

The interviews are part of the study design due to the possibility to get richer information from the actors on the field. Qualitative interviewing is applied to capture voices from the related stakeholders, and planning it is a crucial step to begin with (Mason, 2002). The idea of planning qualitative interviews generated from Mason (2002) suggestion that instead of excavating information, the interviewer should construct knowledge along the discussion. Hence, rigid-structured questions will imply too much steering from the interviewer while unstructured discussions are unable to portray the data generation process. Rabionet (2011) agreed with this argument and explained that an entirely unstructured interview would pose a risk of not eliciting information relevant to the research questions. On the other hand, a structured-interview often fits better for quantitative analysis (DiCicco-Bloom & Crabtree, 2006). Considering these opinions, the best possible way to gain explorative discussions on this topic are semi-structured interviews.

Conducting a semi-structured interview requires a researcher to prepare some questions in advance, and as the discussion is rolling on, the interviewer should be prepared to ask new questions if necessary information is not brought up (Rabionet, 2011). The author started designing general questions by elaborating the research questions into several discussion points. Also, considering the role of each actor is paramount since specific actors could provide particular information in relation to the different research questions. Therefore, while conducting the interview, the interviewer needs to have understanding of what type of information one wishes to seek (Mason, 2002). This study applies individual interviews rather than group discussions, which allow the interviewer to dig deeper into personal standpoints (DiCicco-Bloom & Crabtree, 2006).

3.1.1 Data collection

Data sources for this study are divided into two big groups: text-based sources and interviews. Text-based sources refer to any literature available in the electronic or printed format related to the topic, e.g., scientific papers, reports, companies’ publication, and news articles. Part of the planning phase to conduct fieldwork to

⁶ Intellectual puzzles entail the scattered information that a researcher wishes to combine to develop an argumentative analysis.

interview experts is informant identification process. Data sources and methods for linking research questions are described in below table.

Table 3.1 Chart for linking research questions and methods

Research questions	Data sources and methods	Justification
What pressures have led to the emergence of zero-deforestation commitment in the palm oil industry?	Text-based sources	Reports, papers, and company's publications, and news can provide necessary information about this.
	All stakeholders: interview	This question is useful to kick-start the discussion.
How does the current Indonesian government responds to the zero-deforestation commitments that have been individually or collectively pledged by private companies?	Text-based sources	Text sources and interview could validate or complement each other.
	All stakeholders in Indonesia: interview	Interviews may provide information from the actors that are working directly in the sustainable palm oil field in Indonesia.
What components (e.g., regulations, norms) constitute the current socio-technical system of the palm oil industry in Indonesia?	Text-based sources	Many publications regarding palm oil governance in Indonesia are available to be used.
	All stakeholders in Indonesia: interview	Actors in Indonesia can provide information about palm oil governance. Each actor provides a perspective that acts as a piece of information, which later combined into a complete figure of the actor-network system.
What are the barriers and supports for the implementation of corporate zero-deforestation pledges in Indonesia?	Text-based sources	Text sources and interview can validate or complement each other.
	All stakeholders: interview	The stakeholders experiences in implementing zero-deforestation commitment could help in developing an understanding of what is happening around this commitment.

3.1.1.1 Data sampling/informant identification

To identify potential actors for an interview, Mason (2002) mentioned that the efficient way is by setting a list of categories according to what type of information one wishes to find. This study employs a snowball samplings method, meaning that the first few people were chosen for the interview, followed by contacts suggested by the initial actors. However, it is important to have at least one representative from all types of stakeholders in the palm oil governance in Indonesia. When some did not appear on the list, some actors outside the “snowball recommendation” were contacted.

The data gathering began with four interviews to people who are actively involved in the palm oil research. The snowball method resulted in several potential actors, and the author decided to narrow it down by considering the representation of different perspectives or organizations. For this thesis, it is crucial that the stakeholders from the company, government, Non-Governmental Organizations (NGOs), and Civil Society Organizations (CSOs) are represented. By having actors with several different roles, the report is expected to be unbiased or inclined toward a certain standpoint.

By the end of the data collection, 18 actors were interviewed as part of this research. This number is assumed to have fulfilled the key requirements of strategic samplings by Mason (2002), which are 1) samples provide enough data required by research questions and enable to direct the research into the right focus, and 2) samples do not support only a specific argument. Information constructed from the knowledge of the actors will be coded as ‘interviewee xx’. The appearance format of the sentence will be “(statement) (interviewee xx)” or “interviewee xx mentioned that...”.

Table 3.2 Informant identification for qualitative interview

Interviewee	Role/Expertise	Mode of Interview
Interviewee 1	The interviewee is a climate change expert and has published several studies about the role of forests protection in climate change abatement.	Online interview
Interviewee 2	The interviewee is a researcher in an international forestry research institution in Indonesia which has a good reputation for its contribution to tropical forests research.	Online interview
Interviewee 3	The interviewee is a professor whose work mostly on monitoring the palm oil landscape in Indonesia.	Online interview
Interviewee 4	The interviewee holds a strategic position in an environmental research institute based in Sweden. The interviewee just started to be involved in the palm oil issue in Indonesia.	Online interview
Interviewee 5	The interviewee is a professor on land use and climate change who has analyzed the role of certification to halt deforestation.	Online interview
Interviewee 6	The interviewee is a research associate at a non-profit institute in Indonesia. The organization endorsed the jurisdictional approach to solve deforestation issue in Kalimantan.	Online interview

Interviewee	Role/Expertise	Mode of Interview
Interviewee 7	The interviewee holds a strategic position in a regional branch of an organization that has been involved in the study and consultancy of palm oil governance in Indonesia.	Online interview
Interviewee 8	The interviewee is a forest economics expert in an international forestry research institute in Indonesia who has published the critique towards the jurisdictional approach in solving deforestation issue.	In-person interview
Interviewee 9	The interviewee is a researcher in a forestry research institute in Indonesia who has analyzed the jurisdictional approach.	In-person interview
Interviewee 10	The interviewee is an academic researcher whose study focuses on the rise and fall of sustainability strategies in the palm oil industry in Indonesia.	In-person interview
Interviewee 11	The interviewee has a vital position in an NGO which closely monitoring forests cover and ISPO roles on halting deforestation.	In-person interview
Interviewee 12	The interviewee was a team member of the Indonesia Palm Oil Pledge (IPOP) secretariat.	In-person interview
Interviewee 13	The interviewee is a representative of the ISPO empowering team from the non-governmental side.	In-person interview
Interviewee 14	The interviewee is a team member of an NGO that closely monitoring forests cover and ISPO transformation.	In-person interview
Interviewee 15	The interviewee is a team member of a Civil Society Organizations (CSOs) which works together with plantation companies and palm oil producers to implement sustainable policy.	In-person interview
Interviewee 16	The interviewee is a Geographical Information System (GIS) expert and has been working with High Conservation Value (HCV) and High Carbon Stock (HCS) assessment.	In-person interview
Interviewee 17	The interviewee is a sustainability team member of a major palm oil company in Indonesia.	In-person interview
Interviewee 18	The interviewee was a team member of the Indonesia Palm Oil Pledge (IPOP) secretariat.	In-person interview

3.1.2 Ethical fieldwork practice

Prior to the interview, all of the experts were informed that the information obtained was for research purpose only. They were aware that the discussion would be recorded using voice/video recorder and notes. The e-mail invitations to the interviewees explained the aim of the research and the possible outline of the discussion.

This study uses literal reading which does not require an advanced level of observation, e.g., interpreting the possible underlying meaning of certain facial expression. Hence, the only ethical issue during the interview was confidentiality.

3.2 Data analysis

3.2.1 Qualitative interview analysis

The interview data were coded according to the research questions which then clustered into three levels of Multi-Level Perspective (MLP) framework: landscape, regime, and niche. The coding part was used to determine the pattern, i.e., to confirm the relevant theory or validate the information from each informant.

3.2.2 Operationalization of Multi-Level Perspective (MLP) framework

The primary research question in this study is “are zero-deforestation pledges a promising effort to change the unsustainable practice linked to land clearing activity in the global supply chain of palm oil industry?”. This question leads to an analysis of the current policy and its implication to the future sustainability practices in land clearing activity of the palm oil industry. Kern (2012) stated that the MLP framework is commonly used to analyze an existing innovation through a historical perspective rather than to inform a new policy needed for a certain situation.

Conceptualization of MLP framework is presented by introducing the results in the three functional levels of MLP. This study was started with a description of the regime to provide an understandable description of the current situation before going deeper into the niche details.

Table 3.3 Chart linking research questions and functional level on MLP

Functional level	Research questions	Dynamics or processes to look for	Examples of interview questions
Landscape	What pressures have led to the emergence of zero-deforestation commitment in the palm oil industry?	Macro-politic and socio-economic trends; changes in dominant beliefs and events that induce windows of opportunity for innovation to develop. The landscape level in this study is translated as a global phenomenon that causes people to pay more attention to the forests.	What changes have led to the emergence of zero-deforestation commitment?
Regime	How does the current Indonesian government responds to the zero-deforestation commitments that have been individually or collectively pledged by private companies?	The socio-technical system of the palm oil industry in Indonesia, the norms, beliefs, actors, and infrastructure. Example of process assement including the changes in regulation and networks and to what extent the pledge affects the institutions.	How come similar initiatives could drive different response from the government? What lessons can we learn from the IPOP experience?
Regime/Niche	What components (e.g., regulations, norms) constitute the current socio-technical system of the palm oil industry in Indonesia?	Activities performed by the actors in the socio-technical system. It includes an analysis of the barriers and drivers present in the regime.	What roles do the certifications hold to support the zero-deforestation goal? What changes does decentralization bring if we relate it to the palm oil business?
Niche	What are the barriers and supports for the implementation of corporate zero-deforestation pledges in Indonesia?	Zero-deforestation pledges are the niche examined in this thesis. Analytical elements to define here are the barriers and supporting factors of the innovation.	What obstacles present for the companies in Indonesia to implement their zero-deforestation commitment? Do you observe any synergies between different initiatives to implement zero-deforestation commitment?

The dynamics or processes assessed in each level are somewhat overlapping. This information supports the argument that system innovation comes from the interaction between the three functional levels of MLP. The functional levels to some extent express geographical delineation. The landscape represents the global actors while the regime consists of actor-networks and the norms they hold in Indonesia. Niche describes the commitments by the palm oil industry in the world, including palm oil producer companies in Indonesia and palm oil buyer companies such as consumer good.

3.2.3 Reliability, validity, and generalizability

Reliability is defined as to what extent the methods demonstrated in this study are reliable, precise and accurate. The traditional measurement in the qualitative research to justify the reliability of a method is by looking at the degree of the consistency of the tools used to generate data (Mason, 2002). A detailed description of the study design, data collection and analysis is presented in this chapter. If another researcher is willing to replicate the tools, he should consider the timeframe of this research, where a longer timespan will likely produce a slightly different result.⁷ However, the author believes that under the same terms and conditions, another research will generate similar results as presented in this report.

Validity is linked to the judgment of what a researcher claim to measure or explain (Mason, 2002). Validity is broken down further into two conditions: data collection and interpretation stages. The tools to collect the data are valid if the data sources and generation methods are well utilized to direct the right focus. In this chapter, a great detail of data collection and generation process are presented, including the strategic sampling for informant identification. All informants were treated equally prior to and during the interview, to ensure the data generation process conducted under a similar setting. Mason (2002) suggested a thinking framework as a mean of measuring the validity of the interpretation. If a conclusion could be traced back to the background of the study, specifically the route of an argument formation, the interpretation is assumed to be valid for qualitative research.

Mason (2002) explained that claims about generalization should be linked to research questions, sampling strategy, and methods of data organization. Research questions, under the study design, were prepared to understand the sustainability transitions process in the land clearing activity of the palm oil industry in Indonesia. The implication of the research questions is that this study cannot be used to analyze the whole sustainability transitions in the palm oil industry. Due to the limited amount of time, only one representative from palm oil companies was reached, and no voices were acquired from small players, e.g., smallholders and small companies that supply to bigger companies. Future research on this topic could use a similar setting as this study with a more comprehensive sampling.

⁷ For example, this study was done while the new Indonesia Sustainable Palm Oil (ISPO) regulation was still being formulated. Once it is officially implemented, there is a risk of different situation posed for a further study.

4 Multi-Level Perspective Framework Operationalization

This chapter constructs the description and analysis of the palm oil industry in Indonesia on a historical basis to provide an explanation of what shapes the prevailing situation. An analysis of the implementation of the zero-deforestation pledges, such as certification and collective commitment, is also included in this chapter to describe how the pledges interact with the previously established system to change the commonly practiced forest clearing for oil palm plantations.

4.1 The regime

The concept of regime entails a set of rules embedded within a system that makes it inert (Geels, 2002). Because a sustainability transition is an evolutionary process in which society has much influence in the process, Geels (2002) mentioned that the term *socio-technical regime* is more suitable to accompany the explanation of innovation that induces a transition process. By using that term, the discussion about regime involves broader aspects, including the actors, rules, technology, beliefs, and norms. In the context of this research, the regime refers to the aspects constituted in the unsustainable palm oil industry in Indonesia.

To understand how oil palm cultivation is connected to the deforestation problem, one should start with the definitions of forest and deforestation itself. Moreover, a backward-looking analysis of the forest governance in Indonesia is necessary to describe the locked-in system encountered by the palm oil industry.

4.1.1 Overview of forest and deforestation in Indonesia

A shared understanding of forests definition is important for mapping and measuring the deforestation rates, a necessary step for the forests protection agenda. An analysis by Indrarto et al., (2012) found that differing definition of forests has caused discrepancies in the data produced by many organizations and institutions. Interviewee 10 confirmed this finding and added that the situation is exacerbated by mismatch in mapping the land conducted by many institutions, which has sparked conflict over forests allocation.

Deforestation rates published by different organizations and institutions refer to a distinct interpretation that led to a variety of data. For example, global forests loss cover published by Hansen et al., (2013) refer to any disturbance on land with tree cover, regardless of the trees function. This implies that “forests cover loss” also entails oil palm plantations clearing. Both Margono et al., (2014) and Forest Watch Indonesia (Nanggara, Rosalina, Kartika, & Setyawan, 2017), one of the local NGOs in Indonesia that actively advocating deforestation issue, use the term deforestation to describe primary forest loss. Primary forests are mature natural forests that are still pristine and intact and never undergone any clearing and replanting activity (Margono et al., 2014)

The government of Indonesia, on the other hand, identifies deforestation in the context of a legal framework. Land area in Indonesia, regardless the actual land cover, are categorized into two types: 1) forests area, under the responsibility of the Ministry of Environment and Forestry; and 2) non-forests area or land allocated for other purposes, under the National Land Agency authorities. Since the classification does not consider

the physical appearance, people can easily find forests area covered by a permanent settlement, or non-forests area that host high-density tree covers, for example.

Furthermore, Indonesia's state forests are broken down according to the function (see table 4.1): protection forests, conservation forests, restricted production forests, production forests, and convertible production forests. Protection forests are forests area which acts as a protection system to regulate water flow, erosion control, prevent seawater intrusion, and maintain soil fertility. Conservation forests, on the other hand, have a primary function to maintain biodiversity and support the ecosystem.

The last three categories encapsulate economic benefit functions from forests which differs in the capabilities for exploitation. The exploitation activity in the restricted production forests is limited by the land contour/terrain. Because it is normally not possible to extract the entire area, selective cutting is applied in the restricted forests area. Production forests are dedicated for timber products and longterm sustainable production. The last category, convertible forests, functioned as production forests. At the same time, it is reserved as an allowable conversion area in case of project development, such as new settlement constructions and agricultural plantations.

Table 4.1 Summary of land categorization in Indonesia's law system

			Related Authorities	Clearing Status
Land allocation according to Indonesia's law system:	Land allocated for other purposes (<i>Area Penggunaan Lain/APL</i>)		National Land Agency	Legal
	Forests area	Protection forests	Ministry of Environment and Forestry	Illegal
		Conservation forests		Illegal
		Restricted production forests		Legal with recommendation
		Production forests		Legal with recommendation
		Convertible production forests		Legal

Ministry of Environment and Forestry Regulation No. 51/2016 regulates the procedure to release convertible production forests. The ministry regulation specifies that only convertible production forests are allowed to be modified into non-forests purpose, e.g. oil palm plantation. It is possible to get permits to convert the restricted production forests and production forests if there are recommendations from the Regional House of Representative and local government leader. The implication of this regulation is the government of Indonesia approves some kind of "legal deforestation". Illegal deforestation is defined as forests clearing outside the allowable area set by the regulation.

The categorization of deforestation according to the legal definition has gained critique from many actors who are actively monitoring forests protection action in Indonesia (interviewee 11, 14). Instead of taking land cover evidence into consideration, the land

allocation is made based on the national spatial planning that may fail to consider the real situation on the field. Thus, it is possible to find a non-forests area that hosts primary forests cover or forested peatland, as observed by Nanggara et al., (2017) and Rosenbarger, Alisjahbana, & Anderson (2013). Moreover, interviewee 11 explained that sometimes the designated releasable forests, i.e., convertible production forests, restricted production forests, and production forests, are also worth to conserve because they hold significant tree covers, which is important for the ecosystem. It implies that the “legal deforestation” practice is against the sustainability principle to keep the ecosphere in a good condition. From the government definition, land clearing in the area is legal, hence forests loss is permissible.

4.1.2 Forests governance in Indonesia

In Indonesia, forests are at a crossroads in an attempt to protect the remaining forests and national development agenda to accelerate economic growth through agricultural expansion, which leads to more land conversion (Pacheco, 2017). Political considerations and interests profoundly influence the issuance of forests conversion permits.

It is important to divide the elaboration of forests governance in Indonesia into two political periods, the New Order regime and the decentralized state, since each period influences the development of massive oil palm plantations in the country.

4.1.2.1 Forests management in Indonesia before decentralization policy (1966-1998)

This section describes the situation during the New Order regime when the country led by President Soeharto for 32 years from 1966 - 1998. At the beginning of the regime, the country faced an economic crisis, and it needs to find immediate sources of revenues. Forestry products were one of the key commodities for economic growth, and, as a result, the government overruled the local community rights on forests access to generate more revenue from forests products and conversion (McCarthy, 2000).

The Basic Forestry Law 1967 was the first policy framework during New Order regime to legalize the intention to gain money from forests products and conversion. Among the first implications of this law was the issuance of a regulation to exploit forests by the central government, cutting the ties from the local government and ignoring the “free prior informed consent” ethics to the indigenous communities – if it was located at customary forests (Moeliono et al., 2009)⁸. The line of coordination and control over the management of forests during the New Order regime is depicted in figure 4.1 below:

⁸ Before 2012, customary forests and land were part of state-owned resources.

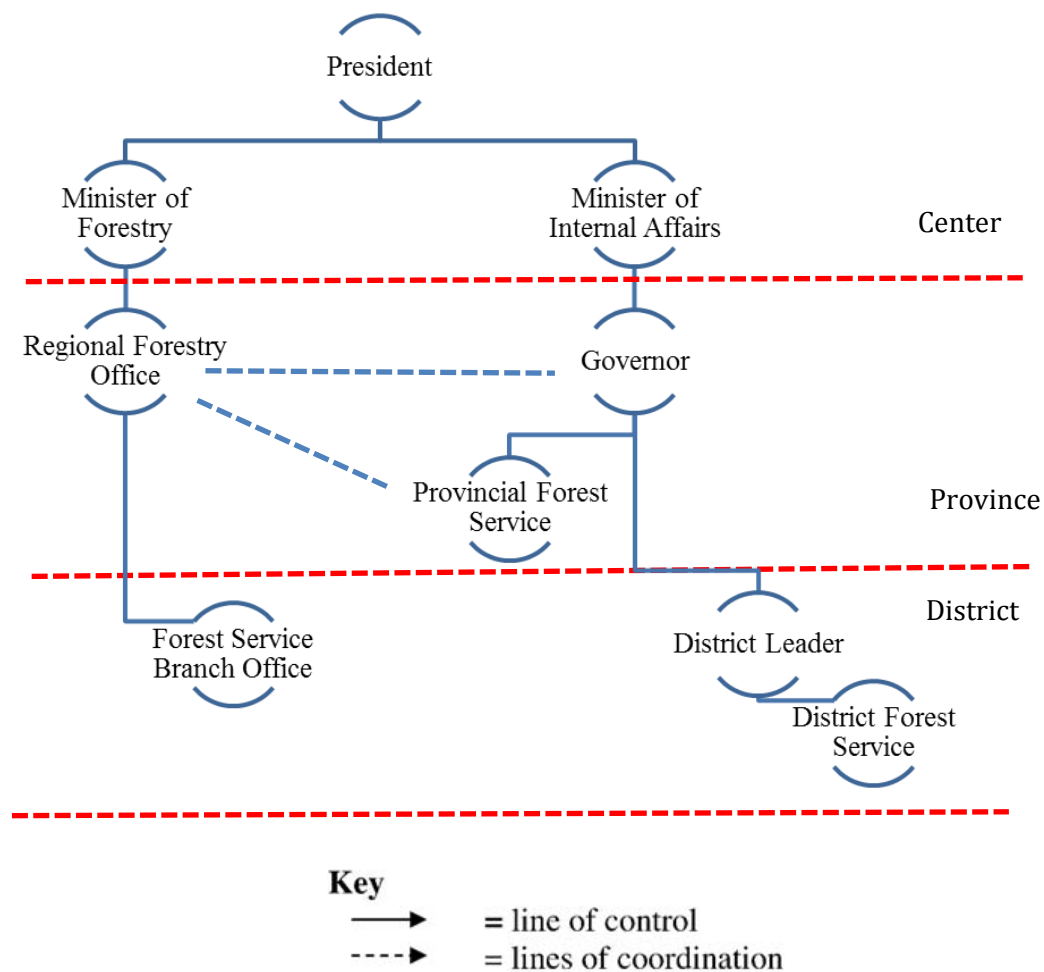


Figure 4.1 The lines of coordination and control over forests before decentralization (Wollenberg et al., 2006)

The management of forest served by Directorate General of Forestry under Ministry of Agriculture which later turned into Ministry of Forestry in 1985. Regional Forestry Office spoke for Ministry of Forestry at the provincial level and supervised by the Provincial Forest Service that was a representative of Ministry of Internal Affairs.

The strong centralized power at that time coerced the local communities to accelerate economics development through commercial land use. The corruption within the central government, including the misuse of forests restoration funds and the provincial revenues taken by the central government with a failing commitment to developing the respective provinces, led to a lawsuit against the government from several NGOs. (Moeliono et al., 2009 citing Konsorsium Pembaruan Agraria, 1997).

To sum up, the tension and anger towards central government led the local communities to fight for regaining autonomy when the decentralization policy stroke back. It was seen as a beginning of local society-led governance.

4.1.2.2 Forests management in Indonesia after decentralization policy and the implication to palm oil industry (1998-present)

Indonesia started to embrace more autonomy at the local governmental level after reformation in 1998. Demonstrations and riots exploded in the capital city, leading to the fall of New Order regime. At that time, people demanded a thorough reformation in Indonesia's political system. Decentralization was a response to the demand of sharing more control to the local province or districts.

In a general political context, decentralization policy is the shifting of rested responsibilities on the national state to the local government. Decentralization, according to Moeliono, Wollenberg, & Limberg (2009), has created the following challenges:

1. Fragmentation of the state, hence lack coordination between the local and national government,
2. A higher degree of personalization from authorities, which means both the society and authorities are more accessible to each other,
3. Conflict-prone situation due to the dominant role of local governments, where the central government partly lose its power.

As for the opportunities, Moeliono et al., (2009) mentioned that decentralization foster these conditions in the political system:

1. Authorities are closer to the local communities,
2. Increasing influence of the local communities,
3. The political movement is possible on the local level, but when it comes to wider scope and participants, the possibility becomes limited.

With decentralization in place, Wollenberg et al., (2006) observed that momentous changes in forests control happened through power shifting from the ministries to the local districts. The decentralization also caused the multiplication of new regencies and more people gained access to forests, hence beginning the momentum of local community-led forests management (Wollenberg et al., 2006).

However, the decentralization not only brought a regaining autonomy for the districts. As explained earlier, massive forests loss during the centralized period was made under the economic interests of forests. This attitude has paved the way for further exploitation in the decentralization period. After the decentralization, all permissions are bypassed directly to the district governments, including permits for plantation business. The ministry has to issue forests clearance permits only if the proposed location is part of forests area which recognized by the central government.

Before the decentralization, the district leader (*bupati*), was appointed through a voting process in the Regional House of Representatives. Right now, the country organizes direct elections for each level of the political ladder: presidential election, provincial governor election, and local district election. This power shifting induces leverages for palm oil producers to expand their business by supporting certain candidates in officials election. Palm oil companies support the candidates through financial support for campaign activities, mobilized workers to vote, and sharing the company's share to the candidates (Aspinall & As'Ad, 2015; Tans, 2012; interviewee 8). Examples of this practice were found in Sumatera and Kalimantan, the home of vast oil palm plantations (Aspinall & As'Ad, 2015; Tans, 2012). Candidates with strong support from the palm oil companies would win the election which brought them to a leadership position.

A publication by The Gecko Project and Mongabay (2017) observed that the root problem of decentralization comes from massively structured corruption within the local government. Local government leaders tend to build dynasties in the local political system to facilitate their interest. For the sake of the families and cronies wealth, they created land deals at the expense of rural communities access to forests and sometimes without even submitting a proposal requesting a recommendation from the ministry to release the forests area. In many cases, the officials accepted bribery and released forests to palm oil companies without acknowledging the right of indigenous people.

In addition, palm oil business is also an important sector for the regional-owned revenues (*Pendapatan Asli Daerah*/PAD) (interviewee 8). Indonesia law number 33 year 2004 about Fiscal Decentralization mentioned that PAD is a mean of “regionally-raised revenue collected based on the decentralization regulations”. This regulation entails autonomy for local districts to generate income from the local business for district development. Therefore, they become less dependent on the funding from the central government. Consequently, more palm oil concessions are granted as a way of creating regional income source.

4.1.3 Palm oil industry in Indonesia

4.1.3.1 The history

Oil palm (*E. Guineensis*) is a native to tropical forests in Africa. It was first introduced in Indonesia during the Netherlands occupation in Indonesia when four plants were brought to Bogor Botanical Garden in 1848. According to Rival & Levang (2014), only in 1905, it was found that the oil palm planted in Sumatera soil grow better compared to the original ones. Until the 1980s, oil palm plantation in Indonesia was primarily dominated by the inherited colonial plantation (GAPKI, 2017a).

The 1980's economic development marked by the president's Green Revolution with a commitment to achieve self-sufficiency in rice⁹ production and escalated industrial plantation sector, including the oil palm (Rival & Levang, 2014). The enormous expansion of oil palm plantation was financially supported by banks, whereas a transmigration¹⁰ program provided the workforces.

Rival & Levang (2014) explains further that during the 1980s, under the PIR-Trans (*Perkebunan Inti Rakyat Transmigrasi*) or Nucleus Estate and Smallholder-Transmigration program, the oil palm plantation companies gained a free access to the state-owned land (either forests or non-forests area) to establish plantations. In return, the companies had to guide the transmigrants to develop certain proportions of the concessions that are specifically assigned for smallholders. These smallholders designated proportions are called *plasma*. This practice implies a type of contract farming, where the smallholders dedicated their crops for the companies. The government arranged financial support through bank loans for the companies, but the development cost for the plasma area was charged to the farmers, which benefited the companies.

⁹ Rice is the main source of carbohydrate for Indonesian.

¹⁰ Transmigration is the Indonesian government's program to distribute the population in Indonesia by settling people from the populated area (Jawa, Madura, and Bali) to a less populated region. The purpose of the program is to spread development across the country by adding more workforces in the considerably under-developed region. It reached peak momentum around 1970s-1980s, parallel with the oil palm plantations expansion program.

After the 1980s, Rival & Levang (2014) described a relatively unaltered situation even under a new model. As the number of private companies started to multiply, the government prepared a program called Members' Primary Credit Cooperative (*Koperasi Kredit Primer Anggota/KPPA*). The purpose of this program was to accelerate the cooperation between oil palm plantation companies and smallholders. The companies, either private or state-owned, could no longer access the land freely. Instead, the district government had to connect the companies and the local communities in obtaining the consent to access the land.

4.1.3.2 Palm oil business practice

After the country implemented the decentralization policy at the end of the 20th century, the previous model of palm oil business was no longer applicable. The current flows to obtain a license to develop an oil palm plantation for a company with more than 25 hectares of plantation area is summarized in figure 4.2 below:

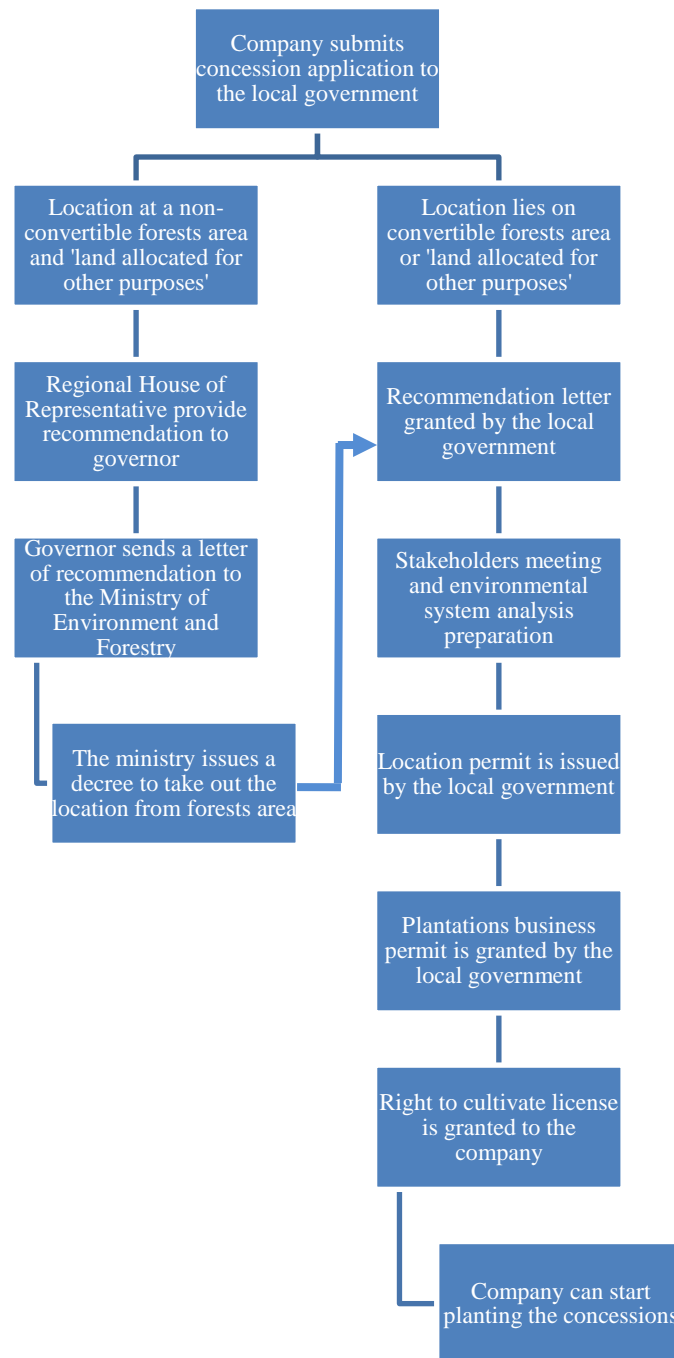


Figure 4.2 Oil palm plantation business permit flows in Indonesia

In principle, all permits are submitted to and granted by the local government, either at the district or provincial level. If the proposed location covers only one district/region, the application is submitted to the local district leader. If it covers more than one district, the governor is the person in charge. The area proposed by the companies to obtain oil palm plantation concessions must be located in a non-forests area, state-owned convertible forests area, or customary forests¹¹. If the application contains area

¹¹ Constitutional Court of Indonesia Decision Number 35 Year 2012 decided that the customary forests are no longer part of state-owned forests and its management is entirely handled by the indigenous community. Due to this decision, even if the location is considered to be non-forests

located at production forests and restricted production forests, the Regional House of Representative will provide a recommendation to the governor to convert the forests function, followed by a letter to the Ministry of Environment and Forestry. The ministry then will issue a decree to take out the location from the forests area. By regulation, it should not be possible to gain concessions on the protected and conservation forests.

Converting the production forests and restricted production forests into a non-forests area are regulated on the Ministry of Forestry Regulation No. 32/2010 on forest swapping procedure and the Ministry of Forestry Regulation No. 34/2010 about the procedure to change the function of forests area. The first regulation mandates the local government to retain a 30% share of forests at the provincial level. The latter regulation explains the procedure for a local district leader or governor to provide a recommendation to change forests function, e.g., from production forests into a non-forests area and vice versa.

During the stakeholders meeting, the companies should make it clear that the land acquisition and any potential social conflict with the local communities have already been settled. The district government works as the connector between the companies and the people living around the future plantation area.

In many cases, in the effort to acquire forests area for oil palm plantation, a company registers for more than the plantation business permit (interviewee 11, 14). Timber products from the cleared land produce additional income for the company, and to get the profit from the products, the company applies for the timber utilization license. The license is also issued by the local government office, either the district or provincial level, depending on the location. Any company that wishes to acquire approval to collect timber in APL (non-forests area) will receive a license from the District Forests Office. If the location is in the convertible forests area, the license is issued by the Provincial Forests Office.¹²

Once the Right to Cultivate license is given to the plantation companies, the Plantation Act No. 39/2014 obliges them to plant their concession in at least 30% of the area within three years and the rests of the area within six years. If the companies break this law, they must return the concession to the government, and the authorities will allow other companies to pursue a license in that particular location.

The Ministry of Agriculture Regulation No. 98/2013 about licensing guidelines for plantation business legislates people or corporations with less than 25 hectares to only apply for a Plantation Certificate of Registration at the local district leader or governor without pursuing concessions. Usually, the smallholders are the actors who fall into this category since they usually have a relatively smaller plantations area. The regulation entails less stringency requirement for them in order to provide opportunities to increase public welfare.

The regulation above also governs the obligation to have nucleus and plasma plantation. A nucleus estate is a plantation area which is internally managed by the company.

area based on the government's spatial planning, the companies can not directly access the land without dealing with the indigenous community. Ministry of Agriculture Regulation No. 11/2015 about the Indonesia Sustainable Palm Oil (ISPO) mandates a company to do a proper negotiation with the indigenous community before exploiting the area and produced a deal acknowledged by the local government leader. Plantation Act Number 39 Year 2014 prohibits local government to grant permits in the customary forests.

¹² This procedure also shows that the government of Indonesia acknowledges the possibility of significant tree covers on top of non-forests area.

Plasma is a form of partnership led by the company to guide the local community to grow oil palm plantations. The company is responsible for training and introducing better planting materials to the smallholders in the plasma estate. The fresh fruit bunches¹³ will be supplied to the company who manages the plasma partnership. Back in 2007, under the Ministry of Agriculture Regulation No. 26/2007, a company should allocate 20% of their concessions for plasma estate. The regulation was revised in 2013 and allows plantation companies to create plasma partnerships outside of their concessions area as long as it sums up to 20% of the total area. This revision was made to ensure the companies compliant with the plasma obligation associated with the regulation, considering that under the previous regulation, the compliance was lower than expected (interviewee 13).

The latest revision of the Ministry of Forestry regulation in 2011 regarding procedures for releasing forests area also explicitly supports the plasma scheme. When the first regulation passed in 2010 under the Ministry of Forestry Regulation Number 33, the obligation to develop 20% plantation for the local community was not listed as one of the administrative requirements. The revision published as Ministry of Forestry Regulation No. 44/2011 stated that a company seeks to obtain permissions to clear forests must submit a “statement of ability” to develop plasma area for at least 20% of the total concession.

A processing mill has three types of sources for their fresh fruit bunches supplies: nucleus estate, plasma plantations, and outsource to meet the mill’s processing capacity. The mill buy fresh fruit bunches from outsources to meet its capacity. It buys from intermediaries that collect fruits from independent smallholders outside the plasma program or directly without intermediaries to independent smallholders. These intermediaries is in the form of a locally-owned business and sometimes they are not legally documented (interviewee 8)¹⁴. By 2017, the smallholders have managed around 4.7 million hectares of oil palm plantations area (both plasma and independent), almost 40% of the total recorded oil palm plantations (Direktorat Jenderal Perkebunan Kementerian Pertanian Indonesia, 2017).

4.1.3.3 Regulations versus implementation

Many experts agree that Indonesia needs a legal reform in order to support the zero-deforestation commitments (Rosenbarger et al., 2013; interviewee 11, 14). In addition, the law enforcement for current regulations is not stringent enough. The breach of the law has threatened the forests protection goal and created social conflicts due to the land dispute with local communities¹⁵.

One of the violations against the regulations was found in the customary forests area which has a significant tree covers. The Gecko Project and Mongabay (2017) found that there were many cases where the local government grants concessions to palm oil companies on top of the customary forests without any “free prior informed consent”. Aside from the obvious consequence of social conflict, this attitude has obstructed the

¹³ Fresh fruit bunches (FFB) are the harvested product from the oil palm plants going into processing mills.

¹⁴ Business entities in Indonesia are divided into three levels: Perseroan Terbatas (PT) or limited liability company, registered at ministry level; Comanditaire Venotschap (CV) or commanditarian company, registered at the district level; and Usaha Dagang/Usaha Tani or trading business/farming business, not registered anywhere. Intermediaries are the small business that follows the scheme of Usaha Dagang/Usaha Tani, the reason why it is difficult to trace them.

¹⁵ Social conflicts with the local people, such as land grabbing and land dispute issue, are among the growing concerns of sustainable palm oil endorers. The author decided to not elaborate social conflicts related to land dispute to limit the explanation around forests protection agenda.

forests protection agenda, because the indigenous people manage the customary forests for protection and ecosystem function. Granting the permit to clear the customary forests is against the sustainability principle.

Interviewee 11 explained that concessions should be granted according to the spatial planning document. The Spatial Planning Act No. 26/2007 stated that every region must provide Urban Land Use Plan documents at the district and provincial levels. In fact, not all regions have prepared this document (Ramadhiani, 2016; interviewee 11) which resulted in little harmonization of land allocation.

Regarding the smallholders, as explained earlier, the Ministry of Agriculture Regulation tries to balance the assistance program and the need to legally document them through a Plantation Certificate of Registration without pursuing concessions. The availability of Plantation Certificate of Registration will simplify the effort to register the smallholders. A field investigation by INOBU shows that not all smallholders have the certificate because of the limited human resources at the regional government and the smallholders' financial limitation (INOBU, 2016). In some districts, the local government authorizes the sub-district officials to issue the certificates. Although the certificates are free of charge, the sub-district authorities charged the smallholders with a significant fee for issuing the letter, and that impedes them to comply with the regulation.

The requirement to swap forests instead of releasing permits on forests conversion was also not properly enforced. The issuance of land permits for commercial use without a significant growth on forests cover shows that so far no serious forests swap activity found in the country. Rosenbarger et al., (2013) observed that in 2009, a local NGO together with a research institute and a palm oil company in Indonesia tried to pursue a land swap license. At that time, the organization had identified a degraded land nearby suitable for swapping with the concessions the company received from the government. After two years of a high-cost effort, the attempt ended in deadlock as the national government rejected the idea due to the complexity of the process.

4.1.3.4 Historical developments and goals for the palm oil industry in Indonesia

Since the first expansion in the 1980s, Indonesia has gradually increased its palm oil production until it finally reached a leading position in 2006 (figure 4.4). People should expect to see a similar trend in the future as the trend shows a significant increment over the years. After the 2000s, the production graph has a steeper slope compared to the previous period, meaning that the total production has dramatically increased.

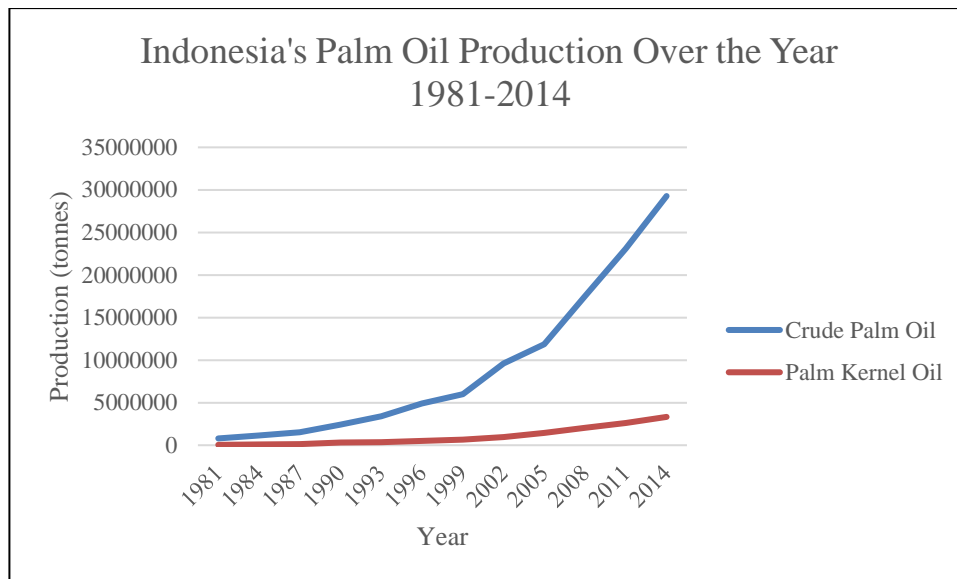


Figure 4.3 Indonesia's palm oil production over the year 1981-2014¹⁶ (FAO, 2017)

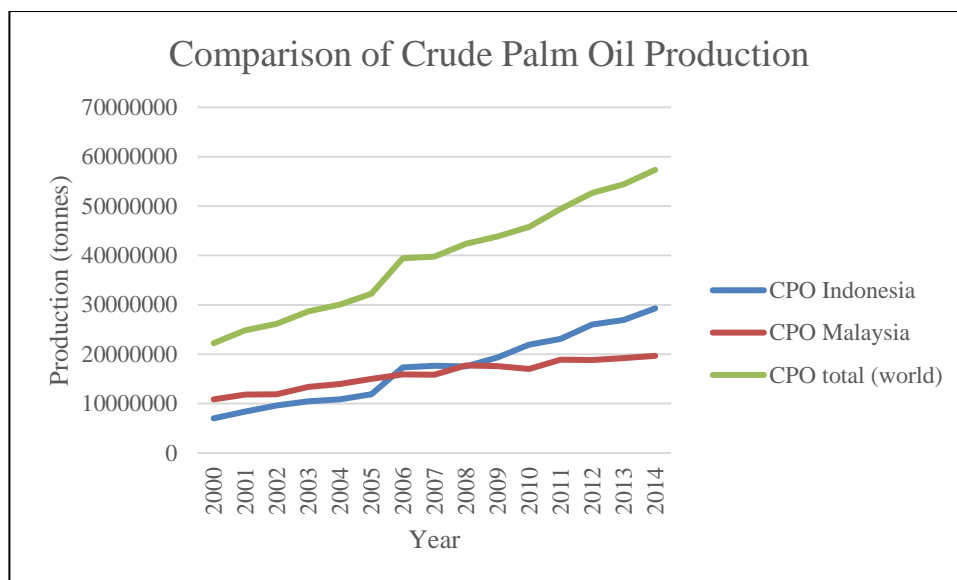


Figure 4.4 Comparison of crude palm oil production between two leading palm oil producing countries and global production (FAO, 2017)

The government of Indonesia has set a goal to increase palm oil production by 2020 to over 40 million tons as a response to a growing global demand. Considering the recent trend, particularly between 2005-2014 when the country has more than doubled its palm oil production to almost 30 million tonnes, the target is positively achievable (interviewee 2, interviewee 8). This target was announced in a speech delivered by a representative of the Ministry of Agriculture between 2009-2010¹⁷. As an ambitious economic target, the absence of this target in the Masterplan for Acceleration and Expansion of Indonesia's Economic Development¹⁸ document demonstrates a weak intention (interviewee 10). Due to its lack of legal basis, no information is available

¹⁶ The general term "palm oil" refers to both crude palm oil and palm kernel oil.

¹⁷ There is no clear indication regarding when the target was initially announced.

¹⁸ The blueprint of the long-term economic development projects published by the government of Indonesia.

regarding the details of the target, and it leaves experts to question which actors will be more affected, the companies or the smallholders (interviewee 9).

Indonesia's ambition to produce a higher amount of palm oil in 2020 is in line with its intention to improve the downstream industry. The country wants to change its reputation from "the leader of crude palm oil" to "the leader of downstream palm oil products"¹⁹ (Ministry of Industry Republic of Indonesia, 2015; GAPKI, 2017b). However, experts believe that this target may involve another land expansion, hence more forests area is at risk in the effort to boost palm oil production (Gingold, 2010; McClanahan, 2013; interviewee 1, 4, 5, 7).

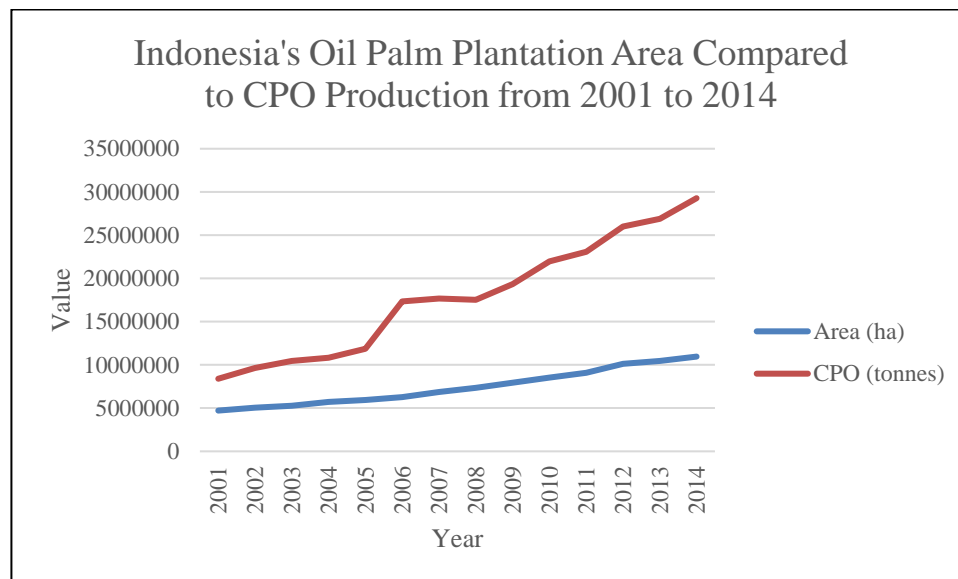


Figure 4.5 Indonesia's oil palm plantation area (ha) and crude palm oil (CPO) production (tonnes) 2001-2014 (FAO, 2017; Direktorat Jenderal Perkebunan Kementerian Pertanian Indonesia, 2017)

¹⁹ The strategy is by improving the production of three kinds of downstream products: oleofood, oleochemical complex, and biofuel complex as opposed to only producing the raw materials (Pirard, Rivoalen, Lawry, Pacheco, & Zrust, 2017).

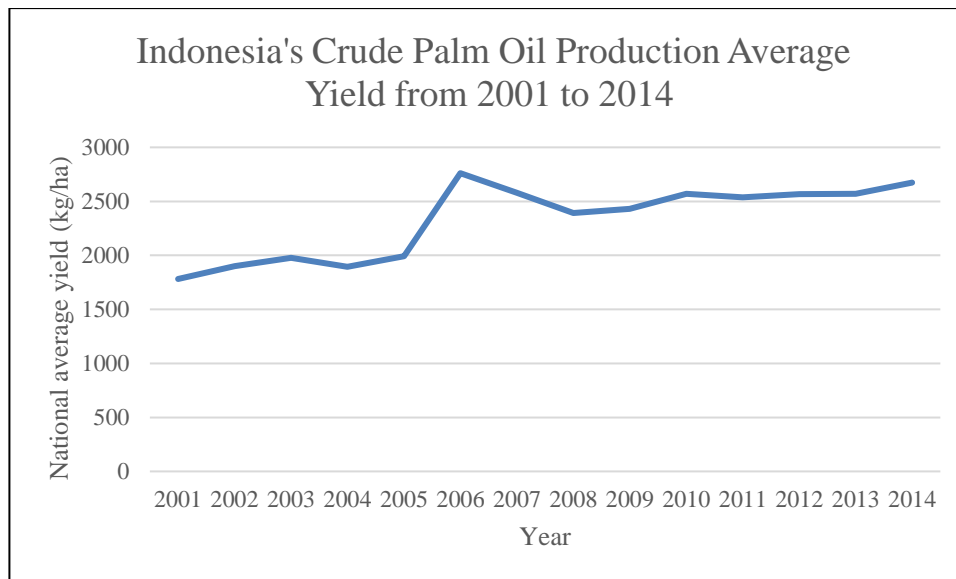


Figure 4.6 National average palm oil production yield 2001-2014²⁰

The two figures above represent the anxiety of many people regarding the palm oil expansion target. Although the national yield average rises over the years, the demand is increasing more rapidly. Hence, more land conversion will still be in place which will put the future of the tropical forests in jeopardy.

The central government reacted by announcing that the planning would not threaten the remaining forests area and would be achieved through improving planting materials. Interviewee 7 believes the problem is not human skills and the availability of better seeds, but time. Extensive research on new oil palm seeds has produced a better material to increase yield, but people can only rely on old plantations that have achieved replanting season to shift into new seeds (interviewee 8).

Apart from its popular use in the food and cosmetic industry, palm oil can also be used for biofuel. The government of Indonesia declared a biofuel mandate in 2014 to secure a national energy dependency. The consequence of this decision is a creation of a bigger domestic market for palm oil which may lead to more deforestation. Government Regulation No. 79/2014 about the national energy plan mentioned that the renewable energy shall contribute at least 23% of the total energy supply in 2025 and 31% in 2050. The Ministry of Energy and Mineral Resources Regulation No. 12/2015 translates that aim into a biofuel mandate. The regulation launched a target that by 2020 biodiesel is scheduled to contribute 30% of the total energy demand in Indonesia. According to Wright & Rahmanulloh (2015), Indonesia's biofuel mandate rely primarily on palm oil and money earned from the industry to finance the biofuel target. The government transfers income generated from tax and levy on palm oil exports to support the biofuel subsidy program. Ministry of Agriculture Regulation No. 11/2015 about the Indonesia Sustainable Palm Oil (ISPO) supports the mandate by exempting palm oil productions for biofuel from the mandatory ISPO certification²¹. It is notably hampering the effort to produce sustainable palm oil products.

²⁰ This graph interprets figure 4.5 to show the national average palm oil production yield. In fact, the yield varies much between the locations and ownership (smallholders or companies). For simplifying reason, national average yield data is derived from total land use divided by crude palm oil production in each year.

²¹ More about sustainability certification can be found in the next section about the niche.

The government of Indonesia has worked on a new bill for the palm oil industry since 2016. This Palm Oil bill is motivated by the following reasons (quoted from a statement by a member of House of Representative cited by Koalisi Masyarakat Sipil, 2017):

- 1) To assure the smallholders' wealth;
- 2) To increase professionalism along the supply chains, from upstream to downstream;
- 3) To solve the issue of permits and licensing.

Many NGOs take the opposite view regarding this bill due to the perceived tendency that the bill would give more benefit for the corporations (Koalisi Masyarakat Sipil, 2017; Sawit Watch, 2016). Koalisi Masyarakat Sipil (2017) noted this bill would benefit palm oil companies by providing them a full financial support and facilities to obtain a business license. Moreover, environmentally speaking, this bill contains a new legal framework that is less stringent and rule out the previously implemented regulation. The bill also does not specify how deforestation will be handled, except for an informal talk by one of the members of House of Representative who mentioned that the bill should integrate a new definition of forests to prevent NGOs and CSOs accusing the palm oil industries of deforestation. When this report was written, this bill had not yet been ratified.

4.1.3.5 The regime: summary

A transition is a form of shifting from one system to another (Geels, 2005), and this process lies at the regime. In this thesis, the system consists of interdependent aspects that are contributing to deforestation in the unsustainable palm oil scheme. Figure 4.7 below shows the interaction between the actors in the industry that builds the system. The next figure details the aspects of the system in one chart.

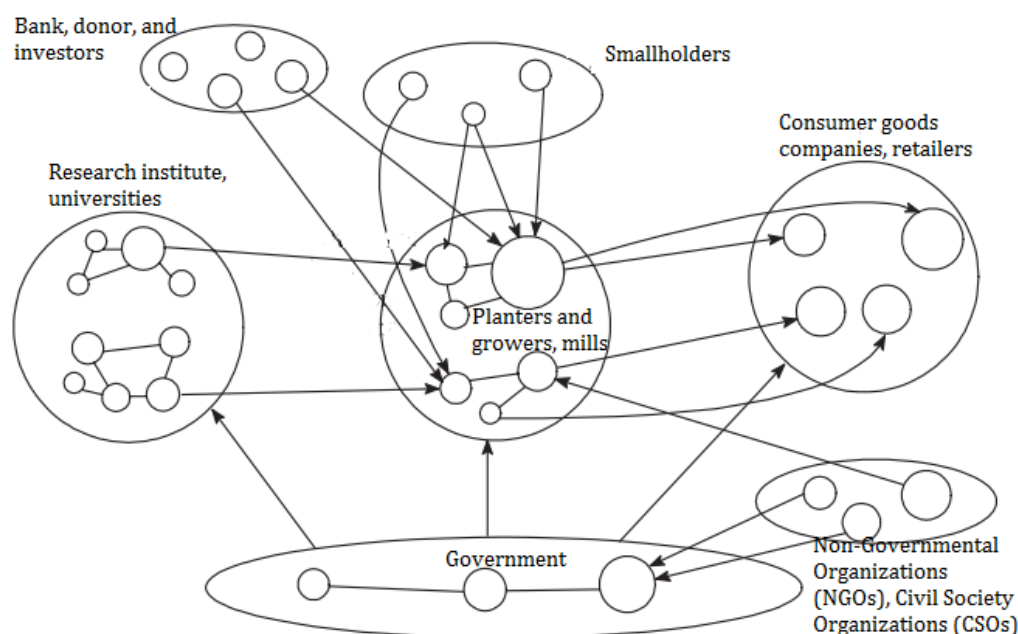


Figure 4.7 The multi-actors network in the current system of the palm oil industry in Indonesia (Figure adjusted from Geels (2005))

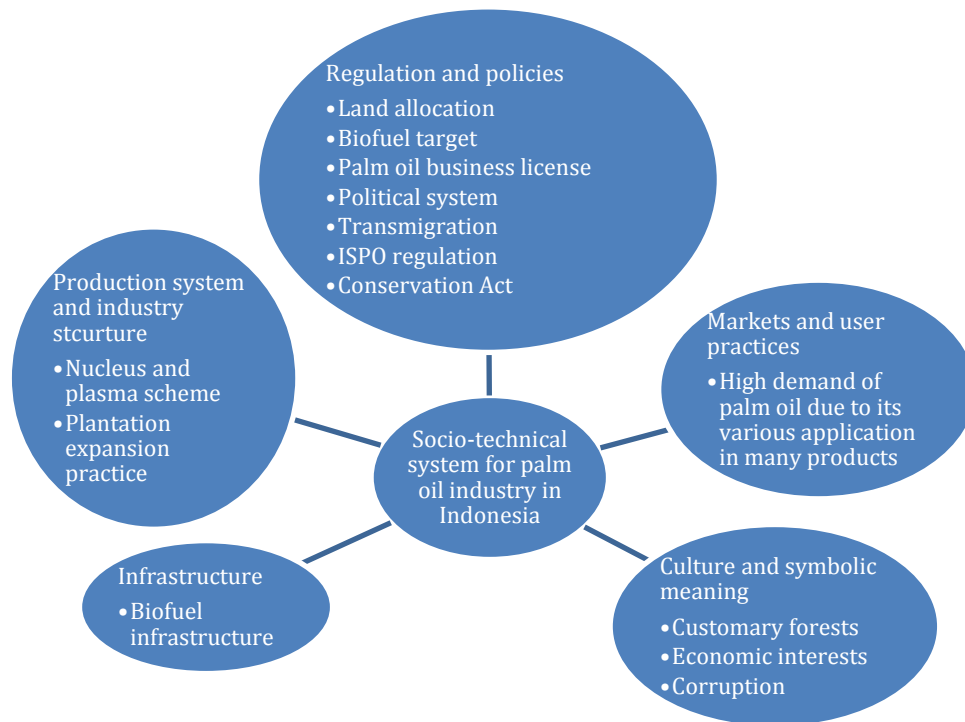


Figure 4.8 *Socio-technical system for the palm oil industry in Indonesia* (Figure adjusted from Geels (2005))

4.2 The landscape

The landscape in the Multi-Level Perspective theory is a metaphor of exogenous environment which comprises the aspects that are out of the actors' control (Geels, 2005). In this research, the landscape refers to the global situation that put pressures on the regime and prompts the creation of the zero-deforestation movement.

As explained earlier in the introduction, two prominent changes at the landscape level have caused the appearance of zero-deforestation commitments. Those changes are a growing awareness about climate change and biodiversity destruction. The motivation to halt deforestation because of climate change issue voices the role of forests as a carbon sink, while the other inspiration emphasizes that forests destruction would cause ecosystem loss. Although the two pressures are going in a similar direction, which is forests protection, they could be implemented in some ways that may not accomplish both objectives. For example, the "zero net deforestation" pledge allows deforestation by replanting trees in another location to compensate forest clearing may not be effective enough to reduce emissions since the clearing activity will also generate emissions (interviewee 8). It is also more problematic from biodiversity perspective to compensate primary forests loss with secondary forests. Primary forests clearing will involve the loss of biodiversity which may not possible to be re-created by human-made.

The global concern to reduce carbon emissions by halting deforestation has motivated the private sectors to be involved in the initiatives, as shown in the New York Declaration on Forests (NYDF). The declaration is directly linked to the *Paris Agreement*, an agreement to combat climate change. During the NYDF event, some palm oil companies brought together by the Indonesia Chamber of Commerce (*Kamar Dagang*

Indonesia/KADIN) signed an agreement called the Indonesia Palm Oil Pledge (IPOP). Prior to NYDF, those companies had already committed to the sustainable palm oil under the pressure of immense environmental campaigns. Their decision to join IPOP was to form a collaboration between the companies with the same level of commitment on sustainability (interviewee 12, 17).

In contrast, ecological crisis induced by the monoculture plantation seems to be absent in the apparent motivations at the landscape level. The two pressures at the landscape, i.e., climate change and biodiversity destruction, did not encapsulate the concern about the impacts of monoculture plantation. These impacts are well-covered in many studies, such as Comte, Colin, Whalen, Grunberger, & Caliman (2012) and Tarigan, Wiegand, & Slamet (2018). Those studies examine the role of forests to keep sustainable water flow within a watershed, which means that the appearance of palm oil plantation by replacing the forests have led to the water flow problem, and the effect of enormous oil palm plantations to the hydrology cycle and nutrient fluxes.

An analysis of corporate zero-deforestation pledges proves that consumers and NGOs pressures are the primary motivation of the commitment (interviewee 1, 2, 3, 9, 12, 17, 18). Many parties try to zoom-out the companies' activities to the public by monitoring them closely (interviewee 17). The companies have to include the sustainability goals into the companies' objective if they want to sustain their business (interviewee 15, 18).

Consumers pressures to the palm oil industry in Indonesia mainly come from the foreign market (interviewee 12). Domestic consumers did not expose significant pressures due to a comparably lower awareness about environmental destruction caused by the industry. A survey by Aurora & Suhirman (2015) found that the domestic market has limited knowledge about palm oil, only know that palm oil is used for cooking oil, and have a little awareness about palm oil as an ingredient in other consumers products. The survey observed that 59% of respondents perceived palm oil positively in relation to the environmental impact. However, this situation does not mean domestic pressure is not existing. Pressures that are coming from domestic actors are mostly generated by the environmental NGOs and CSOs.

Market pressures have gone through a long process before reach the current stage. In the beginning, the environmental NGOs tried putting the entire blame on the plantation companies and governments of the producer countries. After seeing little progress in their business practices, the campaign to influence changes in the industry started to focus on the consumer goods companies (interviewee 8). As a dominant driver, the debate encapsulated in market pressures initially evolved around 'boycotting' or 'accepting' the products (interviewee 14). Knowledge of on-ground issues, such as land legality and tenure, smallholders inclusion, and indigenous society, has forced the environmental NGOs to engage with palm oil companies to work together on sustainable palm oil fields (interviewee 10).

Each company has a different interest to adopt the zero-deforestation policy, depending on their position in the supply chains (see figure 4.9) (interviewee 18). The biggest pressures from the market are addressed to consumer goods and retailers because of the direct exposure to consumers, whereas for traders it is connected to their refineries business supplied to the next companies. For planters and growers, the emphasis is put on their ability to control concessions. The pressures come as a domino effect from the consumer goods to the planters.

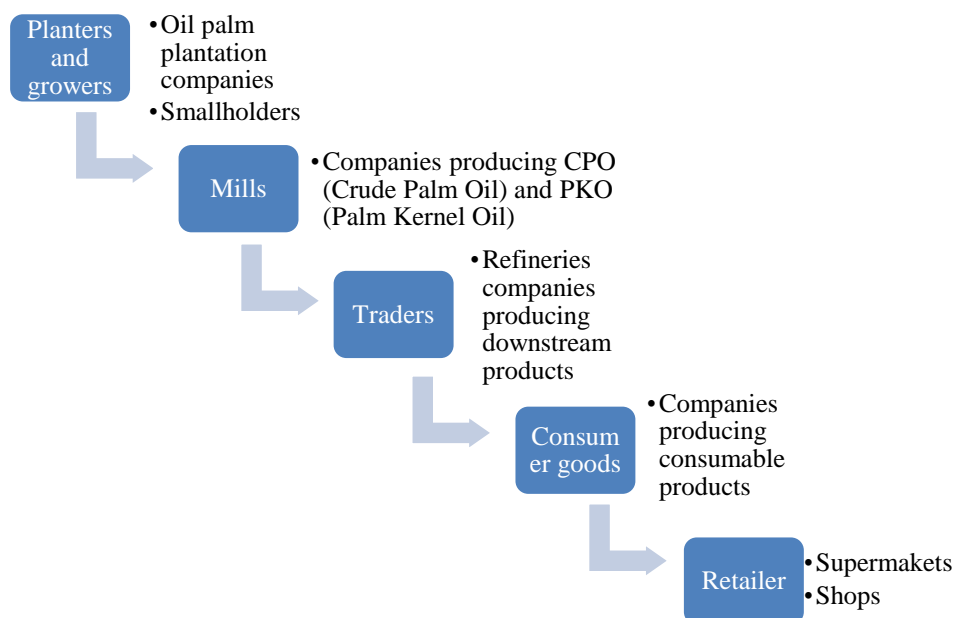


Figure 4.9 Palm oil supply chain

4.3 Linking the landscape and the regime

REDD+ is an international agenda to reduce emissions from deforestation that was introduced by the UNFCCC. The initiative had stirred the government of Indonesia to issue a policy connected to primary forests clearing.

The concept of leveling in the Multi-Level Perspective implemented in this thesis implying a geographical delineation to some extent. REDD+ and moratorium on the primary natural forests clearing in Indonesia are part of connecting the pressures at the landscape and the regime. REDD+ is understood as an initiative born at the international level originated from the climate change pressure and the moratorium on primary natural forests clearing lies in the regime level as a nationally applied policy.

4.3.1 The moratorium on primary natural forests clearing

The moratorium was initially announced through the Presidential Instruction No. 10/2011 and had been extended three times since then. Each moratorium is valid for two years, and the latest extension was in 2017 through Presidential Instruction Number 6. In Indonesia, Presidential instructions function as a policy rule, and it is not part of the law hierarchy. It is used only to provide guidance and command to the governmental entities to perform specific tasks. This form of policy does not guarantee any sanction for a failure to fulfil.

The last extended moratorium states that the purpose of the Presidential instruction is to continue suspending new permits issuance to release primary natural forests and peatlands, and it was addressed to nine government institutions, including the Ministry of Environment and Forestry, Ministry of Internal Affairs, Ministry of Agrarian and Spatial Planning, and Ministry of Agriculture. Among the policies comprised in the moratorium are described below:

- The scope of the moratorium includes primary natural forests and peatlands located in conservation forests, protection forests, restricted production forests, production forests, convertible forests, and non-forests area.
- The Ministry of Environment and Forestry is responsible for releasing the *Indicative Moratorium Map* which will be evaluated and revised every semester.
- Other ministries and governmental institutions/leaders should follow the updated version of Indicative Moratorium Map to perform their tasks.

The moratorium has been hailed as a positive sign from the Government of Indonesia towards forests protection. However, some exemptions expose the weaknesses that may lower the actual environmental gains. The term *primary forests* have excluded secondary forests in the moratorium. Even when talking about carbon-rich area, these secondary forests may also accommodate high carbon and biodiversity value. Furthermore, the existing concessions approved before the presidential instruction announcement and national project development are also excluded from the moratorium. (Miller, Lujan, & Schaap, 2017)

The term *primary natural forests* in the moratorium was a new terminology in the Indonesian forests law. Murdiyarso, Dewi, Lawrence, & Seymour (2011) analyzed that the terminology has multiple interpretations. To some actors, primary natural forests are limited to pristine undisturbed forests. The word *natural* should cover a considerable amount of forests area in Indonesia. On the other hand, the same study found that the terminology is used only for reporting purpose and rather encompasses only “unlicensed primary forests area”, which is primary forests without existing license.

Another shortcoming of the policy, which found by Murdiyarso et al., (2011), is the inclusion of the current protected forests area. The first indicative moratorium map displayed that only approximately 35% of the coverage area was new protected areas, whereas the rest was already categorized as non-convertible area.

Moreover, expected benefit from the moratorium may not be fully achieved because the moratorium is only targetting concessions for big companies by postponing the issuance of new permits to clear primary forests. As explained in section 4.1.3.2, smallholders with less than 25 hectares area of plantation do not need to apply for concession permits from the government. Some actors have observed a significant growth in the smallholders’ sector (interviewee 10, 13), and there is a potential leakage of deforestation. Even if big companies are well-addressed by the moratorium, the issues with the smallholders are not brought up in the presidential instruction.

The moratorium map is being re-attended every six months, providing the opportunity to negotiate the coverage area of the moratorium policy (interviewee 11). Some actors noticed that there was no observed discontinuation activity in the indicative area covered by a moratorium (interviewee 14). While being protected by the policy, plantation companies can still apply for a new concession permit in the area. During the semesterly evaluation or in the two-year extension period, the new permits can be granted by expelling the area from the revised moratorium map (interviewee 11, 14). Experts also observed a lack of support from governmental regulation and the house of representative members for a stricter moratorium policy (interviewee 14).

4.4 The niche

The niche in the Multi-Level Perspective (MLP) theory talks about innovation as a novelty to reduce or eliminate pressures from the landscape. Those innovations need to be developed in a protected space in order to make them ready to be widely deployed and break the prevailing unsustainable system. The protection shield consists of supporting actors, socio-economic systems, and opportunities to keep the innovations protected until they reach the mature stage.

In this research, corporate zero-deforestation pledges are analyzed as a form of social innovation to eliminate the two prominent pressures at the landscape level, i.e., growing awareness about climate change and biodiversity destruction.

4.4.1 Corporate zero-deforestation pledges

The zero-deforestation pledges among the companies in the palm oil supply chain are distinguished based on the positions they serve in the supply chains (see figure 4.9). In many cases, a company can fall into several categories, especially for big companies such as PT SMART, a subsidiary of Golden Agri Resources (GAR). The company has several plantations, mills, and refineries factories. Consumer goods companies source their palm oil products in various form, ranging from Palm Kernel Oil (PKO), Crude Palm Oil (CPO), and oleochemical (downstream products).

To analyze the commitments, sample companies in the table below are divided into two categories: palm oil companies (representing planters and growers, mills, and traders) and consumer goods companies. The table illustrates the recent publication of the zero-deforestation target published by dominant actors in the global supply chains of palm oil industries. Samples of palm oil companies are chosen from the big players that once were members of the Indonesia Palm Oil Pledge (IPOP)²² platform. Consumer goods and retailer industries are represented by the Consumer Good Forum (CGF). In 2018 the forum has 400 members, varied from retailers, manufacturers, and service providers. Some companies under the CGF, which were blamed by the NGOs for the unsustainable palm oil practice,²³ are included in the table to provide explicit examples of the fast-moving goods companies' policy.

The sustainability policies written in the table below cover forests protection aspects and its traceability. Traceability of palm oil is a description of palm oil sourcing in which one can trace back the origin of the fruit. It is an important component to be mentioned in the table because it helps the public to monitor the commitment (interviewee 2, 16).

²² More about IPOP in the section about linking the landscape and the niche. In short, IPOP previously served as a platform containing major players in oil palm plantation companies in Indonesia to achieve the sustainable palm oil goal.

²³ These companies have undergone brand-shaming campaign as explained in the introduction. The brand-shaming campaigns were subjected to the companies whose activities demand high volume of palm oil and assumed to contribute to massive forests loss.

Table 4.2 Examples of zero-deforestation target published by the palm oil industry (HCV: High Conservation Value; HCS: High Carbon Stock)

Companies	Zero-Deforestation Pledges	Year of Commitment
Golden Agri Resources	"No development of and the conservation of HCS and HCV forests." (GAR, 2016).	2011
	100% traceability to plantations in 2020, including third-party suppliers (GAR, 2016).	2016
Wilmar	"No development of HCS and HCV forests." (Wilmar, 2016)	2013
	"...we have focused our efforts to trace supplies of FFB to our own mills in Malaysia and Indonesia." (Wilmar, 2016)	2011
Cargill	"No deforestation of HCV and HCS areas." (Cargill, 2018)	2014
	"100% traceability to sustainable plantations by 2020." (Cargill, 2018)	2014
Asian Agri	"Asian Agri is committed to a no deforestation policy and conserving High Carbon Stock (HCS) forests." (Asian Agri, 2018) "....it is the responsibility of the company to maintain and enhance the existing conservation values." (Asian Agri, 2018) "In order to ensure that conservation management plans are implemented, we have a dedicated team that oversees High Conservation Value." (Asian Agri, 2018)	2014
	"100% fresh fruit bunch (FFB) traceability to mills as per 2017." (Asian Agri, 2018)	Unknown but has been started before 2014
Musim Mas	"No deforestation of HCV areas and HCS forests." (Musim Mas, 2016).	2014
	"Musim Mas is currently embarking on this second stage of traceability." (Musim Mas, 2015). The second stage of traceability is mapping the source back to the plantation. In 2015, the company achieved 100% traceability to all supplying mills.	Unknown but has been started before 2015
Astra Agro Lestari	"Not developing in forests with HCV and HCS" (Astra Agro Lestari, 2016).	2015
	"Since the middle of 2016, it started to collect secondary data on the identity of the FFB and the location of the supply source as well as the volume across all areas of operation" (Astra Agro Lestari, 2016). The identity of the location refers to plantation location.	Unknown but has been started since 2016
Consumer Goods Forum	Zero net deforestation by 2020. (The Consumer Goods Forum, 2017).	2010

Companies	Zero-Deforestation Pledges	Year of Commitment
	"This project (Effective Systems for Communication) aims at providing better transparency of product information to consumers and efficient traceability of products within the supply chain to help businesses be more efficient and responsive." (The Consumer Goods Forum, 2017).	Unclear
Nestle	"...in line with our ambition that 100% of the palm oil we buy is traceable back to responsibly managed plantations that comply with High Conservation Value (HCV), High Carbon Stock (HCS)..." (Nestle, 2018)	2010
	"...our ambition that 100% of the palm oil we buy is traceable back to responsibly managed plantations..." (Nestle, 2018)	2010
Unilever	"Zero net deforestation by 2020." (Unilever, 2018) "No conversion of HCV and HCS areas." (Unilever, 2016)	2010 Unknown but encapsulated in Sustainability Sourcing Policy 2016.
	"Unilever is committed to 100% traceability for all of the crude palm oil and derivatives that we buy. Traceability is defined as the ability to trace back to a known catchment area that is attached to a mill, including dedicated plantations, plasma smallholders and independent smallholders. We will work with our suppliers and industry partners to develop a similar traceability system for palm kernel oil and its derivatives." (Unilever, 2016)	Unknown but encapsulated in Sustainability Sourcing Policy 2016.
Mars	"No development in areas of HCV and HCS areas." (Mars, 2018)	2014
	"...we will continue to increase traceability and transparency in our supply chain ... and expand this work by encouraging our direct suppliers to push for transformation among the mills and producers supplying them." (Mars, 2018)	Unclear but has been started since 2016

The table above depicts that in term of a dominant design the novelty has found a settled definition, which is "a protection of High Conservation Value (HCV) and High Carbon Stock (HCS) area", although the ambition level shown by the timeframe to achieve the full objective is varied between the companies. Pirard et al., (2015) confirmed this finding and explained that the corporate zero-deforestation commitment relies upon High Conservation Value (HCV) and High Carbon Stock (HCS) method. The literature assessing the corporate zero-deforestation pledges highlight the

aforementioned methods as the core of the commitment, such as Aurora et al., (2015), Austin et al., (2017), Greenomics Indonesia, (2014), and Meyer & Miller (2015).

HCV was developed by the Forest Stewardship Council in 1999 for forest management certification purpose and has been updated and adjusted for its field practicalities since then (Proforest, 2014). HCV consists of values that are critically important to maintain environmental and social values in the production landscape, e.g., critical ecosystem services and species diversity (Proforest, 2014).

The HCS method, on the other hand, grew as a response to the environmental campaign about the activities of the palm oil companies. In 2011, Golden Agri Resources (GAR), a palm oil company headquartered in Singapore and operates in Indonesia, was accused of land clearing in a rich-carbon forests area. At first, the company denied the allegation, but later GAR together with The Forest Trust (TFT) managed to reach a deal and signed an agreement on February 2011 to work in identifying High Carbon Stock (HCS) forests as part of encapsulating the no-deforestation commitment onto the company's policy (Cheam, 2011). Proforest (2014) explained that HCS was motivated by the fact that under the HCV approach, carbon-rich forests that are neither primary nor HCV forests are allowed to be deforested. Fieldwork data collection confirmed that only identifying HCV area still poses a risk of forests loss and does not guarantee a protection of the remaining forests (interviewee 14, 16). Interviewee 16 agreed that the HCV and HCS assessments complement each other and companies that are seriously protecting forests should use both assessment. The two methods reinforce each other by protecting the two functions of forests: biodiversity and carbon sequestration.

HCS method is specifically excluding peatlands in the assessment because peatlands protection has been mentioned on the "no peatlands" policy. The lower threshold for HCS is 35-ton carbon per hectare above-ground biomass. As stated by Poynton (2014), the value was determined according to popular references, i.e., the Indonesian Government Climate Change Unit, RSPO' Greenhouse Gas (GHG) Working Group, Greenpeace, and Wetland International. Those institutions have used that particular value as a parameter to identify high carbon land cover.

The creation of HCV and HCS protections as a universal objective is catalyzed by the movements from big corporate players (interviewee 4, 9) and the sustainable palm oil certification scheme (interviewee 9). Companies have a reputational interest that makes them worried about losing customers (interviewee 4). Furthermore, they need to secure the market as the demand for sustainable products is increasing (interviewee 15). The certification, which will be explained further in the next section, has also brought zero-deforestation commitment as one of the values to assess the sustainability of the products. These situations have urged more companies to adopt the zero-deforestation policy.

Examples shown in the table above depict the variation around the timeframes and ambitions. Consumer Goods Forum, for example, uses the term 'zero-net deforestation', although samples from the companies under the association describe tangible goals such, i.e., protection of HCV and HCS areas. If we associate zero-deforestation goals with climate change mitigation, the zero net deforestation goal is not enough to achieve zero-carbon emissions (Brown & Zarin, 2013; interviewee 8). This lower ambition is easier to reach, but experts argued that aiming for a higher achievement is crucial right now (Lambin et al., 2017).

According to Brown & Zarin (2013), zero net deforestation will allow primary forests clearing as long as secondary forests are planted to compensate the loss. However, the

transformation may entail carbon losses to the atmosphere. Studies by Min et al., (2013) and Sierra et al., (2007) show that primary forests always have high carbon stock per hectare compared to secondary forests. Mean total carbon stocks of primary forests in Singapore es estimated by Min et al., (2013) was 337-ton carbon per hectare, while in Colombia it was approximately 383.7-ton carbon per hectare (Sierra et al., 2007). It was estimated that secondary forests in Singapore hold around 274-ton carbon per hectare (Min et al., 2013) and 228-ton carbon per hectare for secondary forests in Colombia (Sierra et al., 2007). By considering these values, it is expected that primary forests clearing may still results in carbon emissions, although the activity is replaced by replanting in another area. Thus, zero net deforestation is not enough to eliminate the possibility of additional emissions released to the air. On the other hand, in term of biodiversity issue, a study by Gibson et al., (2011) concluded that the role of primary forests to preserve the tropical biodiversity cannot be replaced by other means. Hence, the idea of creating secondary forests to compensate primary forests loss would still contribute to the biodiversity destruction.

Variation among timeline could complicate the process of monitoring the zero-deforestation pledges (interviewee 18). Some companies explicitly set a target to achieve the full traceability of palm oil products, whereas some others only provide a vague description and regularly updating their progress towards palm oil traceability. Some other companies are still working on the preparation of technical guidance and implementation instructions to translate their policies into a measurable target (interviewee 8). Monitoring process needs to involve traceability to the third-party plantations to hold companies accountable for their commitments (interviewee 11). Tracing sources to mills and plantations are easier to conduct when it comes to self-owned entities, but more difficult when the third-party sources, i.e., smallholders and smaller plantation companies that are supplying the fruits to the mills, are involved (interviewee 8).

4.4.1.1 HCV and HCS approach in Indonesia's legal context

Aiming to protect the areas with HCV and HCS may confront Indonesia's law system because the country legal context does not acknowledge HCV and HCS terms in its legal framework. Conserving HCV and HCS areas in the location where companies hold concessions permits would means denying Plantation Act 39/2014 which obligates a company to plant its entire concession within six years after the license is granted. However, during the period of writing this thesis, experts mentioned that the government of Indonesia is on track to revise the Natural Resources and Ecosystem Conservation Act 1990 in order to incorporate HCV principles under the Ecosystem Essential Zones (*Kawasan Ekosistem Esensial/KEE*) (interviewee 15, 16). Currently, HCV is recognized in the Agrarian and Spatial Planning Ministerial Letter No. 10/SE/VII/2015 about permit issuance in High Conservation Value (HCV) area. The letter regulates the protection of HCV area located in the non-forests area. Unfortunately, in the law hierarchy system of Indonesia, a ministerial letter is not legally binding.

Some companies are willing to avoid development on HCV areas, but they are afraid of having its license revoked due to presumed infringement towards Plantation Act No. 39/2014 (see section 4.1.3.2). KEE regulation will protect these companies by creating an obligation to protect essential zone outside of conservation forests. According to interviewee 15, the role of the national government is to provide a legal foundation since the remaining responsibilities, such as monitoring and location decision, are rested on the local government following the implementation of decentralization. In the meantime, before this regulation is officially implemented, companies can start

negotiating with the local governments to start applying the KEE in the proposed location, as was done in the KEE pilot project in a district in Kalimantan (interviewee 15). The mechanism, as observed during the pilot project, is having the district leader along with the company defining the biodiversity corridors to protect the wildlife existence and let the animals migrating from one ecosystem to another. The companies would not be punished for not developing its concessions on top of the HCV area.

The initiative to create a legal framework for KEE is not without skepticism. Although the result remains unseen, an argument raised that KEE could be determined at the expense of plasma area (see section 4.1.3.1) at the smallholders' disadvantages (interviewee 14). Interviewee 14 also added that as long as the regulation is not yet ratified, people are still left with uncertainties whether the companies have responsibilities to conserve the area. The pilot project in West Kalimantan shows that the issue can be solved through adequate engagements with the local leaders. As they issued the decree for KEE zoning, responsibilities to monitor lies with the local government.

The HCS approach, although has not yet been consolidated into the Indonesian legal framework, may intersect with the ongoing moratorium of primary forests clearing²⁴. Interviewee 12 sees HCS approach as a new level of corporate zero-deforestation pledges compared to solely HCV protection. Taking the HCV regulation as an example, where the government of Indonesia is still working on the integration of its principles into a legal framework, it is considered reasonable if the government has not yet integrated the HCS concept into the regulation since big companies are usually a step ahead in term of setting a standard (interviewee 12).

4.4.1.2 Barriers to corporate zero deforestation pledges implementation

One of the most notable challenges to companies that committed to the zero-deforestation supply chains is the long-term plan to involve the smallholders (Pirard et al., (2015); interviewee 1, 7). The reasons that companies-led action is necessary to guide their smallholders are:

- 1) the potential for deforestation leakage lies in this supply chain position due to the government of Indonesia's regulation regarding the business license for plantation less than 25 hectares (see section 4.1.3.2);
- 2) the better seeds and knowledge about good agricultural practices are less accessible for smallholders compared with plantation companies. It is important for smallholders to be able to intensify their production with existing plantation to lower the benefit of opening additional land through deforestation (Kubitza, Krishna, Urban, & Qaim, 2018);
- 3) there are inadequate data available on the total number of smallholders (interviewee 7). Achieving full traceability of palm oil products requires a proper documentation of all oil palm suppliers data, including the smallholders. Traceability is an important aspect of monitoring the implementation of corporate zero-deforestation pledges.

Palm oil companies can influence the third-party suppliers if they set up a group, e.g., smallholders group or small third-party companies. If the third-party companies could not comply to the sustainability policies as regulated by the committed companies, usually those suppliers would be given a certain period of time to enhance their capacity building in order to adhere to the requirements (interviewee 17). Companies need the smallholders to gather and create a group to manage both trade contracts and

²⁴ Intact forests are acknowledged to have high carbon density. This moratorium will be explained further in the section about the niche.

compliance monitoring. When included in a group, the smallholders could establish the rules for good agricultural practices²⁵ and assign a person in charge to communicate with the other parties.

Another barrier arises from the palm oil market itself. Although market pressure is a dominant driver, it is centered heavily around the European demand. There are other places available to accommodate unsustainable products, such as domestic market, and the demand from China and India, which are among top three biggest palm oil importer countries (Schouten & Glasbergen, 2011; interviewee 1, 5, 18).

A new obstacle emerged when the European Union Parliament planned to phase out the palm oil-based biofuel entirely in 2021 through its Renewable Energy Directive (RED). The RED was seen as a troubling decision and not helpful for the sustainable palm oil initiative, including the zero-deforestation pledges (interviewee 1, 9). By blocking the market for palm oil in Europe, interviewee 1 sees this action would dampen the effort to transform the unsustainable practices and drive the business actors to look for other possible markets willing to accept their products without changing the norms. Many actors believe palm oil is still needed, and instead of boycotting the products, it is better to acknowledge the risks and the necessary corrective and preventive action (interviewee 15, 17). Oil palm, compared to other oil-producing crops, provides the highest yield of oil per hectare. Switching to another bio-based oil will require more land use (GAR, 2016; Zimmer, 2010). In June 2018, it was decided that the agreement will not mention the types of biofuel to treat all crops fairly. Instead, the RED document mentions that the European Commission will have the methodology to evaluate biofuels and the risks associated with them, including Indirect Land Use Change (ILUC) and high carbon stock (HCS), ready by 2019.

When looking at a company's organization, often the palm oil sustainability team is not a significant part of a company or comprises of team members with little experience or knowledge about the subject (interviewee 4, 15). This case may not be found in a multinational company, but it is a typical situation in relatively smaller actors supplying to major companies (interviewee 15).

4.4.1.3 Supporting factors for implementing corporate zero-deforestation pledges

Traceability slowly becomes more feasible due to a proper database development as the zero-deforestation commitment becomes a more common practice among the companies in the palm oil supply chain, i.e., palm oil companies (planters, growers, and traders) and consumer goods companies. Because of market pressures, the big consumer goods companies start releasing the companies suppliers' names (interviewee 2). Nestle and Unilever, for example, have published the names of their suppliers in 2017. Both companies account for almost a total of 2 million tons of palm oil consumption in 2015, or around 37%²⁶ of total palm oil demand for consumer goods companies in 2015 (WWF, 2016); therefore, their actions were perceived as an important step in shaping the sustainable palm oil system (interviewee 4). The Center for International Forestry Research (CIFOR), an international forestry research organization with a branch office in Indonesia, helps the public to examine deforestation through an online interactive map. Once all the buyers released their supplier lists, it

²⁵ For general practices, not only in relation to the zero-deforestation goal. It may include a waste management system and chemical uses in the plantation management.

²⁶ 63% of palm oil demand for consumer goods companies in 2015 were distributed to more than 40 companies, which makes both Unilever and Nestle became among the largest consumers of palm oil.

will be shown on the map; as a result, the public can judge the zero-deforestation accountability of both the palm oil producers and the consumer goods companies (interviewee 2).

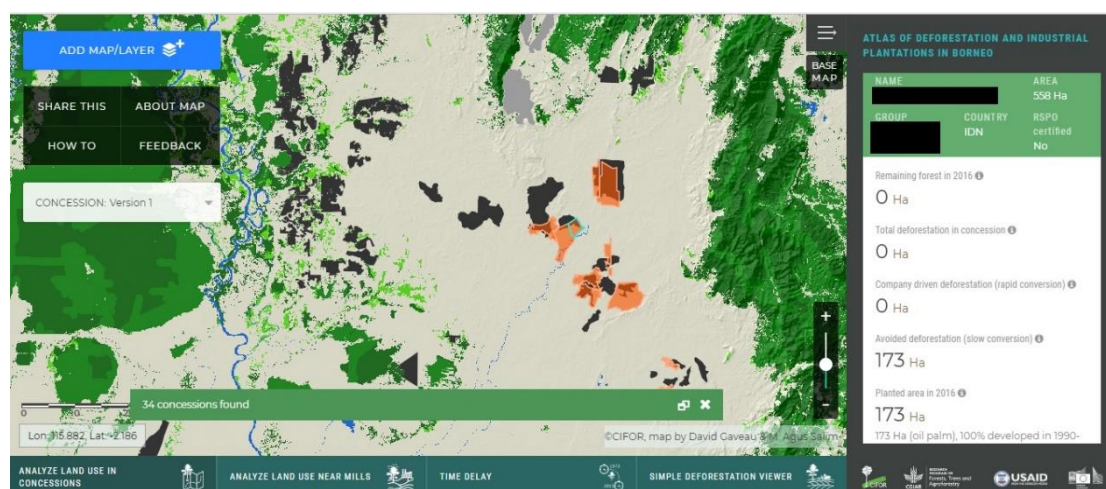


Figure 4.10 CIFOR interactive atlas of Borneo to help examine industrial-led deforestation

According to the CIFOR map, company-driven deforestation is “the area of forest that has been cleared by the company to develop the plantation, where a forest was still standing less than five years before the company developed the land”. Readers can input the name of the consumer goods suppliers and see if the oil palm was grown on the deforested area. While it is still an early stage, this idea was hailed as a part of increasing number of initiatives to hold companies accountable (interviewee 4).

Plantation companies’ leadership in handling the issue with its smallholders is understood as one of the required factors to achieve a full traceability, a necessary step in the no-deforestation movement. Interviewee 17 mentioned that as a big palm oil company in Indonesia that has several plantations, mills, and refineries, the company was committed not to expand its plantation area; however, the companies would intensify their oil palm production by growing better seeds in their old plantations and increase their smallholders’ productivity. Since 45% of the oil palm supplied to companies’ mills are originated from the smallholders, the company helps independent smallholders by providing access to high-quality seeds. Due to the limited time and contacts during the fieldwork, the author could not gather information from other palm oil companies to see if this has become a norm among the big oil palm companies in Indonesia.

4.4.2 Palm oil sustainability certifications

A company’s effort to meet the zero-deforestation commitment is usually implemented through buying more certified palm oil products (Dauvergne, 2017). Although the sustainability certifications are not specifically designed for achieving zero-deforestation goal, the assessment includes the commitment to protect the remaining forests. While discussing zero-deforestation commitment in the palm oil industry in Indonesia, there are two relevant types of palm oil sustainability certifications which need to be elaborated on further in this section. Those certifications are the Roundtable on Sustainable Palm Oil (RSPO) and Indonesia Sustainable Palm Oil (ISPO).

Another type of sustainability certification in the market are the International Sustainability and Carbon Certification (ISCC) and Malaysia Sustainable Palm Oil (MSPO). ISCC is a certification model for bio-based products sold in the market, e.g., bioplastic, biodiesel, cooking oil, and packaging products. Companies exporting their CPO for biodiesel in Europe pursue this certification to meet the European market demand (Yaap & Paoli, 2014). MSPO is a national mandatory standard implemented in the palm oil industries in Malaysia, claiming that it is designed to enhance sustainable market access and to answer market demand for a fair sustainability certification (MSPO, 2018).

4.4.2.1 Roundtable on Sustainable Palm Oil (RSPO)

RSPO, which was officially established in 2004, initiated by World Wildlife Fund (WWF) together with some other stakeholders to build a platform to ensure sustainable practices in the palm oil industry (RSPO, 2018a). The RSPO Secretariat is located in Kuala Lumpur, Malaysia with a regional representative office in Jakarta, Indonesia. The platform is using accredited certifying bodies to examine compliance, and the assessment is conducted every five years. The official website claims that oil palm growers would benefit from getting their products certified by attaining premium price in the market because of the wide acceptance of RSPO in the global supply chain due to its vast network²⁷. Interviewee 17 confirmed this statement, mentioning that the company the interviewee represents gains premium price for its RSPO-certified products.

Many companies are seeking the RSPO certification due to the increasing demand for sustainable palm oil, especially from the Western countries (Schouten & Glasbergen, 2011). Rudolf (2017) wrote that by 2017, certified palm oil products has reached 21% of market penetration, paving the way to a higher share of sustainable palm oil in the market. RSPO certified products are accepted as a standard definition of sustainable palm oil in the current global market. Hence having a certified product will create a competitive advantage for a company to enter the market with high demand of sustainable products.

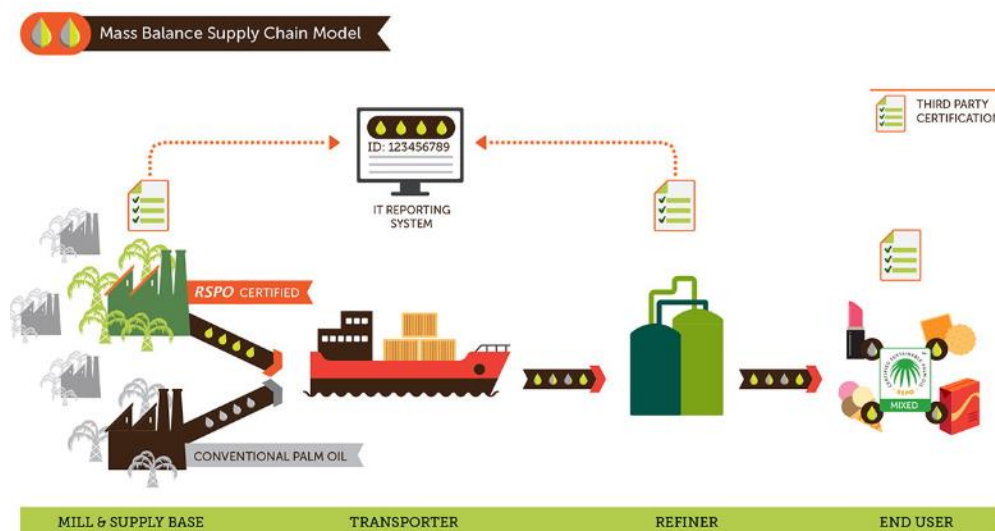
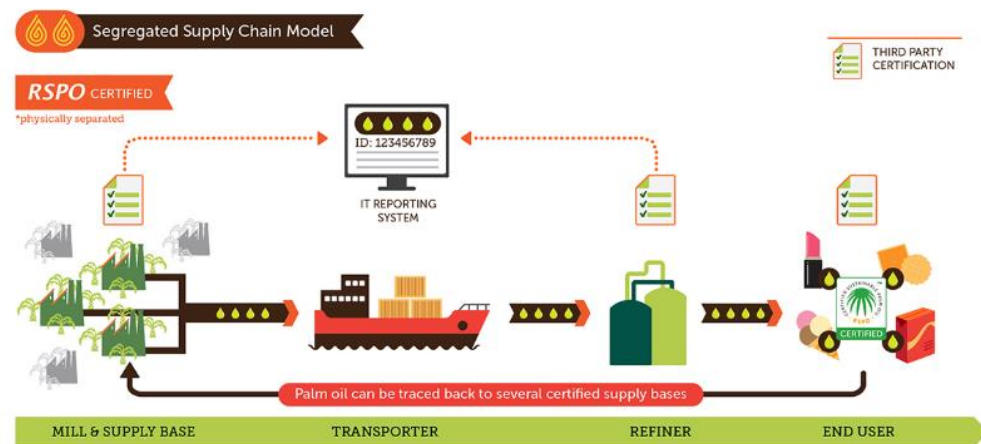
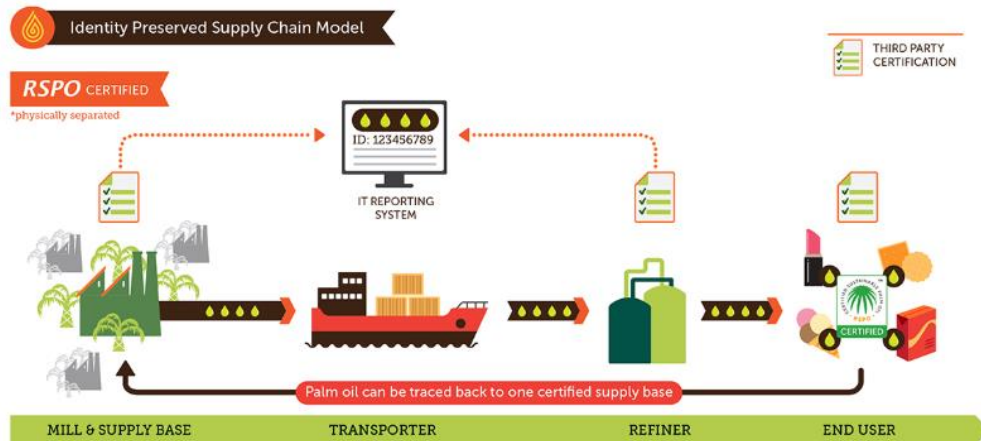
RSPO certification system falls into two categories. The first one is to ensure that oil palm is produced according to sustainable principles and criteria set by RSPO guidelines, targeting oil palm plantation and palm oil mills. This is called the *Principles & Criteria (P&C) Certified Palm Oil*. The second one is a supply chain certification system that develops integrity to the product sold in the market as sustainable palm oil, chiefly pursued by the downstream and consumer goods producers.

RSPO supply chains certification system is divided into the following categories :

1. Identity preserved supply chain model
This model ensures that the product sold in the market can be traced back into a single certified palm oil mill.
2. Segregated supply chain model
Segregated supply chain describes palm oil sources from several certified palm oil mills.
3. Mass balance supply chain model
CPO processed by refinery comes from several sources that are partly certified. The derivative products contain a mixture of non-certified and certified palm oil.
4. Book and claim supply chain model

²⁷ According to RSPO (2018), RSPO members account for 18% of the global palm oil production in 2014.

This model allows companies to buy credits from certified growers which means the final product may or may not contain sustainable palm oil.



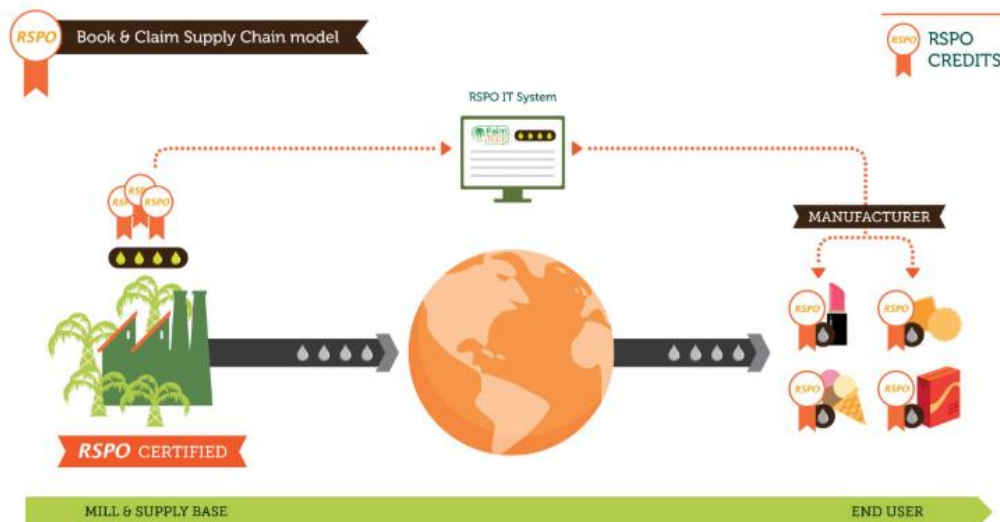


Figure 4.11 RSPO supply chain certification systems (RSPO, 2018c)

The RSPO smallholders certification is written under RSPO Group Certification tools document (BIOCert Indonesia & ProForest, 2010). This mechanism enables independent smallholders to gather and form a group. Under a group manager, they will be certified as a single group certification. By sharing the certification cost among the group members, individual smallholders will have a less financial burden.

4.4.2.1.1 The role of RSPO to protect forests

RSPO works according to the principles and criteria that are later translated into a “national interpretation” document to fit each country producer’s laws and regulations. It has a total of eight principles. Deforestation is mentioned under the “environmental responsibility and conservation of natural resources and biodiversity” principle listed on number 5 and “responsible development of new plantings” on principle number 7.

RSPO principles and criteria require oil palm growers to conduct an assessment by setting November 2005 condition as the baseline. The assessment consists of an evaluation of carbon emissions and changes in carbon stocks and high conservation value (HCV). RSPO criteria number 7.3 declares that “new plantings since November 2005 have not replaced primary forests or any area required to maintain or enhance one or more High Conservation Values” (RSPO, 2013). This criterion specifically shows RSPO’s effort to protect remaining forests within the concessions. From November 2005 onward, any oil palm plantations without prior HCV assessment is advised to carry remediation and compensation according to the procedures ruled by RSPO.

New Planting Procedure (NPP) is the latest guidelines applied to new plantations developed after January 2010. Related to HCV context, the new procedure prescribes a licensed assessor for HCV evaluation. On the other hand, the last document published in 2013 still has not incorporated the HCS approach to its principles and criteria. This has seen as an unfortunate decision for some who are actively studying the forests cover in Indonesia because the HCV evaluation is not enough to reduce deforestation (interviewee 2). RSPO along with the Executive Committee of the High Carbon Stock Steering Group conducted a formal dialogue in November 2017 to incorporate the HCS approach into upcoming RSPO principles and criteria (RSPO, 2017). Since the principles and criteria document is re-visited every five years, the revised version is expected to be ready by 2018.

Companies exceeding the current RSPO standard have possibilities to compete in the market with a higher level of certification under the RSPO-NEXT model (interviewee 3). According to RSPO (2018), RSPO-NEXT consists of the following additional components: “No Deforestation, No Fire, No Planting on Peat, Reduction of GHGs, Respect for Human Rights and Transparency and are applicable at an organization-wide level, including investments, joint ventures and in the organization’s wider supply base”. Under the no-deforestation component, companies shall protect their high carbon stock land by not converting that area into another form (building or plantation). Carbon emissions as a consequence of land use conversion must be reported publicly for transparency.

A study by Carlson, Heilmayr, Gibbs, Noojipady, & Burns (2017) found that RSPO provides information about plantation companies associated with recent deforestation. Most of the RSPO-certified plantations started their certification period with little forest cover, indicating deforestation practices before applying for the certificate (Lambin et al., 2017). Started in 2004, RSPO is a relatively old initiative, it was created far before companies started talking about zero-deforestation pledges (interviewee 2). For a relatively old initiative, around 20% market share in 2017 was perceived not enough by the organizations that are actively monitoring the progress of the sustainable palm oil (interviewee 2, 9). RSPO is indeed a necessary tool, but it is insufficient to achieve the expected result of the zero-deforestation commitment (interviewee 4).

Some people see that RSPO actually contributes little to the smallholder inclusion (interviewee 2, 4). INOBU (2016) noted that the creation of farmers group can facilitate the certification process. In some regions in Indonesia, RSPO supported this formation so the smallholders can be certified as a group. If the smallholders are part of the plasma scheme, the costs certification fee is usually borne by NGOs, CSOs, or companies (Glasbergen, 2018). Without the intervention from other actors, the economic attraction of certification is unavailable (Hidayat, Offermans, & Glasbergen, 2017). The smallholders also need access to certification qualified-material which can be difficult if they are not part of a group (interviewee 9). Glasbergen (2018) observed that the oil palm smallholders have managed to gain a higher profit not solely because of the certification but as an indirect effect of better managerial practices. As a result of their compliance, the smallholders could have higher productivity. Interviewee 9 argued that the other bottleneck for smallholders certification is the land legality issue. RSPO requires companies and farmers to provide adequate proofs of land legality, but the smallholders in Indonesia are often lack of proper documentation.

As a platform aiming to reach multi-stakeholders, the certification suffers from many shortcomings regarding its legitimacy. Many perceived RSPO as a closed system with minimum transparency (interviewee 2). In 2008, Greenpeace accused RSPO of a disingenuous scheme for granting the certificate to a multinational plantation company despite its constant violations to the RSPO’s minimum restriction in Indonesia (Greenpeace, 2008). An investigation by Greenpeace shows that in its concessions in Kalimantan, the company did not conduct remediation action for HCV area clearing. Although the company’s operations in Malaysia are RSPO certified, the partial certification does not guarantee that the company is clean from misbehavior.

External NGOs also accused RSPO of greenwashing regarding sustainable palm oil business practices. Despite being an active RSPO member and having its mills certified, a big palm oil company in Indonesia was accused of “crafting an illusion of commitment” (Greenpeace, 2009). A report published by Greenpeace (2009) mentioned that the company has cleared a forest without prior environmental impact assessment and

breached the HCV protection rule. Such report shows that people could not entirely depend on the certification scheme to halt deforestation driven by the palm oil industry.

As a private-led and voluntary scheme, the government is not allowed to be an RSPO member. Experts questioned whether RSPO is the right authority when usually the task to create a system is in the government's hands (Schouten & Glasbergen, 2011). On the other hand, the large inclusion of stakeholders in the RSPO scheme makes compromises to different interests inevitable (Schouten & Glasbergen, 2011). This condition has led RSPO to implement a less strict standard where external NGOs, i.e., environmental NGOs that are not part of RSPO, have argued that this level of ambition is insufficient. The credibility of auditor and certification bodies is also questioned by some external NGOs and institutions (EIA, 2015; interviewee 8). There is an evidence of RSPO failures to conduct proper HCV assessment which resulting in clearing the HCV area (EIA, 2015). Sometimes certification authorities have a conflict of interests with the companies due to their close relationship and the assessment results become not genuine (EIA, 2015).

Irrespective of its flaws, RSPO is still an important certification to distinguish the sustainable products. However, it is important that the scheme is able to meet the standard where all actors in the industry agrees to monitor and report it credibly (interviewee 1). RSPO has obtained a universal acceptance from the market, and the influence has improved over the time (Carlson et al., 2017; interviewee 12). To scale up its potency, interviewee 3 reckons that we need an easy way and access to finance the HCV and HCS assessments.

4.4.2.2 Indonesia Sustainable Palm Oil (ISPO)

The Indonesia Sustainable Palm Oil (ISPO) is a national public certification for palm oil companies operated in Indonesia. It first appeared in 2011 and the system has evolved since then (interviewee 11). In the beginning, ISPO regulation did not mention a certification scheme. Instead, it talked about sustainable palm oil governance designed to fit the situation in Indonesia. After that, it followed the RSPO system and became a certification scheme.

Many government agencies foresee ISPO to be as genuine as the *Sistem Verifikasi Legalitas Kayu* (SVLK), an Indonesian-owned standard for timber product. Hidayat et al., (2017) confirmed that SVLK gained legitimation from the western market as a standard for sustainability. However, according to some experts, there is a fundamental difference between the ISPO and SVLK. As stated by interviewee 14, the demand for sustainable timber did not come only from the Europe market while the demand for sustainable palm oil is dominated by this particular market. Interviewee 14 also mentioned that ISPO experienced different dynamics compared to SVLK regarding the stakeholders' involvement. CSOs and NGOs were involved in SVLK formation from the beginning. In ISPO, it was started as a pure government initiative with limited communication with environmentally-concerned stakeholders.

The current legal basis of this certification is the Ministry of Agriculture Regulation Number 11 Year 2015 about the Indonesia Sustainable Palm Oil (ISPO) certification. The regulation explains the procedure, timeline, and sanction for noncompliant companies. ISPO is mandatory for 1) oil palm plantation companies; 2) oil palm plantation companies integrated with palm oil mill; and 3) palm oil mill companies. There is a voluntary arrangement embodied in the certification for independent smallholders, plasma estate, and plantation companies supplying for biofuel. When ISPO was formalized in 2011, the regulation was only applied to operating oil palm companies. In 2015, the regulation was revised to include a requirement for plantation companies,

which currently in the land preparation stage, to apply for the certificate (interviewee 11).

Similar to RSPO, aside from oil palm plantation and palm oil mills certification, ISPO also produces supply chains certification. ISPO supply chains certification has three mechanisms that a company can choose:

1. Segregation supply chain model
This model ensures all physical products sourced from certified plantation and mills.
2. Mass balance supply chain model
This type ensures at least 70% of the palm oil used in the product is ISPO certified.
3. Book and claim supply chain model
Plantation business actor can offer their certified products directly to consumers through the website.

The Ministry of Agriculture Regulation No. 7/2009 about the guidelines to evaluate plantation business categorizes plantation into five grades: 1st class (very good), 2nd class (good), 3rd class (medium), 4th class (bad), 5th class (very bad). As a mandatory certification, ISPO enforces sanction to the companies that are not pursuing the certification by decreasing the plantation category to the 4th class. Plantation companies seek to achieve the ISPO certification must be in at least the 3rd class. Companies fall into the 4th class category will be warned to a maximum three times in four months period before having their license revoked. Fifth class companies will be warned once within a six months period before the government invalidates their business license.

ISPO implementation timeline is divided into following groups:

1. Oil palm plantation companies in the 1st, 2nd, and 3rd class must submit their application for the certification by June 2017 at the latest.
2. Certified oil palm plantations must supply to certified mills until 2017, the two years maximum validity period after the regulation was issued.

Third party involvement in ISPO certification model comes in the form of a certification institution. The institution is a third-party body approved by the ISPO committee to assess palm oil companies according to ISPO principles and criteria.

4.4.2.2.1 The role of ISPO in zero-deforestation commitment

ISPO's values also comprise the principles and criteria. ISPO principles and criteria endorse protection of primary natural forests and peatlands and biodiversity conservation. The Ministry of Agriculture regulation does not specify how ISPO certified companies could protect forests. Instead, ISPO procedure depends on the decree on forests area release issued by the Ministry of Environment and Forestry as a reference to assess forests protection principle.

Biodiversity conservation in ISPO's values is part of the environmental management and monitoring principle. Unlike RSPO, the criteria do not particularly mention the high conservation value assessment as part of the evaluation. It rather obliges companies to show their effort on conservation by documenting and reporting endangered species inside the concession, as articulated in the Natural Resources and Ecosystem Conservation Act 1990. As per ISPO requirement, companies should also provide conservation area maps, both inside and around the concession. In connection with carbon stock protection within the concession, ISPO principle does not specify carbon-rich land other than peatland management under the plantation management principle.

ISPO allows companies to plant the peatlands under strict requirements in order to prevent carbon emissions released from the peatland (e.g., depth of peatland less than 3 meters and water level management).

Hospes (2014) observed that ISPO was the Indonesian government response to RSPO. The government argued that ISPO is necessary because RSPO, due to its voluntary manner, is not enough to create better management of a big industry such as palm oil. Therefore, the government needs to apply an obligatory standard. However, ISPO serves as a weaker instrument in the way that 1) the national standard provides a room for oil palm growers to expand the plantation, and 2) sustainability standard is defined by the governmental laws (Hospes, 2014). These two shortcomings imply a weak intention from the government to achieve more stringent standards. The livelihood of the smallholders is the main argument for the low ambition, although Glasbergen (2018) found that argument is worth questioning. The reason is, similar to RSPO, ISPO also requires the smallholders to organize a group structure to be certified, and provided the common practice, traditional farmers used to be scattered and unorganized. Other parties intervention is needed to help the farmers form a group.

Glasbergen (2018) argued that the ISPO regulation serves as an accumulation of policies from different ministries for managing palm oil business in Indonesia (Glasbergen, 2018). This situation inevitably caused contradictory overlapping of regulations (interviewee 10). In the context of HCV protection, for example, ISPO regulation uses the Plantation Act No. 39/2014 as the legal basis to oblige plantation companies to plant all concessions area as granted by the government regardless the internal investigation found any HCV area within the concession. This has caused conflict with previous ministerial letters that regulates the HCV protection (Hidayat et al., 2017).

As a mandatory certification, the ISPO compliance is considerably low. Nanggara et al., (2017) recorded only around 10% of plantation companies in Indonesia are ISPO-certified at the end of 2015. Companies are at risk of sanctions if they are not applying for ISPO certificate, but the low compliance shows that the imposition was not effective. Hidayat et al., (2017) observed that the weak enforcement originated from the lack of central authorities power. Due to the decentralization policy, the local government is the responsible authority for issuing the sanctions for disobedience. Dirty business practices, as explained in the forests governance section, such as land deals to benefit owned-cronies and dynasties, have demotivated the local government to enforce sanction to non-compliant companies. Economic interests of the local government due to the regional-owned revenue earned from the business also has hampered the sanction (Hidayat et al., 2017).

ISPO cannot guarantee economic benefit to the certified palm oil companies due to the uncertain legitimacy from the market (Hidayat et al., 2017). Markets are reluctant to consider ISPO certified product as sustainable palm oil products because the RSPO has already become a dominant certification in the global market. A western market representative explained that the chance to get wider acceptance is possible once ISPO enables the system to be more transparent and proves that it has a credible multi-stakeholder approach for a sustainability standard (Hidayat et al., 2017). Some companies are also complaining about the limited number of accredited ISPO auditors, resulting in a long waiting time to get ISPO certification (Hidayat et al., 2017; interviewee 7). The combination of these problems drives low enthusiasm towards ISPO certification.

ISPO credibility was also obstructed by the image it portrayed to the external stakeholders. According to interviewee 11 and 14, ISPO is a closed system with too

much power rested in the ISPO committee. Interviewee 12 agreed that ISPO system lacks transparency, and the result is distrust towards the ISPO committee regarding the certification results. ISPO committee has the authority to decide which actors are involved in the system, something that may inhibit the involvement of other stakeholders, the certification process, and conflict resolution.

A study by Forest Watch Indonesia found that ISPO implementation has not successfully reduced the deforestation rate (Nanggara et al., 2017)²⁸. In 2016 alone, at least 20% of new oil palm concessions are located in the area other than non-forests area and convertible production forests²⁹, including in conservation forests. ISPO certification, in an essence, has not solved the issues related to environmental destruction (interviewee 11).

Interviewee 10 sees the opportunities ISPO holds to govern the palm oil industry in Indonesia better, including to slow the industry-driven deforestation. It provides momentum for the government to realize the presence of independent smallholders. Previously, palm oil economic development plan assumed smallholders as part of plasma scheme only. Independent smallholders were hardly recognized in the action plan (interviewee 10).

In order to be ISPO-certified, palm oil business actors have to present land legality document to the auditors. Interviewee 13 and 15 mentioned that compared to RSPO, ISPO is more stringent regarding the formal land document. RSPO may be dominant in the market, but ISPO is more powerful in term of legality issue and compliance with mandatory regulation (interviewee 7, 12, 16). In the smallholders' context, RSPO accepts land ownership letter (*Surat Keterangan Tanah/SKT*) issued by the head of the village as a land document. This document is not accepted as a formal proof for land ownership at the national level. ISPO asks for freehold land title (*Sertifikat Hak Milik/SHM*) as the legal document, issued by Land National Agency. By regulation, all stakeholders must refer to national document to proof land legality occurs. Solving the land legality issue will result in clear responsibilities when deforestation occurs (interviewee 11, 14). Right now conflicts arose from overlap claims which caused uncertainty in forests management. The uncertainty prompts opportunities for individual actors to convert the forests.

The smallholders with the plantations in the historically forests area have more difficulties to obtain land certificate because the country considers those areas as state-owned property. Stronger land title rights through proper documentation would provide an incentive for farmers to intensify production and reduce the possibility of deforestation due to farmers relocation (Kubitza, Krishna, et al., 2018). Without land titles, farmers do not have access to funding support and good agricultural program training because they are considered illegal actors. As a result, they are more likely to expand the plantation through deforestation to gain more profits.

4.4.2.2.2 ISPO empowering program and its implication to no-deforestation target

To enhance palm oil governance in Indonesia, Coordinating Ministry of Economy created the *ISPO Empowering Program*. This initiative also aims to increase data transparency by mapping the palm oil revenue to minimize profit loss. Interviewee 13

²⁸ The study assumes any kind of forests area conversion as deforestation, apart from its function whether as restricted production forests or convertible production forests.

²⁹ Although this situation partly is deemed to be 'legal deforestation', the study objects any form of clearing within forests area in this critical time.

argued that the country has not really achieved their maximum profit from its palm oil business because of profit loss on many channels due to inaccurate data documentation. Other stakeholders see ISPO empowering program as a result of the market influence and corporate sustainability commitments (interviewee 11, 12, 14). ISPO empowering program conducts several scheduled meeting with stakeholders to get insights and suggestions for upcoming policy. Unfortunately, some actors decided to step out from the communication forum because they saw a different direction from the initial idea (interviewee 11, 14).

ISPO empowering team is a multi-stakeholders forum consists of the government from the Coordinating Ministry of Economy, Ministry of Trade, palm oil business actors, and academic/researcher (interviewee 13). The new ISPO regulation will be administered as a presidential decree, a higher law structure compared to ministerial regulation where ISPO policy is ruled right now. As the industry falls into several regulations issued by the different ministries, the ISPO empowering team sees that a ministerial regulation is no longer valid for this multi-actors business.

Unlike the current policy, the new ISPO regulation would entail an obligation of ISPO certification for all business actors, including smallholders (both plasma and independent) and companies supplying for biofuel (interviewee 13). This idea is a result of discussion regarding the urge to achieve full traceability in the palm oils supply chains. By having all business actors certified, ISPO aims to be a credible platform and fully transparent in the global supply chains. If ISPO standard applied everywhere in Indonesia, under the ideal condition traceability will no longer be a question for actors demanding information about the source of their palm oil products (interviewee 7).

The ISPO empowering team acknowledges independent smallholders as the most affected actors in the new scheme. Hence, they need to prepare the roadmap and understand the readiness of those smallholders (interviewee 13). The government should play an important role in mapping the smallholders by showing leadership in the initiative to record them (interviewee 18). Therefore, the initiative to include the independent smallholders in the new scheme is a positive sign for reaching out to all actors in the industry.

Market acceptance is notably hindering the implementation of ISPO regulation. Through this empowering program, the team helps to identify the market by creating the market channel through direct involvement in the international negotiation, including with the European Union (EU) that recently planned to ban palm oil-based biofuel (interviewee 13).

ISPO new regulation is predicted to be ready by 2020 (interviewee 13), but it may be too late to cope with corporate zero-deforestation commitments. The *New York Declaration on Forests* (NYDF), a collective companies' commitment, pledges to halve deforestation in 2020. The same goes for *Consumer Goods Forum*, a platform which aims to achieve zero-net deforestation in 2020. Those commitments should be aligned with traceability target which means the implementation of the new ISPO policy would be behind the timeline. Particularly in deforestation context, the new ISPO regulation will still follow the land allocation regulation as described by earlier policies (interviewee 13). This would mean the legal context of deforestation would remain the same, apart from the positive impact this enhanced policy may bring to the traceability.

4.4.3 Scaling up zero-deforestation commitments

Individual commitment, as in the current model of the corporate zero-deforestation pledges, suffers from the shortcoming that gained attention to increase the influence into a broader range. An individual commitment could not prevent the risk of leakage deforestation to other location by non-stringent companies, or other industry-prone deforestation (Lambin et al., 2017). This risk is unavoidable and remains a major risk in a voluntary standard scheme such as RSPO (Meijer, 2014). The RSPO principles concern about the activities of individual companies under its umbrella, which means, there could be a leakage deforestation to another companies outside of the organization.

The risk of leakage deforestation is reduced if a scope of a policy could affect a broader area (Lambin et al., 2017; Meyer & Miller, 2015; Smit, McNally, & Gijsenbergh, 2015). At this point, the initiatives are evolving around the “jurisdictional approach” or the “landscape approach”.

The jurisdictional and landscape approach came up in several interviews and was used interchangeably. It seems that there is no universal definition of both terms (interviewee 7). The stakeholders agree that both approaches encompass the tradeoff between development and conservation through a sustainable production at a certain geographic location, a broader scope area compared to the individual commitment. With respect to zero-deforestation context, jurisdictional or landscape approach is a zero-deforestation commitment at a jurisdictional scale, e.g., district, province, or even national and applied to all commodities at the area. The prominent distinction among opinions expressed by each stakeholder is related to the delineation of each approach.

Interviewee 12 explained that jurisdictional approach is a method to achieve the sustainability goal at the regional level by having the regional task force led by the district leader. The term *jurisdiction* refers to the administrative scope of a region. If the jurisdictional approach aims to achieve a sustainability goal at the district level, then the landscape approach would be at a broader level, e.g., within a certain ecosystem function or a watershed. This means a landscape approach could include several districts/provinces at the same time. Interviewee 15 came up with a similar definition, except that “one landscape” can also be defined by the administrative boundary which makes the two terms synonymous. At the moment, both approaches seem to go toward the same understanding, although the concepts are still evolving (interviewee 7, 18). To simplify the wording, the next paragraphs would use the term *jurisdictional approach* or JA to avoid confusion about the “landscape approach” and “the landscape” concept at the Multi-Level Perspective theory.

The idea of a JA is that the people within the scope decide the production level of all commodities, identify the area that needs to be conserved, while simultaneously implement good agricultural practices. Local leakage deforestation³⁰ could be prevented as the commitment is applied in an entire district area and to all agricultural and forests products. The whole products from the region would be labeled as “sustainable products” following the related certification principles. Through this model, a company sourcing its raw materials from the area would have a guarantee of sustainability value in their product, regardless whether it comes from independent smallholders or companies-owned plantations because they are all included in the scheme (interviewee 1, 4, 6). This kind of approach assemble all local actors to work together and helps companies to enforce their zero-deforestation commitments while simultaneously

³⁰ Leakage deforestation to other places in the same district.

prevent local leakage and leakage deforestation to other agricultural products (interviewee 5, 6).

JA is calling for a partnership between the government and all business actors, e.g., palm oil companies, smallholders, environmental NGOs, and aims to create trust between consumers and producers regarding the source of their products. In addition, it will help to build a good reputation for the districts producers and the companies that are producing or using palm oil in their products (interviewee 5, 9). Oil palm plantation companies can contribute to the system by suggesting the preferential system to find a win-win solution for all stakeholders (interviewee 6). A representative of a palm oil company said that the company is committed to supporting this approach by participating in the stakeholders meeting, but so far the company has not experienced any implementation yet (interviewee 17).

This model is an exciting concept to increase the zero-deforestation commitments, but many obstacles emerged for a broader influence. The cost to certify an entire district or region is more expensive compared to certifying individual actor (interviewee 8, 9). In a regular scheme, costs are charged to the actors registering for certification. The JA approach implies that a certain proportion of the regional budget is going into the program to alleviate the financial burden of the actors (interviewee 9). It is an outstanding challenge if the third-party support is absent in the initiation process. The local government also needs to produce a decree to be the legal framework of the implementation (interviewee 8). Law drafting is a long process and it takes a long time before it becomes a law. Also, according to interviewee 8, JA should contain all products within the region, which means applying sectoral basis, such as only certifying palm oil, is not the initial purpose of the model.

The idea of JA is not completely eliminating the possibility of leakage deforestation. As written earlier, the chance of leakage is reduced along with a broader affected region. The JA concept that is being discussed right now is only covering palm oil sector, and this model implies a possibility of leakage deforestation to other district and other sectors. The same risks remain if the concept is enhanced to the provincial level. According to interviewee 7, ISPO has an opportunity to be implemented as a national level of jurisdictional approach for palm oil commodities (interviewee 7). The ISPO regulation covers a national level of policy implementation and aims to include all actors in the palm oil supply chains, which means it has a similar objective with JA.

The Musi Banyuasin district in South Sumatera province has undergone a pilot implementation of JA in a sectoral basis (IDH, 2016). The project was executed by the *IDH Sustainable Trade Initiative* under a program called *Production, Protection, and Inclusion Compact* (PPI Compact) and *Verified Sourcing Area* (VSA) that addresses palm oil commodities. Together with the companies and local government, the CSO aims to have the entire district to be RSPO-certified. Encapsulated in the project is the deal among the people within the area to keep the production at a desirable level that will not threaten the forests due to land expansion activities and to conserve the remaining forests. The project also helps to connect independent smallholders with the market to keep the sustainable value along the supply chains.

The Governors' Climate and Forests (GCF) Taskforce is an example of JA initiated by the government, i.e., unlike the pilot project in the Musi Banyuasin district where commencement of the activity was led by an environmental organization. As a result of the REDD+ agenda, nine governors from Brazil, Indonesia, and the United States gathered to the GCF platform, which funded by the Government of Norway. According to the official website, the program is expected to increase the role of the sub-national

governments, i.e., the provincial government in Indonesia, to fulfill the REDD+ agenda. The stakeholders acknowledged that conducting JA at the provincial level is critical to the notion of the leadership of sustainability. This program also aims to avoid local leakage in the zero-deforestation commitment. The purpose of this platform is to create a network between the relevant governors in each member country to share knowledge and information about the zero-deforestation commitment.

The GCF is a provincial level of jurisdictional approach and was born as an interpretation of the REDD+ program. Hence, the main goal is to reduce emissions (interviewee 9). Biodiversity conservation is seen to be a direct result of forests protection program. The forum meets annually, and the last annual meeting was held in 2017 in Balikpapan, Indonesia and produced a statement called *Balikpapan Statement*.

In the Balikpapan Statement, the forum acknowledged that both the governments and the private companies have pledged zero-deforestation but struggled to implement their commitments. This understanding has brought the forum to bring the public and private sectors together, particularly companies from the Tropical Forests Alliance (TFA), by creating programs to achieve sustainable production in the community level and engage with the indigenous community (interviewee 4, 6). The forum invited indigenous community alliance into the meeting to increase their roles in implementing this JA. The role of the companies in the formulation of the statement is to give suggestions on the preferential system to implement JA and respect the approach by implementing their zero-deforestation commitments (interviewee 5, 6).

Institut Penelitian Inovasi Bumi (INOBU) was the institution responsible for GCF Indonesian secretariat office. The institution stepped down from the role since the end of 2017, and not much information is available regarding the continuity of the program (interviewee 6). The member states of the GCF platform from Indonesia are the province of Aceh, Central Kalimantan, East Kalimantan, North Kalimantan, West Kalimantan, Papua, and West Papua. All of the participants from Indonesia are known to have vast tropical forests that were cleared mainly for oil palm plantations.

4.4.4 Collective zero-deforestation commitment

A collective agreement among several big palm oil companies in Indonesia was born as a result of the New York Declaration on Forests (NYDF) under the name *Indonesia Palm Oil Pledge* (IPOP). Unfortunately, the platform was disbanded not long after the development, and later created a new initiative called *Lingkar Temu Kabupaten Lestari* (LTKL).

4.4.4.1 Indonesia Palm Oil Pledge (IPOP)

The New York Declaration on Forests has influenced the appearance of a new agreement called the Indonesia Palm Oil Pledge, initiated by *Kamar Dagang Indonesia* (KADIN), the Indonesian Chamber of Commerce. The agreement was signed by Golden Agri Resources (GAR), Wilmar, Cargill, and Asian Agri. The pledge encompasses enhancement of environmental stewardship value and social benefits through a multi-stakeholder approach.

Before signing the pledge, the frontrunners had already committed to a higher standard of environmental stewardship compared with the other palm oil companies. For example, a year in advance Wilmar released the “No Deforestation, No Peat, No Exploitation (NDPE)” policy contains a promise not to develop plantations on high conservation value and high carbon stock area (Wilmar, 2013). The IPOP platform

adjusted its goal to be equal to the ambition level embodied in the NDPE commitment (interviewee 16). A few months after the IPOP signing in New York on December 2014, the secretariat welcomed two other palm oil companies, Musim Mas and Astra Agro Lestari, onboard. The member companies were eager to join the platform because of the perceived benefit of knowledge sharing and cooperation (interviewee 17).

To achieve the sustainable palm oil goal, IPOP included deforestation as one the focuses. The agreement tried to raise the concern about palm oil related-deforestation by pledging to³¹:

- endorse internationally-recognized sustainable certification,
- incorporate High Carbon Stock (HCS) approach to identify forests area,
- support national regulation improvement on forests conservation,
- support the One Map³² initiative.

As for the definition of deforestation, IPOP members relied on RSPO's principles and criteria because of the palm oil buyers (i.e., consumer goods companies and retailers) preference (interviewee 12). The members realized that RSPO has a wider acceptance in the respect, hence the reason they follow the definition.

IPOP disbanded in June 2016, but the companies stated they are committed to maintaining the sustainability standard (Vit, 2016; interviewee 17). Resistance was emerged for the first time when the platform members started to implement their commitment by excluding incompliant suppliers from their supply chains (interviewee 12). This was seen as a threat to the third parties that have less strict environmental compliance standards. The Indonesian Business Competition Supervisory Commission at that time investigated IPOP for an allegation of cartel practice. Suppliers with lower environmental compliance assumed that IPOP had supported giant companies by excluding them from the business (Pramudya, Hospes, & Termeer, 2018; interviewee 8, 10, 12, 16).

Moreover, a platform consists of big actors raised suspicion over cartel practices (interviewee 16). IPOP secretariat explained that the agreement was not about supply chain, hence the suspicion was unreasonable (interviewee 12). The decision to cut ties with unethical suppliers was part of actualizing the commitment into real work. There was no substantial evidence for IPOP cartel allegation (interviewee 8, 10). The IPOP secretariat had taken preventive action by attending a discussion session with the government before the accusation (interviewee 12).

The agreement, to some extent, had reflected an attitude that may step over the government's authority to create policies (interviewee 12). The creation of the legal entity has led to an assumption that the platform weakened the government's position and may compete with ISPO regulation (Pramudya et al., 2018; interviewee 10, 16). The lack of engagement and communication with the new government supported the development of mistrust towards the platform (interviewee 8, 10, 16). The secretariat team depended heavily on the role of the Indonesia Chamber of Commerce, and it did

³¹ Information taken from Indonesia Palm Oil Pledge (IPOP) document, accessed through http://awsassets.wwf.or.id/downloads/indonesia_palm_oil_pledge_in_un_climate_summit_ny_24_0914_final.pdf

³² The One Map initiative began in 2010 as a collaboration between the Government of Indonesia with the United States Agency for International Development (USAID) to bring all relevant governmental institutions to share their data and develop a new reliable map. The idea was originated from the existing premise that one of the rootcauses of deforestation is coming from the map disparities between the governmental institutions. (Shahab, 2016)

not expect imminent change from the new government (interviewee 12, 18). The relation with the new government was not performed in a cooperative manner (interviewee 8).

The disbandment of IPOP still left some questions to several actors. This situation was perceived confusing by the secretariat since the representative from the government had always been invited to the stakeholders meetings (Pramudya et al., 2018; interviewee 12). After the dissolution, there was no observed resistance from the government and other business actors to ex-IPOP member companies when they are maintaining the sustainability commitment (interviewee 8, 10, 12). It is speculated that the individual commitment creates fewer pressures to the government compared to a joined commitment (interviewee 9).

Many parties regretted the decision to disband the organization because IPOP was a promising idea. The project embodied harmonization of sustainability goals, smallholders' mapping and data collection, and actively engaged with actors that work closely with the smallholders (interviewee 12, 16). IPOP managed to influence big companies to work together using an unified standard (interviewee 16). The case with Astra Agro Lestari was a notable achievement since the company was not a member of RSPO, and its participation exhibited the platform's leadership ability to influence other actors (interviewee 16). Through its project, IPOP has left a remarkable trail to the palm oil governance in Indonesia.

ISPO's empowering program was said to be a result of pressures from IPOP secretariat to the government to increase the stringency of ISPO regulation (interviewee 12, 18). When IPOP was still active, the pilot project to map the smallholders was conducted in the Seruyan and Musi Banyuasin district. At that time, the districts felt the companies, which were the members of IPOP platform, were assisting them to accomplish the sustainability goals (interviewee 12). After the IPOP disbandment, the budget left from the IPOP project was transferred to a new program called *Lingkar Temu Kabupaten Lestari* (LTKL).

The idea of LTKL was proposed by the districts that were helped by IPOP. They felt the presence of the companies under the IPOP platform had helped the local government in implementing the sustainability commitment (interviewee 12). Some former members of the IPOP secretariat later created LTKL, which aims to be an implementation of jurisdictional approach led by district leaders. LTKL's values are derived from the Sustainable Development Goals (SDGs), and it aspires to address farmers' livelihood (interviewee 12). By addressing the ground problem connected to farmers' livelihood, the platform believes less effort would be needed to handle deforestation.

LTKL recognizes the need to manage multistakeholder collaboration to accomplish the aims. Therefore, the platform tries to engage with local NGOs, RSPO, and APKASI (*Asosiasi Kepala Daerah Seluruh Indonesia*), the Association of Indonesian District Leaders. The first meeting, which also the official launch of the platform, was held in December 2016, attended by eight districts member. By February 2018, 15 districts have joined the initiative.

4.4.5 The niche: summing up

Due to the pressures that appeared at the landscape level, the niche has created an environment that brought the corporate zero-deforestation pledges as the innovation to answer those pressures. As a novelty, the innovation has found a common design that accepted by many companies, which is "protection to the HCV and HCS area".

Diffusion in a technology transition is marked by S-curved pattern, started with slow growth at the beginning, followed by accelerated growth, and ended with market saturation (Grübler, 1998). The diffusion process of corporate zero-deforestation pledges is comparable with the technology transition process since it was started with a few companies at the beginning. The accelerate growth was motivated by the movement from the big players in the industry.

The samples from major players shown on table 4.2 are implying that this commitment has become a common policy, at least among the big actors. As for the implementation, it is obstructed by many challenges. Inadequate smallholder's data did not produce enough information to measure the transparency of the commitment. At the present time, the commitment is implemented through a sustainability certifications system, even if the certifications have not fully encapsulated HCV and HCS method. It is important that the certifications standard support the HCV and HCS method because the companies' commitments are talking about the protection towards HCV and HCS area. The issue on the certifications system is worsened by the less stringent standard as well as the violation by the field assessors which created a distrust toward the schemes.

Some private actors from oil palm plantation companies in Indonesia tried to strengthen their commitment by joining the IPOP platform to create a partnership in realizing the sustainability standard. The notable lesson-learned from this partnership was that a platform consists of entirely private actors may not work well within the Indonesian regulatory framework. Thus, the government involvement in a partnership is much more than a meeting participant but as an influential actor in the decision making.

With many people seeing individual commitment as a necessary-but-not-enough step, the stakeholders in the palm oil industry are trying to enhance the influence by stepping up into the jurisdictional approach. However, the existing model of this approach cannot promise a total protection to the forests, since the risk of leakage deforestation to other sector and location still appears. To this date, the approach has not settled in a firm configuration, and the concept is still evolving as more discussions and cooperation are conducted.

4.5 Linking the regime and the niche

The impact of an industry's action on the regulation in a country is connected to its contribution to the national development (interviewee 4). Because the palm oil industry is an influential economic sector in Indonesia, any changes in the business practices would draw a reaction from the national government, including this zero-deforestation commitment.

Corporate zero-deforestation pledges as a social innovation are diffused in an analogous route as technology substitution (Geels 2005). The technology substitution route is marked by a sudden breakthrough in the regime which led the socio-technical system to adjust to the new innovation.

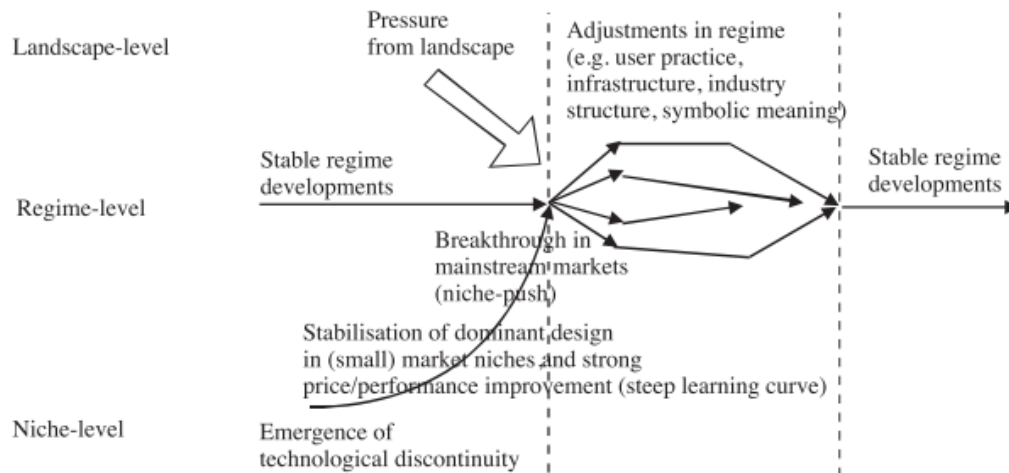


Figure 4.12 Technology substitution route in innovation system (Geels, 2005)

Based on the illustration above, currently, Indonesia is facing “adjustments in regime” stage. People see adjustments in the structure, law system, and user practice influenced by the pledges. The changes in user practices are showcased through a big palm oil company’s decision, in which they decided not to expand the plantation.

Two apparent transformations in the country’s policies, which influenced by the pledges, are the improvement of ISPO regulations and the integration of HCV principles into the new regulations. The symbolic meaning of forests is no longer heavily concentrated around the economic interests only. Complaints over conservation activity outside the conservation forests area have led the government to integrate the HCV principles into a new act, which is currently being discussed. Since palm oil companies are going to a higher sustainability standard, i.e., the protection of both HCV and HCS area, not merely HCV area, the companies demanded the ISPO policy to also consider the dynamics of market pressures. Pressures from the companies and also problems around the national certification standards have brought the government to improve the previous regulation.

5 Conclusions and Recommendations

This study was carried out to find out whether the corporate zero-deforestation pledges have brought changes to the future of forests protection in Indonesia by examining the pledges in a Multi-Level Perspective framework. This chapter presents the final conclusion of the research in relation to the research questions stated in the first chapter.

5.1 Conclusions: Answers to the Research Questions

The main research question for this study was:

Are zero-deforestation pledges a promising effort to change unsustainable practice linked to land clearing activity in the global supply chain of the palm oil industry?

From the analysis undertaken in this study, it can be concluded that the corporate zero-deforestation pledges have influenced changes in the palm oil industry system, hence they are considered to be a promising tool to protect the forests, although the changes are occurring in a slow manner. How the pledges promoted the changes are detailed in the answers of the sub-research questions below.

1. *What pressures have led to the emergence of zero-deforestation commitment in the palm oil industry?*

The growing awareness of climate change and biodiversity destruction due to forests loss have led to the creation of the zero-deforestation commitment. In the beginning, the commitment was declared by governmental actors. The escalation of brand-shaming campaigns toward the companies along the palm oil supply chains, i.e., palm oil companies that own plantation and/or mills, consumer good companies, and retailers, have pressured the private actors to embrace the zero-deforestation commitment to their companies' policies.

2. *How does the current Indonesian government responds to the zero-deforestation commitments that have been individually or collectively pledged by private companies?*

The development of individual commitment with respect to zero-deforestation goal in Indonesia have created a joint commitment, Indonesian Palm Oil Pledge or IPOPOP. The companies that were signing the pledge decided to strengthen the cooperation by creating a legal basis for their platform, which met with resistance from the government. The government and the smaller plantations companies which serve as the companies' suppliers raised a suspicion over cartel practice by the giant companies under the IPOPOP platform.

IPOPOP was later disbanded, but its former members promised to keep their commitment on the sustainable palm oil. After that, there was no resistance from the government and other business actors on the individual commitments. It is assumed that the individual commitments are less intimidating for the other actors in the palm oil industry.

The corporate commitment to halt deforestation has encouraged transformation in the regulation system in Indonesia. The decision to include HCV approach and ISPO empowering program were part of the changes in the regulation due to the zero-deforestation commitments from the companies. In addition to those adjustments, the

government of Indonesia has started to acknowledge the role of the independent smallholders in the palm oil supply chains, as opposed to the previous notion that all smallholders were included in the plasma scheme. The smallholders were also discussed in this study because the zero-deforestation commitment required transparency in its implementation, which was translated as a traceability in the palm oil products.

Aside from what the corporate commitments have brought to the national regulations, the regulations were also influenced by REDD+. REDD+ is an international agenda consists of governmental actors under UNFCCC which prompted a new policy in Indonesia to protect primary forests. The policy was announced as a moratorium in order to delay any new permit to convert the primary natural forests.

3. *What components (e.g., regulations, norms) constitute the current socio-technical system of the palm oil industry in Indonesia?*

The socio-technical system of the palm oil industry consists of these items: regulations and policies, markets and user, culture and symbolic meaning, infrastructure, and production system and industry structure. Those items encompass political structure and interests, land allocation regulation, biofuel policies, palm oil business license, conservation policies, nucleus-plasma scheme, and economic interests of forests and palm oil.

Palm oil is an important commodity to Indonesia because of these several reasons: high demand from the global market, the industry is a significant contributor for state revenue, and the plants grow better in Indonesia than its native habitat in West Africa. The actors involved in the system are the government, NGOs and CSOs, palm oil companies, palm oil buyers, smallholders, research institute, universities, and financial support institutions.

4. *What are the barriers and supports for the implementation of corporate zero-deforestation pledges in Indonesia?*

There are differing definitions of forests which caused confusion and misinterpretation in the zero-deforestation commitment in general. The government of Indonesia uses land allocation regulation in which the area is divided into forests and non-forests area. Deforestation, according to the Indonesian law system, occurs as an illegal forests clearing practice in the forbidden area. Moreover, overlapped land allocation between the government institution, such as between the national land agency and the local government, is also identified as a cause of deforestation due to the unclear responsibilities. Some actors also have identified the unavailability of urban land-use planning as one of the root causes of the overlap allocation. In addition, the tendency to create local cronies and dynasties by the local government has led to corruption and nepotism practices to facilitate the issuance of permits for forests clearing on protected area.

Another barriers to the implementation of corporate commitments come from the current regulation on smallholders and biofuel. The government imposes less strict standards on the smallholders by exempting them from the mandatory concession permits. Even though the idea was to improve smallholders' productivity, the less strict standards have caused insufficient smallholders' data.

Aside from that, Indonesia's biofuel target and biofuel exemption from the obligatory national certificates have provided a room to expand the plantation without considering environmental values. The segmented market demand also contributed to the inefficient

diffusion of the commitment. The demand for sustainable palm oil is concentrated in the western market. Other markets are still accommodating unsustainable palm oil. The goal for sustainable palm oil production would get more support if the plantation companies supplying their products to a specific market that demands sustainable product.

Another barrier is exhibited by the on-ground management issue of smallholders. The smallholders' inability to obtain land legality document has obstructed the effort to halt deforestation. A study found that it has led to a greater possibility of forests clearing for agriculture at another location. By having legal land ownership documents, the smallholders could get an access to good planting materials, with which they can intensify crops production without the need to clear new area to open new plantations.

As for now, sustainable palm oil and the zero-deforestation commitments are implemented through a certifications system. The RSPO and ISPO, the widely known certificates, cannot guarantee a full achievement of HCV and HCS protections since their principles and criteria have not fully incorporated the HCV and HCS approaches. Skepticism against the certifications was raised by the monitoring agencies (mainly NGOs) and have led to a conclusion that the certificates are necessary but not enough to achieve the forests protection goal.

Hopes were raised when some supporting factors for implementing the zero-deforestation emerged. In a general context of the zero-deforestation in Indonesia, not only related to palm oil-driven deforestation, moratorium policy and raising initiatives of jurisdictional approach are the supporting factors of a broader influence of the zero-deforestation commitments. The adjustment of some government regulations has supported the corporate commitments, i.e., the formation of *Kawasan Ekosistem Esensial* (KEE)'s policy and the ISPO empowering program, although both are still in a discussion. In addition to that, due to the pressure to present a full traceability system, plantation companies start to develop a proper documentation of their suppliers, including smallholders. Exposing a company's activity has helped consumers to choose the sustainable products, which drive plantation companies to act sustainably.

So far, the palm oil industry socio-technical systems are still evolving. To a greater extent, the currently available initiatives are insufficient to completely change the regime, especially considering the climate goal. However, those ideas have helped shaped the system towards a more sustainable palm oil production.

5.2 Recommendations for further research

One recommendation is to utilize the Technological Innovation System (TIS) framework to analyze the innovation because of the reason as mentioned under section 2.3. For a further study, it is recommended to investigate the evolution of the jurisdictional approach and contrasted it to a sustainability transitions framework. It is also interesting to examine how this model would provide support for the smallholders, allegedly the barrier to the implementation of the zero-deforestation commitment. Another suggestion is to expand data sampling in the interview process by including small companies supplying to major palm oil companies and smallholders. The additional interviews would give more diverse perspectives and input on grassroots issues regarding the supply chain initiatives. Another interesting dynamic that is useful for a further study is an analysis of new ISPO regulation when it is officially implemented, and whether the new policy can act as a national level of jurisdictional approach.

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Appendix 1

Law of the Republic Indonesia Number 39 2014 about Plantations

Article 16

(1) The Company shall endeavor Land Plantation Plantation:

- a. no later than three (3) years after granting the status of land rights, the Company shall endeavor Plantation Plantation Land at least 30% (thirty percent) of the area of land rights; and
- b. no later than 6 (six) years after granting the status of land rights, the Company shall seek the whole vast plantation land rights which technically can be planted Plantations.

(2) If the land is not cultivated plantation in accordance with the provisions referred to in paragraph (1), a field that has not been cultivated plantation land was taken over by the state in accordance with the provisions of the legislation.

Minister of Agriculture Indonesia Regulation Number 11 2015 about Indonesia Sustainable Palm Oil

Article 2

(2) The mandatory implementation of ISPO as mentioned in paragraph (1) is applied for:

- a. Plantation companies with processing mills business, as attached in appendix II of this regulation;
- b. Plantation companies with plantation business, as attached in appendix III of this regulation;
- c. Processing mills business companies, as attached in appendix IV of this regulation.

(3) The voluntary implementation of ISPO as mentioned in paragraph (1) is applied for:

- a. Plasma plantation business;
- b. Independent plantation business;
- c. Plantation companies supplying palm oil for renewable energy.

Appendix 2

Palm oil processing steps

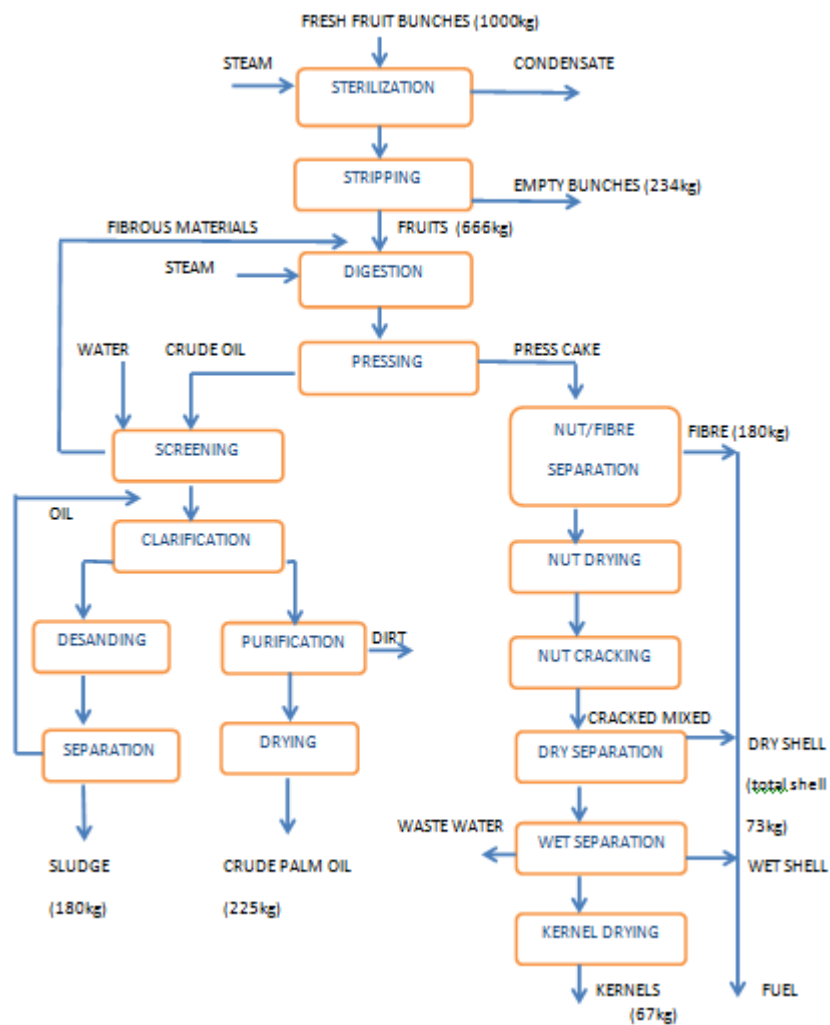


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