POLICIES, DRIVERS AND LAND-USE TRENDS IN INDUSTRIAL FOREST PLANTATION DEVELOPMENT IN INDONESIA

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ABSTRACT

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Demand of forest products has consistently increased and will continuely to do so. Meanwhile, natural forests production has decreased during last few decades. As a consequence, industrial forest (IF) plantations have been recognized as a viable option to supply forest products needs. Indonesia has been important country in producing tropical timber and has a lot of potential in developing forest plantations. Within Indonesia, East Kalimantan is an important area for Indonesian IF and its future development. This research has a general goal reviewing the context and drivers of change in forest uses in the IF plantations in Indonesia, understanding how IF has evolved in East Kalimantan, and exploring the role of provincial and local policies in IF development. Two approaches have been conducted to achieve this goal. First, a desk study examined related policies and regulations, statistical data, and documents to provide the context for IF expansion. Next, interviews with relevant stakeholders were conducted to understand the application of written policies and regulation in the field, as well as to review the challenges and the opportunities faced by the stakeholders in IF. Problem in land tenure and access to financial resources are the two major factors hindering in IF development. Several actions by the Government of Indonesia have addressed these factors. However, concrete results have not yet been seen. Further research on specific cases to land tenure problems in IF and a detailed study on financial challenges in IF development are needed to find the solutions of those two problems.

Key Words: Forest Plantation, LCLUC, Land Tenure, Financial Assistance, Policy, Indonesia

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KEY TO ABBREVIATIONS

AMAN : Indigenous People Alliance of the Archipelago

APP : Asia Pulp & Paper

APRIL : Asia Pacific Recources International Holdings

ASEAN : Association of Southeast Asian Nations

BEI : Banking Environment Initiative

BLU-BPPH : *Badan Layanan Umum-Badan Pembiayaan Pembangunan Hutan* (Forest Development Funding Agency)

BPN : *Badan Pertanahan Nasional* – National Land Bureau, Indonesia

BPK : *Badan Pemeriksa Keuangan* (Financial Audit Board)

BPPHP : Production Forest Utilization Monitoring Center

BPS : Badan Pusat Statistik (Indonesia Statistics Agency)

BUMD : *Badan Usaha Milik Daerah* (region-owned company)

BUMN : *Badan Usaha Milik Nasional* (state-owned company)

CGF : Consumers Goods Forum

CPO : Crude Palm Oil

DoF : Department of Forestry

DPD : *Dewan Perwakilan Daerah* (Regional Representative Council)

DPR : *Dewan Perwakilan Rakyat* (People's Representative Council)

DPRD : *Dewan Perwakilan Rakyat Daerah* (Regional Legislative Body)

DR : *Dana Reboisasi* (Reforestation Fund)

FAO : Food and Agriculture Organization of the United Nations

FDI : Foreign Direct Investment

FIP : Forest Investment Program

FMU : Forest Management Unit also known as Kesatuan Pengelolaan Hutan (KPH)

FORDA : Forestry Research Development Agency

FSC : Forest Stewardships Council

GDP : Gross Domestic Product

GFTN : Global Forest Trade Network

GRDP : Gross Regional Domestic Product

HD : *Hutan Desa* (Village Forest)

HCS : High Carbon Stock

HCV : High Conservation Value

HGU : *Hak Guna Usaha* (Cultivation Rights)

HHPH : Forest Products Extraction Permit

HPH : Forest Concession Rights (selective logging)

HTI : *Hutan Tanaman Industri* (Large scale industrial forest plantation)

HTR : *Hutan Tanaman Rakyat* (Smallholder/people forest plantation)

HKm : *Hutan Kemasyarakatan* (Community Forest)

IF : Industrial Forests Plantation

IFC : International Finance Corporation

IFCC : Indonesian Forestry Certification Cooperation

ITTA : International Tropical Timber Agreement

ITTO : International Tropical Timber Organization

IUP : *Izin Usaha Pertambangan* (Mining Business License)

JATAM : *Jaringan Advokasi Tambang* (Mining Advocacy Network)

JKPP : *Jaringan Kerja Pemetaan Partisipatif* (Participatory Mapping Network)

LCLUC : Land Cover and Land-Use Change

MoEF : Ministry of Environment and Forestry, Indonesia

MoF : Ministry of Forestry

MPR : Majelis Permusyawaratan Rakyat (People's Consultative Assembly)

MSU : Michigan State University.

MSS : Multisystem Silviculture.

NASA : The National Aeronautics and Space Administration

NTFPs : Non-Timber Forest Products

NGO : Non-Governmental Organization.

OJK : *Otoritas Jasa Keuangan* (Financial Service Authority)

PAD : *Pendapatan Asli Daerah* (local revenue).

PEFC : Program for the Endorsement of Forest Certification.

PHPL : *Pengelolaan Hutan Produksi Lestari* (Sustainable Forest Management Certification)

PMA : *Penanaman Modal Asing* (Foreign Investment)

PMDN : *Penanaman Modal Dalam Negeri* (Domestic Investment).

PMN : *Penyertaan Modal Negara* (State Capital Participatory).

PNBP : *Penghasilan Negara Bukan Pajak* (Non-Tax State Revenue).

PP : *Peraturan Pemerintah* (Government Regulation) with year of promulgation

PSDH : *Provisi Sumber Daya Hutan* (Forest Resources Provision Fee)

PT : *Perseoran Terbatas* (Joint-Stock Company)

RAPP : Riau Andalan Pulp and Paper.

REDD+ : Reducing Emission from Deforestation and Forest Degradation, adding the elements of sustainable management of forest, enhancing forest carbon sinks, and biodiversity conservation.

RGM : Raja Garuda Mas group.

RGE : Royal Golden Eagle group.

RKT : *Rencana Kerja Tahunan* (Annual Work Plan)

RKU : *Rencana Kerja Umum* (General Work Plan).

RPH : *Rekening Pembangunan Hutan* (Forest Development Account).

SFM : Sustainable Forest Management.

SMF : Sinarmas Forestry.

TLVS : Timber Legality Verification Standard.

TPTI : Tebang Pilih Tanam Indonesia (Indonesia selective logging silviculture system)

UU : Indonesia Law with year of enactment

UNFCCC : United Nations Framework Convention on Climate Change.

WWF : World Wild Fund for Nature

CHAPTER 1
INTRODUCTION

1.1. Problem Statement

Global investment and policy shifts in biomass-based fuels, coupled with economic growth in emerging markets related to use of natural resources are important megatrends creating a transformative impact over global Land Cover/Land-Use Change (LCUC) (Skole and Simpson (2010). These megatrends have triggered significant geographic shifts of industrial wood production from temperate to tropical regions (Obidzinski and Chaudhury, 2009). A recent Michigan State University (MSU) NASA funded project to monitor and map the extent and shifting geographies of Industrial Forests (IF) in the tropics noted that IF development is a potentially new aspect of land use and cover change in the tropics, that so far has not been well document, quantified nor understood.

Industrial forests are defined as 'areas dedicated to the cultivation of trees that end up being harvested or treated to satistfy direct or indirect human consumption needs (Rodriquez et al., 2014). Industrial forest management can come into two different forms, 1). natural forests harvesting or 2) plantations. Natural forests harvesting involves removal of trees or tree stand from natural forests, through selective logging or clear cutting methods (Meijaard et al., 2005; Gaveu et al., 2014). Meanwhile, there are various terms used by different countries and organizations for industrial forest plantation, however, a term agreed by FAO, ITTO, CIFOR, IPCC, UNEP and IUFRO (2002) is widely used.They define forest plantation as 'forest stands in which trees have been established by planting and/or deliberate seeding or coppicing with either native species or non-native species that meet all the following criteria: one or two or a few species, even-aged, and; regular spacing. This study focuses on the second type of forest management, which in this context is called industrial forest plantations

management (IF). The study specifically referred IF as an area designated by the Government of Indonesia (GoI) as forest plantation (HTI and HTR) located in the permanent forest area.

Current trends show demand of forest products is increasing about 1.7 percent annually, with an expected increase of about 40 percent in the next 25 years (FAO, 2010; Katila, 2011). Hence, the International Tropical Timber Organization (ITTO) (2009) reported that the annual growth rate of industrial forest plantation area in Asia and Pacific is 9.4 percent with total area of 54 million hectares, 80 percent of which is from tropical forests. Meanwhile, the Indonesian government has allocated about 10.9 million hectares for industrial forest plantations (Ministry of Environment and Forestry, 2015). And, Forest Watch Indonesia (2009) reported in 2007 that established industrial forests in Indonesia fulfilled 30 percent of the 30 million m^3 material needed for pulp and paper production. Several authors have concluded this raises the possibility that a large portion of pulp and paper material is sourced from natural forests (Pirard and Cossalter, 2006; Pirard and Irland, 2007; Obidzinski and Dermawan, 2012).

The ultimate decisions over forest use are still very much controlled by the national government especially the Ministry of Environment and Forestry (MoEF)[1]. Local governments still have important roles in issuing recommendations and approvals over forest-use planning, while the local Office of Regional Land (Badan Pertanahan Nasional - BPN) holds sway over land certification, issuance of non-permanent forest land-uses, and land-uses monitoring (Myers and Ardiansyah, 2014).

Given multiple actors influencing land allocation in forest-use management, there are

[1] There are various names of the Government of Indonesia (GoI) organization responsible for the forestry issues. The development of organization names overtimes is: Directorate General of Forestry, Department of Agriculture (prior to 1983); Department of Forestry (1983-1998); Department of Forestry and Plantation (1998); Department of Forestry (1998-2005); Ministry of Forestry (2005-2014); Ministry of Environment and and Ministry of Forestry (2014-now). Various names according to the official usage in respective timeline will be used to refer the GoI agency responsible to forestry issues.

potentially problems in policy consistency and coordination between government agencies and between governments at different levels (national, provincial, and local) over IF implementation. For example, East Kalimantan has allocated 4.1-million hectares of land to production forest, all of which could be used for IF plantations. Yet managers of Kalimantan's plantations still face market uncertainty and potential consolidation of small companies to big players such as Sinarmas and Royal Golden Eagle (RGE) companies in the pulp and paper sector (Pirard and Cossalter, 2006; MoF, 2014). Poor implementation of decentralization has also created complications in developing large scale plantations (e.g. complicated land permits issuance, land tenure uncertainty, poor law enforcement, etc.) (Obidzinski and Barr, 2003; Varkkey, 2013; Casson et al., 2014).

In addition to policies on land-use and land-allocation , policies on investment incentives, and trade and commerce also influence the development of bioenergy production systems, which may include forest plantations (Casson et al. 2014). Lemos and Agrawal (2006) identified market-agent based instruments, international environmental governance, and decentralized governance as major factors that drive current natural resources management, including IF. Often, forest industry is viewed from the upstream side (forest extent and tenure, trends in plantation establishment, industry structure and location, local policies, competiveness of industrial forest v. alternative uses) to the downstream side (markets – national and international, national policies, and investments factors). Upstream and downstream factors will be examined in this thesis.

1.2. Research Questions, Objectives, and Study Approach

Obidzinski and Chaudhury (2009) noted that an analysis of timber plantation policy is critically needed in order to support sustainable management of IF. They noted that a solid baseline of the current situation for timber plantations is needed to draw better future projections of IF in Indonesia. Analyses of forest tenure, government and company policies,

and market conditions are important points for establishing an IF baseline. Therefore, the first goal of this study is to assess current conditions, the national policy context and drivers of IF land cover change.

While the first goal is aimed at understanding IF expansion at the national scale, the second goal of this analysis is to develop a sub-national case study in East Kalimantan aimed at understanding IF land cover change and the role of provincial and local policies. The two following research questions address these goals:

1. What factors drive IF development in Indonesia, and specifically in East Kalimantan?
2. What are the barriers and opportunities for IF development in the study area?

Two tasks are needed to expand our understanding of these goals. First, it is helpful to complete an analytical assessment of forest investment targets and policy for IF production areas by identifying key policies and locations for IF production using policy analysis and forest investment information. The aim here is to identify those locations where forest policy is conducive or facilitative of IF investment, as well as locations of current and future planned IF plantation investment targets. The purpose of this analysis is to supplement collected data from statistic information to identify areas not currently showing up in the statistical databases.

The second task involves a pattern to process analysis. In other words, an analysis of national policy on commercial forest governance and concessions helps assess changes in investment opportunities; specifically, previous bottlenecks or constraints to IF commercial forestry development are examined, both at national and provincial level. These bottlenecks, if overcome, may result in increased finance, improved land tenure rights, increasing technical capacity and management of IF plantations, growth in financing mechanism for IF commercial plantations, and so on. These are leverage points from which we can evaluate why IF areas may be expanding in Indonesia and more broadly in the Asia-Pacific region.

Additionally, governance, policy and finance reports and information may help explain what drives expansion of new larger plantations versus many small plantations.

To create comprehensive discussion, the analysis focuses on four specific objectives. The objectives are to:

1. Identify the transformation and policy drivers of Indonesia's industrial forests over time (chapter 2),
2. Identify the geographic extent, governance, and land tenure characteristics of IF in Indonesia (chapter 3),
3. Examine via a case study IF at the sub-national level in East Kalimantan (chapter 3), and
4. Describe the role of IF in shaping Indonesia's economy (chapter 4).

1.3. Expected Results and Broader Impact

Expected results from this study include development of a framework for describing the context and drivers of industrial forest change in Indonesia, with enough generality to apply the framework broadly in other countries (i.e., structure of chapters 2-4) and identification of problems that need to be addressed that arise from IFs (land conflict, uncertain land tenure, etc.), usually as a consequence of inadequate land-use planning.

This research will also help address related problems in other countries with significant the tropical forests by providing a case study for comparative analysis.

1.4. Research Approach and Methods

The study use two different approaches, a desk study of IF trends, drivers and related policies, and a case study in East Kalimantan based on on a survey of actors involved in IF. The desk study identified known broad policies related to IF development and management. This phase covered the synthesis of policies in Indonesia related to industrial forest plantation

and different land-use planning from multi-level governments and different agencies. Also, quantitative data on the extent of forests and IF were compiled and reported. Information has been collected specifically from following sources (Cowling et al., 2014):

a. Other parties' assessments related to IF policies and land-uses development, including NGO's, government agencies, and academic reports
b. Indonesian officials' data statistics
c. Related Indonesian laws and policies
d. Gray literature
e. Media reports

The case study is based on eight interviews conducted in Jakarta and East Kalimantan to improve understanding of Indonesian government policy for promoting IF development in East Kalimantan (Table 1). The interviews highlighted the complex interplay in the application of IF related policies. The method involved in-depth interviews and/or questionnaires with purposive sampling to relevant stakeholders, *inter alia* local government, national government, private and public companies and NGOs (Angelsen et al. 2014).

The interviewees were selected using purposive sampling and snowball approaches through intensive consultation with MoEF, where a ministry-wide representative sample of pre-identified key players in industrial forest plantation descision making in government, industry, and non-governmental organizations were interviewed. The interviewees were asked if they would suggest other potential stakeholders to be approached for interview.

Interviews were conducted over a two-month period in mid-2015. Each interview included a structured set of 13 questions (Appendix A). The structured questions provided an interview framework, but individual respondents answered some, but not all questions, and provided additional insights. Seven of eight interviews were face-to-face with one phone interview. The interviews targeted national, regional and provincial level government

officials familiar with IF policies and implementation. In addition, two private enterprise managers, representing major forest plantation companies, were interviewed along with one NGO representative.

Table 1. List of affiliations of eight stakeholders interviewed

No.	Agency	Group
1	Ministry of Environment and Forestry – Directorate General of Sustainable Forest Management (PHPL)	Government – national level
2	Ministry of Environment and Forestry – Directorate General of Social Forestry	Government – national level
3	Production Forest Utilization Monitoring Center (BPPHP) Regional XIII	Government – regional level
4	East Kalimantan Forestry Service Office	Government – provincial level
5	Indonesian Association for Forest Concession Holders (APHI)	Private enterprise
6	Sinar Mas group company – Sinarmas Forestry (SMF)	Private enterprise
7	Royal Golden Eagle (RGE) group - APRIL - RAPP	Private enterprise
8	World Wide Fund for Nature – Global Forest Trade Network (WWF – GFTN)	NGO

1.5.Thesis Organizations

This thesis is organized into five chapters. Chapter 1 provides the context and framework of how the study has been carried out. Chapter 2 presents stages of industrial forest development in Indonesia, including the drivers and policies associated with the stages in IF. Chapter 3 describes the Indonesian forestry governance structure in different political regimes, the geographic extent of forest plantations, as well as land tenure and conflicts occurring in the IF areas. In addition, an examination and analysis of IF practice at sub-national level is presented to understand the dynamics of IF practice at the local level, and its connection to wider-scale policy. An external factor, particularly from economy, trade and sustainable practice of forest management demands from international community is described in Chapter 4. Finally, a summary of key policies on IF and its impact to forest

plantation development is presented in Chapter 5. A synthesis of the discussions in this thesis also presented in the last chapter.

CHAPTER 2

INDONESIA FOREST MANAGEMENT TRANSFORMATION: NATURAL FORESTS CONCESSION TO INDUSTRIAL FOREST DEVELOPMENT

2.1.Forest Land Transformation History: Five stages of Industrial Forest Management

Lindayati (2002) divided forest management policy into two models: 1) state-based forest management, where the state and private firms act as major players promoting the forest sector with the aim of enhancing its role in the national economy, and 2) community-forest-based management, a more decentralized model in which people who live in or proximate to forest concession areas and thereby play a major role in managing the forest with the aim of using the forest resource to support their livelihoods. From a temporal perspective, Indonesia forest management policy, and the political influence on policy, can be segmented into four periods: 1) forest management during the Dutch colonial era (1816 – 1942), 2) the old-order era (President Soekarno's regime, 1945-1965), 3) the new-order era (President Soeharto's regime,1967-1998), and 4) the reformation era (1999 onwards) where decentralization of forest governance occurred.

More complex factors (e.g., social movements, human rights issues, government regimes, and forest governance) influencing forest industry can be used for typology as well. Five stages of Indonesian industrial forest development, adapted from Gadgil and Gudha (2000) who identified four stages in India's forest industry, are presented. Gadgil and Gudha (2000) identified four stages stages in development of India's forest industry, which track closely with Indonesia's historical development timeline. The five stages of forest development for Indonesia are: i) the development of natural forest concessions, ii) emergence of large-scale forest plantations, iii) creation of the smallholder plantation system, and iv) creation of captive plantations, and v) the "new concession" model (Figure 1). To

analyze the development of industrial forest plantations in Indonesia, it is helpful to review each stage of industrial forest management is described to provide a comprehensive context.

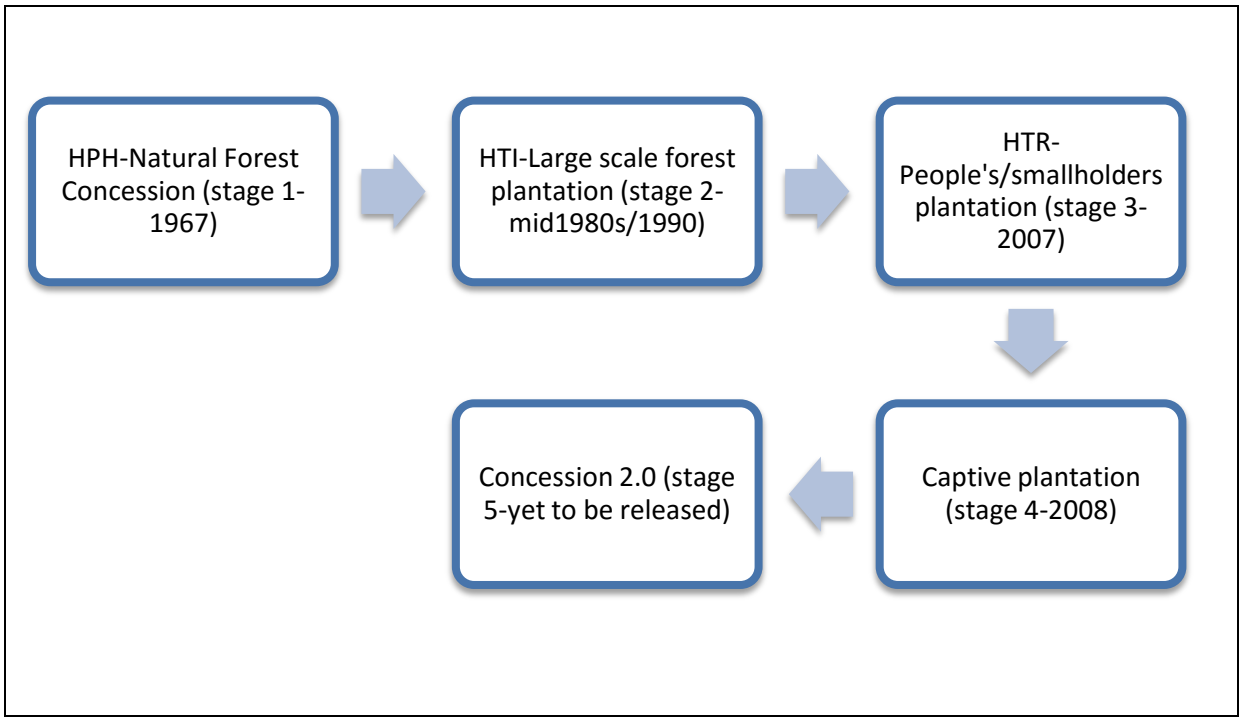

Figure 1. Stages and start years of industrial forest development in Indonesia.

2.1.1. Natural forest selective logging (HPH)

During the first stage, natural forest logging concessions management, Indonesia (as a newly established country in the early 1960s) invested significant resourcesto use the forestry sector as a focal point in its national economic development strategy (Barr et al., 2006). Shortly after President Soeharto became President in March 1967, the Basic Forestry Law (*Undang – Undang Pokok Kehutanan No. 5/1967*) came into force on May 24th 1967. The law provided a fundamental legal basis for Forest Concession Rights (HPH) and Forest Products Extraction Permits (HPHH) for all forest lands outside Java (CIFOR, 2002). Based heavily on past Indonesian forest management principles and concepts, where the forest land base and the forest resource are tightly controlled by the state, the Forestry Ministry transferred concession rights to a state-owned company (*Badan Usaha Milik* Negara - BUMN), a region-owned company (*Badan Usaha Milik Daerah* – BUMD), or a private

company to supervise and manage the forest resources (mostly its timber resources). The rights to work the forest were further explained in the Government Regulation (PP) No. 21/1970.

The rights in concession included activities on logging, forest regeneration, forest condition maintenance, and processing and marketing the forest products. The concessionaires followed Forest Exploitation Work Plans (Rencana Karya Pengusahaan Hutan – RKPH), which were further elucidated in the Annual Work Plans (Rencana Kerja Tahunan – RKT). In addition, the concessionaires of HPH held rights up to 20 years, while HPHH concessionaires could only maintain rights for up to 2 years in 100-hectare permanent forest units. The HPHH concessions were authorized by a Governor. In addition, to maintaining the sustainability of forests, the government required companies to follow selective logging silviculture system (*Tebang Pilih Tanam Indonesia* – TPTI[2]) which applied a 35-year rotation scheme and prohibited harvest of trees under 50 cm diameter.

Agathis (*Agathis spp.*), meranti (*Shorea spp.*), various *Dipterocarpaceae* family and other high-value timber in Kalimantan and Sumatera strongly attracted investors to obtain HPH concessions. Foreign investment was facilitated through Law (UU) No.1 year 1967 on Foreign Investment (*Penanaman Modal Asing* – PMA), and national or local investments were faciltitated by Law (UU) No.11 year 1968 on Domestic Investment (*Penanaman Modal Dalam Negeri* – PMDN). These actions resulted in large increases in the area under forest concession, which in 1967 with only two recorded companies was 270,000 hectares

[2] Different versions of selective logging silviculture were applied to fix TPTI silviculture system methodology. Director General of Department of Forestry was released a decree No. 35/KPTS/DD/1/1972 on *Pedoman Tebang Pilih Tanam Indonesia, Tebang Habis dengan Permudaan Alam, Tebang Habis dengan Penanaman Buatan, dan pedoman – pedoman pengawasannya.* The system then was enhanced through Minister of Forestry Decree No. 484/KPTS-II/1989 on Silviculture System on Production Natural Forests Management. The system then was completed on October 1993 through Director General of Forest Business Decree No. 151/Kpts-BPHH/1993 on TPTI Guidelines.

increasing to 26 million hectares associated with 267 companies (Ruzicka, 1978). Since its peak in the early 1980s and early 1990s, the area and number companies have both declined (Figures 2 and 3). Hidayat (2008) also noted Indonesian log production increased from 5 million m^3 on the end of 1967 to 24 million m^3 in 1974.

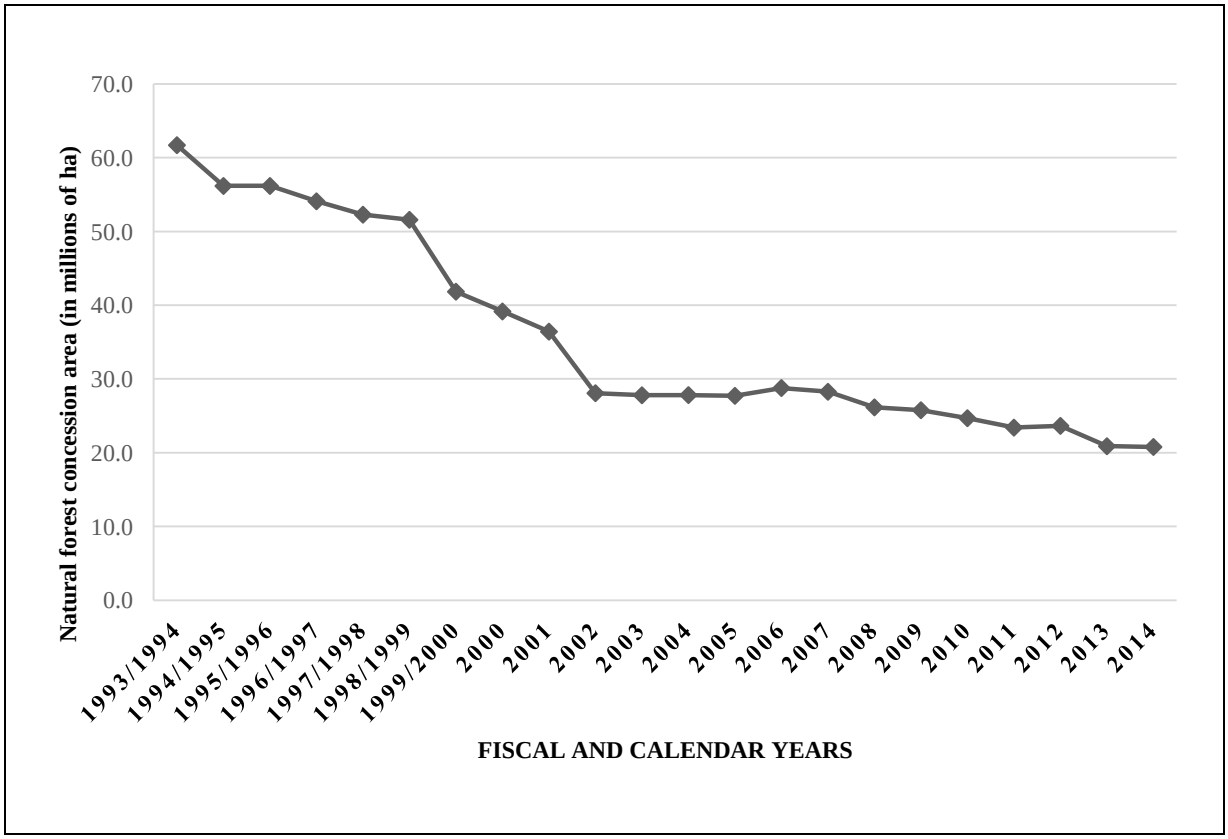

Figure 2. Natural Forest Concession (HPH) area in millions of hectares, 1993/1994-2014 (Source: MoEF, 2015) (Note: Fiscal years are from April 1-March 31).

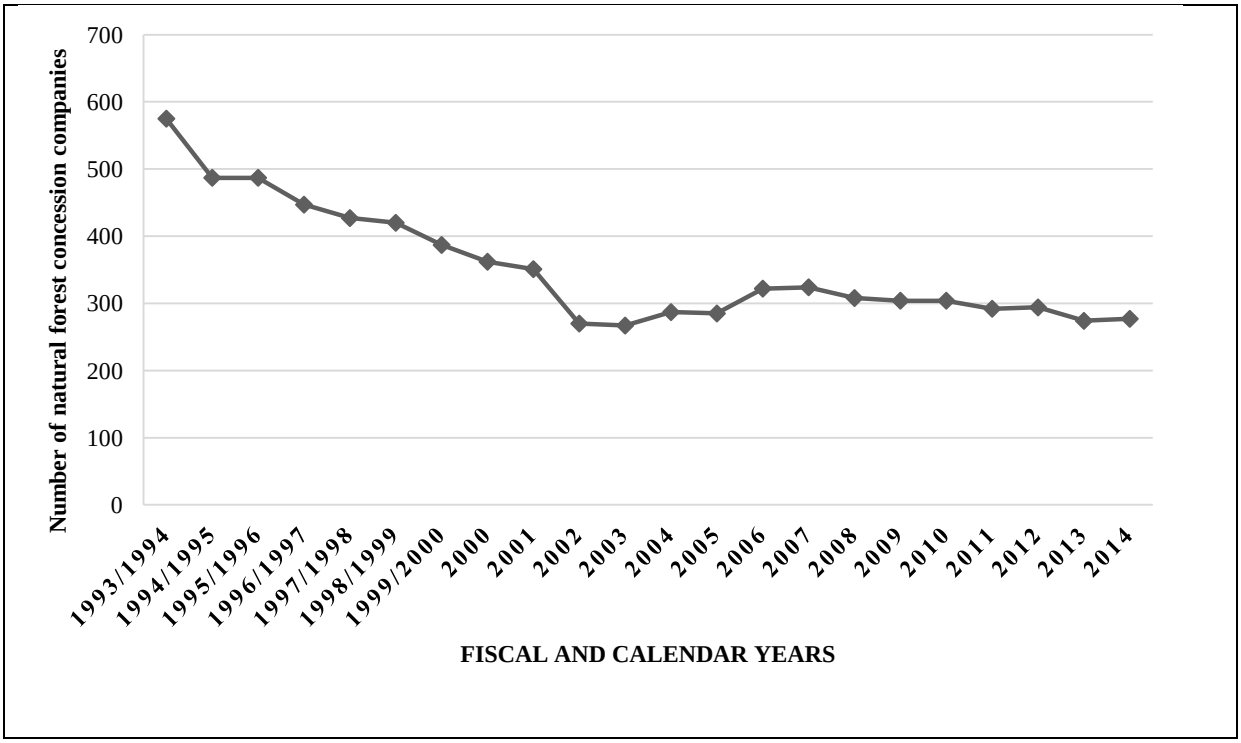

Figure 3. Number of Natural Forest Concession companies, 1993/1994-2014 (Source: MoEF, 2015) (Note: Fiscal years are from April 1-March 31).

In addition, the policy also effectively boosted Indonesia's economic stability in 1968 prior to inflation which reached 650 percent during the end of President Soekarno's regime (Awang, 2006; Hidayat, 2008). Hidayat (2008) noted Indonesia's Net National Income (NNI) from the forestry sector increased from US$ 6 million in 1968 to US$ 564 million in 1974. Forestry played the most important role in the country's GNP after oil and gas (Barr et al., 2006). The policy also had a significant influence on the global scale, placing Indonesia as the major producer of world tropical logs, 41 percent of US$ 2.1 billion of total global market (Hidayat, 2008).

However, Indonesia's massive exploitation of natural forests also brought negative impacts to forest sustainability. In examining differences in Indonesia's deforestation rate during Soerharto's "new order" era (1967-1998), Barr (2006) noted that Indonesia lost about one-third of its forests during that time (Figure 4).

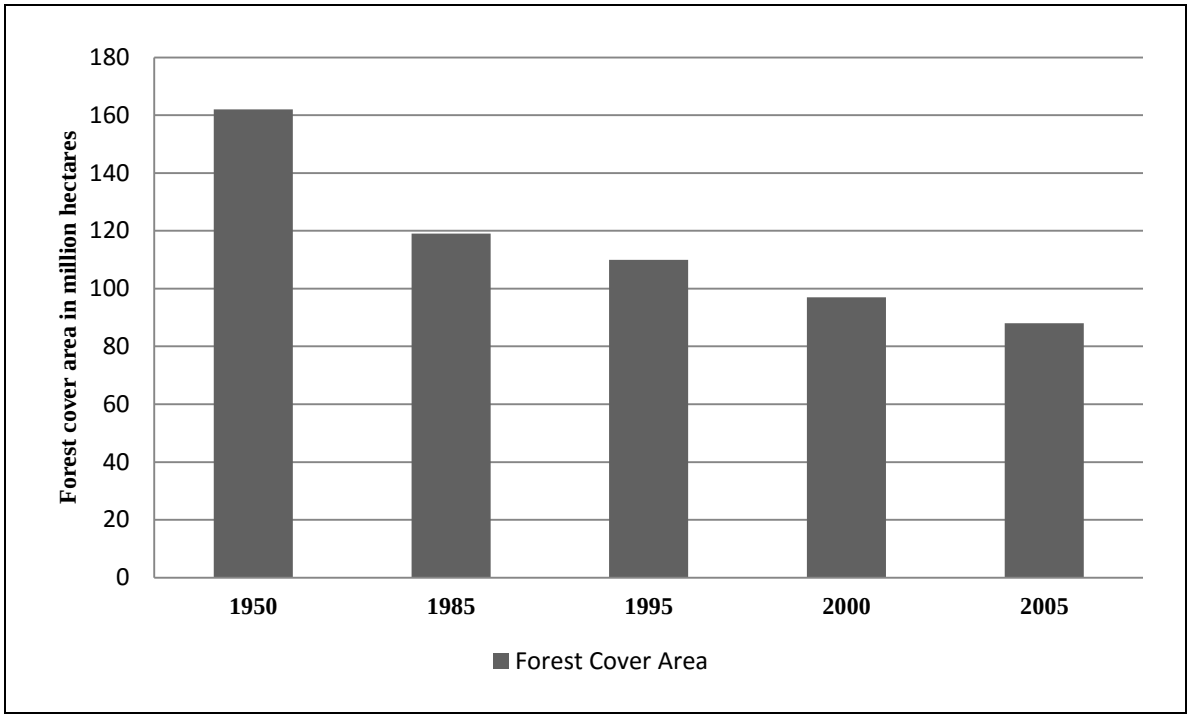

Figure 4. Indonesia forest cover in millions of hectares, 1950-2005 (Source: BPK, 2008).

Major developments in the agriculture sector and transmigration from Java to 'Outer Islands' were major causes of Indonesia's deforestation; poor forest governance (i.e., 'legalization' of illegal logging, corruption by high political elites in forest industries, and over-consumption of forest resources) contributed as one of the biggest causes of deforestation (EIA/Telapak Indonesia, 1999; Barr et al., 2006; Hidayat, 2008). Further, Barr (2006) described the connection between poor sustainable forest management governance practices during President Soeharto's regime and deforestation as:

> *"Indeed, many aspects of the crisis have been a direct outcome of the New Order regime's policies of large-scale timber extraction and industrial development, with relatively little commitment to sustainable forest management. Widespread corruption and ineffective law enforcement have also contributed significantly to the problems in forestry sector"* (Barr et al., 2006).

2.1.2. Large-scale forest plantations (HTI)

Nevertheless, declines in natural forest production and new investments in the pulp and paper industry in the early of 1980s initiated government policies to promote the development of Indonesia second stage of forestry industry, the large-scale industrial forest plantation (MoF, 2008). Industrial forest plantations were known as Forest Concessions on Timber Plantations (*Hak Pengusahaan Hutan Tanaman Industri* – HPHTI; later it changed to Timber Utilization Permit of Plantation Forest (*Izin Usaha Pemanfaatan Hasil Hutan Kayu – Hutan Tanaman* - IUPHHK-HT). However, many academic texts referred to this type of forest management as HTI, the acronym used from this point forward, to describe this type of forest plantation.

Industrial forest plantations were first developed by the Dutch colonial government to provide Netherlands' logistical support for World War II (Lette et al., 1998). During President Soekarno's time, 'outer islands'[3] forests were untouched by any industry activities (Peluso, 1983). The situation remained the same early in Soeharto's time, when Indonesia's forest industry focused on natural forest logging. The modern industrial forest plantation era was started in the early 1990s to utilize Indonesia's 'outer islands' land resources that were subsequently depleted of natural forests (Barr et al., 2006).

HTI is a plantation forest managed by a state-owned company, private company, cooperative, and/or joint venture among those parties. The initial regulation on HTI was a Government Regulation (PP) No.7/1990, where the aims were: 1) to support domestic industrial forest development for increased value-added from forests and foreign exchange, 2) to increase land productivity and environment quality, and 3) to increase the employment rate

[3] The 'outer islands' term was referred to as the forest outside Java, Madura, and Bali during early Indonesia independence period. The term reference has changed, where it now refers to the islands that are connected to the international border (President Regulation N.78/2005; Barr, 2008).

and business activity. Substantially, HTI arose as an effort to maintain Indonesia's status as major player in world tropical timber and to boost employment and state revenues, as well as to overcome natural forest limitation as timber production declined (Barr, 2000; BPK, 2008).

There are several differences of HTI activities defined in the first regulation PP No. 7/1990 and later with the Minister of Environment and Forestry Regulation Number (PermenLHK) P.12/Menlhk-II/2015 which referred to Forestry Law Number 41 Year 1999. The first regulation defined the activities of HTI which consisted of planting, maintaining, harvesting, processing, and marketing. Meanwhile, the latter regulation defined the production of HTI activities: land preparation, seeds sowing, tree planting, and maintenance, harvesting, and marketing (Figure 5). Major differences between the two regulations related to the silviculture system used and land management proscritpions.

The first regulation required land management through clearcutting with replanting methods (*Tebang Habis Penanaman Kembali* – THPB). In contrast, the latest regulation allowed the company to apply multi-system silviculture (MSS)[4] to manage the plantations. Agroforestry plantings and practices were also encouraged by the government in the latest regulation in HTI to optimize the land utilization.

[4] Multi-system silviculture is a sustainable forest management system that applies two or more silviculture treatments in one management unit (IUPHHK), with multiple aims such as maintaining and increasing wood production and other forest products, as well as maintaining the production forest area (Indrawan, 2008).

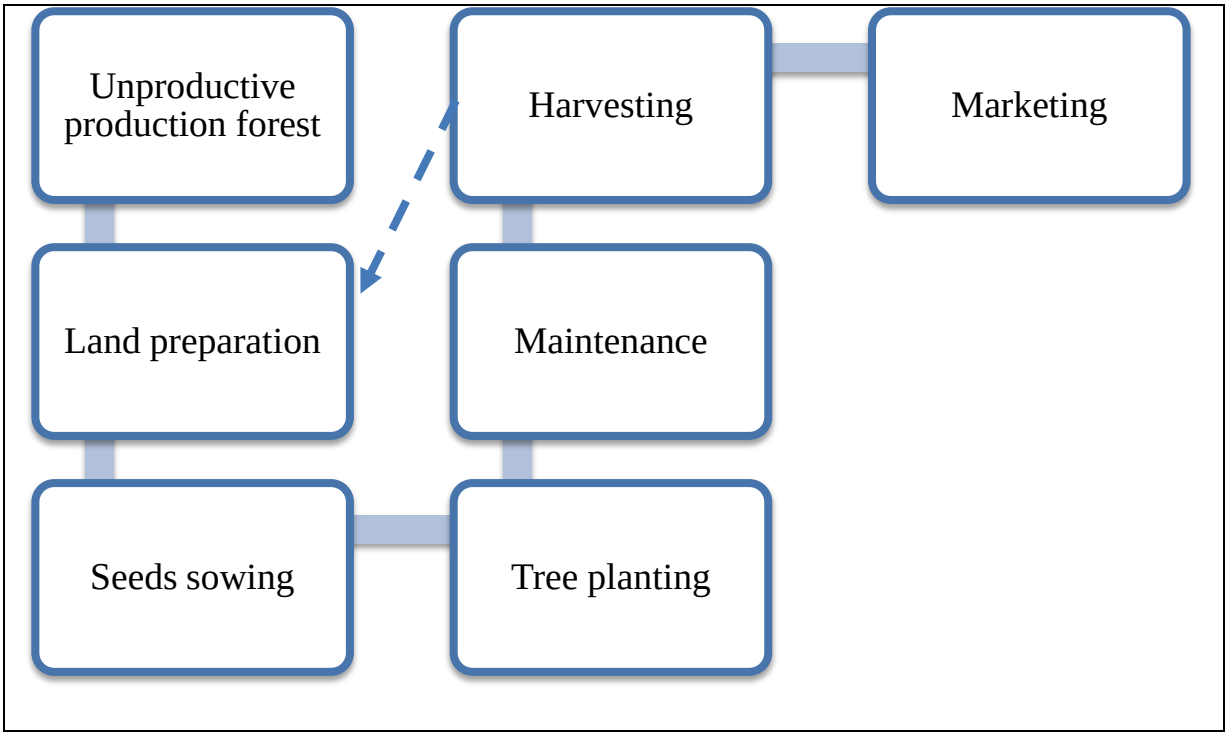

Figure 5. HTI management production process (Source: Minister of Environment and Forestry (PermenLHK) Regulation Number P.12/Menlhk-II/2015).

PP No.7/1990 required concessionaires to establish HTI in a non-productive fixed production forest area. Further, Minister of Forestry in the Minister of Forestry Regulation (Permenhut) P.18/Menhut-II/2004 defined unproductive production forest as:

1. The core trees with minimum diameter 20 cm is less than 25 trees/ha
2. Seed trees is less than 10 trees/ha.
3. The seedlings should be less than 1000 units/ha.
4. The saplings should be less than 240 units/ha.
5. The poles should be less than 75 units/ha.

Meanwhile, productive natural production forests were defined by stocking density and diameter class, distributed by region separately for mineral soils and wetlands (Tables 2 and 3).

Table 2. Category of productive production forest in mineral soils land (Source: Minister of Forestry (Permenhut) P.18/Menhut-II/2004).

Diameter class (cm)	Minimum number of healthy trees per hectare						Location
	Regional						
	I	II	III	IV	V	VI	I. Sumatera
10 - 19	108	108	108	108	108	108	II. Kalimantan
20 - 49	39	39	39	39	39	39	III. Sulawesi
>50	16	15	15	14	17	14	IV. NTB
							V. Maluku
							VI. Papua

Table 3. Category of productive production forest in wetlands (Source: Permenhut P.18/Menhut-II/2004).

Diameter class (cm)	Minimum number of healthy trees per hectare			Location
	Regional			
	I	II	III	I. Sumatera
10 - 19	108	108	109	II. Kalimantan
20 - 49	39	39	39	III. Papua
≥50	12	16	8	

The same criteria were described in the Minister of Forestry Decree (SK Menhut) No. 200/Kpts-II/1994. However, conflicting definitions over time of land criteria where HTI could be established slowed action. The latest Forestry Law Number 41 Year 1999 (article 28 paragraph 1) encouraged mangers to establish HTIs in areas of non-productive (low productivity) production areas that did not satisfy the criteria shown in Tables 2 and 3 above. Later PP Number 34/2012 changed the criteria requiring that plantations be established on vacant land, grasslands, or shrub forests. The regulation was then withdrawn, and the correct explanation of the forest land category where HTI can be established referred back to Forestry Law Number 41 Year 1999. The regulation was then reinforced by PP 6/2007 and PP 3/2008 (article 38 paragraph 3) noting that the HTI was encouraged to be created in non-productive production forests. The regulation, also noted that “unproductive production forest” is reserved forest area for HTI by the Minister.

Meanwhile, along with the log export ban in the early 1980s, the Indonesian government also introduced a fund for reforestation, known as *Dana Jaminan Reboisasi* (DJR), and later changed the name to *Dana Reboisasi* (DR)[5]. The HPH concessionaires were required to make a financial deposit based on the volume logged for each eligible species(Table 4). In principle, the fund is then used by the government to reforest the logged forest, if the company fails to implement its reforestation obligation (Ross, 2001). These funds were to be used on HTI lands. However, the scheme failed because the DR deposit was made by the company, but the government rarely, if ever, reforested these lands (Suhardjo et al., 1988, 1989). The funds later on were distributed to assist HTI development.

Table 4. Reforestation Fund (DR) fee (Source: PP No.92/1999).

Region, species and wood's class	Unit	Rate/Unit
Kalimantan and Maluku		
1. *Shorea* spp	m^3	US$16
2. Mixed hardwood tropical forests	m^3	US$13
Sumatera and Sulawesi		
3. *Shorea* spp	m^3	US$14
4. Mixed hardwood tropical forests	m^3	US$12
Region, species and wood's class	Unit	Rate/Unit
Papua and Nusa Tenggara		
5. *Shorea* spp	m^3	US$13
6. Mixed hardwood tropical forests	m^3	US$10,50
All regions		
1. Ebony (*Diospyros celebica*)	m^3	US$20
2. Natural teak (*Tectona grandis*)	m^3	US$16
3. Decorative woods	m^3	US$18
4. Sandalwood (*Santalum album*)	m^3	US$18
5. Particle raw material	m^3	US$2
6. Wood waste and other specific *sortimen*	m^3	US$2

High risk investments and the significant amount of capital needed to establish plantations drove the GoI to provide loans and capital investments - *Penyertaan Modal Pemerintah* (PMP) from the DR fund (Barr et al. 2009). PMP has had its own controversy.,

[5] The fund was initially set US$ 4.00 per m^3 in average, it was raised US$ 7.00 per m^3 on 1989, US$10 per m3 on 1990, and US$ 16.00 per m3 on 1993 (Ross, 2001; Tambunan, 2007).

When government auditors discovered that HTI execution through the DR fund distribution began in 1990 instead of 1995 as prescribed in the master plan; the auditors concluded that this was proof that the HTI was started in a reckless way by the government (BPK, 2008).

About 98 companies, consisting of 5 BUMN and 93 joint companies between BUMN and private companies, received DR funds to establish HTI in the 'outer islands'. The DR fund, as incentive loans from the government, ceased in 2000 (Department of Forestry Secretary General Decree No.549/II-Keu/2000). The decree to stop the provision of incentives and loans from the DR fund slowed the implementation of HTI development (BPK, 2008). Of the HTI managed by PT Inhutani companies (251,626.99 Ha), 42 percent was cut, burned and occupied by communities (BPK, 2008). Thus, cessation of financial assistance by the national government, and its significant impact on viability of the HTI system, clearly revealed a distortion that was caused by subsidized HTI development. Further discussion on capital investment and loans for HTI development is found in Chapter 4.

Meanwhile, HTI was categorized into two types, i) HTI for pulp and paper, and ii) HTI for other purposes (mostly to produce wood for construction). Pulp and paper manufacturing (the most common HTI) mostly include eucalyptus (*Eucalyptus spp*) and acacia (*Acacia spp*) plantations (Barr et al., 2010; Obidzinski and Dermawan, 2012; Casson et al., 2014). HTI for other purposes use wide range of species, including *Paraserianthes falcataria*, *Anthocephallus cadamba*, and others.

The increase in global demand for pulp and paper has caused the pulp and paper industry to shift from the North America and North Europe to the Asia-Pacific Region (Hujala et al., 2013). The tropical climate supports shorter rotations of plantations relative to the northern hemisphere; this bolsters the Indonesian government's focus on expanding IF plantations (King, 1975; Barr, 2000; Obidzinski and Chaudhury, 2009). As HTI development

was also meant to help achieve the government goals on transmigration, the HTI later became known as HTI-trans. Transmigrated people were then employed in the HTI-trans to support their livelihoods in a new land[6] (BPK, 2008). The choice of HTI type was originally made by the companies. In recent times, the GoI has promoted HTI for bioenergy, and the East Kalimantan Province government has favored this for wood construction material.

Table 5. HTI plantation land allocation and plantation realization area in Indonesia (MoF 2011 as cited in Obidzinski and Dermawan 2012; MoF 2012; MoEF 2015).

Year	Area allocated for IF (ha)	Timber plantation area (ha)	Plantation log production (m^3)
2000	4,501,375	2,755,286	3,783,604
2001	4,578,697	2,857,603	5,567,282
2002	3,523,256	2,925,075	4,242,532
2003	3,804,912	3,043,583	5,325,772
2004	5,910,295	3,168,274	7,329,028
2005	5,967,410	3,300,188	12,818,199
2006	6,467,515	3,463,313	11,451,249
2007	7,087,812	3,695,267	20,614,209
2008	7,154,832	4,108,158	22,321,885
2009	8,673,016	4,413,623	18,953,930
2010	8,975,375	4,693,582	18,566,254
2011	10,046,839	5,150,821	-
2012	12,508,522	5,550,323	-
2013	10,106,540	5,899,213	-
2014	10,539,210	-	-

The Indonesian government released a Road Map for Revitalization of Indonesia's Forest Industry in 2007 as a result of in-house working group experts' meetings in 2006 to counter the stagnation of Indonesia's forest industry after DR was stopped in 2000. The government planned to establish 10 million hectares of planted HTI with an assumed Net Plantable Area (NPA) of 65%, or about 15.4 million hectares of HTI concession area by 2030 (MoEF, 2013). The GDP contribution from the forestry sector was expected to increase 300%

[6] Transmigration is a program initiated by the Dutch colonial government, which has been continued by the Indonesian government to transfer people from highly populated areas such as Java, Madura and Bali islands to less dense islands such as Sumatera, Kalimantan, and Papua. The program aims to solve poverty problems in high density areas.

by 2030 (Obidizinski and Dermawan, 2012). The Indonesian government also targeted pulp and paper raw material to be fully sourced from IF plantation fiber in the next 10-20 years; producing 45 – 65 million ton of pulp, and 40.5 – 56.7 million tons of paper by 2030 (MoF, 2013). Further, specifically to revitalize industrial forest plantation industry, the government also released a Road Map on Industrial Forest Plantation Development. Both roadmaps on the forest industry and Indonesia's Long-term Planning on Forestry are central to the GoI's efforts to increase IF area.

2.1.3. Small-scale/people's forest plantation (HTR)

Land tenure conflict involving industrial forestry is still a constraint for development of industrial forest plantations and has led to the third stage of industrial of forest management. Wulan et al. (2004) have noted three general causes of conflict over forest resources, namely uncertainty of the area of permanent forest, deficient land compensation, and lack of access to the permanent forest area. In other words, forest conflict was often characterized by lack of social justice in forest management. The Ministry of Forestry thus promoted a new scheme that could be viewed as the next stage of industrial forest plantation management in Indonesia, namely "people's plantation" (*Hutan Tanaman Rakyat* - HTR). The main aims of this program were to combat poverty for the forestry community and to provide wider access for the community to participate in forest management (Noordwijk et al. 2007; Bisnis.com, 2014).

Generally, the Indonesian government recognises five different types of community-based forest management (including HTR), namely: 1) village forest (*Hutan Desa*), a certain area of state forests, production and protection functions, managed by the village institutions for the village's welfare, 2) community forest (*Hutan Kemasyarakatan*), a group or combination of groups in the local community that manage certain production and/or protection forests, 3) people's plantation forest (*Hutan Tanaman Rakyat*), a permit given to

individuals and/or cooperatives to manage certain production forest areas for plantation purposes, using acacia, rubber, pine, and other species, 4) people's forest (*Hutan Rakyat*), a forest that is located on private lands, and 5) customary forests (*Hutan Adat*), certain forest areas owned by the community and managed with customary law.

This thesis only focuses on forest plantations where land is worked intensively by planting the trees in a rotation scheme using a specific silviculture system. People's plantations (HTR) fit into this context and are discussed as an example of community forest-based management in industrial forest plantation. The term HTR will be used from this point onward to refer to the people's plantation category.

Hutan Tanaman Rakyat or translated as People's Plantation is "*a plantation forest on production forest built by an individual or cooperative to increase the potency and the quality of production forest by applying silviculture to ensure forest resource sustainability*" (Permenhut P.23/Menhut-II/2007). Six major regulations on HTR have been identified: 1) Law Number 41 Year 1999, 2) PP No. 6/2007 on Forest Governance and Forest Management Planning, and Forest Utilization and Number 3/2008, 3) Permenhut P.55/Menhut-II/2011 Jo. P.31/Menhut-II/2013 on Business's Permit Application Procedures for Wood's Utilization on People's Plantation on Plantation Forest (latest version of previous regulations P. 23/Menhut-II/2007, P.5/Menhut-II/2008), 4) Permenhut P.62/MenhutII/2008 on Work Plan of Forest Product Utilization in HTI and HTR (latest amendment on P.9/Menhut-II/2007 and P.41/Menhut-II/2007), 5) Permenhut P.9/Menhut-II/2008 tentang Requirements on Farmer Group to Receive Loan for HTR development, and 6) Permenhut P.16/Menhut-II/2008 on Criteria of Micro, Small, Medium (UMKM) Bussiness Scale and Cooperative to Receive Credit/Financing with a Guarantee (Nugroho, 2009 as cited in Herawati, 2011).

HTR was first officially mentioned in PP Number 6/2007 Article 1 Paragraph 19, and Article 40. The mechanism was then further detailed in Permenhut P.23/Menhut-II/2007 on

Business's Permit Application Procedures for Wood's Utilization on People's Plantation on Plantation Forest. There is a slight difference of the HTR mechanism explanation between Government Regulation Number 6/2007 and Permenhut P.23/Menhut-II/2007. The government regulation defines HTR as a plantation forest managed by a community group, while the minister's regulation identified the actor in HTR as an individual or a cooperative. The implication is that HTR can be proposed by an individual farmer, while an annual work plan can be delivered to the technical unit of the Ministry of Environment and Forestry as a group with other individual farmers.

Tenure affects the use of lands as collateral for HTR land is owned by the state, while the commodity, timber and non-timber resources, owned by the concessionaires can be used as collateral. The allocation and determination of an HTR area is similar to the HTI system, except HTR land allocation and determination is associated with much smaller areas. Herawati (2011) noted that HTR was meant to be established specifically in logged-over areas (LOA). Thus, HTR was promoted to support rehabilitation in portions of former HPH areas, as well as to empower community participation in forestry development. In addition, the Governor of the Province and Head of Forest Management Units (*Kesatuan Pengelolaan Hutan*-FMU or KPH) are responsible for proposing areas to be reserved as potential HTR areas before final approval from the Minister of Environment and Forestry (Permenhut P.55/Menhut-II/2011 and. P.31/Menhut-II/2013; Surat Edaran SE.5/Menlhk-II/2015).

The HTR system also provides the option for the concessionaires to develop monoculture or heteroculture forest plantations with minor crops (e.g. oil palm, cocoa, etc.) limited to a maximum of 40 percent of the total area. An individual farmer is allowed to receive HTR concession rights for a maximum of 15 hectares, or 700 hectares for a cooperative. The government also created a mechanism for farmers to receive loans and

government funding assistance to develop and operate the HTR; this helps address the tenure issue noted previously.

Flexibility in species composition of HTR land, and form of enterprise (e.g. cooperative, small-company, etc.) made it attractive for farmers to participate. In its initial plan, the Ministry of Forestry was targeting about 5.7 million hectares to be allocated with 1.97 million hectares having to be successfully planted (Obidzinski & Dermawan 2010). The attainment of HTR in 2014 is still far from the initial target of 5.7 million hectares (Table 6). In comparison to HTI, HTR area is currently relatively small.

Table 6. HTR realization number of planted area (Source: MoF 2014 as cited in Permana 2015).

	Province	Cooperative		Individual Farmer		Total	
		Number	Area (hectare)	Number	Area (hectare)	Number	Area (hectare)
1	Aceh	5	3,301	20	244	25	3,545
2	Sumut	6	11,810	-	-	6	11,810
3	Riau	5	2,792	-	-	5	2,792
4	Sumbar	3	1,590	88	657	91	2,247
5	Sumsel	2	738	930	2,061	932	2,799
6	Bengkulu	10	22,177	-	-	10	22,177
7	Jambi	4	3,757	234	1,113	238	4,870
8	Lampung	8	16,651	-	-	8	16,651
9	Babel	-	-	698	1,607	698	1,607
10	Kepri	2	21,530	-	-	2	21,530
11	Kalbar	1	700	27	126	28	826
12	Kalteng	1	1,744	33	331	34	2,075
13	Kalsel	13	6,142	105	594	118	6,736
14	Kaltim	-	-	31	93	31	93
15	DIY	3	327	-	-	3	327
16	Bali	-	-	-	-	-	-
17	NTB	12	3,122	-	-	12	3,122
18	NTT	2	413	-	-	2	413
19	Sulsel	15	3,967	449	3,335	464	7,302
20	Sulteng	-	-	1,100	3,199	1,100	3,199
21	Sulbar	1	242	557	5,763	558	6,005
22	Sultra	3	9,206	197	1,012	200	10,219
23	Sulut	-	-	2,408	28,104	2,408	28,104
24	Gorontalo	-	-	174	707	174	707
25	Malut	4	19,218	-	-	4	19,218
26	Papua	3	16,892	-	-	3	16,892
Total		103	146,319	7,051	48,946	7,154	195,266

Herawati (2011) noted that the unsynchronized efforts between the central government and local governments have affected the success of HTR implementation in Indonesia. The paradigm of forest management that is still being adopted by local governments tends to see the new mechanism as project-based activity with strong dependence on financial and facility assistance from the central government. In addition, poor market access, poor skills in silviculture application, and limited knowledge of the timber plantation business caused further impediments to HTR development (Herawati, 2011; Rohadi, et al., 2015). Rohadi and others (2015) also noted that current complicated regulations on timber trade create HTR business which is not a financially- friendly business model for the farmer. Further analysis of technical aspects of HTR with a focus on East Kalimantan is presented in the next chapter.

2.1.4. Captive Plantation

The fourth stage of industrial forest plantation management involves creation of captive plantations. India is an example of a country where captive plantations are widely implemented. The classic captive plantation is run through a Memorandum of Understanding (MoU) between a company and land owners for forest plantation establishment. The agreements are based on either land rental or revenue sharing between two parties; this is similar to contract farming practices in many regions. This scheme is not widely practiced yet in Indonesia, partly due to uncertainty surrounding land tenure. However, in one case of PT

Harfam Jaya Makmur (which from this point onwards will be called Harfam), their business is on teak plantation management through an afforestation mechanism.[7]

Unlike the classic captive plantation practiced in India, Harfam has applied different methods where the company has acted as a service provider and attracted people to become what they call partners in growing teak in forested and non-forested lands. Unlike common forest plantations, Harfam has not used an IUPHHK scheme as their permit base. Instead, the land will be titled as private property (*Hak Milik* – HM), and will obtain Cultivation Rights (HGU) from the National Land Agency (*Badan Pertanahan Nasional* – BPN). Harfam corresponded with the BPN at district, provincial and regional levels for land ownership issues. Private property status provides many privileges compared to plantations under the IUPHHK scheme; for example, the property can be sold or transferred to other individuals once the contract with Harfam ends and it can be used as collateral with mortgage rights.

The certificate of land ownership will be under the name of the investor. A period of partnership between Harfam and the investor, however, lasts for eight years, from the teak's first planting until the harvesting when the tree reaches A3 size (39 cm diameter). The certificate will be with Harfam for eight years to ease administration and bureaucratic processes, (i.e., logging permits, wood legality verification, etc.,) (Detik.com, 2014). In addition, unlike common forest plantations under permanent forest cover, the Harfam plantation focused only on small-scale plantations. Harfam offered seven types of plantation partnerships from 1000 m^2 to the maximum 8 hectares of land (Table 7).

[7] FAO (2010) defines afforestation as "*a conversion from other land uses into forest, or the increase of the canopy cover to above the 10% threshold*".

Table 7. Partnership type offered and price paid by Harfam (Source: Harfam.co.id).

Type Name	Land Area	Number of trees per land area	Price (IDR)[8]
Royal Tectona	8 Ha	8000	9,500,000,000
Ritz Tectona	5 Ha	5000	6,000,000,000
Tectona Mansion	3 Ha	3000	4,000,000,000
Tectona Palace	1 Ha	1000	1,400,000,000
Tectona Park	0.5 Ha	500	700,000,000
Tectona Hill	0.25 Ha	250	400,000,000
Tectona Garden	1000 m^2	100	200,000,000

Any plantation activities from cultivation to maintenance to harvesting will be done by Harfam on behalf of the investor. The revenue will be shared under a 50:40:5:5 schemes, where 50 percent goes to the investor, 40 percent to Harfam, 5 percent to local communities around the plantation, and 5 percent to Harfam employees (Detik.com, 2014).

To date, Harfam has only planted the teak plantation in Bondowoso, East Java along with a Harfam-owned 50-hectare teak plantation, which was bought from the local farmer's idle lands. The partner's plantation was started in 2008. Harvesting activities are expected to begin in 2018, at the earliest (Detik.com, 2014). This type of forest plantation is quite new and not widely found in any other location in Indonesia. An attempt to expand their business to create plantations in other locations such as Kalimantan, Sumatera, and Papua has been made, but still faces difficulty, particularly given tenure issues. Nonetheless, this highlights a prospective new stage in industrial forest management that currently has a negligible role.

[8] Buy exchange rate from IDR to USD 1 per 19 January 2016 10:59pm EST time is 13,851.00. Thus, the investment price offered by Harfam is ranged between US$ 14,439.39 to US$ 685,871.05

2.1.5. Concession 2.0

The fifth and final stage has been adopted from a term in French agriculture research for development (CIRAD) called Concession 2.0. The concept promotes land-sharing for multiple use forest management (Canon, 2015). In other words, the concept adopts joint management of a permanent forest area by stakeholders for multiple uses of forests. The concept was introduced for the management of forests in the Congo Basin, Central Africa where there is a massive logging industry (Canon, 2015). The same pattern is also occurring in Indonesia.

The embryo of this strategy can be seen through what is known as partnerships (*kemitraan*) between HTI concessionaires and the communities around the concession area (Permenhut P.39/Menhut-II/2013). Another threshold of concession 2.0 in Indonesia is HTR in a partnership scheme (*HTR pola kemitraan*) where the concessionaires of HTR (individual or cooperative/community groups) established the plantation through an agreement with their partner facilitated by the government (Permana, 2015). A third concept is collaborative management between Perhutani and the communities around the teak plantation concession, namely managing forests with communities (*Pengelolaan Hutan Bersama Masyarakat* – PHBM). The concept is where Perhutani, a state-owned company with its main operation on Java island, embraces a community to utilize its concession land to support their livelihoods (Awang et al., 2008).

All these types of strategies have been initiated in order to accommodate forest community rights in utilizing the forest by cooperating with private parties (including the companies), though the land is still owned by the government. According to Constitutional Court Decision Number 35/PUU-X/2012, Indonesia has eliminated the word “state” from Article 1, Paragraph 6 on customary forest use in Forestry Law Number 41 Year 1999 as the paragraph was in conflict with the Indonesian Constitution of 1945. As a result, the new

paragraph is "*Hutan adat adalah hutan ~~negara~~ yang berada dalam wilayah masyarakat hukum adat - customary forest is a ~~state~~ forest located in a territory of customary community*". In other words, the customary forest is eliminated as a state forest category, and is classified as a customary community forest.

The Ministry of Environment and Forestry on July 2015 released a new regulation on these forests (Permenlhk) Number P.32/Menlhk-Setjen/2015 to support the new law on regional governance and as a response to Constitutional Court Decision Number 35/PUU-X/2012. The regulation includes technical specification and appointment of customary community forests.

Traditional communities experienced marginalization, starting during President Soeharto's regime. The source of oppression was enshrined in the Forestry Basic Law Number 5, year 1967, article 17, which noted that implementation of customary community (forests) and its members' rights, as well as rights of individuals to receive benefits from forests directly or indirectly, were based on law along with the fact that the customary community still exists and should not interfere with the achievement of the goals in this law[9]. Thus, customary community rights, especially its rights for utilizing the forest, was secondary to state goals in the forests' industrialization. The Constitutional Court decision aimed to eliminate the long practice of customary community rights over forest resources.

However, the application of the decision has not been easy. The long-term practice of neglecting customary community rights over forest resources resulted in annexation of customary territory, some of which may be located in the permanent forest area.

[9] Law Number 5, year 1967, Article17: *Pelaksanaan hak-hak masyarakat, hukum adat dan anggota- anggotanya serta hak-hak perseorangan untuk mendapatkan manfaat dari hutan baik langsung maupun tidak langsung yang didasarkan atas sesuatu peraturan hukum sepanjang menurut kenyataannya masih ada, tidak boleh mengganggu tercapainya tujuan-tujuan yang dimaksud dalam Undang-undang ini.*

Undoubtedly, the territory may even be allocated and exploited for forestry and non-forestry activities, such as coal mining, HTI, HPH, and oil palm. One example comes from Lusan community in Paser, East Kalimantan where concession are held 57,080 hectares. Participatory mapping which was facilitated by *Jaringan Kerja Pemetaan Partisipatif* (JKPP) showed 53,542.64 ha of community land; 100 percent of the territory was licensed to extractive industries (Table 8) (Mongabay, 2014a)

Table 8. Industry licenses on Lusan community land (Source: Jaringan Kerja Pemetaan Partisipatif (JKPP) as cited in Mongabay, 2014a).[10]

Industry	Area (Ha)
Mining	14,985.14
Oil Palm	2,359.59
HTI	2,457.33
HPH	37,278.58
Total area	57,080.64

The question becomes "how can the gap be bridged between granted land concessions and the acknowledged customary forests in the same area?". Concession 2.0 provides opportunities for harmonizing between two or more stakeholders in managing the forests with a holistic landscape approach. The idea is similar to the example of the embryonic partnership (*kemitraan*) in forest management. The difference is in the new tenure status, where the community acts as the landowner, instead of as a party that grants permission to manage state forest land. This stage is at its infancy and is largely conceptual.

Given the focus on industrial forest plantations, the remaining discussion will only examine HTI and HTR with few comments of other stages. In addition, the following discussion will only focus on East Kalimantan examples with a review of national policy to draw better attention to policy impacts on forest plantations from the national level down to implementation at the regional level.

[10] The source shows there are about 3,538.27 ha overlapped license over the land.

2.2. Chapter Summary

Industrial forests were initially defined in the Basic Forestry Law in 1967; they have evolved over the past 50 years and will continue to do so. The policies have moved from natural forests to large-scale plantations to small-scale plantations (Table 9). The policies differ by type of land, type of license required, responsible agency, and operation area (scale).

Table 9. Comparison of stages development of industrial forest development.

	Stage IF development				
	HPH	HTI	HTR	Captive Plantation	Concession 2.0
Year started	1967	End of 1980s-1990	2007	2008	Yet to be released
Type of land	Permanent natural forest area	Permanent forest area, plantations established in non-productive production forests	Permanent forest area, plantations established in non-productive production forests	Non-permanent forest area, focus on non-reforested land (afforestation)	Permanent forest area, with focus on customary lands
Type of license required	Timber Utilization Permit (IUPHHK); rights to timber only	Timber Utilization Permit (IUPHHK); rights to timber only	Timber Utilization Permit (IUPHHK); rights to timber only	Private forest (*Hutan Hak*); rights to land and timber reside with owners	Possibly IUPHHK; and rights to land in customary forests
Responsible agency	Ministry of Environment and Forestry	Ministry of Environment and Forestry	Ministry of Environment and Forestry, as proposed by Governor	Ministry of Agrarian and Land Spatial/ National Land Bureau, and District Head	Potentially Ministry of Environment and Forestry, and District Head
Operation area (scale)	No limitation prior 2014; currently 100,000 ha for the operation in Papua and West Papua provinces, and 50,000 ha for other provinces	No limitation prior 2014; currently 100,000 ha for the operation in Papua and West Papua provinces, and 50,000 ha for other provinces	15 hectares for individual management, 700 hectares for a management under cooperative	Private land area (no limitation)	Can be combination of customary land or private land and concession land

CHAPTER 3

TRENDS IN FOREST PLANTATION ESTABLISHMENT AND TENURE

This chapter examines a wide range of topics covering the extent and tenure of forest lands in East Kalimantan. First, an historic forest governance analysis framework is used to organize the discussion, including the impact of decentralization on the governance structure and its impact on plantation establishment. Then plantation status, geographic distribution, and planned IF investments based on products (i.e. pulp and paper, construction wood, sawnwood and plywood, bioenergy and non-forest timber products) are summarized. Lastly, a interview results of the application of policy and governance management from the relevant stakeholders is described in the latest section of this chapter.

3.1. Decentralization and its implication for forest plantation establishment in East Kalimantan

The Unitary State of the Republic of Indonesia is a sovereign state consisting of 34 provinces. Different state forms have been recorded in Indonesia ‘s post-colonial history, including different regional positions in the administration. The history of Indonesia’s government relative to large-scale and small-scale forest plantations can be divided into three periods, namely 1) the old order (*orde lama*, President Soekarno administration, 1945-1965, 2) the new order (*order baru*, President Soeharto administration, 1967-1998), and 3) the reformation (1998- 2006). In its current form, the national government is led by a President and his cabinet members and controlled by a People’s Representative Council (DPR), Regional Representative Council (DPD), and People’s Consultative Assembly (MPR, consisting of DPR and DPD members). Meanwhile, each province is led by its governor and has its own legislature. The provinces consist of regencies (*Kabupaten*) and cities (*Kota*) with their own legislatures and are led by the Regency Head (*Bupati*) for the administration.

During Soeharto’s regime, in order to boost Indonesia’s economy, the GoI

administration claimed over 80 percent of state land as permanent forest area. With the reformation era in 1999, a lot of central government authority moved to regency-level administration. Even though Indonesia re-applied a decentralized administrative system in 1999, forestry land was still titled under central government administration. Meanwhile the regency administration released licenses for non-forestry land uses, such as oil palm, agriculture, and human settlement. This created a problem; lands issued by the head of the regency often overlapped with other land-use purposes issued by the central government, such as forestry land-use.

A short discussion of forestry decentralization (devolution) history, decentralization's impact on forest plantation establishment, and the division of responsibility over forest resources management between national and regional government is presented below.

3.1.1. Forest decentralization history in Indonesia

Wollenberg and others (2008) identified two different forms of decentralization over forest resources, "c*entrally driven community forestry programmes"* by giving rights to the communities to govern certain forest areas, and "*local governance"* by transferring powers over forestry/natural resources to local governments. Both decentralization types have happened in Indonesia. Indonesia's decentralization history was started in the early 20th century under the Dutch colonial government, where the Dutch East Indies government released a law on decentralization in 1903 which transferred power to the *Karesidenan* (equal to a province) level to ease control over governments outside Java (Matsui, 2003).

Decentralization efforts were then implemented by the newly independent Indonesian government under President Soekarno where Law (UU) Number 1 year 1945 and Law Number 22 year 1948 were decreed to provide wider democracy for the people at the local level. Unfortunately, the law was only effective for the governments in Java and Madura islands (Suharyo, 2000; Matsui, 2003). During the Soeharto regime, the governance system

was changed to the centralization type (Matsui, 2003).

Indonesia's contemporary decentralization was started 1999, upon Soeharto's fall, based on People's Consultative Assembly (Majelis Permusyawaratan Rakyat – MPR) decree Number XV/MPR/1998 on Regional Autonomy; Setting, Distribution, and Fair Use of Natural Resources; also on Central and Local Fiscal Balance in the State Framework of the Republic of Indonesia. There are several other laws and rules that govern Indonesia's regional autonomy, such as Law Number 22/1999 on Local Government[11] (*Pemerintahan Daerah*) and Law Number 25/1999 on financial relations between central and local governments. Both laws are ruling autonomy authority by local government, both regencies and cities. A hierarchy line between Head of Regency/Major and Governor was dismissed. Wollenberg and others (2008) has noted that an imbalance in income distribution between central and local governments from natural resource products has provoked rich provinces, such as Aceh, East Kalimantan, Riau and Papua, to demand decentralization. This was exacerbated by dissatisfaction with policies from the central government promoted by three decades of President Soeharto's regime, especially on fair revenue sharing and natural resource management (Ascher, 1999; Wollenberg et al., 2008.

Suharyo (2000) noted there are many criticisms of Law Number 22/1999 and 25/1999 due to lack of public consultation and hastiness in preparation. In addition, Wollenberg and others (2008) noted that there have been overlapping rules as well as a reluctance by the central government to implement the law. The most recent revision of the Law on Local Governance is Law Number 23 year 2014. In the matter of non-forestry land use (except mining), local governments are entitled to management of land in their administrative area, while cross-district lands are managed by the province, and cross-province lands are managed

[11] The local government in this context is meant as regency and city government while the Head of Province or Governor is seen as part of the National Government.

by the central government. The Law 23 year 2014 has also restructured forestry governance, where central and provincial governments are now titled with the governance of forest land, except Forest Parks where the local government is titled with the governance of the park in their administrative area. Meanwhile, even though the new UU Number 23 year 2014 on Local Governance (*Pemerintahan Daerah*) was applied last year, a demand for special autonomy from rich provinces such as Kalimantan still comes up today[12]. On the other hand, regency and provincial governments, unprepared to implement regional autonomy, have created another problem; low capacity of human resources has created an ineffective bureaucratic process, and large authority by heads of government has created 'local kings' who have triggered corruption activities and new 'elite' family/groups (oligarchies) at the local level (Kirana, 2014). In this thesis, decentralization after the fall of President Soeharto's regime is specifically discussed in the context of IF.

3.1.2. Land-use planning and forest governance after decentralization, who is responsible for issuing and overseeing forest plantation?

Indonesia's forest governance has been very much affected by the government regimes in each era. For example, during President Soekarno's regime forest in the 'outer islands' were not touched much by the central government. Any forestry activities were delegated to the regional government, and the central government only focused on teak plantations instituted by the Dutch colonial governments (Peluso, 1983). Meanwhile, President Soeharto's regime was known for its very centralized governance style (Barr, 2008). The government actively promoted forest industry, which began with natural forest concessions and eventually also supporting the forest plantation industry.

[12] Special Autonomi (Otonomi Khusus – Otsus) is form of authority delegation from Central government to Province level government with wider governmental authority than *otonomi daerah*. Several provinces already hold this title, such as Yogyakarta, Jakarta, Aceh, Papua, and West Papua.

In addition, forestry after reformation is a more complex topic to discuss because there are complications regarding how forests are governed and administered. To have a better understanding of how Indonesian forests have been administrated, particularly in their connection to plantations, the discussion below is divided into three sections by era.

3.1.2.1. Forest policy and government relationships towards IF development during Soeharto's regime (1990 – 1998)

Regardless of the poor governance practiced by Soeharto's regime, forests as natural resources were seen as public property to use fairly for people's welfare (Indonesia Constitution, 1945; Basic Forestry Law Number 5 1967). Soeharto's regime tightly controlled the forests under the Ministry of Forestry, previously known as the Directorate General of Forestry of the Ministry of Agriculture prior to 1985. The central government held solid authority to issue any permit/forest concessions, including for forest plantations (Figure 6. Meanwhile, the regional governments received nothing, while they were required to pay contribution fees to the central government from regional income (Wollenberg et al, 2008). However, the regional governments, at the provincial and district level, also set up forestry service offices, though control was still handled by central government through their regional offices (*Kantor Wilayah*).

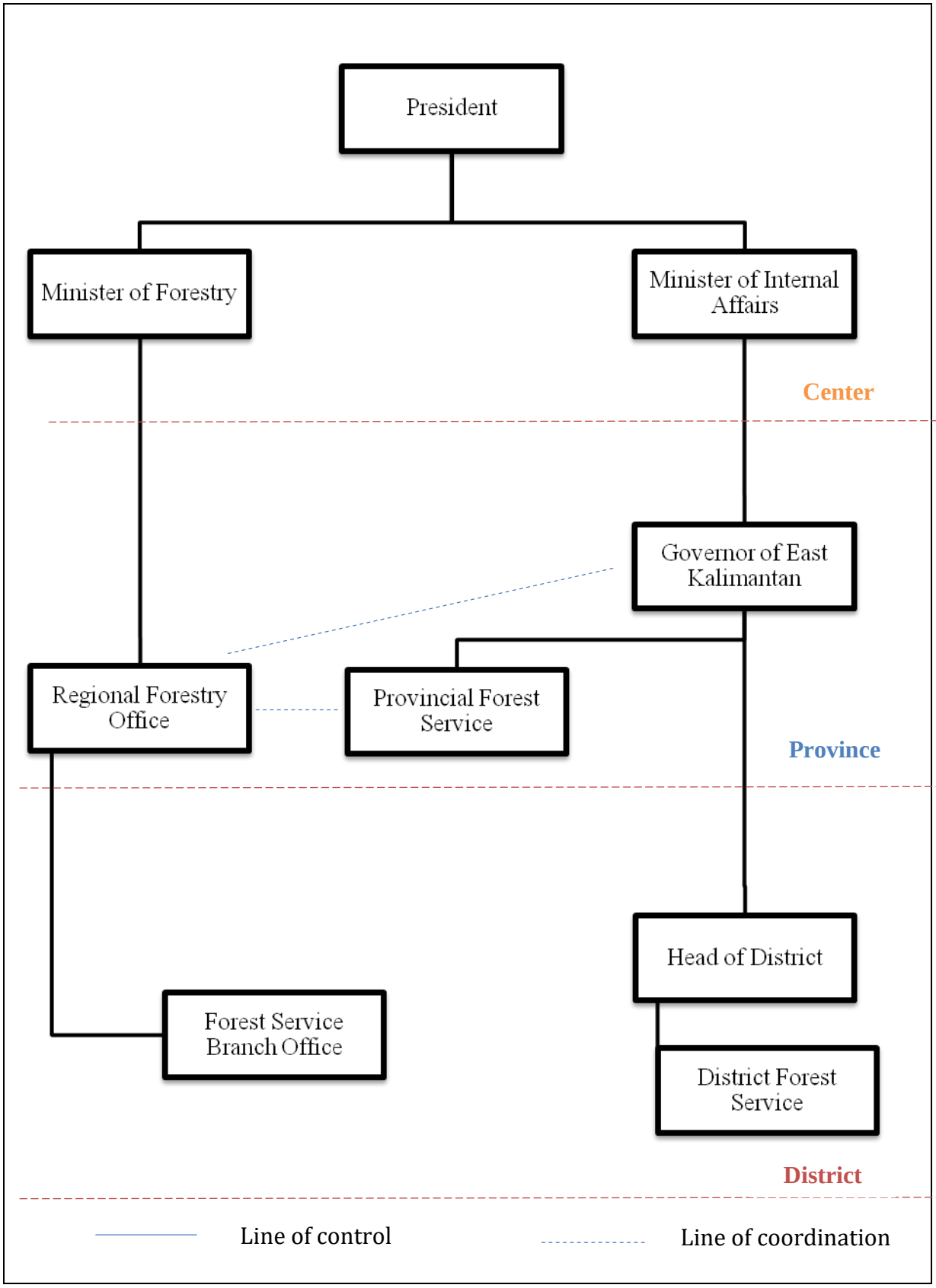

Figure 6. Institution relationship of multilevel government forest governance in Indonesia during old-regime governance (Source: Wollenberg et al., 2008).

The Ministry of Forestry oversaw the issuance of any permit over forest resource concessions. The basic regulation of HTI PP 7/1990 arranged the maximum area of HTI concessions for the pulp and paper industry as 300,000 hectares and 60,000 hectares for construction wood or other industries. The Ministry of Forestry allowed state-owned companies, private companies, and cooperatives to have HTI concessions, although, the size of concessions indirectly prevented small-holder cooperatives from having concessions. Also, Law Number 5/1967 only allowed minimum participation from the local community.

The Ministry of Forestry released some specific regulations for concession issuance. To boost HTI development, the government provided financial support through State Capital Participation (*Penyertaan Modal* Negara – PMN), sourced from the Reforestation Fund (*Dana Reboisasi* – DR). The DR was derived from compulsory contribution fees from natural forest concessions (HPH). There are three schemes in HTI funding through PMN, namely cash grants, loans with 0% interest, and commercial loans. The distribution of funding among the top ten companies receiving DR in 1990-2000 varied considerably with cash and 0% loans dominating (Table 10).

There were about 93 companies receiving DR funding in 1990-2000 (BPK, 2008). The companies consisted of state-owned companies, private companies, and joint cooperation between state-owned and private companies. Six of the top ten major recipient companies receiving DR fund were mostly located in East Kalimantan (i.e., PT. Surya Hutani Jaya, PT. ITCI Hutani Manunggal, PT. Tanjung Redeb Hutani, PT. Inhutani I, PT. Inhutani II, and PT. Adindo Hutan Lestari). In addition, many of the companies were owned by President Soeharto's relatives (i.e. Mr. Probosutedjo (brother), Ms. Rukmana (daughter), Mrs. Prabowo (daughter), and his allies such as Muhammad 'Bob' Hasan).

Table 10. Top 10 companies receiving Reforestation Fund (DR) (Source: Financial Audit Board (*Badan Pemeriksa Keuangan* – BPK) 2008).

Company	Major owner	Grant cash	Loan with 0% interest	Commercial loan	Total
		Billion IDR			
PT. Musi Hutan Persada	Prajogo Pangestu; Siti Hardiyanti Rukmana	54.8	127.3	164.6	346.7
PT Inhutani III	Ministry of Forestry	214.2	0.0	0.0	214.2
PT Surya Hutani Jaya*	Bob Hasan; Soeharto's Family	36.5	84.6	86.4	198.5
PT Menara Hutan Buana	Probosutedjo	66.7	100.9	0.0	167.6
PT ITCI Hutani Manunggal*	TNI; Bambang Trihatmodjo; PT Nusamba	46.0	95.1	0.0	141.1
PT Tanjung Redeb Hutani*	Bob Hasan; Soeharto's Family	42.7	82.2	0.0	124.9
PT Inhutani I*	Ministry of Forestry	63.6	39.2	3.3	106.1
PT Inhutani V	Ministry of Forestry	28.3	28.8	15.3	82.4
PT Inhutani II*	Ministry of Forestry	60.0	10.9	6.3	77.2
PT Adindo Hutan Lestari*	General Prabowo Subianto; Siti Hediati Prabowo	25.7	41.8	0.0	67.5
Subtotal major 10 companies		638.5	610.08	275.9	1,526.2
Other companies total		321.5	528.3	42.6	891.4
Total		960.0	1,139.1	318.5	2,417.6

In addition to DR, the government also allowed HTI companies to get logging permits (*Ijin Penebangan Kayu* – IPK). IPK permits allowed companies to log without minimum diameter requirements to cut the timber legally. Thus, it would allow companies to gain greater benefit than just obtaining HPH where diameter is 'strictly' determined. DR and IPK were two of the major drivers of rampant HTI permit application (Hidayat, 2008). However, that implementation of HTI by plantations was very low when compared with the total number of issued permits.

Ministry of Forestry data (2002) showed a dramatic rise, from under 500,000 hectares of definitive permits issued for HTI concession to over 4,500,000 hectares, after President Soeharto's fall in 1998 (Figure 7). Actual planted area was much lower; the low level of

planted areas was affected by government policy on IPK. Having HTI permits was more profitable for the companies than HPH, while the companies also received funding from the government through DR assistance to do operational preparations. Notably, later MoF data placed HTI planted area at 2.8 million hectates in 2000 and 2001 (MoF, 2014), so this intial report may have been based on preliminary data.

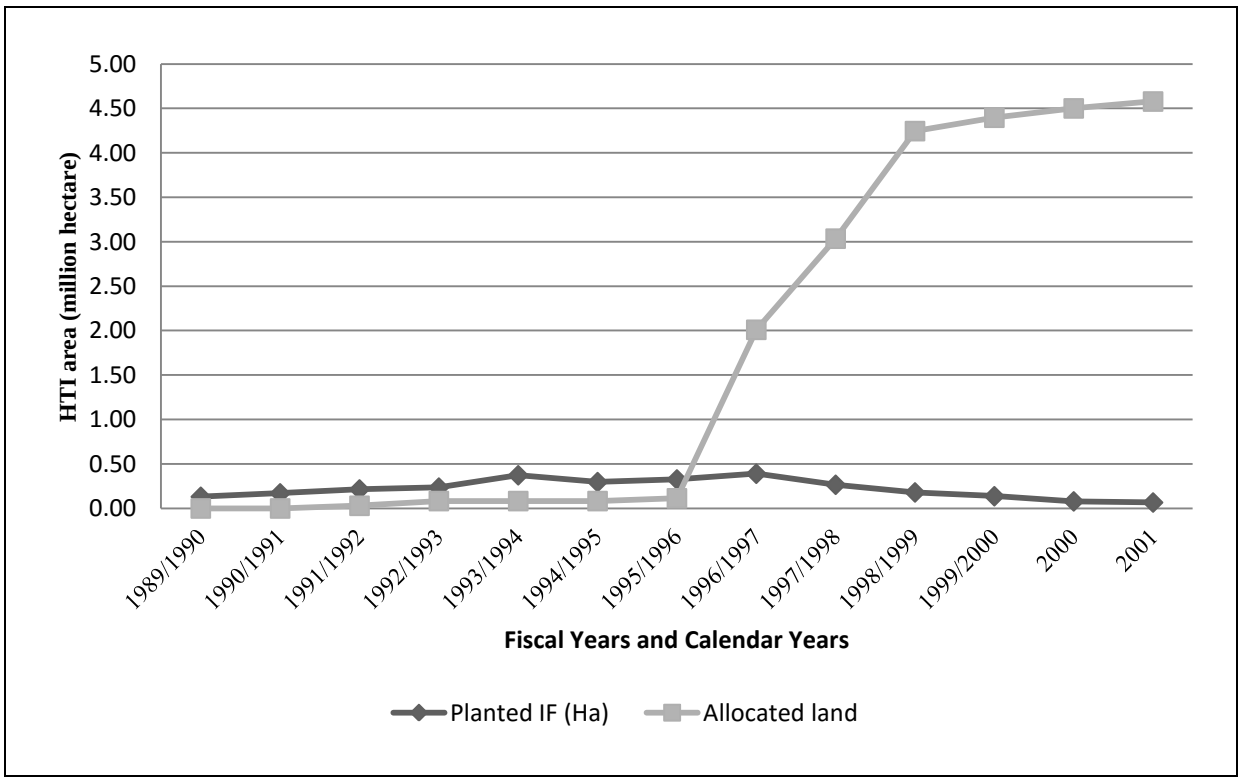

Figure 7. HTI development under President Soeharto's regime, 1989-2001 (Source: Ministry of Forestry, 2002).

The companies were expending almost nothing as logging operations were funded by DR, and they still received huge income from logged trees. WALHI, a non-governmental environmental monitoring organization reported that, of 175 thousand hectares of IPK land, there were only 37 thousand hectares of planted areas in 1994/1995 (Media Indonesia, 1995). Thus, HTI operations during this period failed to plant, about at least 138 million hectares, instead of new plantations of HTI.

3.1.2.2. Forest policy and government relationships towards IF development during the early reformation era (1999 – 2004)

Upon President Soeharto's fall, a number of changes were made in forestry governance. The MPR decided to give wider autonomy to the regional governments to govern their administrative area. Through Law Number 22/1999, the local government was given the right to issue small-scale logging permits. However, the solid authority over forest resources was still under the central government (Figure 8). Meanwhile, Indonesia released a new forestry law as a general reference for forestry development, namely UU Number 41 year 1999 on Forestry. Further, through PP 34/2002, the Indonesian government arranged that HTI should be planted on empty lands, grasslands (*padang alang-alang),* or shrub lands.

Nababan (2004) noted that in this period the Minister of Forestry received a high level of pressure on the issues of deforestation and forest degradation prevention from Civil Society Organizations (CSOs) which had previously put pressure on the regime of President Soeharto. On the other hand, local government also received high pressure from Regional Legislative Body (DPRD) to grant rights to many small forest concessions in order to increase Local Revenue (*Pendapatan Asli Daerah* – PAD). This came at a time when across Indonesia there was a truly "euphoric" atmosphere celebrating new freedoms of speech with the CSOs and wider freedom to govern at a regional levels. This euphoria created an uncontrollable situation in the forestry sector, where the inital few HPHs increased exponentially in number (Nababan, 2004).

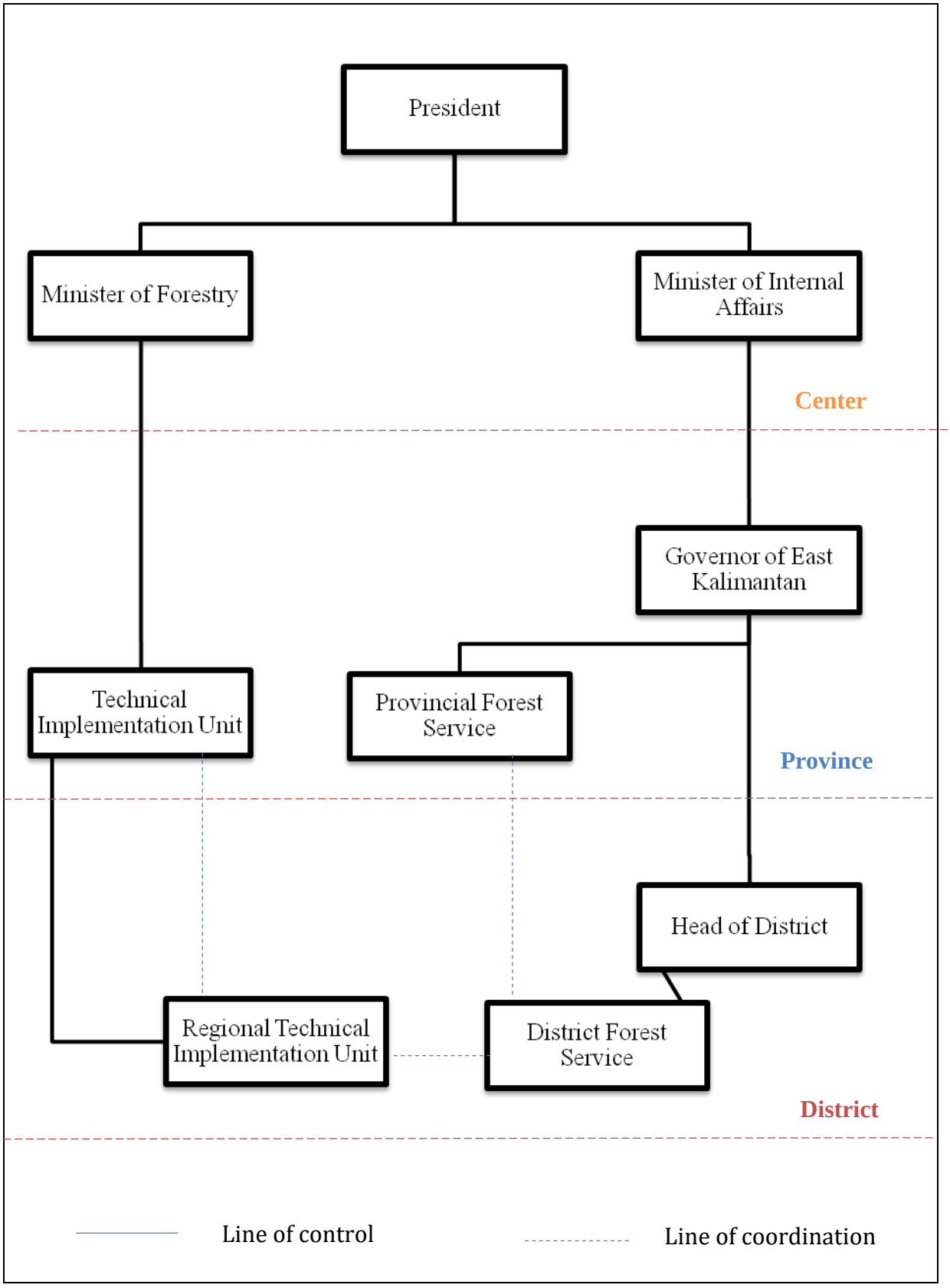

Figure 8. Institution relationship of multilevel government forest governance in Indonesia during the early reformation era (Source: Wollenberg et al. 2008).

Government incentives from the DR fund were stopped in 2000 through Permen No. 10.1/Kpts-II/2000 (Nawir et al., 2008). Many companies collapsed and were unable to continue the development of HTIs in their concession areas (BPK, 2008). This led to land concession abandonment, which then led to massive illegal logging done by timber barons in the abandoned concession areas (Nababan, 2004). As a direct result, HTI development stagnated and in some locations declined (Figure 9).

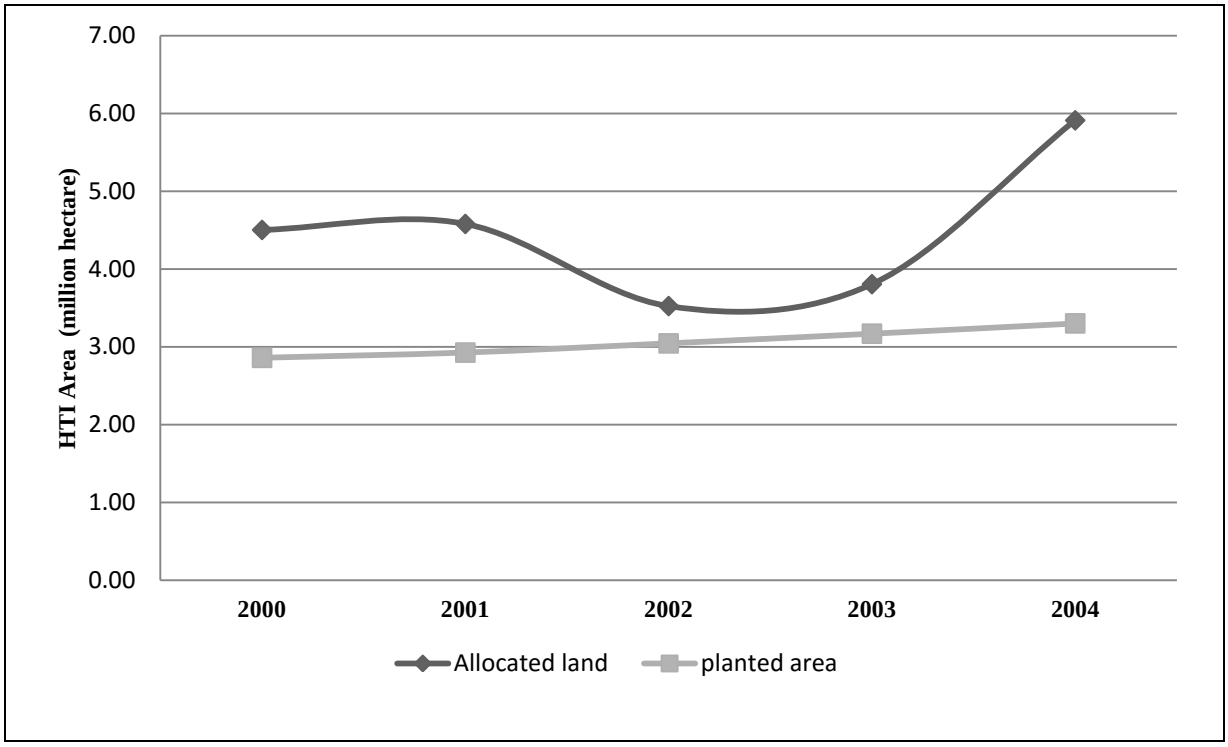

Figure 9. HTI development area, 2000-2004 (Source: MoF, 2005).

There was a decline of about 1 million hectares of allocated HTI land due to contract abandonment from 2001 to 2002. Although planted area did not decline, it continued a slow increase in area, as was the trend prior to the closing of the DR fund. The plantation situation slowly recovered after Indonesia entered a period of increased democracy. Beside the stagnancy and decline of HTI concession areas during the period of early reform, HTI development also faced a decline in its ability to realize the planted area target. Companies'

planting gradually declined from the time of President Soeharto's fall to the early reformation era (Figure 10).

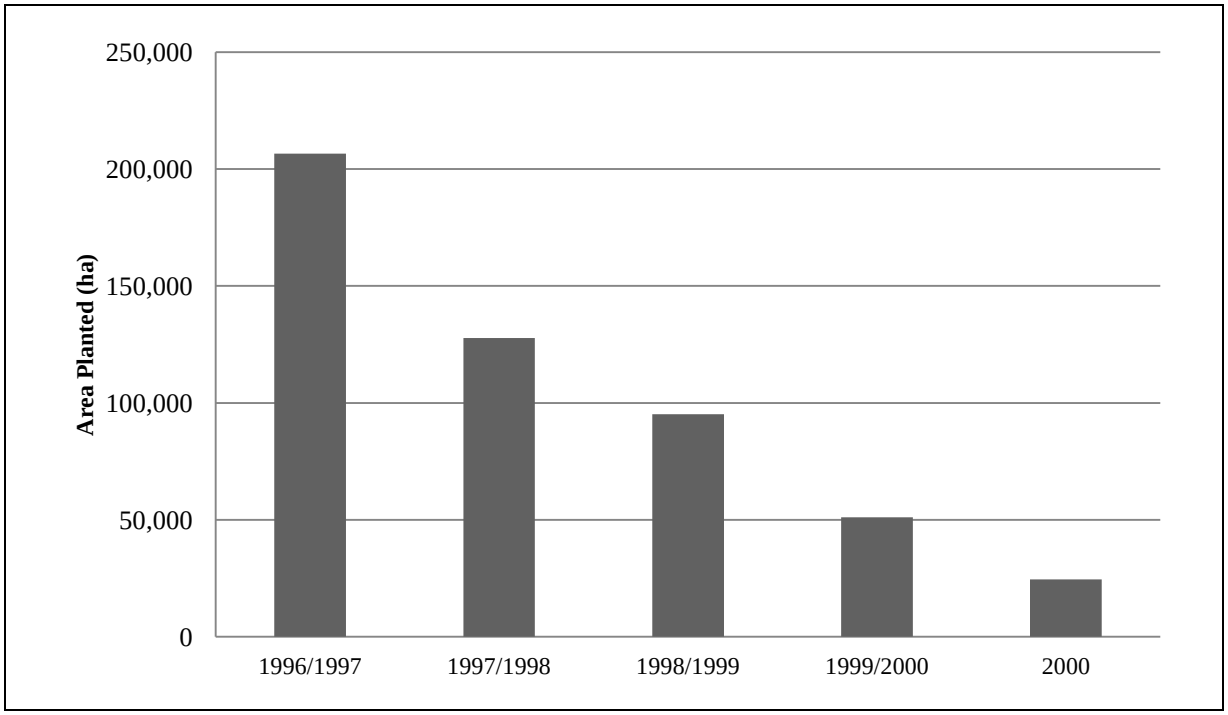

Figure 10. New planted area per year, 1996-2000 (Source: MoF, 2001).

The GoI, under early reformation period, gave wide autonomy on forestry governance to district-scale government to issue small-scale HPH. The momentum was utilized by the local governments to increase Regency income (Obidzinski and Barr, 2003). Dual governance rights over forest resources potentially created a competition between small-scale HPH concession by local government and HTI concessions by central government. Regardless, many HTI companies were unable to work the land and gave up the concessions due to their inability to use land as collateral for loans and their high dependency on government financial assistance (BPK, 2008). The situation was also compounded by national crisis in 1999 which created a slowdown in overall business activity (Barr et al., 2011) The neglected concessions then became idle land, and invited illegal loggers to access the resources.

In summary, land tenure remained unclear during this period with conflicts created by decentralization of forest governance. Expansion of IF plantations occurred, but at a declining rate.

3.1.2.3. Forest policy and government relationships towards IF development entering the guided democracy era (2004 onwards), and future predictions.

Indonesia elected its President through a direct general election with wide participation by its citizens in 2004. Successful general election organization was counted as a sign of a mature democracy process. At the same time, decentralization overhauled forest governance in Indonesia. UU 41 1999 on Forestry put forward explicitely the concept that forest governance should be shared between the central government and local governments. Previous elucidation of the Forestry Law on Government Regulations PP Number 25 year 2000 held that the local government controlled the responsibility for almost all of the more significant roles in government work programs. The later version of work division between central and local (provincial and districts) governments from PP Number 38 year 2007 reassigned the position of the central government in many points of the forestry sector. The provincial and district governments functioned as technical reviewers for the forestry sector, including forest-use permit issuance.

However, a new law, Law Number 23 year 2014 on Local Governance, put forward a new interpretation of Indonesian Forestry Law, whereby many of the functions related to supervision and utilization of forest resources were placed under the Ministry of Environment and Forestry (MoEF) and provincial governments. The district government holds almost no authority over forests, except for Forest Park management. The MoEF released Circular Letter Number SE. 5/MenLHK-II/2015, which focused on the implementation of government adminstration in the forestry sector related tothe roles for both central and local governments. It specifically outlined a structure of new divided roles of forestry governance between various levels of government (Figure 11).

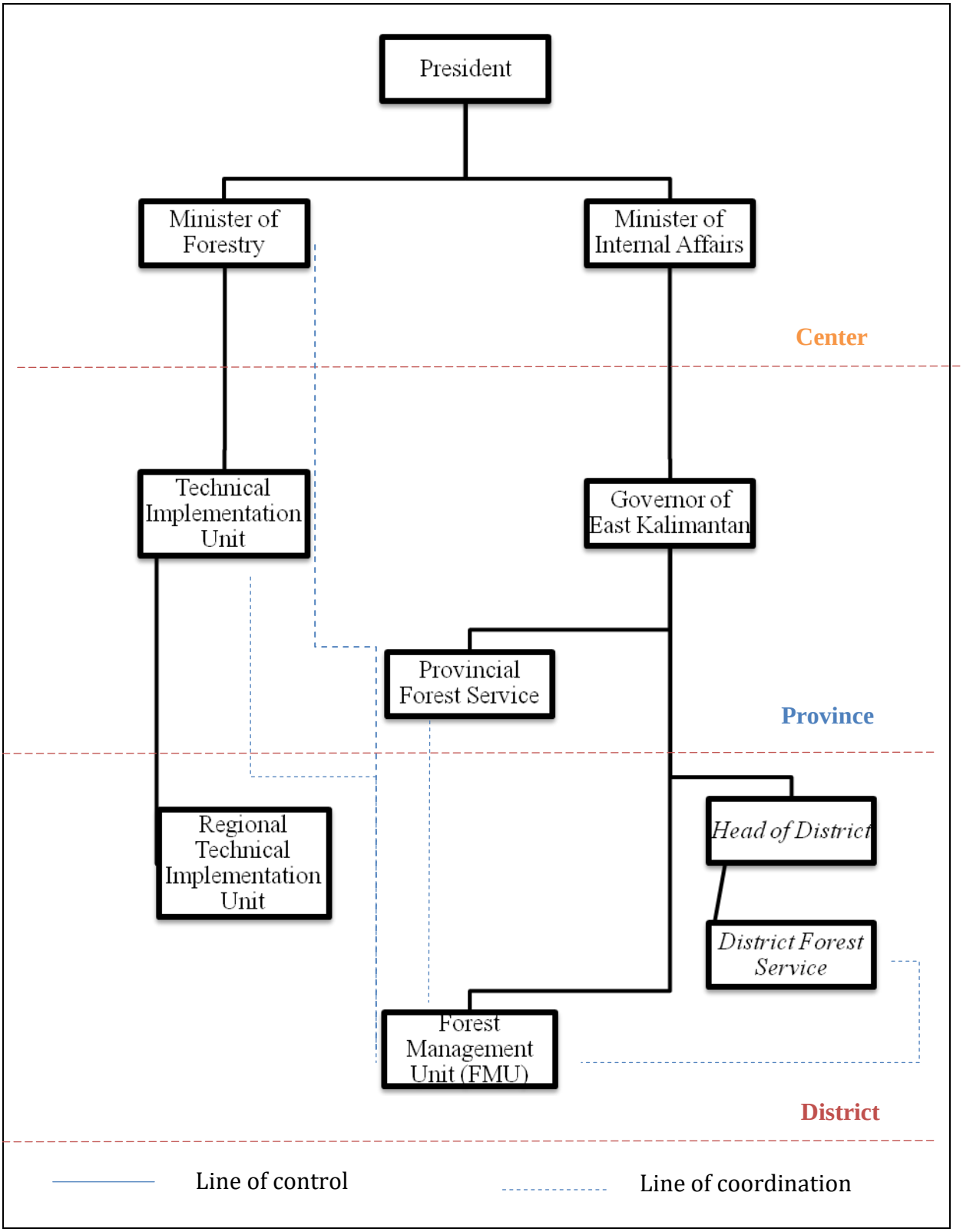

Figure 11. Institution relationship of multilevel government forest governance in Indonesia following Law 23 (2014) on the regional governance application process.

Several major points in IF governance were also explained in the letter (e.g., Timber Utilization Permit of People's Plantation (HTR), industrial permit of timber use, and industrial permit of non-timber use). The letter assigned the provincial government as the newly authorized party on points of permit issuance, revoking the authority of the district government which was framed under Government Regulation PP 38/2007. Nevertheless, the local government still holds solid authority on the issuance of permits for other land purposes such as oil palm plantations, which often conflicted with the forestry area, and not infrequently also involved conflicts with the local communities over land rights (Samsudin and Pirard, 2014).

Under current President Joko Widodo's regime, all types of business licenses, including forestry, have been placed under the Capital Investment Coordinating Board (BKPM) which has been organized to become the new central government actor in forest governance, particularly on license issuance procedures. Besides this one-door licensing policy, Indonesia's government recently applied a new policy for online timber administration. The online administration is aimed to create better forest governance, particularly to avoid revenue loss from forest products. Indonesia's Commission on Corruption Eradication (*Komisi Pemberantasan* Korupsi – KPK) (2015) reported the country's loss to be about US$ 6.47-8.98 billion of potential Non-Tax State Revenue (Penghasilan Negara Bukan Pajak – PNBP) from unrecorded timber value between 2003 - 2014, or about US$ 539-749 million annually.

Indonesia's forest governance structure evolved after Law number 23 Year 2014 was issued (Figure 11, see Figures 6 and 8 for comparison). A new version of local government law placed site-level Forest Management Units (FMUs) under the provincial government, to become the new responsible bodies on technical forestry matters, including permit issuance review.

All of Indonesia's forestry area has been divided into specific FMU zones by the MoEF. The FMU is aimed to be a driver for the development of forestry areas, particularly in the unassigned forestry areas. Currently, there are about 90 FMUs that are assigned as models for the development of other FMUs (Antarariau.com, 2014). The FMUs also have their own structure, which is led by a director and coordinated by the provincial government.

The recognition of customary communities is another important element in the governance of actors in IF development. Constitutional Court Decree Number 35/PUU-XI/2012 revised Forestry Law Number 41/1999, amended the forest division category in Indonesia and added the customary forest as a separate category from the state forest. The Minister of Home Affairs, the Minister of Forestry, the Minister of Public Works, and the Head of the National Land Agency released a joint decree 79 year 2014, PB.3 Menhut-11/2014, 17/PRT/M/2014, and 8/SKB/X/2014 on procedures for land tenure settlement in forest areas. The central government mandated the Head of Regency/Major to form a *Tim Inventarisasi, Pemilikan, Penggunaan, dan Pemanfaatan Tanah* (IP4T) to clear land tenure issues in the forest areas with inventory activities using GIS technology. The decree confirms that occupancy and use of certain lands in forest areas can be claimed for over 20 years as applicant land rights after certification by an IP4T team.

In addition, Indonesia has also targeted the allocation of 12.7 million hectares of forest to be managed under the central government's social and customary forestry scheme. Some criticism of this allocation has been cast by the Indigenous People Alliance of the Archipelago (AMAN). AMAN claims lands should be under customary community ownership, not under central government control. If this were to occur, it would widen social forestry activities as a sign for new governance structure in the future.

3.2. Distribution of industrial forests and main purposes

Indonesia's IF plantations can be divided into three categories based on production purposes, namely plantations for pulp and paper, for construction wood, and lastly (and most recently) for non-timber forest products. The industrial forest plantation, particularly through the HTI program, was originally meant to address a discrepancy between wood industry capacity and declining wood production from natural forests (MoF, 2009). Species used for HTI development in Indonesia are mostly fast-growing species (e.g. acacia (*Acacia* spp), gmelina (*Gmelina arborea*), eucalyptus (*Eucalyptus* spp), white albizia (*Paraserianthes falcataria*), etc.) (MoF, 2009; Krisnawati et al., 2011).

IUPHHK-HTI or large-scale IF plantation concessions are operated by private/state-owned companies for wood products purposes, and IUPHHBK-HT or large-scale plantations, focus on non-timber forest product purposes; they total 10.6 million hectares of both categories. The largest plantation areas per province based on sequence are East Kalimantan, West Kalimantan, Riau, South Sumatera, and Papua (Figure 12). Thus, IF development is mainly geographically distributed in Kalimantan, Sumatera, and Papua. The figure does not include HTR areas as these areas under concession are still quite low.

HTR development has mainly taken place in Sumatera, and Sulawesi provinces (i.e. Riau Islands 21,530 hectares, Bengkulu 22,177 hectares, Lampung 15,384 hectares, North Sulawesi 28,104.01 hectares, and North Maluku 19,218 hectares). This situation is probably caused by large land area availability in those islands to develop as IF plantations. In addition, the figure does not include any area reserved by government for future IF development, where the total area is about 3 million hectares. The main reservation area for IF is largely located in Papua 1,260,086 hectares, West Kalimantan 708,674 hectares, and East Kalimantan 265,029 hectares. In the future, new IF growth is expected primarily in

Papua and Kalimantan. Thus, Sumatera, Kalimantan, and Papua will be the center of IF production in Indonesia in the future.

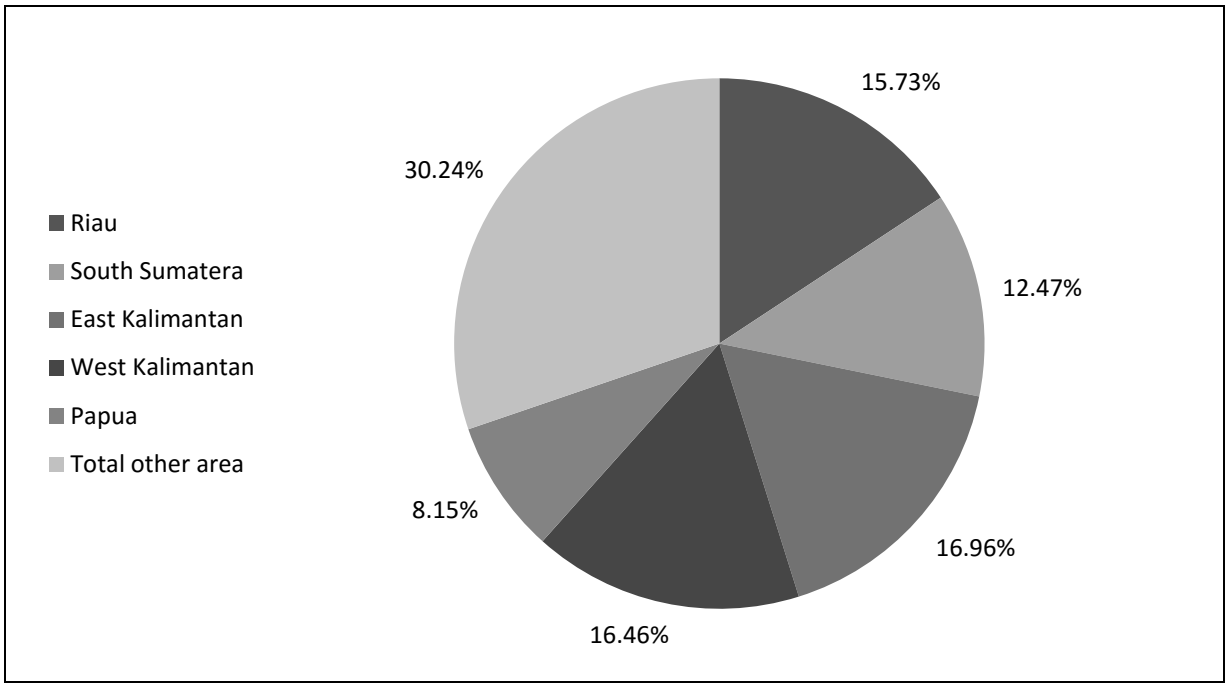

Figure 12. Percentage of large scale forest plantation (IUPHHK-HTI and IUPHHBK-HT) concession area in Indonesia, 2013 (Source: MoF, 2014).

Overall, IF for pulp and paper production has dominated Indonesian forest plantations, with about 60 percent of all purposes. IF for construction was mainly built in the HTI to support the transmigration program and was built as an obligation of HPH to reforest their concession area (MoF, 2009). HTI was originally purposed to restore unproductive land after natural concession log activities. The Ministry of Forestry in the initial regulation, PP 7/1990, required HTI to be developed in non-productive production forest. The criteria evolved to saplings and tree availability in certain blocks of permanent forest area, which were then valued to determine the possibility of natural regeneration (Table 2 and 3).

The standing trees and saplings present category did not fit the original purpose of HTI development. Many companies only used HTI permits as a camouflage to log the remaining stands in the permanent forest area, without being bound to diameter limit that applied in HPH permit (MoF, 2009). Thus, government then reapplied initial requirement

where HTI should be established in non-forested areas within the permanent forest area on 2000. The 2000 requirement was withdrawn in the later years. In the latest regulation, the government is no longer required companies to establish HTI in non-productive permanent forest areas. Instead, MoF directed HTI development to be prioritized in non-productive permanent forest areas.

Further, there are some major and minor policy differences between each category of IF plantation. Thus, specific analysis is presented in the next four subsections on IF plantations based on their production purposes. The discussion based on developed species for the production purpose, geographic distribution, and future projection.

3.2.1. East Kalimantan industrial forest development and its projection

There are about 1.8 million hectares of HTI concession (Table 11), and 29 hectares of HTR concession in East Kalimantan. In addition, there are about 18,900 hectares with interim concession certificates, and 265,029 hectares reserved for future development. East Kalimantan and North Kalimantan were a single territory until North Kalimantan became a new province in 2012. To make a more concrete analysis, the old East Kalimantan administrative area, which consisted of today's East Kalimantan and North Kalimantan, will be used in this discussion and hence will be referred as East Kalimantan. The Nature Conservancy (TNC) has mapped the distribution of Indonesia's forest area status, including the HTI (Figure 13) (Note: Legend category sebaran IUPHHK-HT).

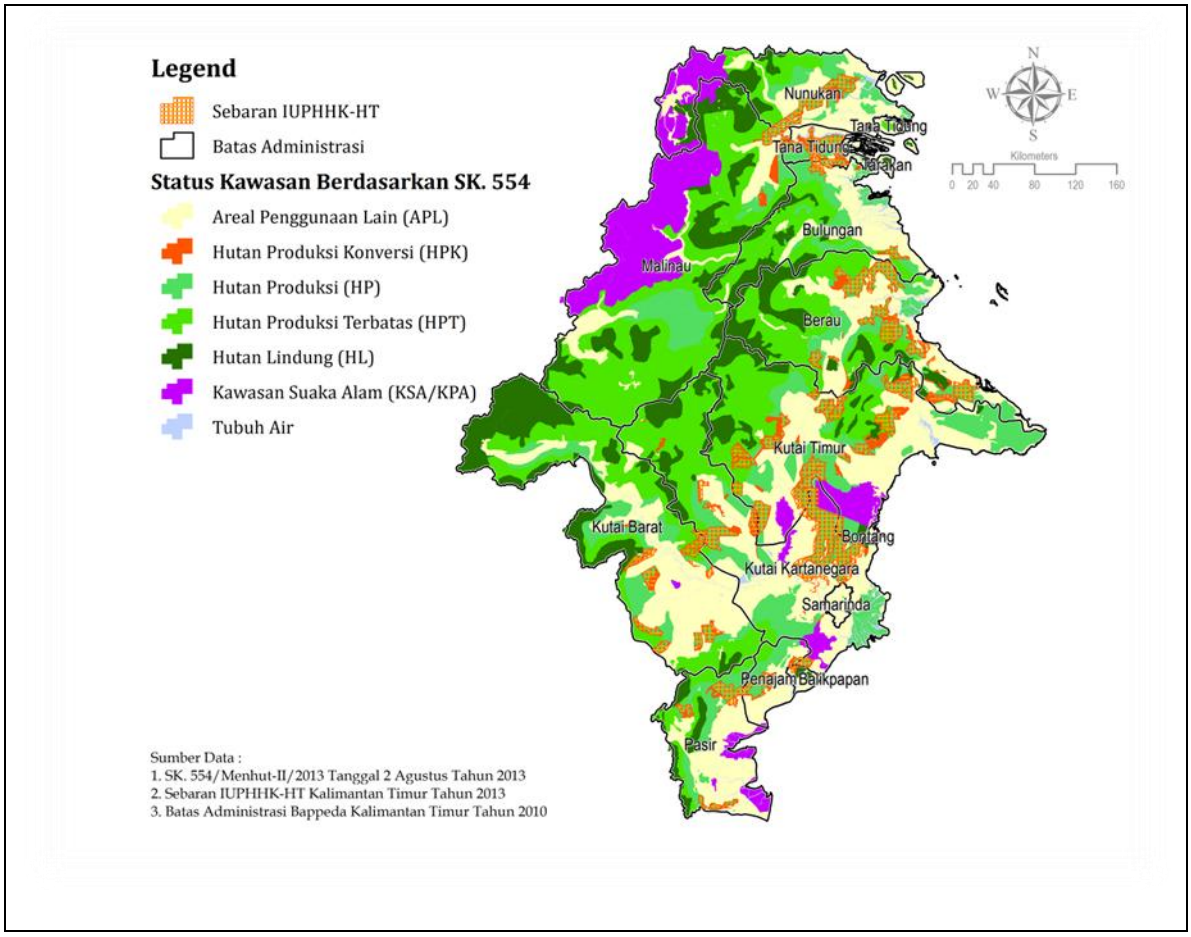

Figure 13. HTI (Sebaran IUPHHK-HT) distribution in East Kalimantan, 2013 (Source: Satar and Syopyan, 2014).
*Note: Legend category *Sebaran IUPHHK-HT*

As a response to National Forestry Planning (*Rencana Kehutanan Tingkat Nasional*-RKTN) 2011- 2030, East Kalimantan province set up a province-scale work plan, namely Province Forestry Planning (*Rencana Kehutanan Tingkat Provinsi*-RKTP) 2011-2030. The plan contains national and provincial targets to achieve by 2030 in the forestry sector. In addition, the MoF released a Forest Plantation Based Forestry Industry Development Roadmap to intensively develop the forest plantation industry by 2025. The roadmap specifically stated that a target should be achieved per determined period to meet forest products consumption needs. The target consists of both upstream and downstream industries.

Table 11. HTI distribution in East Kalimantan province and North Kalimantan province per regencies/municipalities (Source: Forestry Service Office of East Kalimantan and North Kalimantan).

Regency/Municipality	Number of Companies	Area (Ha)
East Kalimantan		
Paser	2	30,216
Kutai Barat	8	182,080
Kutai Kartanegara	7	408,454
Kutai Timur	13	362,800
Berau	4	244,815
Penajam Paser Utara	2	32,996
Mahakam Hulu	-	-
Samarinda	-	-
Balikpapan	-	-
Bontang	-	-
Total	38	1,489,147
North Kalimantan		
Malinau	-	-
Bulungan	3	246,912
Tana Tidung	6	85,545
Nunukan	-	-
Tarakan	-	-
Total	9	332,457
GRAND TOTAL	47	1,821,604

In the RKTN, the Ministry of Forestry has targeted to allocate 43.6 million hectares for large-scale forest industries, and about 5.6 million hectares for small-scale forest industries. The large-scale industries may be in the form of HPH and HTI, while the small-scale industries may be in the form of HTR, Community Forestry (*Hutan Kemasyarakatan* – HKm), Village Forest (*Hutan Desa* – HD), and other forms of social forestry schemes. Separately, in the forestry industry development roadmap, the Ministry of Forestry targeted the optimization of the existing 10 million hectares allocated for plantations, by 2020. By 2014 there were about 5 million hectares of HTI area planted; thus the Indonesian government aims to establish another 5 million hectares in the next 5 years. The Regency Head in East Kalimantan has only released about 92 hectares HTR concession area with 31 permit holders, and about 2,090 hectares were reserved for future concession permits (MoEF,

2014). If the planned concessions are granted, East Kalimantan will be the largest HTR concession area in Indonesia.

Meanwhile, the East Kalimantan government has targeted about 7.7 million hectares of large-scale forest industries, and 710,489 hectares for small-scale forest industries to be achieved by 2030. Macro- and micro-delineation means that about 65% of the reserved land can be defined as HTI. Thus, if provincial government targets are achieved, there will be about 5 million hectares of effective land to develop as HTI in the future. This projection ignores non-workable land use due to land tenure conflicts, which nationally occurred on 24 million of the 34.5-million-hectares of land under forestry industry concessions (both a wood and non-wood products industry area) (IUPHHK/BK) (MoF, 2012). In addition, the projection also works with the assumption that natural forest concession (HPH) growth is zero, based on the RKTN and the roadmap of the forest industry. An identification of production forest without concession was illustrated by the TNC (Figure 14).

As shown (table 11), current HTI areas are generally found in five regencies, namely Kutai Kartanegara with 408,454 hectares, Kutai Timur with 362,800 hectares, Bulungan with 246,912 hectares, Berau with 244,815 hectares, and Kutai Barat with 182,080 hectares. There are many areas are of production forest that are not yet subjected to any forest concession (Figure 14) (Ministry of Forestry reference letter SK. 554/Menhut-II/2013). Most of the possible area for future development of HTI and HTR are located in Kutai Kartanegara and Pasir regencies.

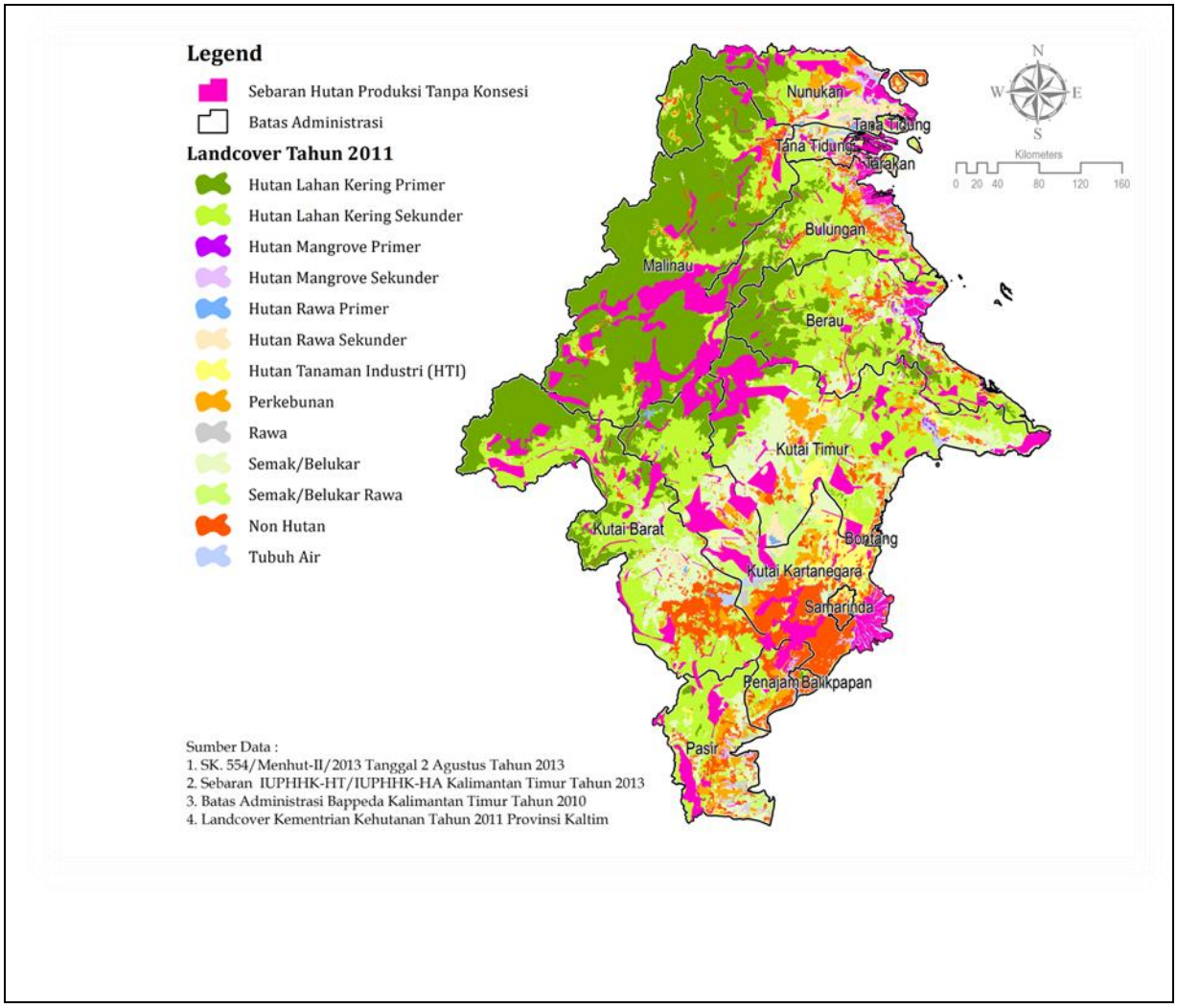

Figure 14. Production forest area not subjected to any forest concessions, circa 2013 (Source: Satar and Syopyan, 2014).
*Note: Legend category *Sebaran Hutan Produksi Tanpa Konsesi*

Unlike the IF concessions in Sumatera where many of the areas are located in the peatlands which are prone to fire during the dry season, many of the IF concessions in East Kalimantan are located on mineral lands. Thus, in terms of possible damage due to natural causes and despite the deforestation threats, Kalimantan has better locations for plantation development compared to Sumatera. Given these points, despite market challenges in the HTI industry, East Kalimantan still has much room for new forest plantation growth in the future.

3.2.2. Industrial forests for the purpose of pulp and paper development

HTI pulp and paper are derived from the following species: pine (*Pinus* spp), eucalyptus (*Eucalyptus* spp), acacia (*Acacia* spp), meranti (*Shorea* spp), sungkai (*Peronema canescens*), and gmelina (*Gmelina arborea*). There is no detailed information on how much each species has been used in plantations for the purpose of pulp and paper production. However, it is clear that pulp and paper production has dominated HTI plantations in Indonesia. Sinarmas with its member Asia Pulp and Paper (APP) groups and its subsidiary companies, and Royal Golden Eagle (RGE), with its member Asia Pacific Resources International Holdings (APRIL) - Riau Andalan Pulp and Paper (RAPP) and its subsidiaries, possess the majority of the pulp and paper industry in Indonesia.

The Ministry of Forestry stopped publishing specific data on HTI for pulp and paper areas in 2006. There has been some fluctuation of HTI for pulp and paper areas from 2001-2005, both at the national level and provincial level in East Kalimantan (Figure 15). Data publication stopped just when the HTI area in Indonesia was about to rise, as Indonesia entered the democracy era. Indonesia has several advantages in the pulp and paper business (i.e. favorable geographical position, which is close to China's mainlan, and Australia). Its supportive climate means that Indonesia's plantations for pulp and paper production can be harvested after only 5 years. Given those advantages, Indonesia is now placed in ninth position as a world pulp producer and in the sixth position as a world paper producer. It is

first among pulp and paper producers from ASEAN countries[13] (Liana Bratasida, *talkshow*, metrotvnews.com[14]).

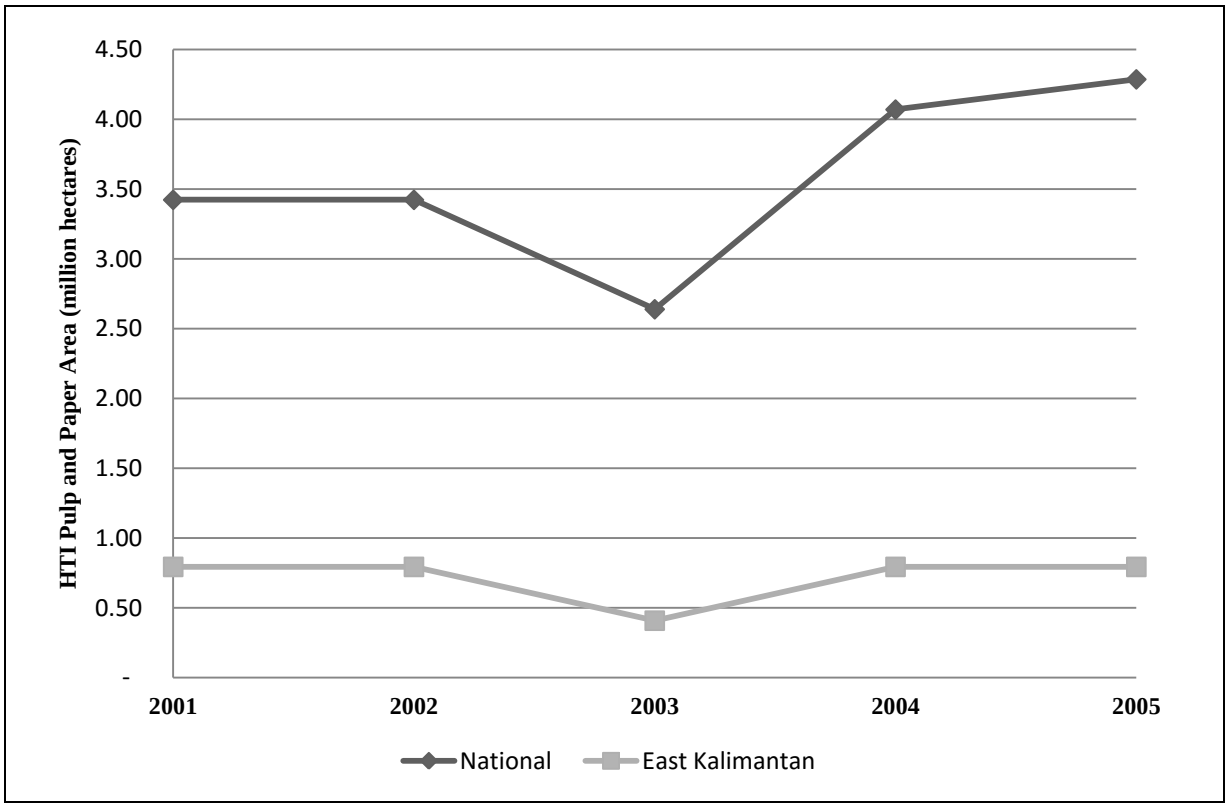

Figure 15. Total area of HTI for pulp and paper at national level and at provincial level in East Kalimantan, 2001-05 (Source: various MoF statistics 2002, 2003, 2004, 2005, and 2006).

The Indonesian government has promoted the pulp and paper industry. The national government has placed pulp and paper as one of the primary sectors in the ASEAN economic community in 2016. The Ministry of Forestry has set a goal of increasing pulp production to about 45 million tons annually and paper production to million 40.5 tons' annually by 2025

[13] ASEAN is The Association of Southeast Asian Nations, or the association of countries located in Southeast Asia. The members consist of Brunei Darussalam, Cambodia, Indonesia, Lao PDR, Malaysia, Myanmar, Philippines, Singapore, Thailand, and Viet Nam. http://www.asean.org/asean/asean-member-states/

[14] http://video.metrotvnews.com/play/2015/12/15/460655/wah-industri-pulp-dan-kertas-indonesia-nomor-satu-di-as

(Table 12) (MoF, 2012). However, the details of achieving this target are unknown and likely will be challenging.

Table 12. Pulp and paper production target by 5-year period to 2025 (Source: MoF, 2012).

Type of industry	Existing	Period 1 Increment	Period 2 Increment	Period 3 Increment	2025 target
Pulp	7.90 tons	13.3 tons	11.9 tons	11.9 tons	45 tons
Paper	12.2 tons	8.1 tons	10.1 tons	10.1 tons	40.5 tons

Currently, in East Kalimantan, Sinarmas group has submitted a new HTI operation application for 730,059 hectares in East Kalimantan with a focus on pulp and paper products. Existing Sinarmas group HTI in East Kalimantan is 308,669 hectares, including self-ownership of 222,920 hectares, and joint operation of 85,749 hectares[15] (Sinarmas Forestry, 2007). Thus, if the new application is approved, there will be about 1 million hectares of HTI owned by Sinarmas group in East Kalimantan province alone. Existing concessions self-managed by Sinarmas consist of two companies, namely PT Surya Hutani Jaya (183,300 hectares), and PT Acacia Andalan Utama (39,620 hectares); under concessions co-managed with other companies, they have a total area 85,749 hectares.

Meanwhile, the RGE group concession area in East Kalimantan consists of two companies, namely PT Adindo Hutan Lestari (195,453 hectares), and PT ITCI Hutani Manunggal (159,908 hectares), which makes the total concession area as about 315,669 hectares. Separately, APRIL-RAPP group in Sumatera, a sub group company of RGE, holds concession areas of about 1 million hectares, with effective concession only about 480,000 hectares, as APRIL applied a policy quoting 51% of its concession area for nature conservation and community welfare activities.

[15] Companies that proposed new HTI concession area under Sinarmas group are PT Alam Nusa Sejahtera (166,200 Ha), PT Cahaya Mitra Utama (462,500 Ha), and PT Marimun Timber Industries (8000 Ha). The three companies are not yet under the list of existing HTI companies operating in East Kalimantan.

In summary, one-third of HTI companies operated in East Kalimantan are under Sinarmas and the RGE group. A discussion about investment and economic benefits from HTI, including the pulp and paper sector, is discussed in greater detail in the chapter 4.

3.2.3. Industrial forests for the purpose of construction wood development

HTI for construction wood production is less developed compared to pulp and paper production. The Ministry of Forestry has concentrated HTI construction wood production to be built in HTI for transmigration purposes (Hidayat, 2008). Starting in 2006 the Ministry of Forestry only released data for the total area of HTI development (Figure 16).

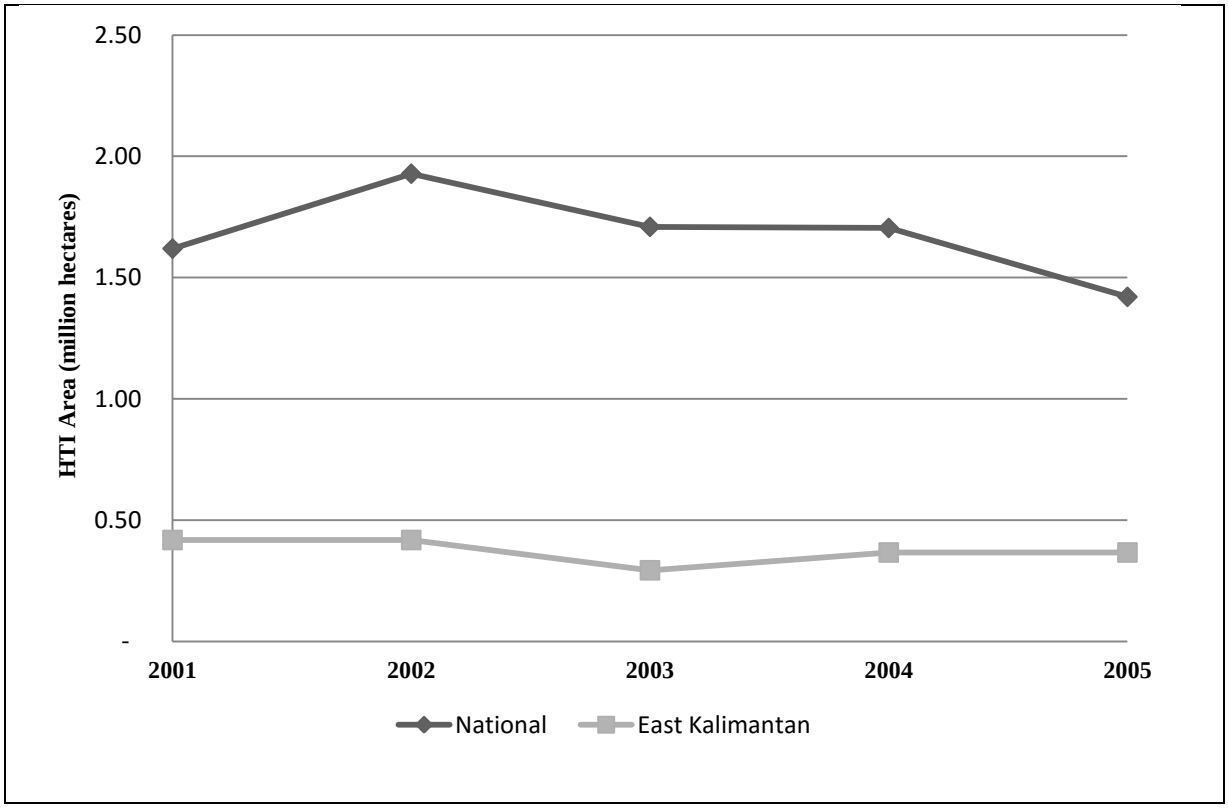

Figure 16. Total area of HTI for wood construction at national level and at provincial level in East Kalimantan 2001 – 2005 (Source: various MoF statistics 2002, 2003, 2004, 2005, and 2006).

HTI for wood construction is declining nationally, while the trends in East Kalimantan show some stagnancy. FORDA (2010) argued that low productivity of species used in HTI wood construction is one of the main reason why this type of HTI is not so

popular compared to HTI for pulp and paper. The species that are used for this type of HTI are, among others, burflower-tree (*Anthocepalus cadamba*), rubber tree (*Havea brasiliensis*), Jelutong (Dyera spp), gmelina (*Gmelina arborea*), acacia (*Acacia mangium*), eucalyptus (*Eucalyptus deglupta*), sengon (*Paraserianthes falcataria*), sungkai (*Peronema canescens*), pinus (Pinus spp), meranti (*Shorea* spp), Ulin (Eusideroxylon zwageri), ramin (*Gonystylus bancanus*), and balsa wood tree (*Ochroma lagopus*). Some of these species are now in vulnerable status according to IUCN Red List of Threatened Species (e.g., Ulin (Eusideroxylon zwageri) and ramin (*Gonystylus bancanus*)).

Costly production, high risks such as theft, and long investment cycles are some of the major causes why this type of HTI is not favored by investors (Mansur, 2009 as cited in FORDA, 2010). This is compounded by 'unfriendly' regulations, such as complex bureaucratic processes and illegal payments (Iskandar, 2009 as cited in FORDA, 2010). To reduce these problems, FORDA (2010) implemented research to increase the productive capacity of common species used for HTI for wood construction. The research focused on three rotation lengths, divided into two species groups (Table 13).

Table 13. Species to be further researched by FORDA for HTI wood construction development (Source: FORDA 2014).

Rotation lengths	Species
Short rotation (<10 years)	sengon (*Paraserianthes falcataria*)
Middle rotation (10 – 30 years)	tembesu *(Fagraea fragrans*), meranti merah (*Shorea leprosula, S. parvifolia, S.johorensis, S.smithiana*), sungkai (*Peronema canescens*),
Long rotation (>30 years)	merbau (*Intsia spp*)
Rotation lengths	Species
Short rotation (<10 years)	nyawai/kondang (*Ficus variegata*), kayu bawang (*Protium javanicum*), bambang lanang (*Madhuca aspera*)
Middle rotation (10 – 30 years)	gelam (*Melaleuca* sp.).

Considering FORDA is in an important position in determining species to be used in HTI development, those species are considered the species that are highly possible to be used in HTI for wood construction in the future. The Indonesian Government's Road Map for Forestry Industry Development (2012) has planned by 2025 that HTI for construction wood will be 2.62 million hectares with production of 60.6 million m^3, and HTR where the development is also mainly focused on construction wood to achieve 1.70 million hectares with production of 39.4 m^3. Further, the Ministry of Forestry's has a detailed plan on non-pulp forest production products (except NTFPs and bioenergy) (Table 14)

Table 14. Indonesia long-term target of wood production from HTI, 2011-2025 (Source: MoF, 2012)

Type of industry	Ext	Period 1 Increment	Period 2 Increment	Period 3 Increment	2025 target
Plywood	3.60 m^3	8.6 m^3	12.6 m^3	12.6 m^3	37.2 m3
Sawnwood	2.80 m^3	10.2 m^3	14.1 m^3	14.1 m^3	41.25 m3
Woodworking	1.00 m^3	6.9 m^3	6.9 m^3	6.9 m^3	21.75 m3
Furniture	2.20 m^3	1.3 m^3	0.26 m^3		3.48 m3

The Indonesian government has planned to increase HTI for wood construction production periodically. The first period is 2011 – 2015, the second period is 2016-2020, and the third period is 2021-2025. At the end of the three periods, Indonesia is targeted to have annual total production of plywood of 37.2 million m^3, sawnwood of 41.25 million m^3, woodworking of 21.75 million m^3, and furniture of 3.48 million m^3. In addition, the East Kalimantan government in the RKTP 2011-2030 argues that HTI for wood construction should be their future industry. given the current abundance of sawnwood and plywood industry in East Kalimantan, and lack of capacity in natural forests. Since the pulp and paper processing industry is mostly located outside East Kalimantan, the provincial government has the intention of boosting HTI for wood construction as their primary forest plantation.

3.2.4. Industrial forest for bioenergy and non-timber forest product development

IF plantations for bioenergy and other non-timber forest products have not been widely developed yet. These forest plantations were initiated by the Indonesian government as a response to global and national demands to increase renewable sources of energy (Casson et al., 2015). To answer the needs of this market, the Ministry of Forestry signed an MoU with the Ministry of Energy and Mineral Resources for IF as a new supply source for Indonesia's energy needs (bisnis.com, 2015).

Among the four species, alexandrian laurel (*Calohpyllum inophyllum*) and sea mango (*Cerbera manghas*) will be used primarily as a source for biofuel, while camelina (*Camelina sativa*) and calliandra (*Calliandra spp*) will be used as biomass energy (bisnis.com, 2015). An example of plantation use for bioenergy comes from PT RAPP of APRIL group in Riau, Sumatera. The companies utilize the black liquor from acacia (*Acacia mangium*) waste after processing to become pulp. By adding tree bark as another ingredient, PT RAPP uses bioenergy to fulfill 85 percent of its industrial operation energy needs (Beritasatu.com, 2014; Antaranews.com, 2014).

In the Road Map for the Forestry Industry, the Ministry of Forestry (2012) has targeted 0.90 million hectares of HTI to produce 19.6 million m^3 for bioenergy annually by 2020. However, the government changed their target in 2014 by planning to establish 400,000 hectares of HTI for bioenergy by 2020. Annually, the government plans to establish 80,000 hectares of HTI for bioenergy (bisnis.com, 2014). Currently, there are about 35 companies carrying out this government plan. In addition, the government also intends to empower smallholder plantations to support this idea. (bisnis.com, 2014).

The government also plans to establish HTI for bioenergy in clusters to optimize the productivity of the energy industry. The GoI plans to established bioenergy forest plantations which close to oil refineries as well as plantations that will supply biomass to be built close to

power plants (beritasatu.com, 2014). According to these plans, East Kalimantan, Riau, North Sumatera, and South Sumatera will be in an advantageous position as Indonesia's state oil refineries are mostly located in these provinces. HTI for bioenergy regulation has been facilitated on the newest government regulation on HTI PermenLHK Number P.12/Menlhk-II/2015.

In addition to bioenergy forest plantations, a new form of commodity to be developed is HTI plantations for natural rubber production. Rubber plantations have a long history in Indonesia. Most rubber plantations were planted in non-state permanent forest areas otherwise commonly named "other land purpose areas" (*Area Penggunaan Lain* - APL). The operations of the plantations in the APL are not directly regulated by the Ministry of Forestry, unless the grower wants to harvest the woods where Wood Harvest Permits (*Izin Penebangan Kayu* – IPK) would be needed. An example of HTI for rubber plantation is a plantation developed by Barito Pacific group in joint venture with the Michelin Company.

Barito Pacific, an old player in HPH and HTI which mostly operated in Kalimantan, and Michelin, one of the leading companies from France in the tire industry, agreed to establish a new plantation in the form of HTI for natural rubber production. There will be about 88,000 hectares of plantation established by the joint-venture operation on degraded land in Jambi and East-North Kalimantan. The venture is owned 53 percent by Barito Pacific, and 47 percent owned by Michelin with total investment about US$ 55 million (Michelin.com, 2015).

Overall rubber plantation area and production development in the APL area has increased slightly in recent years (Figure 17 and 18). The majority of rubber plantations have been owned by small-holder growers, or under community-based management. The plantations under small-holder management have been relatively stable, around 2.5 million to 3 million hectares from 2000 to 2014. However, production shows some fluctuation with a

gradual increase in level of production. The plantations under large-scale plantation management have been quite steady, with the plantation area under 1 million hectares nationally. The production rate of plantations under large-scale companies' management was steady, about 1 ton per hectare per year, since the beginning of recorded statistics available in the Central Bureau of Statistics of Indonesia. Barito Pacific-Michelin also assumed the same production rate, where of; they hope to produce about 80,000 tonnes of rubber per annum from 88,000 hectares (Michelin.com, May 2015). To sum up, the emergence of a focus on new commodities in HTI's is a positive indicator for future industrial forest development. Common problems that have occurred in HTI outside Java, such as market price control, bad infrastructure, 'unfriendly' regulations and illegal payments should be solved to boost HTI development (bisnis.com, August 2015). For example, licensing simplification for the investor and online timber administration could support future HTI development.

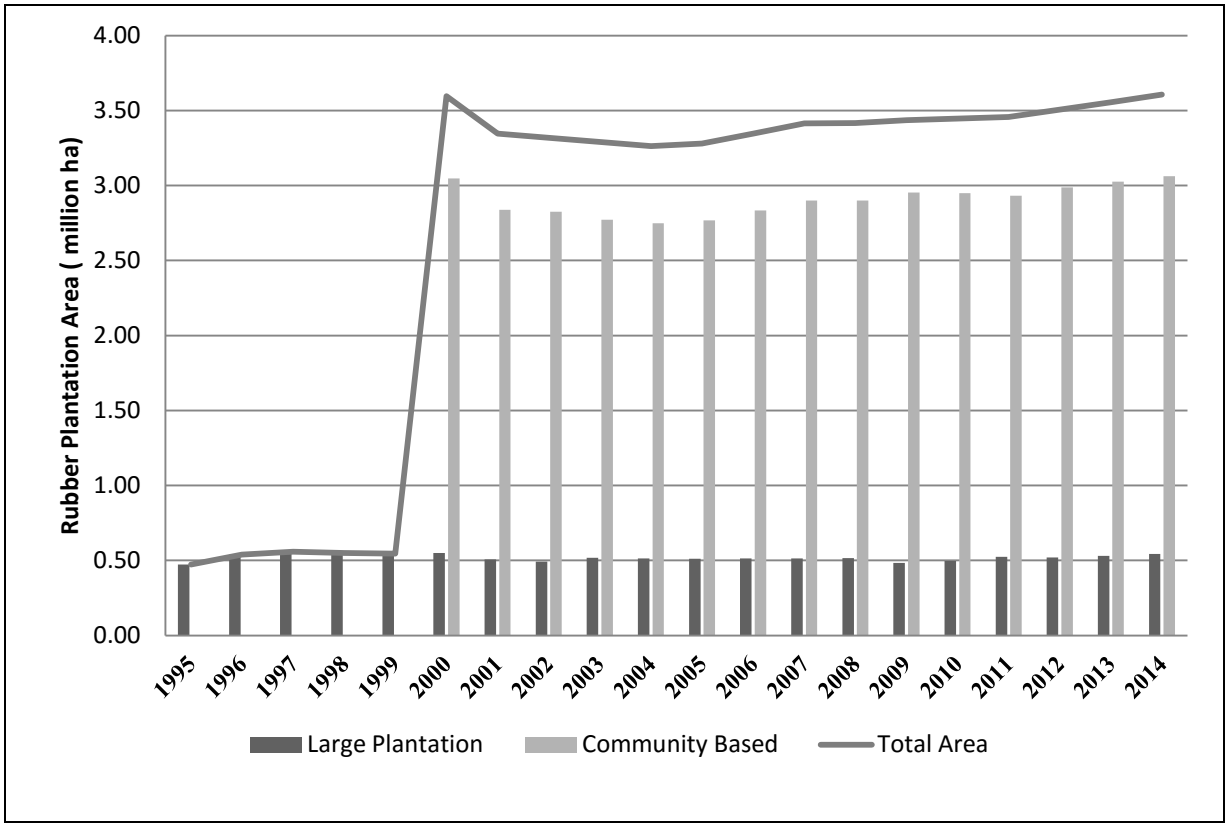

Figure 17. Rubber plantation area in Indonesia outside permanent forest area in millions of hectares, 1995-2014 (Source: Ministry of Agriculture, 2015).

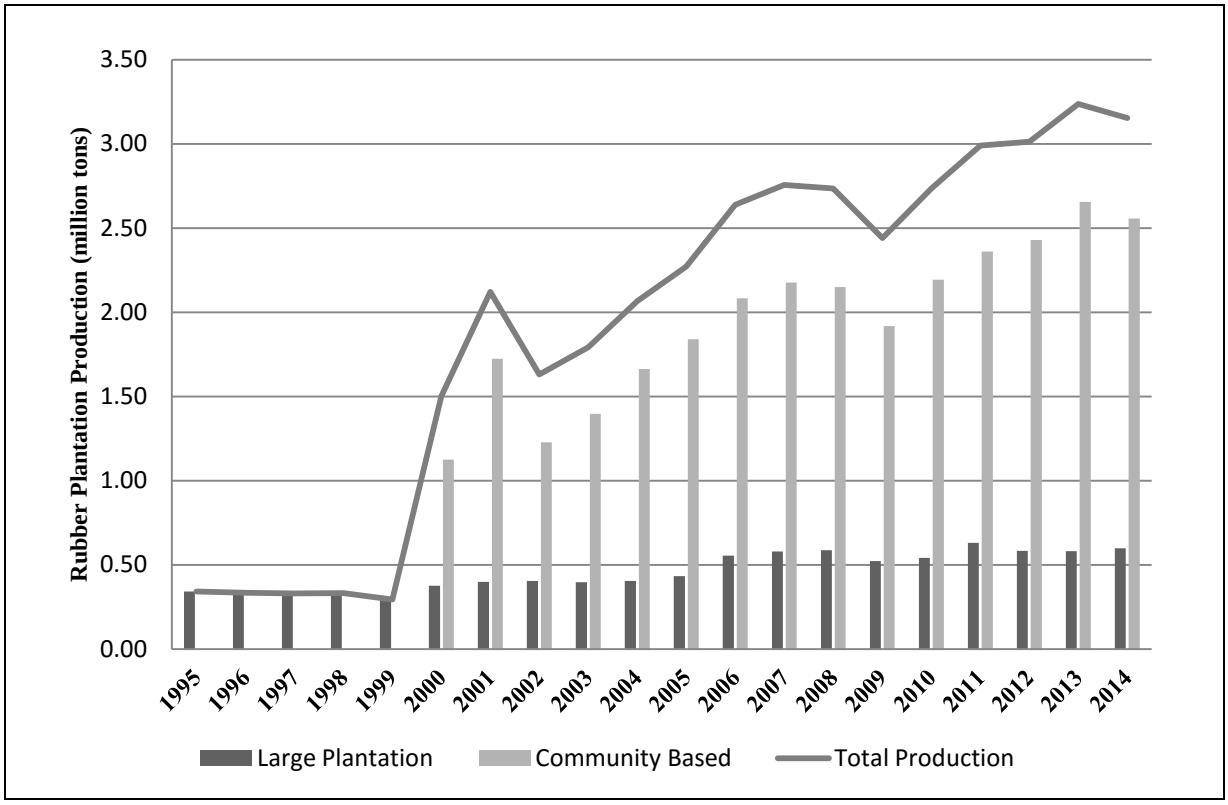

Figure 18. Rubber plantation production (in tons) outside permanent forest area, 1995-2014 (source: Ministry of Agriculture, 2015).

3.3. Land-use conflict, social forestry, and competition issues in industrial forest plantations

This section is divided into two subsections. The first subsection addresses conflict and social forestry. The second covers competition for land.

3.3.1. Conflict and social forestry in industrial forest plantations

About 738 conflicts around natural resource issues were documented by the National Commission on Human Rights (Komnas HAM, 2012 cited in Samsudin and Pirard, 2015). There are many different reported figures for in agrarian conflicts between different organizations so further analysis on conflict related to industrial forest plantation should be pursued (Samsudin and Pirard, 2015). Additionally, WALHI has indicated that many forest concession permits (or recommendations) were released ahead of elections, although many of

these concessions were not necessarily operated after the concessions were granted (Kompas.com, 2015).

Indonesia's Constitutional Court (*Mahkamah Konstitutsi* – MK) decision number 45/2011 on permanent forest establishment and MK decision number 35/2012 on customary forests has had a great impact on industrial forest plantation development. Decision number 45/2011 addressed permanent forest establishment, which was regulated in the Article 1, paragraph 3 of Law Number 41 year 1999 on Forestry. This article states that "*Forest area shall be a certain area designated and or stipulated by the Government to be preserved as a permanent forest*". Further, it states that the "*designate and or*" phrase in Article 1 paragraph 3 Forestry Law Number 41 year 1999 is "*inconsistent with the 1945 Constitution of the State of the Republic of Indonesia*". The MK also made the point that the aforementioned statement "*shall have no binding legal effect*". Thus, legally binding permanent forest should only be done by boundary marking, mapping and permanent forest stipulation.

The implication for industrial forest plantations is that granted concessions located in the designated permanent forest area may be in the position to be sued. MoEF (2015) has reported permanent forest area stipulation was 62.3 percent complete by May 2015, and 66.44 percent by June 2015 (unofficial communication with the MoEF). However, KPK (2012) has reported that only about 11 percent of 120 million stipulated permanent forest was in "clear and clean" status by the time the government released a decree for the 10 million hectare HTI concession. Thus, 89 percent of permanent forest area was in unclear status during the period when the 10 million hectare HTI concession was granted. Unclear land boundaries may lead to natural resource conflicts (Mongabay, 2014b).

In addition, MK decision number 35/2012 has also had an impact on forest tenure status in Indonesia. The Constitutional Court decision on Number 35-PUU-X/2012 rectifies the Forestry Law number 41 year 1999 by erasing the word "state" in customary forest as

unconstitutional. The problem arises in the application of the decision, which is not simply erasure of words but also implementation at the local level. The implication for the forest plantation area is that the concession area may also be claimed by the customary community, thereby creating a dispute.

Currently, there are several organizations (e.g., *Jaringan Kerja Pemetaan Partisipatif* (JKPP) or roughly translated as participatory mapping network and *Aliansi Masyarakat Adat Nasional* (AMAN) translated as Indigeneous People Alliance of the Archipelago), actively working on mapping customary lands, including their forest territory. Nababan, Secretary General of AMAN, has stated that there are about 10 million hectares of customary lands mapped that may be located in the permanent forest area (CIFOR, 2015). In addition, JKPP has also mapped about 5.2 million hectares' customary lands in Indonesia (Table 15 and 16).

Table 15. Customary lands in different land-use status in Indonesia (Source: Mongabay, 2014a).

Permanent forest area and APL area	Area (Ha)	Percentage of total participatory mapping area
Protected Forests	1,329,671.95	25%
Production Forests	827,376.50	16%
Convertible Production Forests	516,085.85	10%
Limited Production Forests	652,535.99	12%
Nature Reserves and Conservation Area	944,886.06	18%
Area Penggunaan Lain	992,501.93	19%
Total area participatory mapping	5,263,058.28	

Table 16. Customary lands in different land-use industry concessions in Indonesia (Source: Mongabay, 2014a).

Permanent forest and APL area	Area (Ha)	Percentage
IUPHHK-HA (selective logging)	521,200.92	10%
Mining	1,043,199.76	20%
Oil Palm	663,657.93	13%
IUPHHK – HTI (IF)	278,439.75	5%
Total area with concession	2,506,498.36	48%
Total area without concession	2,756,559.93	52%
Total area participatory mapping	5,263,058.28	

There are about 2 million hectares of claimed customary lands located in the area where HTI concessions are allowed to be given (production forests, convertible production forests, and limited production forests) (Table 14 and 15). Meanwhile, in the existing HTI concessions, there are only about 278,439.75 hectares located in claimed customary lands. The percentage of existing HTI concessions in the claimed customary lands is relatively small compared to other land-uses, such as mining areas of which about 1 million hectares are located in the claimed customary lands. If we remove 10.9 million existing HTI concessions in the claimed customary lands, then there should still be about 10.7 million HTI hectares in concessions which can be optimally managed. However, those numbers are still quite raw; AMAN has stated that there are about 10 million hectares in customary lands, which may be located in the HTI concession area. Separately, the MoF has recorded that there are about 24 million hectares of industrial forest concession area (selective logging and forest plantation) in disputed status (MoF, 2012).

The Indonesian government has released its One Map policy which was accommodated in the Law Number 4 year 2011 on Geospatial Information to address different map references in different institutions and government agencies. In addition, the Indonesian government has released several policies to solve agrarian conflicts in the forestry

industry concessions, particularly HTI. The Ministry of Forestry has issued a policy on partnerships in managing forest plantations. Through Minister Regulation Number P.39/2013 on partnership scheme, communities may be able to work the land with their own management or co-managed with the companies in the given HTI concession area. In addition, the Indonesian government is aiming to periodically allocate 12.7 million hectares for social forestry activities in 2019. The program is part of *Nawa Cita* 7 of President Widodo's administrative program. The program will cover several schemes in social forestry to be covered in the 12.7 million hectares' target. The schemes are Community Forestry (HKm), Village Forest (HD), HTR, customary forests, and partnership on forestry. The target also prioritizes the forest dependent communities (MoEF, 2016b) Currently, there are about 48 villages located inside the forests and 298 villages located around the forests in East Kalimantan province, and 70 villages located inside the forests and 297 villages located around the forests in North Kalimantan province (BPS, 2015). The villages' presence inside and around the forest will have direct and indirect impacts on the development of HTI in Indonesia.

Current maps of social forestry zones (*Peta Indikatif Perthutanan Sosial* - PIAPS) in East Kalimantan province show that there will be about 660,782 hectares allocated as social forestry program land. Almost half of the land allocation, 328,484 hectares, will be the 20 percent that HTI companies are required to co-manage with the communities around their concession area. Meanwhile, there are about 185,268 hectares allocated for social forestry in the current PIAPS in North Kalimantan province.

The solution to agrarian conflict is not as simple as giving rights to the communities for management. In one case, communities demanded the rights to manage and also ownership rights for an area so they can freely choose to manage with their customary laws. On the other hand, not all local communities have demands because they were oppressed and

feel their land rights were taken.

The Indonesian government has applied several policies to resolve conflict by requiring HTI companies to allocate 20 percent of the granted concession as “shared room” to co-manage with the communities. HTR, Community Forest (HKm), and Village Forests (HD) have emerged as potential solutions to solve conflicts in permanent forest areas, including the area under HTI concession. Those policies (and policy plans) might yield positive results by reducing conflict of the first cause above.

3.3.2. Competition for land in industrial forest plantations

Currently, there are at least three sectors competing in utilizing large-scale land areas in Indonesia, specifically in East Kalimantan. The commodities are the agricultural plantation sector dominated by oil palm (*Elaeis guinneensis*), the mining sector dominated by coal mining, and the forestry sector which includes industrial forest plantations. The agriculture sector, including oil palm and forest plantations, have contributed about 6.87 percent of the total of East Kalimantan’s regional gross domestic product (GDP). Meanwhile, coal mining has contributed about 34.36 percent of East Kalimantan’s regional GDP (BPS Kaltim).

High international and domestic demand for palm oil (*Elaeis guinneensis*) by big industries for various products, such as cooking oil, soap, cosmetics, and even textiles, plastic esters, and various pharmaceutical products has created massive increases in number of plantations across Indonesia (Casson, et al., 2014). The Indonesian government has begun intense promotion of oil palm since the Indonesian crisis of 1997 (Casson et al., 2014). Between 2000-2014, Indonesia has become the largest producer of palm oil in the world (Figure 19).

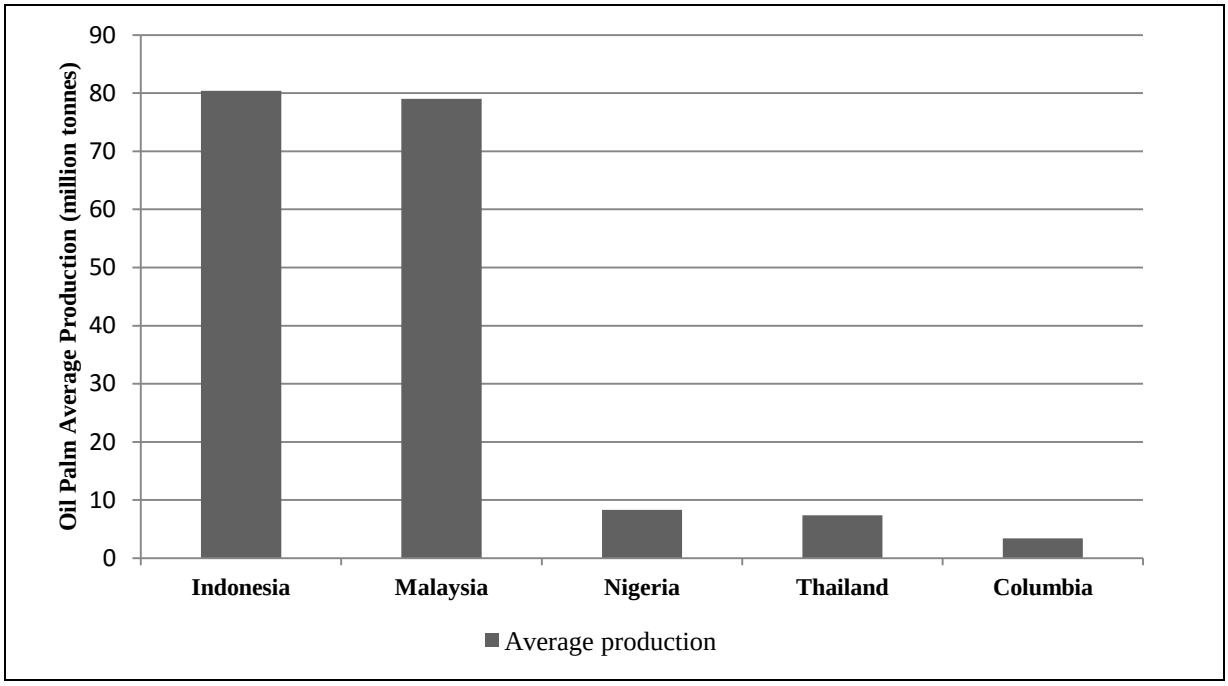

Figure 19. Five largest producers of oil palm average production (in tonnes), 2000-14 (Source: FAOSTAT, 2016).

Oil palm plantation production in Indonesia has continued to increase, from about 36 million tons in 2000 to 126 million tons in 2014 (Figure 20). In addition, the average yields of oil palm have also been increasing, from 986 kg/ha in 2010 to 1,072 kg/ha in 2014, which indicates good efforts from the growers and the government to boost and maintain Indonesia's position as a major producer of Crude Palm Oil (CPO) in the world (BPS).

Although the production and production rate of Indonesian palm oil is increasing, Indonesia is experiencing difficulties caused by CPO price drops in 2015 as the impact of global crude oil price drops. The average CPO price in 2015 was only US$ 614.2 per metric ton. The trends still show a decrease, and some analyst have predicted the price will still be US$ 600 per metric ton in the first quarter of 2016 (GAPKI, 2016). The World Bank (2016) has predicted that the price of palm oil will still be under US$ 700 per metric ton up to 2020. Although it is too early to draw a conclusion, if the price of CPO keeps declining, it will make the situation difficult for future development of oil palm plantations in Indonesia.

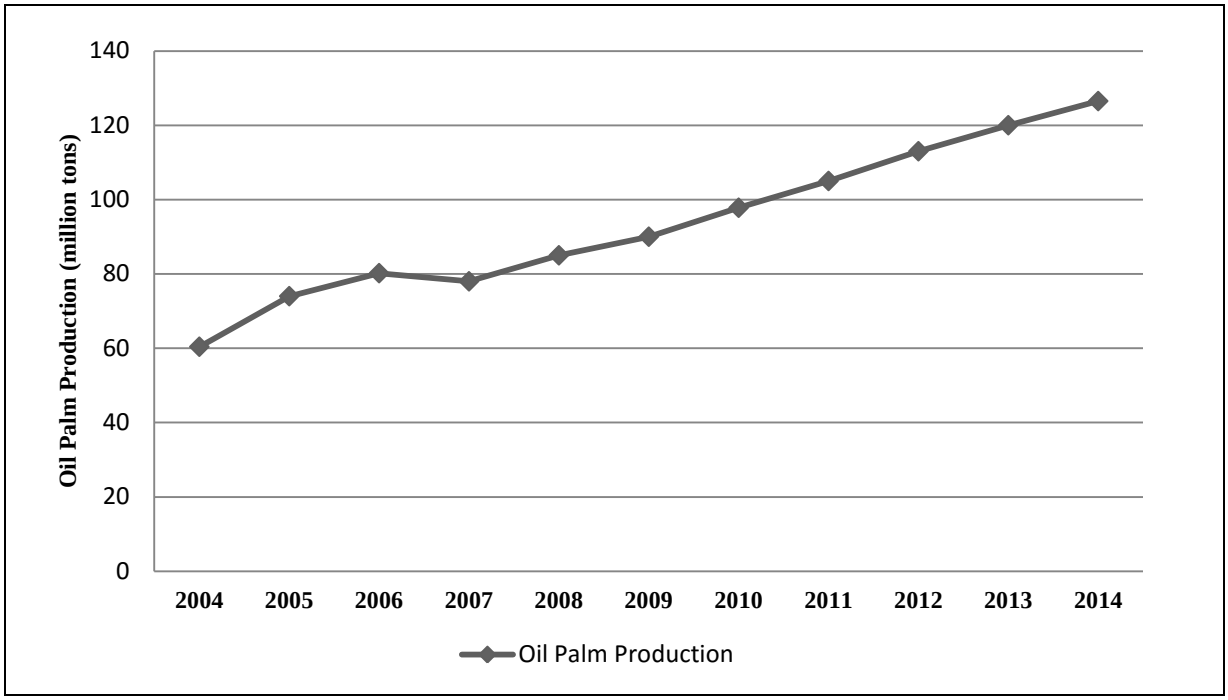

Figure 20. Indonesia oil palm production (in tonnes), 2004-14 (Source: FAOSTAT, 2016).

Although the East Kalimantan provincial government has continued to apply a moratorium on new licenses, the Governor has also planned to increase the area of oil palm plantations to about 2 million hectares in the near future (East Kalimantan Governor Regulation Number 17 year 2015; Kaltimprov.go.id, 2016). Currently, there are about 1.02 million hectares in the 1.18-million-hectares total agricultural plantation sector in East Kalimantan (BPS Kaltim) (Table 17). The trends and provincial government planning on oil palm expansion areas shows the importance of palm oil as a commodity in East Kalimantan.

Table 17. Oil palm area and its production in East Kalimantan, 2009-14 (Source: BPS Kaltim).

Year	Total area (million ha)	Production (million ton)
2009	0.46	-
2010	0.56	2.96
2011	0.71	4.08
2012	0.82	5.22
2013	0.94	6.90
2014	1.02	9.62

Coal is also an important commodity in East Kalimantan. Indonesian coal production increased by almost 300 percent between 2008 - 2012, from 179 million tons in 2008 to 466 million tons in 2012. Half of the production comes from East Kalimantan only (Figure 21). The Mining Advocacy Network (JATAM) has recorded that there are about 7 million hectares of land used for coal mining. Based on license type, the mining is dominated by the Mining Business License (IUP), or a mine that is fully owned by domestic investors. There are about 5.3 million hectares under IUP license, 1.62 million hectares under Coal Mining Work Operation Agreement (Perjanjian Karya Pengusahaan Pertambangan Batubara-PKP2B) license, and 29,201 hectares under *work of contract* (*Kontrak Karya* – KK) license, or owned by a foreign investment company.

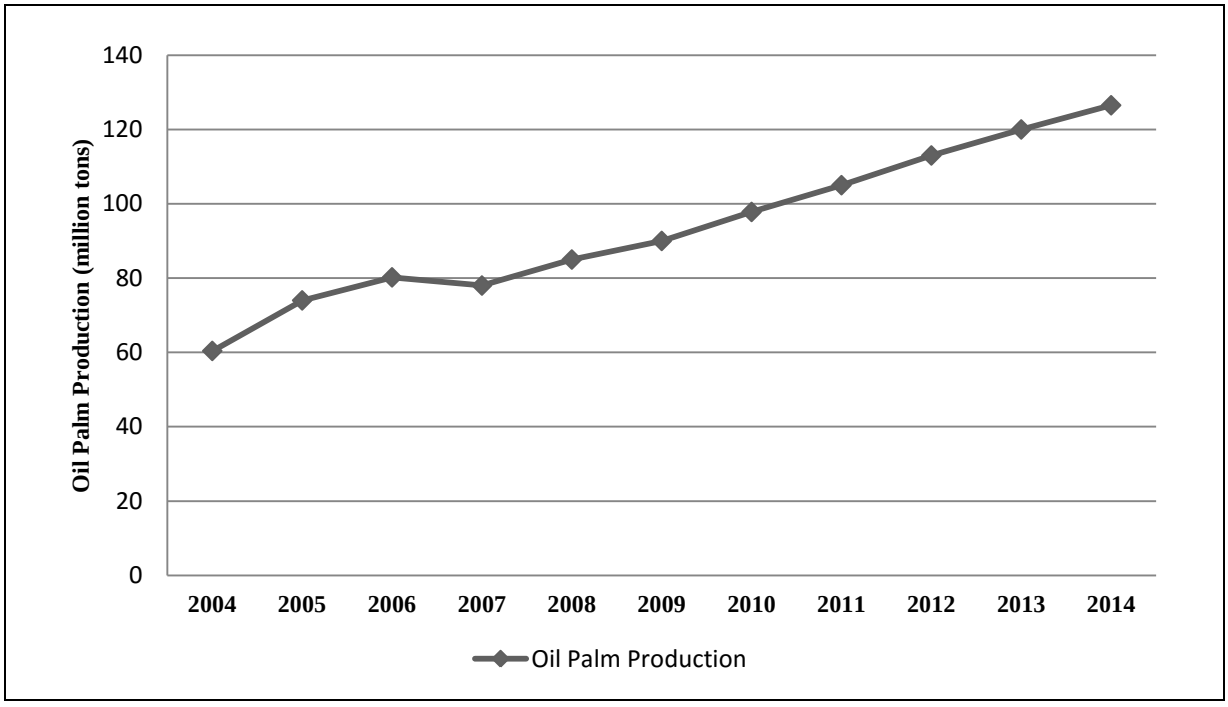

Figure 21. Indonesia oil palm production (in tonnes), 2004-14 (Source: FAOSTAT, 2016).

The situation of coal mining in East Kalimantan shows no difference from the oil palm sector. Coal mining, from 2012 to 2014, has been experiencing stagnant production, and there has not been much of a production increase when compared to the 2008-2011 period, during which East Kalimantan almost doubled its production. The production stagnancy

which started in 2013 was caused by the drop in the international price of coal (BPS Kaltim, 2015).

There are different institutional structures for obtaining land licenses for the different commodities (Table 18). Industrial forest plantations, particularly HTI, are tightly controlled by the MoEF, within permanent forest areas. Oil palm plantations are arranged by the Ministry of Agriculture, with the general regulation that the plantations should be established in other land purposes (APL) areas. The coal mining sector can be operated in the permanent forest area through Use Permit licenses from the Ministry of Environment and Forestry, also primarily in APL areas. Unlike HTI, oil palm and coal mining licenses can be issued by the head of regency at the proposed work location. Thus, oil palm and coal mining are favored by local governments because they derive more benefit for regional income compared to HTI.

Table 18. Comparison between IF plantation, oil palm plantation, and coal mining licenses and operation requirements.

	Commodities		
	Industrial Forest Plantation (HTI, HTR)	Oil Palm	Coal Mining
In what type of land regulated to operate?	Permanent forest area, prioritized to be build in non-productive production forests	Other land purposes (APL) area	Other land purposes area (APL) and permanent forest area through Use Permit (*Ijin Pinjam Pakai Kawasan*) mechanism
What type of license released?	Timber Utilization Permit (IUPHHK)	Plantation Bussiness Permit (IUP) + Cultivation Right on Land (HGU) after 2 years	Mining Bussiness Permit (IUP) and PKP2B
Who is responsible issuing a license?	Ministry of Environment and Forestry for HTI, and Governor for HTR	Head of Regency, IUP-B, and Governor or Head of Regency for IUP-P, and National Bureau Land (BPN) for HGU license	Ministry of Energy and Mineral Resources, Governor, or Head of Regency
Maximum operation area	N/A	20,000 hectare per company per	N/A

		province, with a maximum of 100,000 in Indonesia	

3.4. Bridging a policy gap, From written regulation to field application: interview results

Sections 3.6.1 , 3.6.2 and 3.63 provide a synthesis of comments from interviewees (see interview questions in Appendix A). The principal focus of the questions were to determine 1) what the main problems and challenges in IF development are, and 2) how government policies can be used to create sustainable IF development. Finally, section 3.6.4 presents a summary government roles and policy changes.

3.4.1. Overview

Indonesia's government has allocated Industrial Forest (IF) plantation about 10.9 million hectares, yet by 2013 there are only 5.7 million hectares that had been successfully established (FWI, 2014). There are several factors *a priori* that were identified as causing a delay in the development of IF in Indonesia; they are:

1. Land conflicts, company and local communities (Samsudin and Pirard, 2014), and inter-sector government conflicts which commonly include overlapping land licenses;
2. Poor bureaucratic system and low enforcement, ICEL and FITRA has noted that there is strong connections between deforestation rates and poor governance practice in their regency study areas (Rahman et al., 2014; and
3. Investment competition with other natural resources utilization such as oil palm and mining.

Based on these preliminary IF development obstacles, an interview was used to deepen the analysis of Indonesia's government policies on promoting IF development. The interviews focused on the situation in East Kalimantan Province, Indonesia. The IF

development in Kalimantan is less well known compared to Sumatera, but considering Kalimantan's land potential for IF to developed, a study in Kalimantan should help researchers' observe Indonesia's policy readiness in developing IF and how it implemented in the newly developed area for IF. To maintain confidentiality, identities of interviewees are not associated with their comments on IF development.

3.4.2. Field data collection summary

The subsection is based on responses to the questions asked of the interviewees.

1. How do you see Indonesian IF have changes in the last five years?

   None of the interviewees noted any changes on IF development in the last five years. That is, policies or policy implementation remained unchanged in their views.

2. What are the main challenges and problems in the development of IF in Indonesia, specifically in East Kalimantan?

   Two major factors hinder IF development in Indonesia, including in East Kalimantan, are financial assistantship and land tenure. IUPHHK type of license given to IF is not a friendly license for bank collateral, meanwhile the GoI provided no alternatives on assisting the company in financial need. Loans from international banks are preferable, and become the most feasible option for some companies, especially the two largest IF players in Indonesia, Sinarmas and RGE, to finance their plantations. Recent trend shows large-scale lenders required their loaners to comply SFM practice. Meanwhile, conflict in IF has occurred not only between companies and communities, but also with other stakeholders (e.g. between IF company and other sector company, inter-government agencies, etc.). The common cause of unclear land tenure is driven by different baseline maps used by different agencies. Forestry areas that are not well-inventoried also becomes critical points with unclear land tenure.

3. What is the main strengths and opportunities of IF development in Indonesia, specifically in East Kalimantan?

   None of the interviewees commented directly on the notion of strengths and opportunities. However, a few comments related to strengths and opportunities were made by a few interviewees. One opinion was that the GoI has made a strong commitment on supplying Indonesia's future wood needs from the IF plantations, instead of exploiting natural forests. In addition, there many opportunities on permanent forest areas that are not yet under any concession, which potentially can be used as IF plantation areas. Some efforts on solving the land tenure issue have also been made by government, (e.g., partnership scheme on HTI, settling up state forest inventory, etc.).

4. What factors that still face Indonesia's IF development in Kalimantan?

   Most of the interviewees referred to the challenges and problems section (question 2) as the factors that still face Indonesia's IF development, notably land tenure and financial assistance.

5. How do you see IF amount area extension have changes in East Kalimantan?

   None of the interviewees have made direct comments to this question.

6. In your opinion, which current government policies support sustainable IF development? Are they adequate?

   Current government policies such as One Door Investment Licensing and Online Licensing are good signs of forest governance reformation. However, the practices still need to be improved via implementation.

7. What factors should be considered by a government to create better policy on sustainable IF development?

The IF company interviewees opined that the government should embrace all stakeholders related in IF. That is, government managers need to sit at the table to discuss the best solution to solve problems in IF development. This discussion is lacking.

8. How do you see role of KPH/FMU for the IF development in the future?

   The interviewees see KPH/FMU has promising and ideal role in promoting IF development through direct engagement with the company. However, good governance practices are still in question. 'Half-hearted' support by provincial government making FMU/KPH operation still shows this approach to be less than optimal. In addition, lack of resources, including capital and human resources are two major factors preventing FMU/KPH from playing its role in IF development.

9. In 2010, Indonesia government has changed designation area of IF development from it have to be built in unproductive forests to prioritized to be built in unproductive forests, how do you see this would affect IF development in East Kalimantan?

   There were no direct responses to how the designation area change for IF would affect IF development. However, one interviewee noted that the criteria change for IF designation area was aimed to reforesting degraded land in limited production forests area through the HTI program[16].

10. Does the company have special policy related to communities?

    The interviewees from the company sector noted that they follow any regulation made by government related to the communities. They do not have separate company policies.

11. Does the government have specific policy on promoting certain species for the IF?

    The government does not make any specific policy on promoting certain species for IF, rather they rely on the Forestry Research and Development Agency (FORDA) to make a list of recommended species for IF. The government also only emphasized the

[16] Production forests have three categories: permanent production forest area (HP), limited production forest area (HPT), and convertible production forest area (HPK).

importance of consistency on species to be used on the General Work Plan to the realization of plantation.

12. How do you compare IF and other natural resources investments such as oil palm and mining?

    Oil palm investment has more advantages compared to HTI. That is, the type of license for oil palm is bankable, and thus it is more profitable. The communities tend to prefer oil palm as its harvest with related revenue is quicker compared to HTI. Meanwhile, mining is more favorable for the local government because they have a big role in licensing concessions. However, due the falling coal prices, the provincial government has now started to look IF plantations as a promising sector to develop.

13. What is your expectation from government and company towards IF development in your area?

    There are various responses to this question. The company interviewees hope the governments make solid policy, instead of frequently changing the regulations. The companies also wish to see a fair policy to relevant stakeholders in IF that pay the respective interests of each stakeholder (e.g., companies, communities, government, etc.). Meanwhile, the government expects the companies to not delay the operation of the plantations and to be consistent with the general work plan that was made during the initial proposal of the plantation.

3.4.3. Industrial forest development and current and future industrial forest situation

Many interview comments did not fit nicely in the structured question format. Those comments are summarized in the next two sections (3.6.3 and 3.6.4).

HTI concession areas in East Kalimantan often are located in degraded forests (e.g., deforested ex-HPH and ex-HTI areas left by the old concessionaires) as well as in the secondary forests. There are many ‘open space’ areas, or areas that are not under any license,

for HTI to expand in East Kalimantan, but the challenge will be the land cover status. Most 'open spaces', are located in primary forests, where the challenge is market access based on sustainable forest management and eco-certification in the current era. One of today's challenges that inhibits HTI development in East Kalimantan is that often companies delay planned land operations due to market uncertainty.

To address the market uncertainty, some companies created policies to develop their plantations only in non-HCV (High Conservation Area) and non-HCS (High Carbon Stock) zones. These policies have led criticsm for a land resources not being optimally utilized from financial standpoint. In addition, company policies on eliminating natural forests in favor of planatation development have led to timber resource wastage from the clearing operations. This kind of impact may become a resource loss for the provincial government, as timber resources are being wasted. Some argue these resources could be given to local communities; however the option to provide logged natural timber as a charity donation to the local community is not economically viable. Thus, letting the logged natural forest timber decompose is the most economically viable option, ignoring the carbon loss effect.

The Forestry Service Office of East Kalimantan has determined that it is unlikely to establish HTI in so-called degraded land as the majority of productive forests in their administrative area was secondary forests. In addition, no HTI companies in Indonesia hold Forest Stewardships Council (FSC) certification because the baseline of 1994 for forested land prevented them from receiving this certificate. Thus, the obligation for HTI in degraded land has been impossible to implement, and the evidence in recent years has shown that it never happened.

The Ministry of Environment and Forestry argued that the criteria change for HTI is aimed to accommodate degraded land in Limited Production Forests (*Hutan Produksi Terbatas* – HPT), with that potential to be developed as HTI via reforestation activity. Thus,

HTI is now developed in the area assigned by the Minister of Environment and Forestry, regardless of the status of production forest type of permanent forest area. Land suitability of HTI is now determined through macro- and micro-delineation via GIS, which is regulated in the Permenhut Number P.3/Menhut-II/2008. The application of delineation is likely to increase the realization of HTI development.

On the other hand, the government has deplored the extent of companies' over-reliance on market forces towards HTI development. It is common to find that the plantation's general work plan (RKU) changes after consultation with the buyers rather than follow planned activities. This last impact has resulted in losses for the provinces due to underutilized land resources which may lead to the reallocation of concessions.

In addition, the challenge for the HTI industry in East Kalimantan, particularly HTI for wood construction, is the difficulty in marketing products. Industrial forests for wood construction are quite developed in Java, considering the high level of production of Perhutani and other small-scale plantations (people's plantation – Hutan Rakyat). This is simply not the case in East Kalimantan. In addition, wood for construction is in the doldrums, particularly in the furniture market, , which affects the development of HTI for wood construction. Nonetheless, the advantage of East Kalimantan is that the province has solid authority in issuing small scale (<6000 cubic capacity) permits in the wood products industry.

Another major problem in HTI development is unclear spatial planning of land. Such planning has led to agrarian conflicts in HTI concessions, which may have hampered HTI development. In addition, many agrarian conflicts in the permanent forest area were caused by 'personal' interests of Regency Head candidates in regional general elections. Often candidates made a political agreements with the communities to give them land once they get

elected. This kind of agreement has ‘imprisoned’ elected Regency Heads with their political promises.

The Constitutional Court recently released a decision on the recognition of customary forests. However, not all local communities have demands because they were oppressed and feel their land rights were taken. This case occurred in HTI conflicts in East Kalimantan where people were often overshadowed by conflict resolutions imposed with the coal mining and oil palm sectors. In those two sectors, conflict issues have often been solved simply by offering compensation for the companies to work ‘their land’. In some cases of land owned by communities in East Kalimantan, communities expect but have not yet received compensation money; they still have quite large land holdings for their livelihoods, however. Of course, land rights, ownership or rights to manage, does not provide a solution for agrarian conflicts caused by land compensation ‘wishers’ (i.e., those wishing to be compensated) and unscrupulous business competition.

Although not all conflicts are caused by concession areas created from customary lands, some companies encouraged local communities to claim certain areas as their territory for the instigator company to later own the concession after the existing concession holder left. These and other conflicts need to be resolved for HTI development to proceed as planned.

Land not “clear and clean” in permanent forest area status has led to HTI development delays. Land disputes in the HTI context have not only occurred between HTI companies and local communities, but also with other industrial sectors (i.e., coal mining, and oil palm). Overlapping map references between companies and responsible institutions in land-use license issuing are at the core of this problem.

Some interviewees noted that land managed by communities should still be titled under permanent forest status and owned by the central government. In addition, the latest

regulation on HTI development, Minister Regulation Number P.12/2015, required companies to allocate 20 percent of any given concession area to support local livelihoods (*area tanaman kehidupan*). Top-down directives have only partially succeeded, and HTI, HTR, HKm and HD programs will only succeed with intensive engagement by all relevant stakeholders. If the GoI fails to provide land for the development of IF to help satisfy local needs for timber, the communities will indiscriminately utilize protected forests and other important forest ecosystems to meet their daily needs.

Another problem hindering IF development, particularly in East Kalimantan, is lack of coordination between governments. GoI has released a new Law Number 23 year 2014 to address this problem by giving more room for the provincial governments to have a role in forest administration. A problem may arise with the transfer of authority from district government to provincial government, namely the disposition of human resources at district-level Forestry Service personnel. North Kalimantan Province plans to assign district-level officers to the provincial level Forest Service office. Meanwhile, the East Kalimantan government has shown no clear plan yet. One possibility is to assign human resources to the FMU level. This new regulation, however, has not been fully enforced yet. As for the present relationship between the central and provincial governments, the provincial governments find that lack of coordination with the central government has led to unsuitable policy products (e.g., Sustainable Forest Management Certification (PHPL) issuance to HTI permit holders). Provincial governments have complained about PHPL certification application at the field level. For example, there should be some flexibility in PHPL certificate evaluation. In addition, there is uneven application of certificate evaluation (e.g., a company may receive a good PHPL certificate evaluation, even though there are still unacceptable, unresolved conflicts in the concession area.).

In addition, despite the limited authority given to local governments, the provincial government has tried to make a breakthrough to overcome common problems in HTI development, such as the slowness of planting in HTI. Before releasing a recommendation, the provincial government in East Kalimantan contrived to make an investment company pledge to plant the targeted area a year after the license would have been issued. Otherwise, a sanction would have to be applied as written in the pledge letter to the provincial government. In addition, MoEF also enforces regulations on company requirements to start the plantation a year after license was issued. Thus, double sanctions will be applied to companies if they are unable to start the plantations. This discourages companies from pursuing HTI concessions, but may be necessary for Indonesia to achieve its plantation establishment goals.

A factor that shaped Indonesia IF development is a competition with other sectors, particularly oil palm and coal mining. Currently, oil palm is also a preferable choice for the communities to grow compared to HTI and other plantation commodities such as rubber. The oil palm plantation is faster in earning revenue compared to a rubber plantation, where the community could wait for years for the tree to produce latex. In addition, the oil palm land license type HGU is more beneficial for the investor compared to IUPHHK type of license in HTI. Unlike the IUPHHK license type, the HGU license can be used as collateral by a bank. Thus, investment in oil palm provides a more secure promise for returns compared to HTI. The government should work on creating a more secure option for investors in HTI.

One interviewee commented that the HTI sector is still in second place for the government due its smaller revenue compared to other sectors, including oil palm and coal mining. However, due to the stagnancy of the coal mining sector, HTI has started to be seen as a major industry by the government. Recently, there has been roughly equal private investments in HTI and oil palm. The slowing of investment in oil palm is due, in part, toThe many protests from the environmental movement and communities due oil palm’s impact on

the environment. HTI is a more promising sector, in term of long term benefits and its added value, compared to coal mining and oil palm sectors.

Besides the above challenges, an other factor affecting IF development is species choice for planting. The government did not require companies to plant specific species. However, species to be planted in the HTI area had to be identified in the company General Work Plan (*Rencana Kerja Umum* – RKU, and, in addition,the latest regulation of HTI, PermenLHK Number P.12/Menlhk-II/2015, mentions the provision of species that are allowed to develop for HTI (Table 19).

Table 19. Species list allowed in HTI (Source: MoEF Regulation Number P.12.Menlhk-II/2015).

	Type	Species
1	Woody forest plants	Woody forest plants species recommended by the Forest Research and Development Agency (FORDA).
2	Woody annual crops	Rubber (*Hevea brasiliensis*), coffee (*Coffea spp*), cacao (*Theobroma cacao*), quickstick (*Gliricidia sepium*), coconut (*Cocos nucifera*), sugar palm (*Arenga piñnata*), clove (*Syzygium aromaticum*), etc.
3	Other species	Camelina (*Camelina sativa*), king grass (Pennisetum purpureum), rapeseed (Brassica napus), cassava (*Manihot utilisima*), areca nut (*Areca catechu*), sorghum (*Sorghum* spp), maize (*Zea mays*), rice (*Oryza sativa*), sugarcane (*Saccharum officinarum*), purging nut (*Jatropha curcas*), or other species recommended by FORDA.

In addition, one interviewee noted that PermenLHK Number P.12/Menlhk-II/2015 also allowed investors to establish multispecies forest plantations in a given concession area (Figure 18). Paragraph 18 of the regulation explains that the cropping system may use an agroforestry system for the multispecies forest plantation with an intermittent or block system for timber harvests. The combination in the main crop area should be dominated by woody forest plants and/or woody annual crop species. The primary aim of this multispecies forest plantation is to support Indonesia's agenda on food security and energy security through bioenergy. Nevertheless, so far no companies have developed multispecies HTI plantations.

The common reason given is the unavailability of information on risks from pests and disease in multispecies plantations.

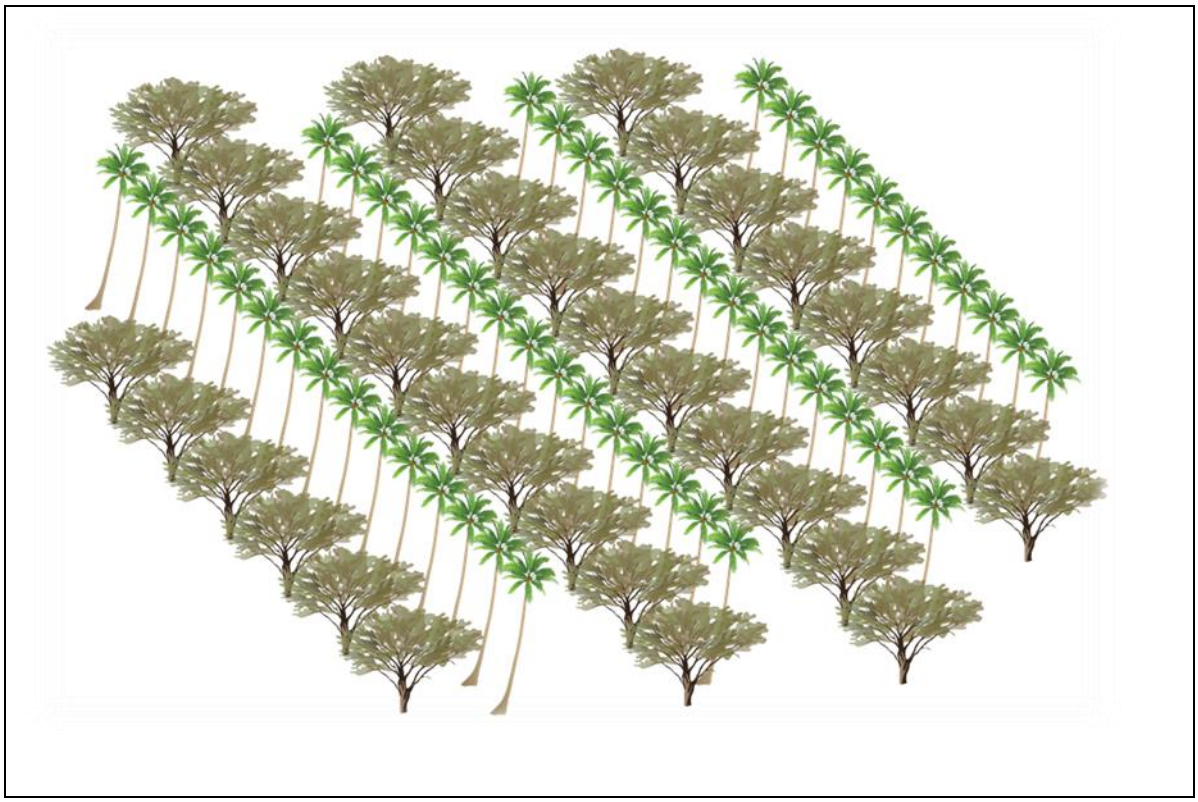

Figure 22. Illustration of main crops area in multispecies forest plantation (HTI) (plant spacing is ignored in this illustration, although the regulation also specifically discusses the silviculture system) (Image source: http://ian.umces.edu).

Meanwhile, referring to *Nawacita*, Indonesia has started to look to developing IF for energy source. Nawacita[17], a program/agenda set by President Joko Widodo's administration for national development, recommends government promotion of HTI for energy purposes. The HTI for bioenergy is part of nawacita number 7 (seven) on *"forming economic independence by operating strategic domestic sectors"*, which includes food and energy security (BPPHP XIII, *personal communication*, August 2015). According to FORDA recommendations, species promoted for this type of HTI are Alexandrian laurel (*Calohpyllum inophyllum*), sea mango (*Cerbera manghas*), camelina (*Camelina sativa*), and calliandra

[17] *Nawa Cita* is roughly translated from Sanskrit as 'Nine Hopes', President Joko Widodo's administration set nine programs as his development targets for Indonesian development during his regime.

(*Calliandra* spp). The challenge, however, is that those species are still not widely used for large scale plantations, and the silviculture and official plantation guidelines are not available yet.

HTI for energy purposes was developed as an alternative form of HTI development due to the low requirements for processing of wood. In addition to an MoU with the Ministry of Energy and Mineral Resources, the Ministry of Forestry has also made an agreement with the State Electricity Company (*Perusahaan Listrik Negara* – PLN) for them to use non-fossil energy sourced from forest plantations source once it becomes available. There are no companies at an operational stage currently using bioenergy.

Finally, another type of HTI has just recently developed is the HTI for rubber. Rubber plantations under the HTI scheme or planted under state forest areas emerged due to the limited availability of areas for rubber plantations in APL. Rubbers in APLs area are expected to compete with other highly desirable commodities such as oil palm.

3.4.4. Government roles and policy changes

An important aspect of the policy making process in IF development is the relationship between governments and companies that invest in IF. Some interviewees expressed concern regarding the extent of government involvement in the private sector. Although the central government no longer offers any interference in private companies' stock, business stakeholders had hoped, the government would only provide general guidelines for a company to follow in HTI development. Instead governments require applications for permission at each stage of development. Further, they noted that the government should actually only focus on PNPB (non-tax state revenue) rather than on technical stages in HTI development. Further, business stakeholders also criticized government's changing or fickle policies on IF (e.g., standing tree compensation (*Ganti Rugi*

Tegakan – GRT), PHPL certification, reimbursement to standing tree value (*penggantian nilai tegakan* – PNT), etc.) which may become constraints for the industry stakeholders.

Deregulation of current policies is an option that may promote IF development. Several central regulations in IF development, both for HTI and HTR, such as PP 6/2007 and 3/2008 on Forest Governance and Forest Management Plan, and Forest Utilization, and Permenhut P.12/MenLHK-II/2015 on HTI development and Permenhut P.55/Menhut-II/2011 on HTR concession application procedure, acknowledge non-timber forest products (NTFPs) as potential major products of IF, and accommodate NTFPs' utilization permit. However, the permit applications for timber and non-timber forest product utilization are still separate. Multiple applications are needed to utilize the resources in a given concession area; this exacerbates the bureaucratic process in IF development.

At the provincial level, interviewees found the East Kalimantan Governor to be quite supportive and accommodating on license issuance of HTI. In addition, HTI licensing today is quite open and responsive, even if it is not easy to obtain one. A point emphasized by one interviewee was that government should try to be consistent with regulations and shorten the bureaucratic process. Longer the bureaucratic processes cost more.

Meanwhile, in forestry governance development, the GoI recently focused on the management at the unit level as a key in managing Indonesia forests, including IF. It is hoped that the FMUs will be able to optimize the potential of local forests. Business stakeholders hope to see FMUs become a bridge between governments' and companies' cooperation leading to a boost in HTI development. However, to date, FMUs have not shown satisfactory progress. One of the major constraints to an effective FMU role is indications of 'half-hearted' intentions of support from provincial government to build FMUs into effective institutions. This may be due to the fact that FMUs are seen as expropriating authority from provincial governments. In fact, the MoEF does provide any direct development for FMUs,

except for the forest protection function (KPHL). Major direction comes from the provincial government, where many FMU units are under a Governor. In addition, it is hoped that FMUs will become financially independent, but unfortunately steady capital has not yet been properly appropriated.

One policy that allowed HTI companies to apply for a license only to collect IPK has now stopped. And the companies that hold the right to self-authorize an Annual Work Plan and to issue a permit for wood transfer under PermenLHK P.42/MenLHK-Setjen/2015 can only do so if they maintain a grade of 'good' in PHPL appraisal. Nevertheless, further research on this policy application is needed, particularly as it pertains to its effect on the classic problem of HTI in Indonesia, the low rate of plantation realization (Table 20).

Table 20. Target and planted area realization in East Kalimantan, 2005-14 (Source: Forestry Service Office of East Kalimantan).

Year	Target (Ha)	Plantation realization (Ha)
2005	78,318	40,302
2006	112,609	50,005
2007	N/A	N/A
2008	197,266	35,635
2009	91,380.1	46,641
2010	103,241	7,786
2011	134,473	22,275
2012	123,097	26,321
2013	83,218	24,438
2014	35,872	77,784

Interviewees reinforced the notion that the HTI type of license is not desirable for investors because it cannot be used for the collateral. To attract HTI investment, the GoI offered financial assistance to fund HTI development, but it was stopped due its ineffective application (Ernst & Young 1999; Barr 2001; BPK 2008). An attempt to revive it was started during President Yudhoyono term. Financial assistance was given through Forest Development Funding Agency (BLU-BPPH). Although this financial assistance was meant to

go to all types of plantations, at the practical level it only provided assistance for HTR development.

Interviewees noted that the rolling fund from the BLU-BPPH was not a successful initiative. This was partly due to the cumbersome bureaucracy from the listed requirements. One source also noted that the ineffectiveness of any type of financial assistance is caused by the high costs of managing the land due to conflicts with other sectors and/or land uses. Lack of field assistance and input- and process-based regulations burden the plantation companiesy with a complicated and rigid reporting and planning system.

Another source of funds is a loan from banks. For large-scale companies that export their products to different countries, loans from international banks are preferred due their lower interest rates and adequate amounts of lending that can be provided to the companies. Many large-scale banks applied a policy requiring their clients to comply with certain sustainable forest management standard (SFM) to receive a loan.

Another source is a loan from international finance organization such as IFC. The IFC through its Forest Investment Program (FIP) released a policy to provide a loan for private companies to develop forest plantation under sustainable management. The IFC identifies potential clients based on business growth plans and financial needs. IFC then evaluates identified potential clients based on the companies' diligence and environmental and social safeguard performance. Of dozens of identified companies, unfortunately only about 4-5 companies passed the evaluation done by IFC. The low number of companies passing the evaluation raises questions regarding the quality of Indonesia's HTI companies in terms of environmental and social safeguard standards, as well as the effectiveness of PHPL as the criterion of companies to have good social and environmental performance. In addition, IFC sets performance standards on environmental and social sustainability. To ensure its clients in the FIP program meet the standards, IFC has also allocated US$ 2.5 million for advisory

services to meet the standards[18]. Specific standards, particularly Performance Standard Five on land acquisition and involuntary resettlement, and Performance Standard Seven on indigenous people have become important aspects in IF development in Indonesia.

As noted by one interviewee, the application for a plantation in East Kalimantan to be developed using common SFM criteria might be challenging. Indonesian lands with potential to be developed as IF are often secondary forests. If the companies have to comply with a zero-deforestation standard, there will be almost no chance for the new plantation development in Indonesia.

Regardless, environmental and social organizations have successfully encouraged companies to increase their awareness and action in sustainably managing forests sustainably. However, enabling conditions to make HTI and HTR become profitable businesses are needed to attract banks to provide financial assistance for IF enterprises. In addition, the government should also undertake policies to assure producers get fair prices for their timber products.

[18] The component standards of IFC that clients have to meet are: 1) Assessment and Management of Environmental and Social Risks and Impacts, 2) Labor and Working Conditions, 3) Resource Efficiency and Pollution Prevention, 4) Community Health, Safety, and Security, 5) Land Acquisition and Involuntary Resettlement, 6) Biodiversity Conservation and Sustainable Management of Living Natural Resources, 7) Indigenous Peoples, 8) Cultural Heritage (IFC 2012)

CHAPTER 4

NATIONAL – INTERNATIONAL DEMAND FOR WOOD PRODUCTS AS A DRIVER OF INDUSTRIAL FOREST DEVELOPMENT AND ITS CONTRIBUTIONS TO THE REGIONAL AND NATIONAL LEVEL ECONOMY

Demand for wood products in international and domestic markets creates a derived demand for timber and associated industrial forest development. The first section of this chapter focuses on international and domestic markets for wood-based products from Indonesia. The second section describes economic contributions of the forestry sector and plantation management. The third section discusses the impact of sustainable forest management towards plantation development. Lastly, this chapter will discuss the development of financial support towards IF development.

4.1. Role of domestic and international markets in creating demand for forest development

Economists have long viewed demand for end products (e.g., paper and furniture) as drivers of demand for inputs (e.g., logs, land, etc.); the traditional term for this is derived demand (Abt and Ahn, 2003). Some contemporary authors have captured this notion in the phrase “distant drivers” (Meyfroidt et al., 2013). Detailed econometric studies of drivers of land clearing exist; for example, Wheeler and others (2013) concluded that changes in prices and demands for oil palm and wood products in Indonesia along with exchange rates, interest rates, land-use zoning, forest protection, local governance and other factors influenced whether land was cleared. This section focuses only broadly on the demands for wood products.

The Food and Agriculture Organization of the United Nations’ Statistics Division compiles forest production and trade statistics for many countries and provides online access to those data (http://faostat3.fao.org). Based on FAOSTAT data, Indonesia’s wood based products are in demand both domestically and internationally (Figure 23). Approximately

half of Indonesia's wood-based panels and wood pulp are exported. Indonesia's domestic markets absorb most of the production for sawnwood and paper and paper board products. Imports play a smaller role.

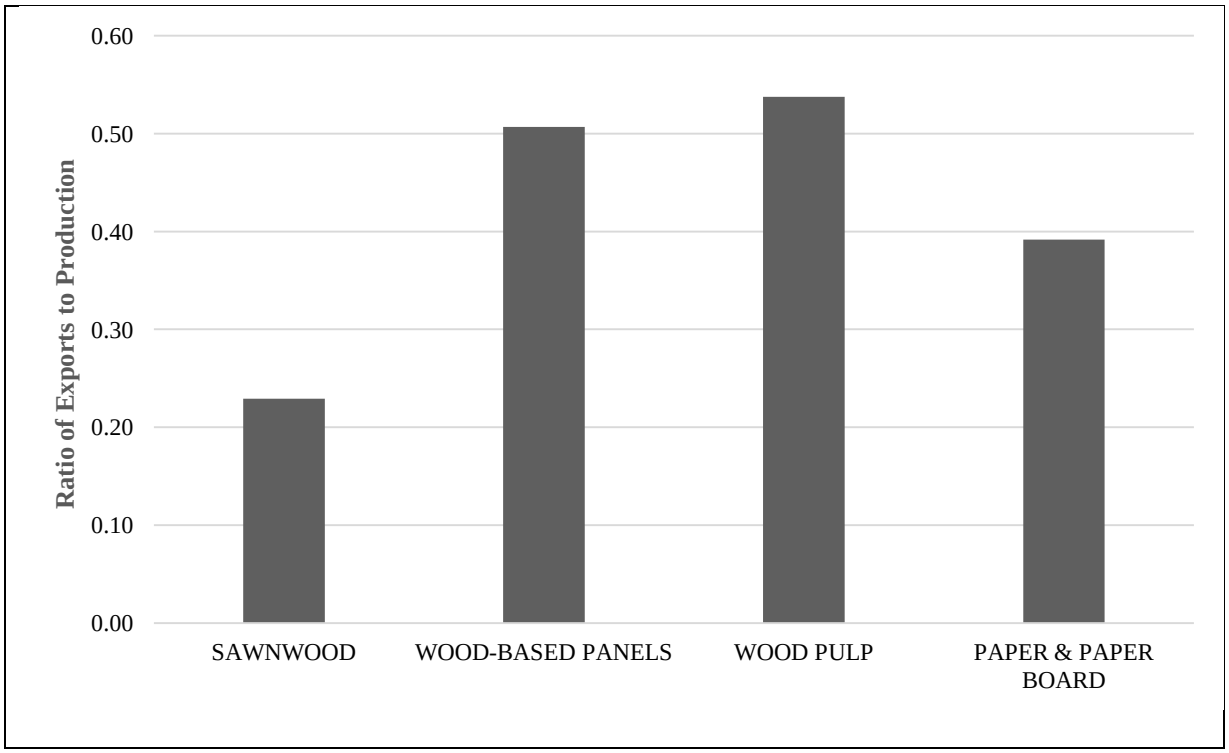

Figure 23. Ratio of exports to production for major wood products in Indonesia, 2014 (Source: FAOSTAT).

China was the destination for over half of Indonesia's sawnwood and wood pulp exports in 2014 (FAOSTAT). China will continue as a major importer of logs and other wood-based products (Figure 24, Hu et al. 2015). China's log imports in 2014 were over 50 million m^3, twice the volume of sawnwood imports (FAOSTAT). Overall, Indonesia's wood-based exports have increased since the early 1980s when exports of raw logs were banned (Figure 25). Sawnwood and wood-based panel exports increased following the ban. As domestic capacity increased for wood pulping and paper production, exports increased.

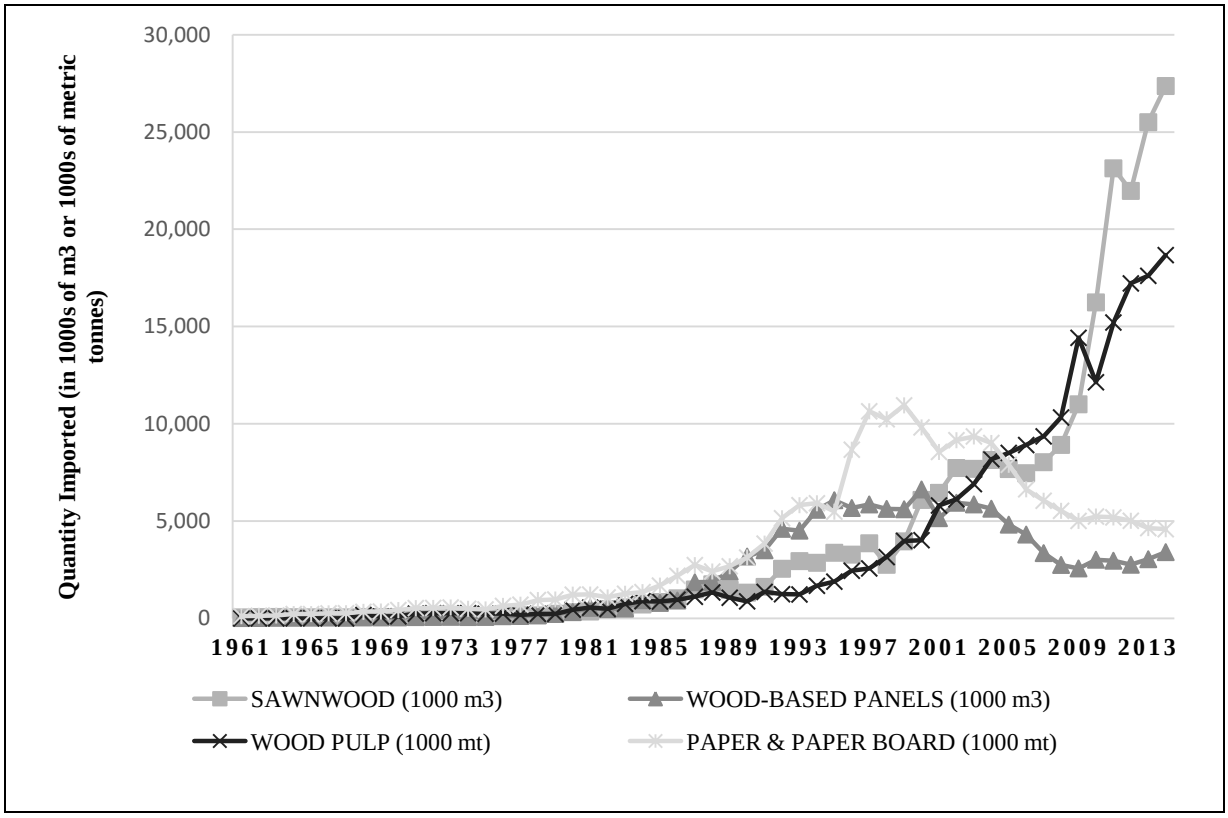

Figure 24. Imports of wood-based products into China, 1961-2014 (Source: FAOSTAT).

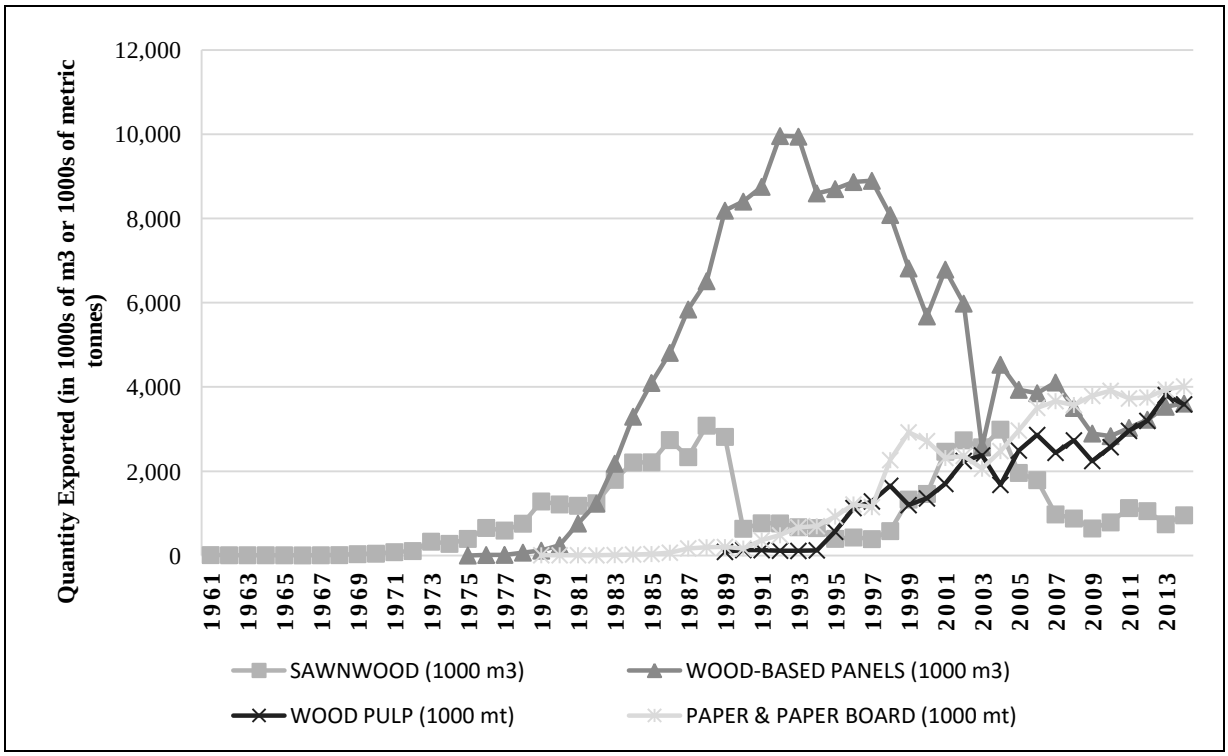

Figure 25. Exports of wood-based products from Indonesia, 1961-2014 (Source: FAOSTAT).

Demand for wood-based products influences the creation and management of forest plantations. These, in turn, play a role in Indonesia's and East Kalimantan's economies. This is the subject of the next section.

4.2. Industrial forest plantation production and economic benefits

To have a better understanding of the forestry sector's role in national or regional economic development, it is important to first review the contribution of the forestry sector to the Indonesian Gross Domestic Product (GDP). GDP from the forestry and logging sectors increased IDR 23 trillion from 2010 – 2015 to a total of IDR 81 trillion (BPS, 2016). Nonetheless, these sectors are only a small part of the overall Indonesian economy (less than 2%). Similarly, it is less than 2% of East Kalimantan's GDP (BPS Kaltim, 2016).

The low contribution of the forestry sector to the economy might be caused by multiple factors. In addition to GDP and GRDP contributions, a contribution from the forestry sector to the state economy may come from non-tax revenue (*Penerimaan Negara Bukan Pajak* – PNBP). There are two kinds of PNBP in the forestry sector, namely forest levies (*Provisi Sumber Daya Hutan* – PSDH) and the Reforestation Fund (*Dana Reboisasi* – DR). PP 6 year 2007 defined PSDH as "imposed levies from the licensee as a substitute for the intrinsic value of forest products harvested from state forests," while DR is considered to be levies to selective logging licensees for reforestation and forest rehabilitation purposes. PSDH and DR are further addressed in the P.52/Menhut-II/2014. The regulation also addressed stand value levies (*Penggantian Nilai Tegakan* – PNT), and Stands Compensation (*Ganti Rugi Tegakan* - GRT) in addition to PSDH and DR. The DR and PNT was only applied to state forests timber logging (non-plantation timber).

Although there is some fluctuation, national DR and PSDH have been increasing steadily from 2010-2015 (Figure 26). There has been no concrete pattern in East Kalimantan PSDH and DR data, however, there was some decline in PSDH-DR from 2012 to 2013 while

2014 data is incomplete due to the fact that it only shows the first trimester of data (Table 21). The decline might have been caused by regional growth, where East Kalimantan province was divided into two provinces (East Kalimantan and North Kalimantan).

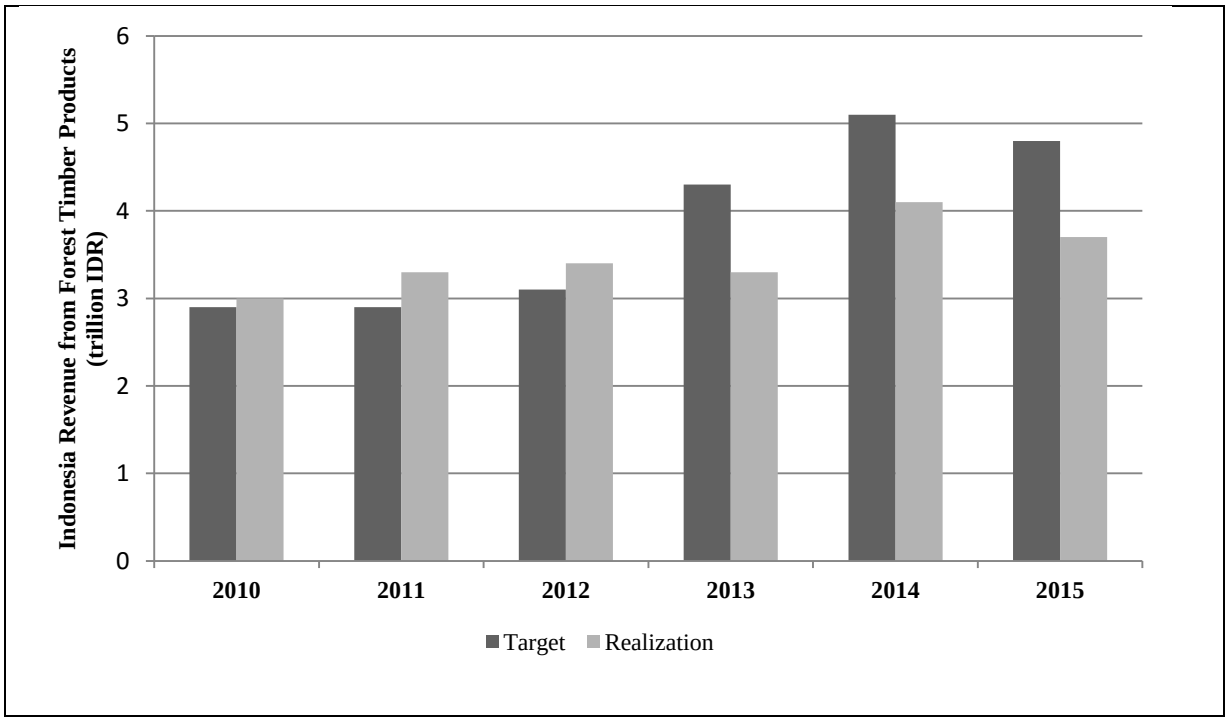

Figure 26. Indonesia forest levies (Provisi Sumber Daya Hutan – PSDH), and reforestation fund (Dana Reboisasi – DR) from statistic, 2010-15 (Source: MoEF 2015).

Table 21. Non-tax state revenue in East Kalimantan 2012-14 (Source: East Kalimantan Forestry Service Office)

Year	*Non-tax revenue*		
	PSDH	DR	Total
2012	205,648,275,676	473,199,435,096	678,847,710,772
*2013**	-	-	325,209,013,905
*2014***	19,549,861,211	59,838,502,873	79,835,364,084

* excluding North Kalimantan province
** The first quarter data

The reason for the decline might also be a decrease in timber production (Figure 27). There have been fluctuations in timber production, with a decreasing pattern from 2011 to 2014. However, in the context of HTI or other types of forest plantation, the decline might be caused by an absence in harvesting by major companies. For Acacia production, there is only a slight reduction in 2013 in comparison to 2012 (Table 22). However, there was a

tremendous decrease in the *Shorea* wood species, with a more than 500 percent reduction in 2013 compared to 2012. The massive decline of *Shorea spp* production might also indicate less natural forest logging in established forest concessions.

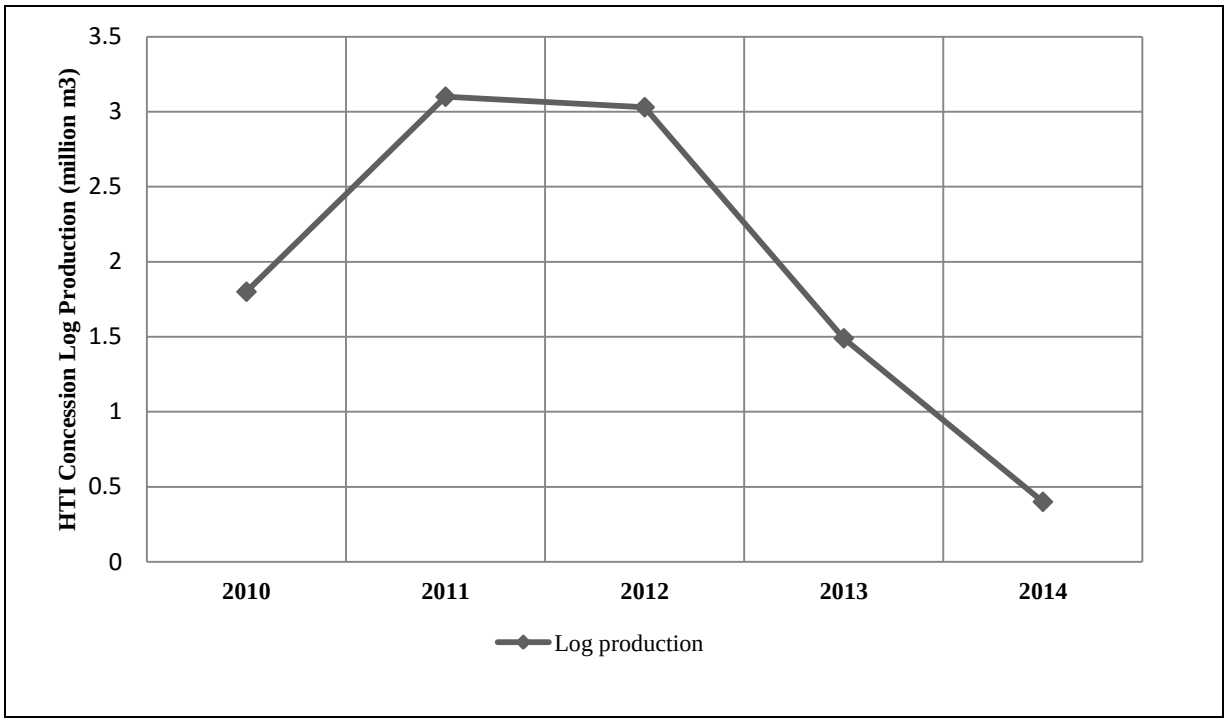

Figure 27. Indonesian log production (in million m3) from HTI concessions, 2010-14 (Source: BPPPHP XIII, 2015).

Table 22. Annual wood (log) production in HTI concession by species in East Kalimantan province, 2012-14 (Source: Forest Service Office of East Kalimantan, 2015; BPPHP XIII, 2015).

Wood species	*Annual production in cubic meter*		
	2012	2013	2014
Shorea spp	617,632.12	81,530.19	106,183.97
Mix hardwood	77,443.66	50,673.44	44,768.22
Decorative wood	23,806.57	389.52	2,019.64
Paraserianthes falcataria	99,820.31	-	-
Acacia spp	1,797,122.74	1,296,182.67	182,667.71
Gmelina arborea	65,074.15	21,543.84	3,162.30
Eucalyptus pelita	47,918.63	39,784.29	71,160.31
Other commodity	2,302.95		
Total	3,031,782.96	1,490,103.95	409,962.15

In addition to direct economic contributions to the state, industrial forest plantations also provide direct economic benefits to the communities around the forests. BPS noted that there are about 8 million households living around the forests. In addition, about 4 percent to 6.5 percent of growth in GDP comes from the rural communities, including the forest community (MoF Pers Conference Number S.621/PHM-1/2012). Asmani and others (2011) noted that HTI development has increased *sogimiya* (social, ecological, cultural, and economic) benefits of the rural communities from 300 to 500 percent. Specifically, they also noted that communities' incomes have increased 30 to 50 percent after the development of HTI in South Sumatera province.

Small-holder forest plantations such as HTR provide direct resources for community livelihoods, while HTI provides direct economic benefits for the community through employment from seedling to marketing stages (MoF Pers Conference Number S.621/PHM-1/2012). Data from 2006 shows that the forestry sector provides about 2 million jobs (MoF Pers Conference Number S.470/II/PIK-1/2006). If the 12.7 million hectare area of plantations is achieved by 2025, the HTI sector will create about 9 million jobs (bisnis.com, 2016).

Of course, HTI is a double-edged sword for national economic development. Poor HTI management may lead to economic stagnation (Obidzinski and Chaudhury, 2009). As an example, trans-migrant workers' domination in the HTI sector may become a cause of social conflict and lead to economic stagnation (Potter and Lee, 1998). Uncertainty about land tenure that has become a major cause of social conflict in HTI concessions may also become a cause of economic stagnation.

Sustainability and environmental protection have become important issues in the forest industry sector. There have been various initiatives developed at multiple levels by different actors (state and private) to ensure the sustainability of timber products. The

following sub-chapter will specifically discuss these initiatives and their impact on forest plantation development.

4.3. Sustainable forest management and its impact on plantation establishment

International concern over the environmental crisis (i.e. climate change, biodiversity loss, etc.) has had some direct and indirect impacts on industrial forest plantation development, both upstream and downstream of production. Indonesia has established a mandatory instrument for the industries to insure that upstream and downstream production of its wood products is carried out in a legal manner. The relatively new instrument is known as the Timber Legality Verification Standard (TLVS).

There are at least two major reasons behind Indonesia's national TLVS policy. First, it is Indonesia's strategy to improve its wood product competitiveness in foreign markets. Second, Indonesia is an ITTO member country and signed the Bali agreement on Sustainable Forest Management (SFM) in 1990 (Nurtjahjawilasa et al., 2013; Obidzinski et al., 2014). The agreement aimed to implement sustainable forest management practices by the year 2000.

The ITTO has defined SFM as *"the process of managing forest to achieve one or more clearly specified objectives of management with regard to the production of a continuous flow of desired forest products and services without undue reduction of its inherent values and future productivity and without undue undesirable effects on the physical and social environment"* (ITTO, 2005). There are various terms for SFM; however, UNFF member countries as described in the Non-Legally Binding Instrument (NLBI) on all types of forests (2007) noted that SFM "*is intended to maintain and enhance the economic, social and environmental value of all types of forests, for the benefit of present and future generations"*.

TLVS was regulated in Forestry Minister Regulation Number P. 38/Menhut-II/2009. There are several revisions through Minister Regulations to some parts of the initial TLVS

regulation; the revision regulation numbers are P.68/Menhut-II/2011, P.45/Menhut-II/2012, P.42/Menhut-II/2012, and P.42/Menhut-II/2013. The regulation was also strengthened by Trade Minister regulation number 64/M-DAG/PER/2012. The Ministry of Trade obligated exporters to obtain V-Legal documents for exporters wood forest products. The Minister of Trade has recently excluded small scale forest enterprises.

There are three kinds of TLVS certificates, namely Sustainable Forest Management Certificate (*Sertifikat Pengelolaan Hutan Produksi Lestari* – PHPL), Timber Legality Certificate (*Sertifikat Legalitas Kayu* – LK), and the Certificate of Primary Timber Industry Performance (*Sertifikat Kinerja Industri Primer Hasil Hutan Kayu* – KIPHHK). The Minister Regulation Number P.38/Menhut-II/2009 required all Timber Industry License holders (upstream) (*Izin Usaha Industri Primer Hasil Hutan Kayu* – IUIPHHK), and Advanced Timber Industry (Advanced IUI) (downstream) to obtain a LK certificate. Meanwhile, PHPL certificate holders were automatically approved for their LK certificate obligation. TLVS and specifically the LK certificate mechanism is a first step in Indonesia's efforts in satisfying SFM requirements (MoEF, 2016a).

Currently there are about 18.01 million hectares of HPH and HTI area that are PHPL certified, and about 4.63 million hectares LK certified in the HPH and HTI concessions area. The total HPH and HTI concession areas in Indonesia come to about 30.7 million hectares, which indicates that about 73 percent of the land is PHPL and LK certified. Thus, there are about 8.06 million hectares of HPH and HTI concessions needing to be PHPL or LK certified, if we apply the Indonesian government obligation of TLVS.

Generally, China, Japan, the United States, the Republic of Korea, Australia, Saudi Arabia, Malaysia, Taiwan, India, and the United Kingdom are considered to be the major importers of Indonesian timber products (MoEF 2016b). The Indonesian government has actively promoted the TLVS to be accepted to have special treatment based on its legal and

partially sustainably managed status. Currently, Indonesia has established three formal arrangements responding to TLVS certifications. Two MoUs have come into force, with the EU under its FLEGT policy[19], and with Australia[20]. Meanwhile, Indonesia and China have recently signed an agreement regarding the TLVS market. In addition, Indonesia has persuaded the Republic of Korea, Japan, and the United States to provide special benefits for Indonesia's legally certified timber products. (MoEF 2016b).

Rising new forest product markets such as bioenergy will increase the demand for timber products. South Korea and Japan are prominent markets for bioenergy, as they have targeted 10 percent and 20 percent respectively of their energy needs from bioenergy by 2020. Japan will need to import about 13.1 million tons of wood pellets annually to meet that target. South Korea will need 5-12 million tons of wood pellets annually (Casson et al., 2014). Thus, there would be a new market window for Indonesia concerning Japan's and South Korea's needs from Indonesian timber products. Combined with the extra benefits from legal wood certificate applications, there is a large opportunity for Indonesia to market its timber products at higher prices.

In addition to national initiatives regarding legality and sustainability certification, there are also several international and national private certificate initiatives that have been adopted in Indonesia. The Forest Stewardship Council (FSC) and Indonesia Forestry Certification Cooperation (IFCC) have been endorsed by the Programme Endorsement for Forest Certification (PEFC). Currently, there is no HTI plantation operation and production certified by FSC due to the 1994 FSC policy excluding plantations. There are also about

[19] VOLUNTARY PARTNERSHIP AGREEMENT between the European Union and the Republic of Indonesia on forest law enforcement, governance and trade in timber products into the European Union. http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:22014A0520(02)&from=EN.

[20] Country specific guidelines for Indonesia, co-endorsed by the Australian and Indonesian Governments on October 21, 2014.

751,588 hectares of HTI concessions certified by IFCC-PEFC. The IFCC-PEFC HTI certified concessions are dominated by Sinarmas and RGE Group. Moreover, APRIL, one of the RGE subsidiaries has recently been approved as a PEFC International member and stakeholder.

Furthermore, APP (Sinarmas group) and APRIL (RGE group) have released their sustainability policies, setting a standard of operation for the companies to perform regarding sustainable forest management principles (APP, 2013; APRIL, 2015). The policies reflect the companies' concerns with environmental issues such as climate change and can be viewed as an effort to comply with the demands of consumers and financial lenders to meet SFM principles. Thus, the companies' self-initiative of SFM is not only part of the effort to support environmental sustainability but is also a strategy to ensure financial sustainability (Ranganathan, 2014).

As of February 1, 2013, APP has committed to protect High Conservation Value (HCV) and High Carbon Stock (HCS) forest areas within their concessions. APP has also pledged to remove any natural forest derivatives from its supply chain (APP, 2013). As of June 2015, RGE group has pledged to only develop its plantations in non-HCV and non-HCS areas. Forest clearing in their concession areas has been suspended until the report was cleared from the independent assessor for HCV and HCS status. In addition, APRIL has also updated its SFM policy, namely as Sustainable Forest Management Policy 2.0. The SFM 2.0 APRIL policy functioned to incorporate policy within RGE's sustainability framework (APRIL, 2015).

Moreover, both Sinarmas and the RGE group also are actively promoting forest conservation programs. APRIL launched a conservation program in 2013 to protect 150,000 hectares of Kampar peninsula in Riau province. APRIL planned that 50 percent of its one-million-hectare concession area would be set aside for conservation and use by local communities (Figure 28). The policy exceeded government regulations in which only 20

percent of a concession is set aside for use by local communities and 10 percent s conservation area as required by the HTI landscape division.

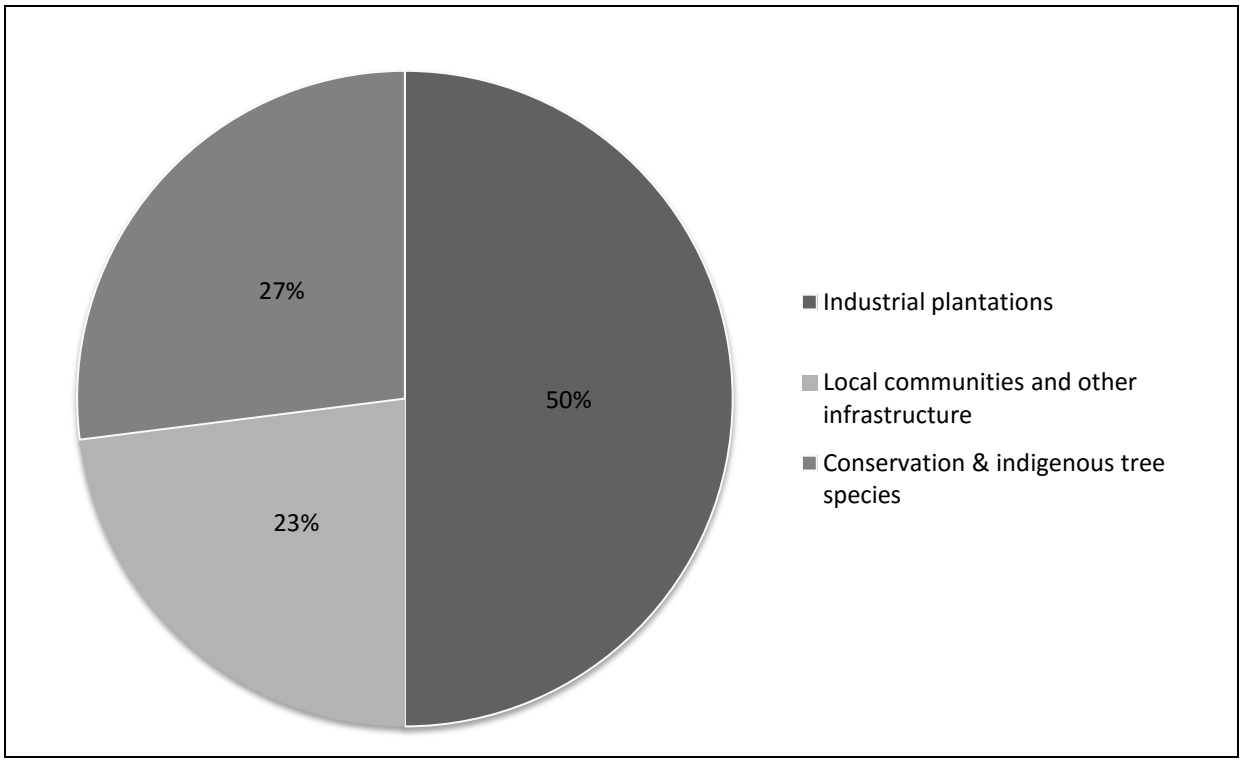

Figure 28. APRIL concession land composition, 2014 (Source: APRIL, 2015).

Through its independent foundation, *Yayasan Belantara*, which was launched in 2014, APP has committed to conserve about 1 million hectares. The conservation area partially consists of Sinarmas group plantations. The foundation has identified 10 critical areas that need to be conserved, including Kutai area in East Kalimantan. Initially, about 977,000 hectares have been recognized as important landscapes to be protected as part of the Yayasan Belantara program. The Kutai conservation area is partially located in three Sinarmas HTI plantation concessions in East Kalimantan, PT Sumalindo Hutani Jaya, PT Surya Hutani Jaya, and PT Bhinneka Wana (Yaysan Belantara, 2016).

Both APRIL and APP efforts at conservation programs have marked the beginning of the conservation initiative by forest product companies in Indonesia. The effectiveness of the conservation programs for industrial forest plantation development, both in terms of plantation area and economic benefits, is not yet known.

Plantation management compliance with SFM principles, as much as possible, is a necessity for creating internationally acceptable products. Companies' decisions to apply international private SFM certification, rather than solely rely on PHPL, has also raised a question for TLVS effectiveness. Market- and agent-focused instruments (MAFIs) have arisen driven by a decline in the level of traditional state control in environmental governance (Lemos and Agrawal 2006). The MAFIs have created a system that encourages companies in the supply chain to comply with certain environmental standards with additional incentives as the benefits (Cashore 2002). The same system is emulated by TLVS. Perhaps TLVS and other state compulsory SFM certification is simply a re-assertion of state control over environmental governance. The question remains, however: why isn't TLVS alone used by companies to comply with SFM certificate?

There may be various answers to the question., However, as a preliminary hypothesis, the answer might be that international non-governmental SFM certification has already secured a worldwide market, while TLVS has only relied on government-to-government agreements (EU, Australia, and China) (MoEF, 2016). Thus the companies targeting markets outside TLVS MoU regions might need the market provided by other SFM certification. In addition, some private loan providers such as HSBC are requiring its clients to hold international standard certification such as FSC or PEFC in the forestry sector in order to get loans (HSBC, 2014). Thus, for the companies that rely on private banking loans might still need to comply with their requirement, which is gaining FSC or PEFC certificates.

A hint from an HSBC policy case shows that there is a connection between environmental issues and loan mechanisms in the forestry sector, including HTI, which would affect the establishment of HTI. Thus, the next discussion focuses on the aspects and situation of financing forest plantation in Indonesia.

4.4. Financing industrial forest plantations in Indonesia

The MoEF has identified financing industrial forest plantation as one of the two major challenges in IF development in Indonesia. Asia and Oceania (Pacific) is the second largest region for private forest plantation investment, 16 percent, from the total investment about US$ 1,763 million in 2011 (Figure 29). There are about US$ 279 million alone invested in the forest plantation sector from the private sector (Castren et al., 2014).

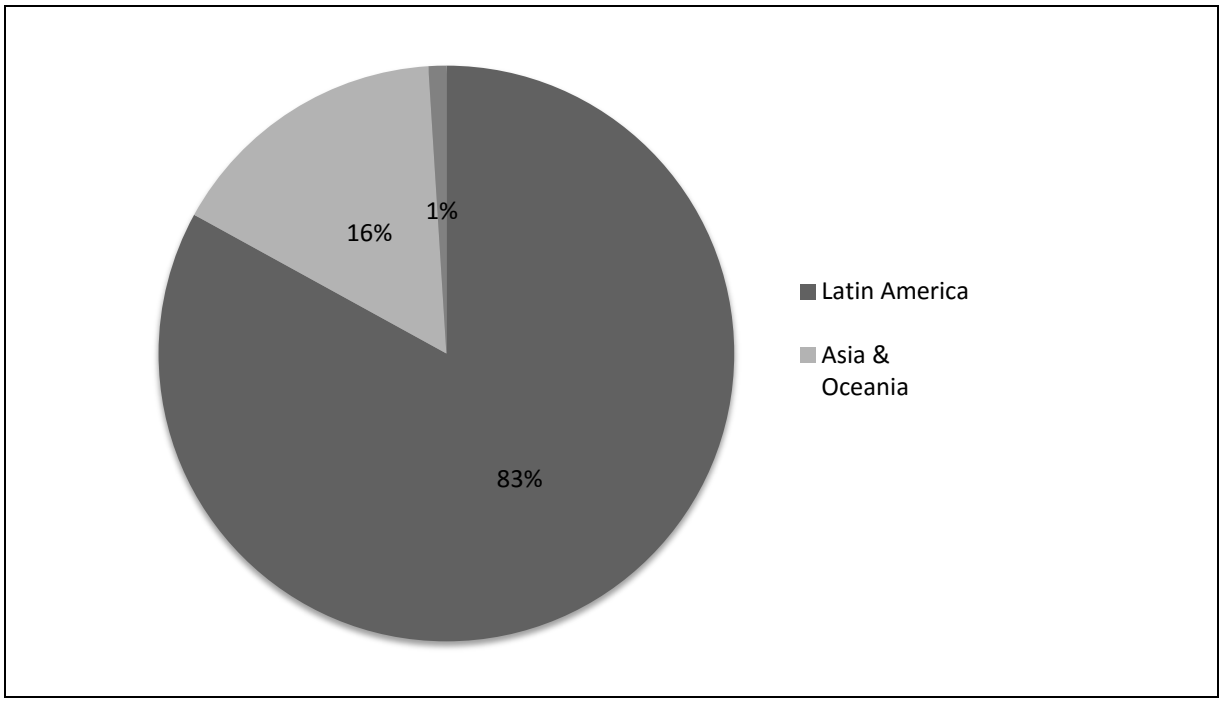

Figure 29. Industrial forest plantation investment from the private sector in different regions (Source: Indufor as cited in Castren et al., 2014).

Indufor reported that forest plantation investment in Indonesia was approximately US$ 71 million (in 2011), placing Indonesia as the second largest country receiving private investment after China or the largest in the tropical area of Asia and Oceania region (Figure 30).

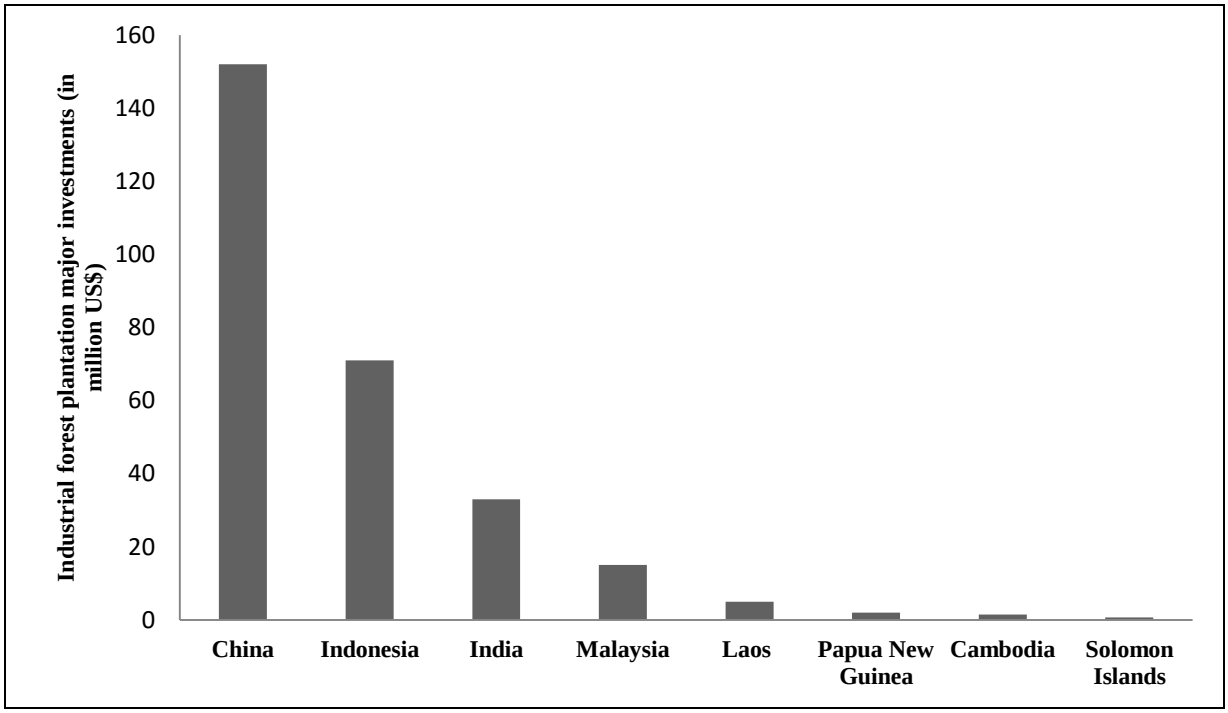

Figure 30. Industrial forest plantation major investments (in millions of US$) from the private sector in Asia and Oceania region, 2011 (Source: Indufor as cited in Castren et al 2014).

Castren and others (2014) have identified five main challenges financing forestry industries in developing countries. The challenges are (1) high, real and perceived risks, (2) weak availability of both domestic and foreign equity and loan financing, (3) insufficient access to debt financing, (4) debt based on having sufficient equity is in place, and (5) forest investments and investment opportunities with insufficient information leading to higher up-front costs. There have been different strategies applied by the Indonesian government in the different regimes to overcome the challenges to financing the forestry industry sector. A separate of the discussion in the next two sections between the new order era and the reformation era in Indonesia will be done to provides a better context of financing the forestry industry in Indonesia.

4.4.1. Financial assistance during the Soeharto regime (DR)

HTI was initially built not only to fulfill state needs over timber products, but also to restore degraded land in the permanent forest area (Hidayat, 2008). However, the regulation's

land criteria HTI development was shifted from degraded land to non-productive forest area. The HTI policy triggered a new trend in the forest industry, namely, forest plantations to feed Indonesia's timber product needs. To support Indonesia's target for reforestation policy through HTI, the Indonesian government promulgated a policy of financial assistance through the Reforestation Fund (DR) in 1990 (Chapter 2).

The policy helped HTI development in Indonesia. About 4 million hectares of land were allocated for HTI, with plantation establishment levels at about 2.7 million hectares by 2000. However, this number was far from being a successful policy. Several studies have examined the effectiveness of DR financial assistance during President Soeharto's regime in establishing HTI, including the Audit Board of the Republic of Indonesia (BPK) report in 2008, and some private audits such as one done by Ernst & Young in 1999 (Table 23).

Table 23. HTI companies receiving DR in different schemes, 1998 (Source: Ernst and Young, 1999 as cited in Barr, 2001).*

Company	Government grant (in billion IDR)	0% interest loan (in billion IDR)	Commercial loan (in billion IDR)	Total (in billion IDR)
Musi Hutani Persada	51.9	127.4	164.6	343.9
Surya Hutani Jaya	36.6	90.5	61.7	188.8
Menara Hutan Buana	43.5	100.9	0.0	144.4
ITCI Hutani	28.0	88.9	0.0	116.9
Tanjung Redeb Hutani	25.0	58.1	0.0	83.2
Acehnusa Indrapuri	13.0	30.2	0.0	43.2
Adindo Hutani Lestari	12.4	28.8	0.0	41.2
Fendi Hutani Lestari	20.1	11.9	0.0	31.9
Tusam Hutani Lestari	7.5	17.4	0.0	24.9
Finantara Intiga	11.6	11.6	0.0	23.1
Total	249.6	565.7	226.3	1,041.6

* Another audit done BPK is listed in table 8 on the previous chapter

The BPK (2008) reported that there have been about IDR 2.4 trillion which have been disbursed to support HTI development between 1990-1999. About IDR 1.1 billion was allocated as 0% interest loans, IDR 960 billion as government grants, and about IDR 300 billion as commercial loans. A BPK audit found that the state had lost a revenue of about IDR

696 billion and that the loss was caused by the ineffectiveness of HTI development that was equal to IDR 290 billion with state losses of about IDR 70 billion. Those three losses have resulted in a total loss of about IDR 1 trillion (equal to US$ 133 million) for HTI developed under state financial assistance and sourced from DR funds[21]. A larger loss estimate was reported by the Ernst & Young audit where they found there had been about US$ 223 million in losses from the policy of DR disbursement for HTI development (Barr, 2001).

Barr and others (2011) estimated that misuse of the DR fund for HTI development has caused 1.3-million-hectares of natural forest to be deforested. The main cause of the deforestation was the failure to complete the conversion to plantations (Barr et al, 2011). As a requirement by the IMF for a loan to GoI, the reforestation fund for assisting HTI companies was stopped in 1999[22]. The moratorium of the DR fund to assist HTI development remained in place until an attempt to revive it in 2006 (Barr et al., 2011). The DR is only used to financially help HTR development in "revolving fund" mechanism.

In addition to financial assistance from the DR fund, the Indonesian government through the state bank has also provided soft loans to HTI companies. Furthermore, Barr (2001) has noted that a majority of the companies have also owned their own private banks (Table 24). A combination of 'weak' regulation of commercial banks in Indonesia and nepotism has given additional financial 'facility' to the HTI companies in the past (Barr, 2001).

[21] IDR exchange rate to US$ 1.00 was varied from 1,842 to 7,900 during 1990-1997. The calculation made from the latest exchange rate IDR 7.900 in December 1999.

[22] "Finally, the Reforestation Fund will only be used for maintaining natural forests and for reforestation; transparent criteria and budgeting procedures to upgrade this fund will be developed by the Ministry of Forestry and the Ministry of Finance, in consultation with the World Bank, and will be implemented beginning April 1, 2000" (Letter of Intent of Indonesia to IMF, January 2000).

Table 24. Major conglomerate/forest industry companies and their private bank ownerships.

Group company/business owners	Major asset	Bank
Sinar Mas	Asia Pulp & Paper	Bank International Indonesia
Raja Garuda Mas (Royal Golden Eagle)	APRIL	Unibank
Barito Pacific	Tanjung Enim Lestari	Bank Andromeda
Bob Hasan	Kiani Kertas	Bank Umum Nasional
Bob Hasan/APKINDO		Bank Bukopin
Bob Hasan		Bank Muamalat Indonesia
Astra	Surya Hutani Jaya	Bank Universal

4.4.2. Financial assistance during the reformation era (2004 onwards) and its impact to plantation investment

Discouraged by the deficit of timber production both from selective logging and forest plantations, the Indonesian government released a policy to revitalize the forestry industry based on a plantation orientation 2004-2009 (Barr et al., 2011). President Yudhoyono was instructed to re-use the DR fund to help forest plantation development financially in 2005. The revitalization plan for industrial forest plantations envisioned what was called a ”Road Map of the Forest Industry” in 2007, targeting expansion of plantation area up to 9 million hectares by 2016 (Department of Forestry, 2007). , This target was not achieved as the actual planted area was under 6 million hectares. HTR was also released in 2007 as the new policy of small-holder based forest plantations.

The Minister of Forestry and the Minister of Finance came into a joint regulation of the foundation of Forest Development Account (*Rekening Pembangunan Hutan* - RPH) (Joint Regulation of Minister of Finance and Minister of Forestry Number 04/PMK.02/2012 and Number PB.1/Menhut-II/2011)[23]. Derived from the DR fund, the RPH was intended to financially assist the development of several forest industry types, such as HTI, HTR, HKm,

[23] The initial regulation of RPH came in 2007 under Joint Regulation between the Minister of Finance and Minister of the Forestry: Number 06.1/PMK.01/2007 and Number SKB.2/Menhut-II/2007

HD, and HR, as well as ecosystem restoration and other reforestation activities. As arranged in the joint regulation, the initial capital was transferred by the Ministry of Finance in the amount of IDR 5.0 trillion in 2007 (equal to US$ 555 million). It originated from the DR managed by the Ministry of Finance in that period (Barr et al., 2011).

To manage the RPH, the Ministry of Finance released regulation number 137/KMK.05/2007 that led to the formation of Public Service Agency-Forestry Development Finance Body (*Badan Layanan Umum – Badan Pembiayaan Pembangunan Kehutanan*) or known as BLU-BPPH. The BLU-BPPH works under the Ministry of Forestry administration to manage the financial elements of forestry development. The GoI provides financial assistance in the form of a revolving or rolling fund for the forest industry pertaining to reforestation activities such as forest plantations. Although, the realization of funds disbursement was only about IDR 150 billion with gradual realization of distribution to about IDR 80 billion by 2015 (Agroindonesia.co.id, 2015).

The GoI through the MoEF and the Financial Service Authority (OJK) formed a policy to create a new mechanism for low interest rate loans for green industries, including the forestry sector. It is hoped that this mechanism would attract new investors to green industries, which may include the forest plantation sector. There are about eight commercial banks in Indonesia which agreed to join the "green banking" mechanism; the banks are Bank Mandiri, Bank Rakyat Indonesia (BRI), Bank Central Asia (BCA), Bank Negara Indonesia (BNI), Bank Muamalat, BRI Syariah, Bank Jawa Barat (BJB), and Bank Artha Graha International. The combination of these banks represents 46 percent of Indonesia's national bank assets. The policy roadmap formulated by MoEF and OJK focused on developing green industries, especially on bioenergy production (OJK 2014).

In addition to national initiatives, some international non-governmental organizations such as the Banking Environment Initiative (BEI) and the Consumers Goods Forum (CGF)

have arranged an international green banking initiative named the ‘Soft Commodities’ Compact. The initiative has agreed to financially facilitate its clients to transform their management into zero-net deforestation practices. Furthermore, the compact banks also work with their clients to ensure their customers’ operations apply zero-deforestation practices, and meet FSC or PEFC standards for the timber industry by 2020 (BEI 2015).

The compacts’ bank members are J.P. Morgan, Societe Generale, Barclays, BNP Paribas, Deutsche Bank, Lloyds Banking Group, RBS, Santander, Standard Chartered Bank, Westpac, Rabobank, and UBS. Separately, some banks with international credibility, such as HSBC, have applied their independent requirement towards environmental sustainability (BEI, 2015; HBSC, 2014). The HSBC has required that their clients’ operations located in high risk countries comply with FSC or PEFC certification, or maintain a clean track record of “allegations of unacceptable” impacts for their operations in low risk countries (HSBC, 2014).

International Finance Corporation (IFC) also promotes financing for investment in the IF sector in Indonesia. The financing is under a program named the Forest Investment Program (FIP) for the private sector, while the financing for public purposes is mainly funded by the Asian Development Bank (ADB) and the International Bank for Reconstruction and Development (IBRD) and co-administered by the MoEF. The FIP for the private sector is funded and administered by the IFC, providing $US 32.5 million to the private sector for HTI in Indonesia. IFC will provide concessional financing to target private sectors. The finance may be used for several activities to improve their timber forest product business (e.g., HTI concession expansion in degraded lands, assisting costs derived from practicing SFM, etc).

In the area of financial assistance from the government, several private and semi-private windows to finance IF, particularly HTI, have surfaced. Most of the mechanisms for financial assistance are in the form of green banking. An example from the green banking

initiative by Indonesian government, the soft-commodities compacts, and FIP has indicate there is an effort to drive IF development to comply sustainability standards over forest management.

In order to increase investment numbers in Indonesia, President Widodo's administration has applied a One Door policy (*Pelayanan Terpadu Satu Pintu* – PTSP) for new investment under the Investment Coordinating Board (*Badan Koordinasi Penanaman Modal* – BKPM). The MoEF has delegated about 17 licensing fields to BKPM, including an IF license (Mongabay 2015). The licensing process takes about 10 working days, while principal approval might need 90 days for the license to be approved (Tempo.co, 2015). While the licensing administration process is carried out under BKPM, the MoEF is still the responsible party for technical valuation. Thus, the MoEF has placed about four people in the BKPM to create smooth coordination between the offices.

To drive the transformation of HTI development from expansion to intensification, the East Kalimantan government has asked existing and new investors in HTI companies to also develop downstream industries (Kaltimprov, 2015). While HPH licensing is under moratorium by the governor, HTI is excluded in this 2015-2017 moratorium with the requirement that the investor establish downstream industries (East Kalimantan Governor Regulation Number 17 year 2015). The East Kalimantan provincial government in the RKTP also planned to optimize woodworking and wood for construction HTI plantations as the industry already existed in the province. However, with the decline of the selective logging industry, HTI plantations will be crucial to supply existing plywood mills (RKTP, 2012). Provincial government policy requiring existing companies to establish downstream industries in East Kalimantan might lead to an increase of pulp and paper mills in Indonesia. As of 2016, there are only 83 paper and/or pulp mills in Indonesia which are widely distributed across Sumatera and Java (Figure 31).

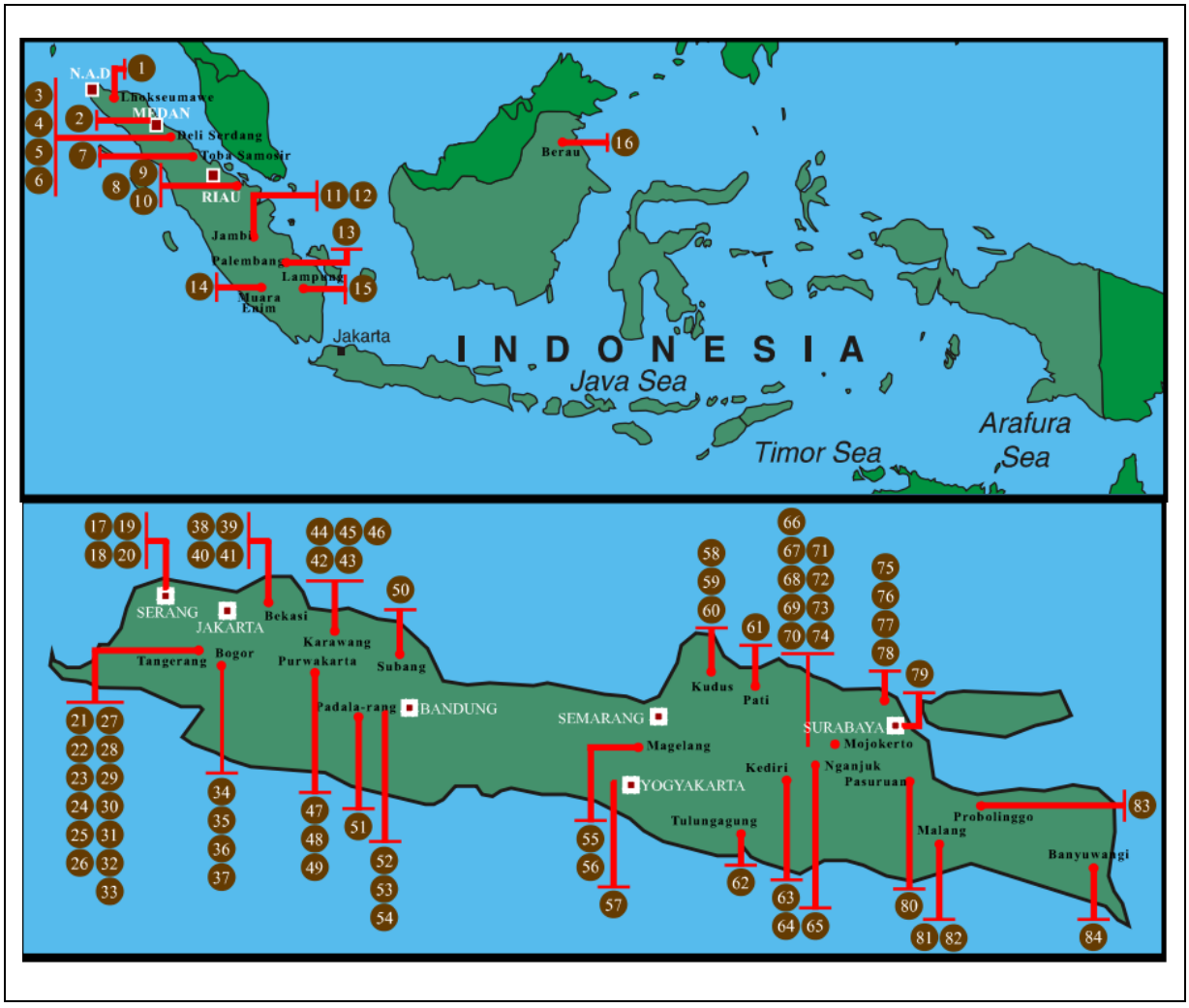

Figure 31. Paper and pulp mills in Indonesia, 2016 (Source: APKI).

With the decline of the coal mining industry, the pulp and paper sector has started to be considered as East Kalimantan's next major economic contributor (indonesiabussiness.net 2016). The newcomer to the big company group, Djarum group, has invested about IDR 2 trillion, or about US$ 2 million for HTI plantations and the pulp and paper mill industry in East Kalimantan. PT Agra Bareksa, the Djarum group subsidiary for HTI, even planned to construct a railroad to connect its plantation concessions, PT Fajar Surya Swadaya, PT Silva Rimba Lestari and PT Daya Maju Lestari, with their pulp and paper mills (tribunnews 2015; agra-bareksa, 2016).

Moreover, the East Kalimantan government has also released Provincial Regulation Number 6 year 2015 to facilitate new investors. The government provides certain incentives

(e.g., a tax allowance and a tax holiday,) for any new investors. Meanwhile, the APRIL director has predicted there will be about 3 percent growth in the pulp and paper sector (liputan6.com 2016). Given the consideration of East Kalimantan's land potential, and the consideration of downstream industries of forest timber products from plantations, there are a lot of opportunities for HTI in East Kalimantan to be well-developed.

The Indonesian government has calculated that about IDR 81.2 trillion will be needed to reach the new IF plantation target of 10.2 million hectares as listed in the roadmap of forestry industry development (Table 25). About IDR 12.5 million in investment will be

Table 25. Financial needs on IF development in upstream and downstream industries (Source: MoF 2012).

				I. Upstream
	Activity	Standard cost/hectare (million IDR)	Area (million hectare)	Total cost (trillion IDR)
1	HTI	12.5	5.7	71.3
2	HTR (seedling and socialization)	5.0	1.7	8.5
3	HR (operational, guidance, and maintenance)	0.5	2.8	1.4
	Total section I			81.2
				II. Downstream
	Activity	Capacity/unit (million	Cost/ Kep cost/unit (million US$)	Total cost (million US$)
1	Primer			
	Pulp	45	1,500	67,500
	Plywood	35	200	7,000
	Sawnwood	36	100	3,625
	Bioenergy	5	500	2,500
2	Secondary			
	Paper	41	2,000	81,000
	Wood working	22	120	2,610
3	Tertiary			
	Furniture	3	100	348
	Total section II			164,583

needed per hectare to established HTI, IDR 5 million per hectare cost for HTR, and IDR 0.5 million per hectare for HR. To establish IF downstream industries for all forest products, there will be US$ 164.583 billion of investments needed (MoF 2012).

4.5. Making Indonesian IF a friendly investment sector?

Forestry sector investment in Indonesia can be in the form of domestic investment (*Penanaman Modal Dalam Negeri* – PMDN), or foreign direct investment (FDI also known in Indonesia by the legal term Penanaman *Modal Asing* - PMA). PMDN and PMA were initially regulated during President Soeharto's regime, UU Number 6 Year 1968 and UU Number 11 Year 1970. The latest regulation on investments in Indonesia was regulated in UU 25 Year 2007 during President Yudhoyono's regime. The law interprets PMDN as "an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a domestic investor by use of domestic capital," while PMA is "an investing activity to do business in the territory of the state of the Republic of Indonesia that is carried out by a foreign investor both by use of all of foreign capital and by engagement in a joint venture with a domestic investor".

A comparison of FDI flows to the forestry industry sector in different countries' economic status between 1990-92 and 2008-10 highlights changes in investments (Figure 32). The diagram shows that FDI in the forestry sector in developed countries was decreasing greatly from US$ 1.46 billion in 1990-92 to only US$ 0.4 billion in 2008-10. In contrast, the FDI in developing countries and countries in transitional economies was greatly increasing. There has been about a US$ 2.25 billion FDI increase in developing countries between the time periods, and a US$ 1 billion increase in FDI in the countries with transitional economies. The FDI increase for the forestry sector in developing countries is not necessarily a good sign for Indonesia. Castren and others (2014) noted that most of Indonesia's IF investment came from domestic investment. Indonesia's bad reputation in the forestry

industry and its land tenure problems have become a hindrance that makes Indonesia's IF sector less attractive for any FDI (Castren et al., 2014).

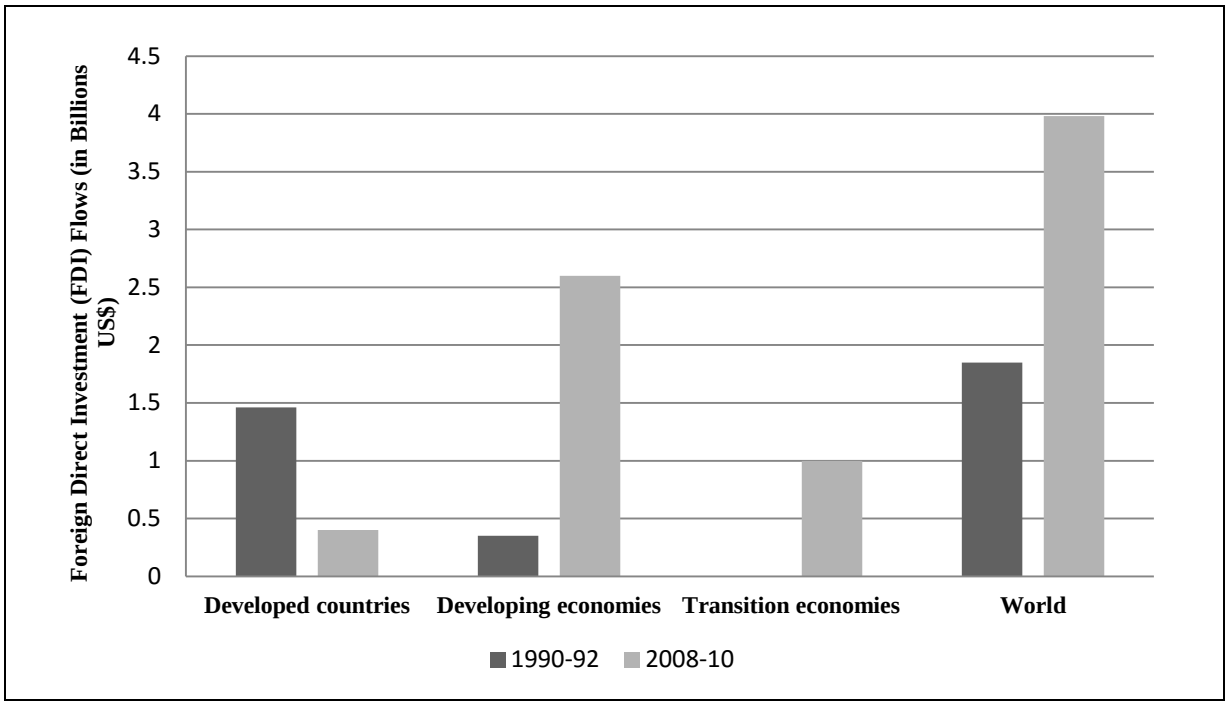

Figure 32. World Foreign Direct Investment (FDI) flows (in billions of US$) into forestry sector 1990 - 1992 and 2008 - 2010 (Source: UNCTAD 2012 cited in Castren et al 2014).

Further, IFC has identified about seven challenges for IF investment in Indonesia. The challenges are:

- Investment competition with other sectors such as agriculture, oil palm plantation, mining and other sectors;
- High risk perception seen by commercial lenders to Indonesian forestry enterprises;
- Lack of proven experience in managing profitable businesses in forestry sector;
- Lack of technical capabilities and information such as updated silviculture forest inventory techniques and financial analysis;
- High up-front costs in managing the forests;

- Unclear tenure which may lead to hindrance of higher technology and completion uses; and
- Financial institutions' lack of capacity to analyze and evaluate forestry sector industries.

An agreement and commitment from reputable international banks such as the compact by BEI and CGF may provide an opportunity for Indonesia's IF companies to finance its plantation industry. Meanwhile, the government has created new policies to attract investment such as providing tax holidays, simpler and faster licensing processes, and opening new commodities for IF such as bamboo, rubber, and bioenergy. These policies might be beneficial for facilitating investment. As described by IFC and Castren and others (2014), a strategy to solve problems such as unclear land tenure should be a major concern for efforts to attract more investors.

CHAPTER 5
SUMMARY AND CONCLUSIONS

This thesis had four specific objectives: 1) identify the transformation and policy drivers of Indonesia's industrial forests over time, 2) identify the geographic extent, governance, and land tenure characteristics of IF in Indonesia, 3) examine via a case study IF at the sub-national level in East Kalimantan, and 4) describe the role of IF in shaping Indonesia's economy. Each of the objectives is addressed in this chapter.

5.1. Transformation and policy drivers of industrial forest development

The transformation of the forestry industry in Indonesia can be divided into five stages (natural forests selective logging, large-scale IF, small-scale IF, captive plantation, and concession 2.0). The first stage or a selective logging of natural forests (HPH) was done in the mid-1960s as a strategy to boost Indonesia's economy. The second stage, or large-scale forest plantation (HTI), was launched during the 1980s and 1990s in anticipation of the depletion of natural forests. Forest tenure uncertainty related to HTI development led to complex socio-economic problems, such as conflicts between companies and communities. As a solution, the government released several social forestry programs, including the third stage of IF, small-scale industrial forest plantation (HTR). Another type of IF has appeared, a captive plantation, where privately owned land is used by a company to be co-developed as an IF. This type of plantation can be assumed as the fourth stage, although the captive plantation is only newly formed. The last stage, concession 2.0, is still largely conceptual based on collaboration between a private/public company and a local community focused on co-management of a plantation, perhaps on an equal partnership basis.

This study reviewed the context of IF development from a policy perspective. There are many policies that have played major roles in IF development in Indonesia (Table 26). These

policies evolved depending on the needs on the GoI regarding industrial forests. The initial 1967 policy focused on selective logging of natural forest concessions (HPH). Eventually, policies emerged to focus on large-scale IF plantations in 1990 (HTI) and later on small-scale IF plantations in 2007 and 2008 (HTR). The policies guided forest designation, management, planning and investments. Notably they guided the transformation from reliance on selectively logged natural forests to establishment and management of IF plantations. This transformation is still underway with increasing recognition of the role that customary lands and smallholders must play. The latter policies were aimed at addressing land tenure conflicts between the central and provincial governments and the local communities.

Table 26. Key policies/regulations related to forest plantation.

Policy/Regulation	Date	Implication to IF	Type of IF
Law Number 1 Year 1967 Jo. Law Number 11 Year 1970 on Foreign Investment	January 10, 1967	Foreign investment was allowed in Indonesia, including in the forestry sector.	Selective logging industry (HPH). Later applied to plantations (HTI).
Law Number 5 Year 1967 on Basic Forestry Law	May 24, 1967	Industrialization of forest was officially regulated, predates IF plantations	HPH. Later applied to HTI
Law Number 11 Year 1968 on Domestic Investment	October 25, 1968	Domestic investment initiated by GoI, including in the forestry sector.	HPH. Later applied to HTI.
Government Regulation Number 21 Year 1970 on Forest Concession Rights and Forest Products Harvesting Rights	May 23, 1970	Details on forest industry operation were specified, acceptable practices identified.	HPH

Table 26 (cont'd).

Policy/Regulation	Date	Implication to IF	Type of IF
Government Regulation Number 7 Year 1990 on Forest Plantation Concession Rights (HPHTI)	March 16, 1990	First formal regulation that provided guidelines on industrial forest plantation operations (large-scale). Government participated in financing IF developments through reforestation fund (DR).	Large scale IF (HTI)
Law Number 41 Year 1999 on Forestry	September 30, 1999	Previous forestry law was terminated, as well as the first legal form of IF at the State Law level. Multispecies IF type was regulated. IF development directed to non-productive forests to maintain natural forests.	HPH, HTI, and implicitly HTR
Department of Forestry Secretary General Letter Number 549/II-Keu/2000	2000	Government financing for IF was temporarily terminated leading to some IF companies' financial collapse..	HTI
Government Regulation Number 6 Year 2007 Jo. Number 3 Year 2008 on Forest Governance and Forest Management Planning, and Forest Utilization	January 8, 2007; February 4, 2008	Detailed forest governance arrangement of large scale IF (HTI). First official regulation of small-scale IF (HTR), as well as its detailed governance arrangement.	HPH, HTI, and HTR
Ministry of Forestry Regulation (Permenhut) Number P.23/Menhut-II/2007 on Business's Permit Application Procedures for Wood's Utilization on People's Plantation on Plantation Forest	June 25, 2007	Detailed management regulation of HTR, as well as the mechanism for the concession holders to receive government loans from the *Dana Reboisasi* DR, funds derived from HPH.	HTR

Table 26 (cont'd).

Policy/Regulation	Date	Implication to IF	Type of IF
Ministry of Finance released a regulation number 137/KMK.05/2007	2007	Created the Public Service Agency – Forestry Development Finance Body (*Badan Layanan Umum – Badan Pembiayaan Pembangunan Kehutanan* - BLU – BPPH) to finance IF from planned RPH ((*Rekening Pembangunan Hutan*) account. Only HTR financially supported by the government.	HTI and HTR
Joint Regulation of Minister of Finance and Minister of Forestry Number 04/PMK.02/2012 and Number PB.1/Menhut-II/2011	2011; 2012	The establishment of Forest Development Account (*Rekening Pembangunan Hutan* - RPH)	HTI and HTR
Ministry of Forestry Regulation (Permenhut) Number P.39/Menhut-II/2013	July 16, 2013	Regulation provided for management of IF between concession holders and the communities around the concession area.	HTI
Ministry of Environment and Forestry Regulation (PermenLHK) Number P.12/Menlhk-II/2015 on HTI	March 24, 2015	HTI development was directed to support State target on food security and energy security through HTI for bioenergy. HTI companies also required to allocate 20 percent of concession area for community development.	HTI

5.2. Geographic extent, governance, and land tenure characteristics of IF in Indonesia,

Natural forest areas have declined substantially since the early 1990s, from 61.7 million hectares of natural forest concessions in FY 1993/1994 to 20.8 million hectares in 2014. The policy responses have led to establishment of large-scale IF plantations (HTI) and small-scale IF plantations (HTR), though the latter are small in total area. Even the HTI has fallen short of expectations with over 10 million hectares of concessions allocated, but only 5.9 million hectares of IF plantations by 2013.

To the extent that policies provide drivers for expansion of IF, there are also dampers on expansion, notably uncertainty regarding tenure and challenges in financing HTI development. Many parties in Indonesia, including the NGOs and the GoI have worked on the recognition of customary land ownership. Recognition of customary lands might potentially change the course of IF development in Indonesia. Forest Management Units (FMUs) and customary communities, as well as other social forestry communities, will be important in IF development in the future. It is also expected that FMUs will play an important role in developing a permanent forest area based on their local potential and providing a bridge for stakeholders in the permanent forest area. Likewise, the customary communities can potentially create sustainable forest management practices for social forestry activities as well as HTR at the smallest unit level. However, these new approaches are untested at this time and future monitoring and studies will be needed.

Currently there is no specific information on how much area of conflict is caused in the IF development. Additional research reviewing conflict types related to HTI concession areas may help in understanding the conflicts and possible solutions. In addition, permanent forest area stipulation should be the primary key to solving social problems in HTI development; this involves a multi-stakeholder process. Clear and clean status of granted concessions will ultimately address tenure rights status, a critical first step for conflict

resolution between different stakeholders.

Forest governance structure has changed in relation to the development of IF over time. However, the structure has always used a top-down type of relationship, where major decisions on IF establishment were in the central government's hands. Although the HTR establishment is under local government jurisdiction, the impact on overall IF establishment is very small due to its small number area compared to the HTI. KPHs or FMUs are expected to play a significant role in future HTI development, with the HTI centered on local land units. However, FMUs are still early in the implementation stage, and 'turf' bureaucracy, lack of resources, and management capability has slowed their progress.

Further, IF development has struggled due the competition with other natural resources utilization sector (e.g. oil palm and coal mining). However, if we compared the three commodities (forest plantation, oil palm and coal mining), forest plantations have a more promising future compared to oil palm and coal mining, which are less sustainable and create more damage to the environment. The creation of the MoEF provides an example of the increased role of environmental protection in Indonesia. To increase success of IF development, the GoI should work on creating improved opportunities for investors.

5.3. Examine via a case study IF at the sub-national level in East Kalimantan

Different regimes in Indonesia have shaped different forms of forest governance. The industrialization of forests was started after President Soeharto assumed the office on 1967, where the utilization of forest resources was aimed to boost Indonesia economy. The type of governance during President Soeharto regime was strongly centralized. Beginning in the reformation era on 1999, local governments started receiving wider authority (e.g., establishment of forest service office at regency and provincial level, local government participation on forestry administration, etc.). However, forest governance was still strongly determined by the central government. Recently, the GoI has released a policy, strengthening

forest governance at management unit level (FMU/KPH), but revoking almost all authorities of the regency (sub-province) government over forestry issues. Delegation of forest governance to the smallest unit level would potentially support IF development. Future research on the effectiveness of FMU/KPH relative to IF development will be necessary.

Generally, Indonesia IF plantations, particularly the large-scale plantations, can be classified into three forms: IF for pulp and paper, IF for construction wood, and IF for other purposes—all are widely found in Sumatera, Kalimantan, and Papua. IF for pulp and paper has dominated Indonesia's IF plantations to date. Meanwhile, IF for wood construction was mainly aimed to support State program on transmigration. Recently, the East Kalimantan government has favored IF for wood construction to feed its existing plywood mills in the province. In response to the GoI's agenda on food security and bioenergy, a new policy has been released boosting the establishment of IF for food through heteroculture plantation and bioenergy.

Land tenure is a classical problem for Indonesia on developing IF, particularly leading to conflicts between companies and communities. The GoI has released several breakthrough policies for addressing conflict on land tenure issues (e.g. partnership scheme on IF plantation between companies and communities, a requirement for companies to allocate 20 percent land concessions to the community, etc.). Meanwhile, compared to other land-using natural resource sectors (e.g. oil palm and coal mining), IF has been slow to expand. However, due a price stagnation and decline for competing sectors, IF plantations are likely to be more competitive in the future.

Interviews of national and local stakeholders in IF development were conducted in Jakarta and East Kalimantan. Their responses to structured questions and additional discussions clarified application of policies at the provincial level. Their responses indicated that there were no significant changes in forestry policy related to industrial forest (IF)

development in East Kalimantan. Rather, the national-level policies were in place and being implemented. They emphasized that old problems such as unclear land tenure and the need for financial assistance to establish plantation remain unsolved. Although the GoI has put more effort into resolving land tenure problems than previous regimes the tenure problems persist. Complex issues such as community's land annexation, compensation for local communities, and business competition between companies should be addressed as part of solutions to land tenure issues.

There are some improvements in forest governance, such as new structure for management units (FMU/KPH) and wider independence for the companies on timber administration. However, effective implementation and mechanism improvement still need to be addressed. In addition, due to weak bargaining power (e.g., type of license, attractiveness of timber commodities to communities), IF plantations have struggled in competing with other sectors on natural resources utilization (e.g., oil palm and coal mining). In addition, better financial support mechanisms, a strategy to make IF plantation become more attractive sector to investor and community, are urgently needed.

5.4. Describe the role of IF in shaping Indonesia economy

Indonesia's economy both shapes and is shaped by industrial forests. Demand for wood products, domestically and internationally, leads to policies and land allocation srelated to IF. These, in turn, affect the national and local economies.

Although Indonesia's is GDP from the forestry sector has consistently increased, its relative contribution to the total national GDP has consistently declined in the last 6 years. One concern about the GDP estimates is that the forestry contribution is underreported due to miscalculation of DR and PSDH fee amounts received by the GoI. To overcome this problem, Indonesia's government has released a policy, online timber administration, to better report revenue receipts from the forestry sector, including IF.

Growing global concern over forest management sustainability led Indonesia's government to require companies to comply with the national standard of timber legality (SVLK), as well as encouraging them to satisfy the national SFM standard (PHPL). The national SVLK and SFM application has successfully increased Indonesian's trade on timber products. However, some government officials are concerned about the application of PHPL, particularly regarding field-level application at the field level, coordination between different government levels, and its standard of sustainability. A revision of the certification application and better supervision are needed to create a better standard of SFM certification.

Meanwhile, several big companies have translated sustainability concerns into more aggressive actions, such as removing any natural forest derivates from their mills' production and only developing their plantations in non-HCV and non-HCS area. Although, avoiding HCV and HCS areas, However, the provincial government has criticized the companies for wasting the land resources when they avoid HCV and HCS areas. The provincial government notes that wise and sustainable management of forest plantations should be carried out that directs the sector to contribute to economic growth. Further policy research on how sustainable forest policies applied by the companies might affect the economy is needed.

After the initial launch of large-scale IF, the Indonesian government provided financial incentives sourced from reforestation fund (DR) that were collected were from the HPH companies. Although the policy provided some help in HTI development, the financial practice was burdened with poor management and corruption. (Barr, 2001; BPK, 2008). The financial help from DR fund was halted on 2000 upon President Soeharto's fall and following a study from the BPK on the inappropriate practice of the fund distribution. Regulation reform, both in the financing mechanism and its application in the field, is needed to create a better financial assistance for the companies and individual farmers.

Prior to 2000, data on the extent of forest plantations was unreliable. By 2000,

approximately 2.8 million hectares of plantations were established, and the total area reached 5.9 million hectares by 2013 (Figure 33). However, the concession area has always been considerably higher. In many ways, the area of plantations has shown a steady (8% per year) increase over the years, even as new policies promoted expansion of IF plantations. The first explicit regulation for IF plantations came in 1990. By 1993, mechanisms were in place for investments to be realized (e.g., Perum Inhutani was established in the outer islands, and partnerships with private companies were formed.). In 1999 and 2000, earlier forestry laws were terminated and funding for concessions was cut. As a consequence, some companies left the IF industry; this is reflected in the reduction of concession area in 2002 and 2003.

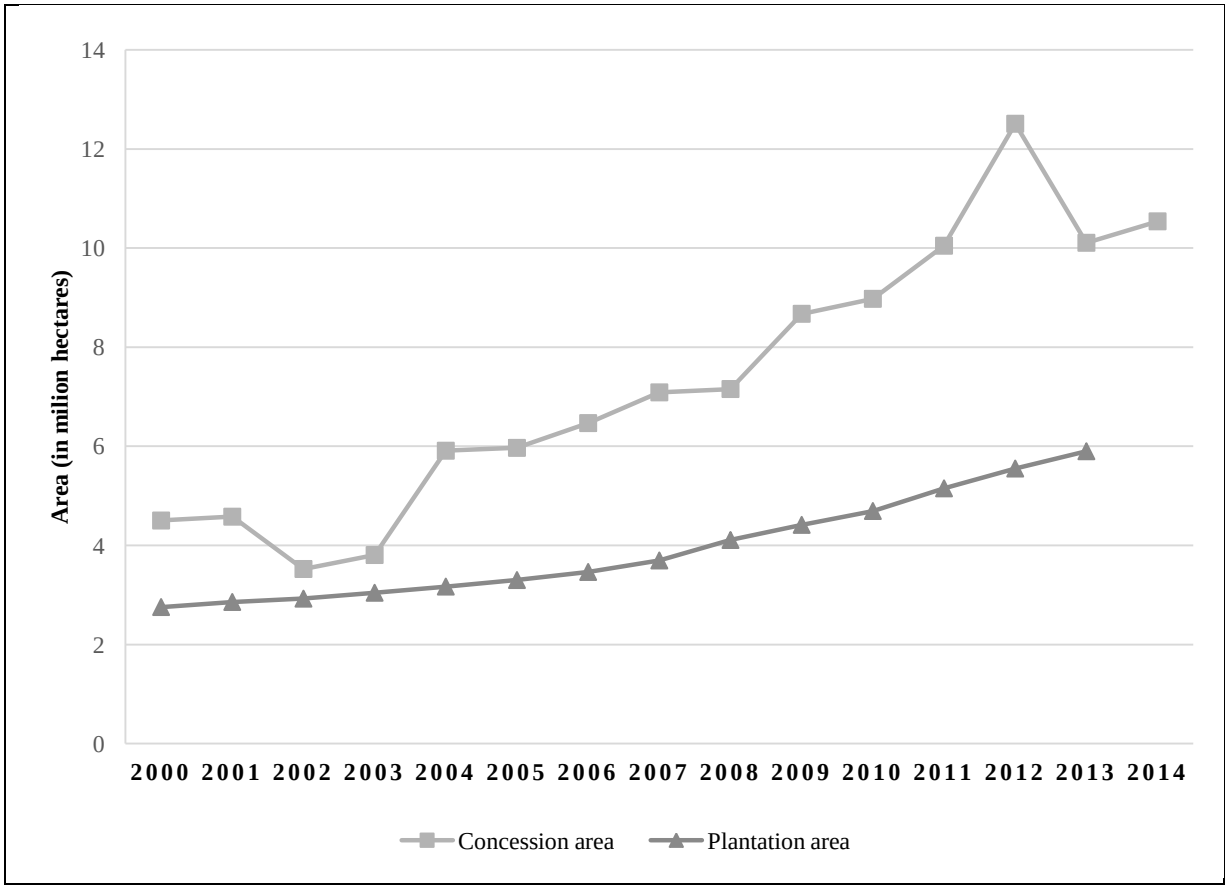

Figure 33. Industrial forest concession area versus plantation area in Indonesia, 2000-2013 (Source: MoF, 2014).

In 2004, a new government was democratically elected, and mechanisms were again in place to expand concessions. Subsequent policies supported large-scale and small-scale

plantations, but the pace of expansion did not increase. In 2012-2013, there was a global downturn in forest products demand and several companies were forced out of their IF concessions due to corruption findings; the dip in concession area is reflected in Figure 33, but there was no noticeable change in overall plantation area. Interviewees attributed the disparity between concession area and plantation area to land tenure issues and lack of appropriate financial support policies. Nonetheless, expansion of IF plantations continues. At the current pace, IF plantation could reach the 10 million hectare level by 2020, unless land tenure and other dampers slow the growth.

5.5. Conclusion Comments

The study shows a framework that provide a general context and drivers of industrial forest plantation in Indonesia. The GoI has shows some progress in promoting and targeting to boost Indonesia IF development as a source to feed timber and other forestry products market. The policies has shapped both by national agenda and some influence from international markets. However, an effective application still need to be seen as common problems in IF plantation is still a spectre for Indonesia's IF to develop. A specific study on the framework and general findings is also required to further understand the context of Indonesia's IF development issue, and finding the best formulation to solve existing problems hindering IF development.

APPENDICES

Appendix A: Questions list

Michigan State University
Interview

Industrial Forest Plantation Development Policy

1. Date of Interview : (*mm/dd/yyy*) |__|__|/|__|__|/|__|__|__|__|
2. Time of Interview : *(HOUR: MINUTE)* |__|__|:|__|__|
3. Organisation Name : |_____|
4. Organization ID : |__|__|

Questions list

1. How do you see Indonesian IF have changes in the last five years?
2. What is the main challenges and problems in the development of IF in Indonesia, specifically in East Kalimantan?
3. What is the main strength and opportunities of IF development in Indonesia, specifically in East Kalimantan?
4. What factors that still face Indonesia's IF development in Kalimantan?
5. How do you see IF amount area extension have changes in East Kalimantan?
6. In your opinion, how adequate current government policy in supporting sustainable IF development?
    a. How do you see recent Indonesia government policy, such as forestry certification, license moratorium, one door investment licensing, one map's policy, customary community land, and corruption eradication on forestry sector would affect IF development in East Kalimantan?
    b. Does government have a policy on promoting IF in their administrative area?
7. What factors should be considered by a government to create better policy on sustainable IF development?
8. How do you see role of KPH for the IF development in the future?
9. In 2010, Indonesia government has changed designation area of IF development from it *have to be built in unproductive forests* to *prioritized to be built in unproductive forests*, how do you see this would affect IF development in East Kalimantan?
10. Does the company have special policy related to communities?
11. Does the government have specific policy on promoting certain species for the IF?
12. How do you compare IF and other natural resources investments such as oil palm and mining?
13. What is your expectation from government and company towards IF development in your area?

Appendix B: Wood Fiber Concession in East Kalimantan, Indonesia based on company group

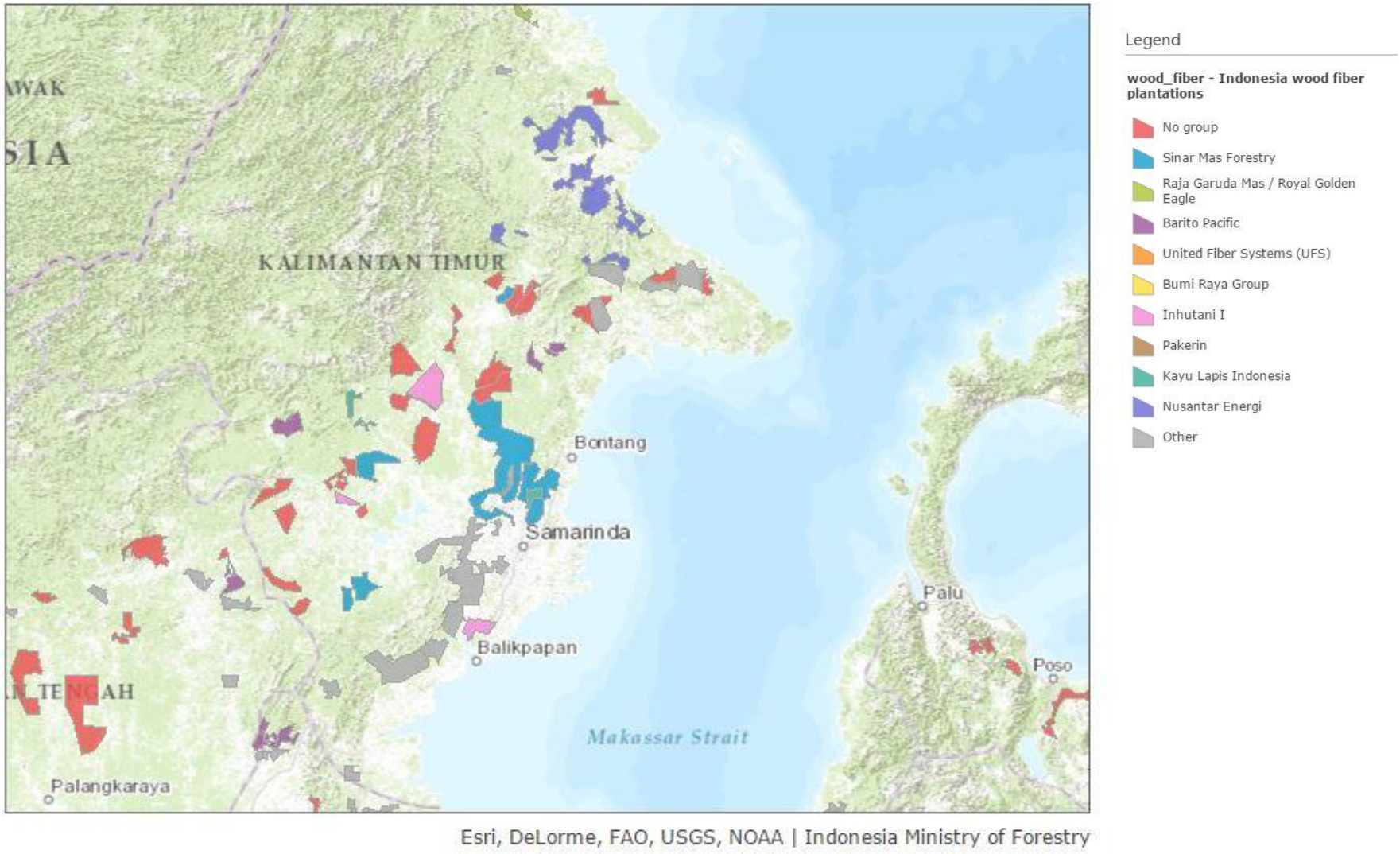

Figure 34. Wood fiber concession in East Kalimantan, Indonesia based on company group.

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