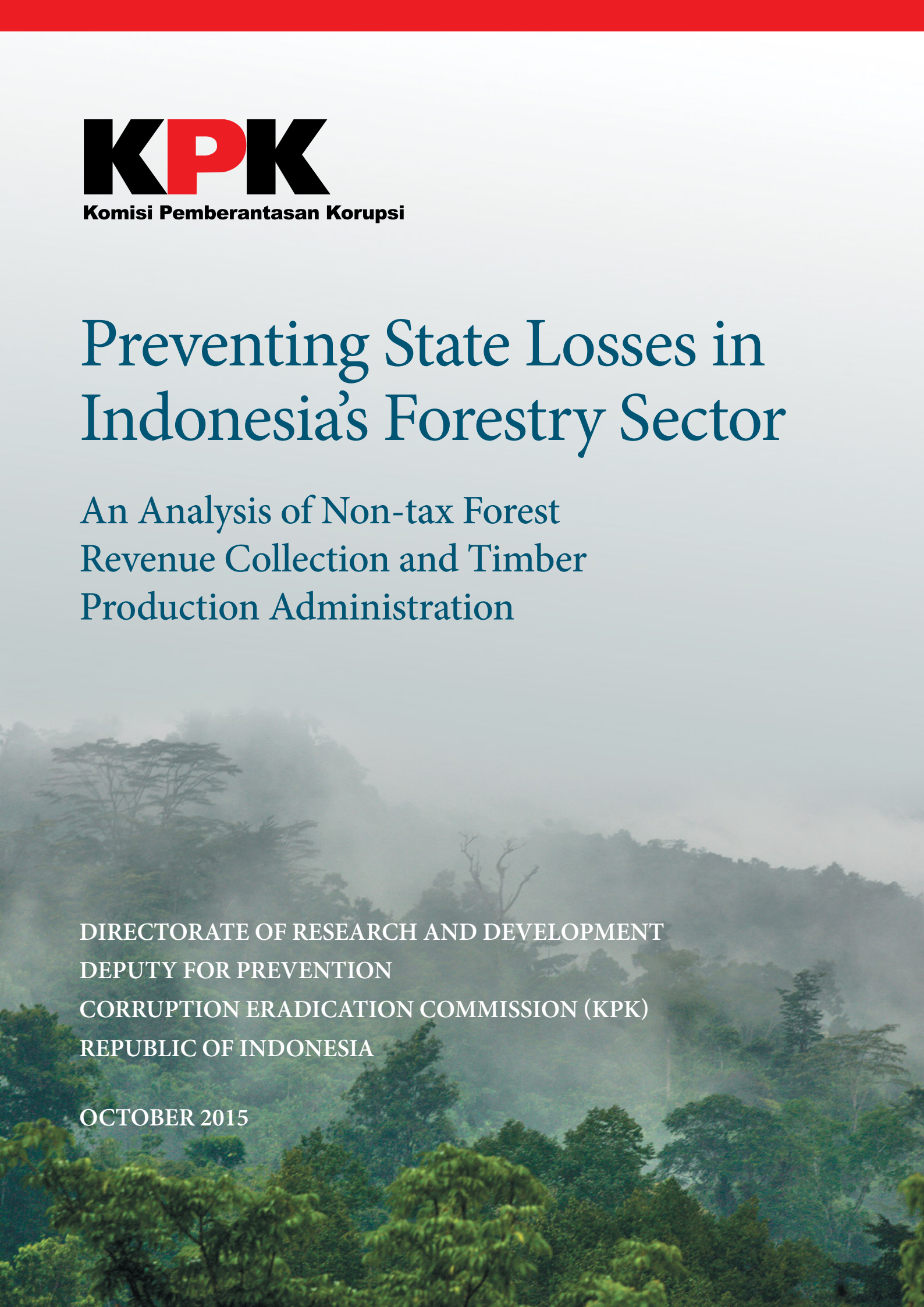
KPK
Komisi Pemberantasan Korupsi

Preventing State Losses in Indonesia's Forestry Sector

An Analysis of Non-tax Forest Revenue Collection and Timber Production Administration



DIRECTORATE OF RESEARCH AND DEVELOPMENT
DEPUTY FOR PREVENTION
CORRUPTION ERADICATION COMMISSION (KPK)
REPUBLIC OF INDONESIA

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Executive Summary

Indonesia is home to one of the largest tropical forests in the world, and the vast majority of this forest is administered by the Government through a Forest Estate that covers over 70 percent of the nation's land area. Based on Article 33 of the Constitution, the Government is responsible for managing Indonesia's natural resources for the maximum benefit of the country and its citizens. When forests within the state-administered Forest Estate are harvested for commercial timber production, the Government collects various royalties, levies, and fees based on reported timber production, collectively known as PNBP non-tax revenues. If timber is not reported and/or royalty fees are not paid, then the economic value from these forests is captured by private interests and not harnessed for the benefit of the Government and, by extension, the people of Indonesia.

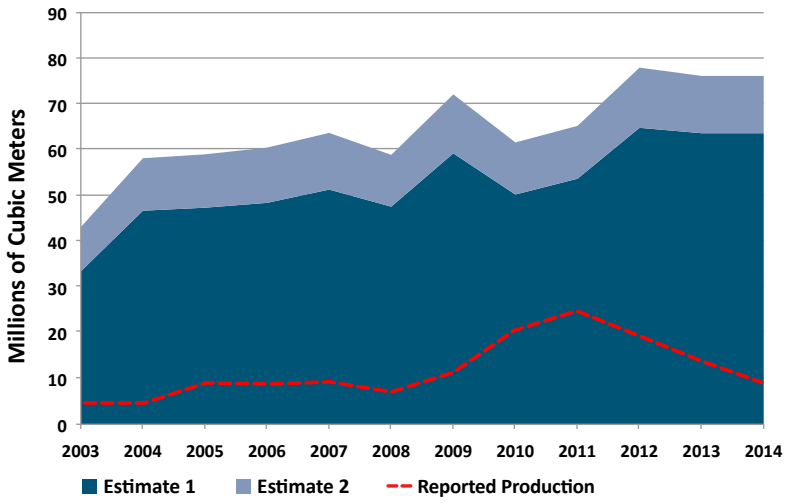
The President has encouraged KPK, the Corruption Eradication Commission, to calculate state losses in the forestry sector, examine the systems that allow such losses to occur, and coordinate efforts to fix these systems and improve revenue collection. This study estimates the loss of state assets from unreported timber production and the under-collection of non-tax forestry revenues during the period 2003–2014. The study analyzes the weaknesses in the Government's administrative systems for overseeing timber production and for collecting non-tax forest revenues, and then provides recommendations for how these systems should be strengthened and revenue collection improved. This study will provide the basis for KPK to coordinate an inter-ministerial reform initiative to improve state administration of Indonesia's forests for the benefit of the country.

Estimating the volume of unreported timber production

According to official statistics, commercial wood production from Indonesia's natural forests during 2003–2014 totaled **143.7 million cubic meters** (m^3). Of this, 60.7 million m^3 was harvested through selective logging by HPH concession-holders; and 83.0 million m^3 was produced through land-clearing for the development of industrial forestry plantations, oil palm and rubber estates, and mining.

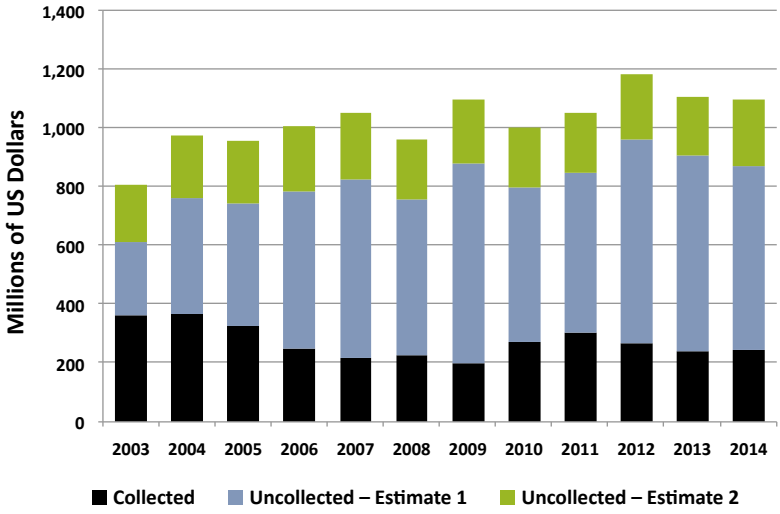
The study finds that the reported production is far less than the volumes of timber that are actually harvested from Indonesia's natural forests. Results from the study's quantitative model indicate that actual timber production during 2003–2014 totaled between **630.1 million m^3** and **772.8 million m^3**. These figures suggest that Ministry statistics captured only 19–23% of total timber production during the study period, while 77–81% was unreported.

Estimates of actual timber production from natural forests in Indonesia, 2003–2014



State losses from uncollected PNBP forest revenues

Estimated state losses from uncollected Dana Reboisasi and PSDH revenue, 2003–2014 (in US Dollars)



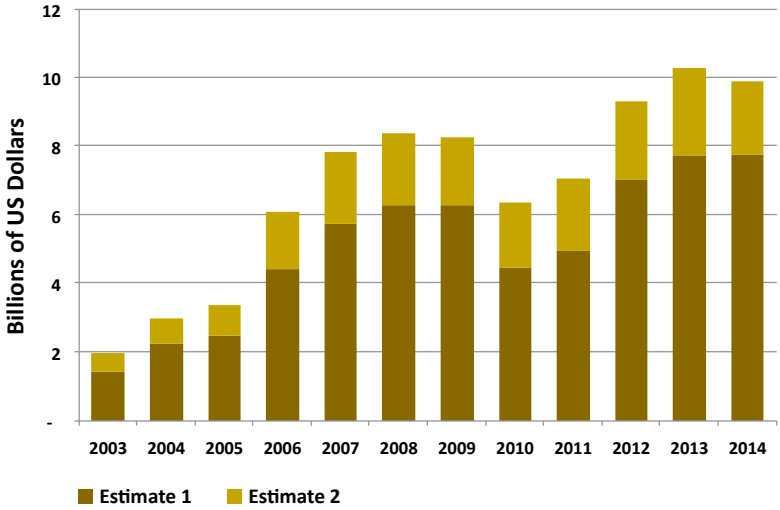
The Government collected **US$ 3.26 billion** (Rp. 31.0 trillion) in combined receipts from the Reforestation Fund *(Dana Reboisasi, DR)* and the natural forest component of the Forest Resource Provision *(Provisi Sumber Daya Hutan, PSDH)* between 2003 and 2014. However, the study's model calculates the Government should have collected aggregate revenues of between **US$ 9.73 billion and US$ 12.25 billion** (Rp. 93.9 and 118.0 trillion) from the DR and PSDH during 2003–2014. These figures indicate that state losses from under-collection of DR and PSDH revenues totaled between **US$ 6.47 billion and US$ 8.98 billion** (Rp. 62.8 and 86.9 trillion) – or, on average, between **US$ 539 million and US$ 749 million** per year – during the 12-year study period.

State losses from the commercial value of unreported timber

The study also calculates the commercial value of unreported timber production, since the trees in the Government-administered forest estate are a state asset. When licensed timber production is reported and the DR and PSDH are paid according to the production report, the timber then becomes a private asset. Under Indonesian law, timber that is not reported becomes a stolen state asset, and money generated through the sale of this timber can be considered both state losses and proceeds of a crime.

Aggregate state losses from the domestic commercial value of unreported timber production during this period amount to between **$60.7 billion and US$ 81.4 billion (Rp. 598.0 and 799.3 trillion),** or between **US$ 5.0 billion and US$ 6.8 billion** per year. The value of annual losses climbed sharply through the study period, rising from a low of US$ 1.4–1.9 billion in 2003 to a high of US$ 7.7–9.9 billion in 2013. This dramatic increase was driven by the rapid expansion of commercial land-clearing and a significant rise in both domestic and international log prices. According to ITTO data, Indonesia's domestic prices for *Meranti* rose from US$ 77 per m^3 in 2003 to US$ 244 per m^3 in 2013.

Commercial value of unreported timber production in Indonesia, 2003–2014



Weaknesses in the administration of timber production and PNBP collection

Such large volumes of unreported timber production and state loss have resulted from significant weaknesses in the Government's timber production administration and revenue collection systems. Major weaknesses identified by the study include:

1. Management of data on reported timber production and non-tax revenue collection is insufficient for holding companies accountable to meet fiscal obligations to the state.
2. Existing internal controls are inadequate for ensuring the integrity of systems for timber administration and collection of non-tax revenues.
3. External accountability mechanism are inadequate for preventing state losses from the manipulation of information on timber production and non-tax revenue collection.
4. Ineffective law enforcement in the forestry sector has resulted in a 'shadow economy' for illegally harvested timber.
5. Forest royalty rates have been set at levels that facilitate only limited capture of economic rents by the Government and provide implicit incentives for unsustainable forest management.
6. Non-tax revenue collection and timber product administration is not directed at the broader public interest.

Roadmap for fixing the system

Within the context of the National Movement to Save Indonesia's Natural Resources, KPK will be working together with the Ministry of Environment and Forestry (KLHK), the Ministry of Finance, the Supreme Audit Agency (BPK) and other institutions to address the weaknesses identified by this study. KPK now calls on these institutions to formulate a joint action plan aimed at strengthening the administration of timber production and increasing non-tax revenue in the forestry sector. These efforts are critically needed to ensure that Indonesia's forests are managed more accountably and the benefits they generate are shared more equitably.

At minimum, this action plan must include:

1. A comprehensive audit of non-tax forest revenues conducted by BPK.
2. All timber production from state-administered forests reported on KLHK's online and publicly-accessible SI-PUHH system, including official inventory, planning, production, non-tax revenue payment, and mill timber consumption reports.
3. Spatial monitoring tools used to verify forest inventory for all land-clearing areas prior to harvest.
4. Routine coordination between KLHK and Ministry of Finance to plan empirically-based and accountable non-tax revenue targets.
5. Enhanced law enforcement actions, including use of anti-money laundering laws, against all actors identified to be underreporting timber production and/or evading payments of forest royalties.
6. High-level review of the structure and rates of royalty fees to determine how the Government will collect full economic rent on timber production.
7. KPK along with counterparts from KLHK and Ministry of Finance publishes publicly-available annual performance reports of non-tax forest revenue collection.

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Abbreviations and Acronyms

APBN	State Budget (*Anggaran Pendapatan dan Belanja Negara*)
APHI	Indonesia Forest Concessionaires Association (*Asosiasi Pengusaha Hutan Indonesia*)
BLU	Public Service Unit (*Badan Layanan Umum*)
BP2HP	Regional Production Forest Supervision Offices, under the Ministry of Environment and Forestry (*Balai Pemantauan Pemanfaatan Hutan Produksi*)
BPK-RI	Supreme Audit Agency for the Republic of Indonesia (*Badan Pemeriksa Keuangan Republik Indonesia*)
CIA	Corruption Impact Assessment
DR	Reforestation Fund (*Dana Reboisasi*)
Ganis	Licensed Technical Officer (*Tenaga Teknis*)
GN-SDA	National Movement to Save Indonesia's Natural Resources (*Gerakan Nasional Penyelamatan Sumber Daya Alam*)
HL	Protected Forest (*Hutan Lindung*)
HP	Production Forest (*Hutan Produksi*)
HPH	Selective Logging Timber Concession (*Hak Pengelolaan Hutan*)
HPK	Production Forest for Conversion (*Hutan Produksi yang dapat Dikonversi*)
HPT	Limited Production Forest (*Hutan Produksi Terbatas*)
HTI	Industrial Forest Plantation (*Hutan Tanaman Industri*)
IHH	Forest Product Fee (*Iuran Hasil Hutan*)
IHMB	Concession Area Standing Stock Inventory (*Inventarisasi Hutan Menyeluruh Berkala*)
IPK	Wood Utilization Permit (for land-clearing) (*Izin Pemanfaatan Kayu*)
IPPKH	Forest Estate Temporary Use Licenses (*Izin Pinjam Pakai Kawasan Hutan*)
ITTO	International Tropical Timber Organization
IUPHH	Commercial Forest Utilization License Fee (*Iuran Izin Usaha Pemanfaatan Hutan*)
IUPHHK	Commercial Forest Concession License (*Izin Usaha Pemanfaatan Hasil Hutan Kayu*)
KB	Large-diameter logs (≥ 30 cm) (*Kayu Bulat*)
KBK	Small-diameter logs (< 30 cm) (*Kayu Bulat Kecil*)
KLHK	Ministry of Environment and Forestry (*Kementerian Lingkungan Hidup dan Kehutanan*)
KPK	Corruption Eradication Commission (*Komisi Pemberantasan Korupsi*)
LHC	Timber Cruising Report (*Laporan Hasil Cruising*)
LHP	Logging Yield Report (*Laporan Hasil Penebangan*)
LP-KHP	Timber Harvest Production Report (*Laporan Produksi Kayu Hasil Pemanenan*)
MTH	Mixed Tropical Hardwoods
PKH	Forest Estate User Fee (*Pemakaian Kawasan Hutan*)
PNBP	Non-tax State Revenue (*Penerimaan Negara Bukan Pajak*)
PNT	Stumpage Value Replacement Fee (*Penggantian Nilai Tegakan*)
PPATK	Financial Transaction Reports and Analysis Center (*Pusat Pelaporan dan Analisis Transaksi Keuangan*)

PSDH	Forest Resource Provision (*Provisi Sumber Daya Hutan*)
PSP	Permanent Sample Plot (*Plot Sampel Permanen*)
P2PSDH/DR	Invoicing officer for the PSDH and DR (*Petugas Pembuat PSDH/DR*)
RKT	Forest Concession Annual Work Plan (*Rencana Kerja Tahunan Usaha Pemanfaatan Hasil Hutan Kayu*)
RKU	Forest Concession Ten-year Management Plan (*Rencana Kerja Usaha Pemanfaatan Hasil Hutan Kayu*)
SBB	Proof of Payment (*Surat Bukti Bayar*)
SI-PUHH	Forest Product Administration Information System (*Sistem Informasi Penatausahaan Hasil Hutan*)
SKSKB	Log Legality Statement (*Surat Keterangan Sah Kayu Bulat*)
SPP	Payment Order (*Surat Perintah Pembayaran*)
SVLK	Timber Legality Verification System (*Sistem Verifikasi Legalitas Kayu*)
TPTI	Indonesia's Selective Logging and Replanting System (*Tebang Pilih Tanaman Indonesia*)
Wasganis	Forestry officer overseeing the technical officers (*Pengawas Tenaga Teknis*)

Chapter 1: Introduction

This study examines the Government of Indonesia's administrative systems for timber production and the collection of non-tax state revenues (*penerimaan negara bukan pajak*, or PNBP) in the forestry sector. The analysis and findings are presented in three parts. In Part I, the study reviews official statistics of recorded timber production levels during 2003–2014 and uses a quantitative model to estimate actual timber production levels during this period. These estimates are used to calculate potential state losses from uncollected PNBP and from the commercial value of the unreported timber. In Part II, the study describes the state's administrative systems for timber production and collection of PNBP revenues in the forestry sector. It then analyzes weaknesses in these systems that have allowed state losses associated with large volumes of unreported timber production. In Part III, the study offers recommendations for fixing these systems in order to prevent future state losses in the forestry sector.

1.1 Rapid decline of Indonesia's natural forests

The rapid rate at which Indonesia's natural forests have been lost in recent decades is well documented. A national deforestation study by Margono et al. (2014) finds that 6.02 million hectares (ha) of intact and degraded primary forest were cleared during the period 2000–2012.[1] The rate of primary forest loss during this period increased by an average of 47,000 hectares per year (ha/yr) to reach 840,000 ha in 2012. Much of this forest loss was driven by the conversion of natural forests to pulpwood plantations, oil palm estates, and other land uses. According to Margono et al. (2014), most forest conversion has occurred in primary forests that have already become degraded, most commonly through commercial logging. Significantly, 40 percent of forest loss occurred in areas designated as Protection Forest *(Hutan Lindung)* or peatlands, where official land-use regulations either restricted or prohibited clearing.

Similarly, Indonesia's National REDD+ Agency estimates that the annual rate of deforestation during 2000–2012 was 671,420 ha/yr, while forest degradation occurred at a rate of 425,296 ha/yr (BP-REDD+ 2015). Forest loss in Sumatra and Kalimantan accounted for over 80 percent of total deforestation during this period, with Sulawesi and Papua accounting for 9 percent and 6 percent, respectively.

Indonesia's high rates of deforestation and forest degradation have, in turn, been major drivers of the country's elevated levels of carbon emissions. According to BP-REDD+ (2015), Indonesia accounted for average annual emission levels of 213 million tons (Mt) of carbon dioxide equivalents ($C0_2e$) from deforestation and 56.4 $MtC0_2e$/yr from forest degradation during 2000–2012.[2] Through this period, Indonesia has ranked only behind the United States and China as the world's third largest emitter of carbon dioxide from all sources; and as the single largest emitter of carbon from land use and land-use change (BP-REDD+ 2015, DNPI 2010).

In very real terms, the most significant impacts from the loss of Indonesia's forests have been felt by rural communities. A 2009 survey of 17 provinces (notably excluding those in Kalimantan) identified 38,565

1 In this study, Margono et al. define "primary forest" to "include all mature forest stands that retain their natural composition, structure and have not been completely cleared and re-planted in recent history (at least 30 years in age) and were mapped using a minimum mapping unit of 5 ha (GOFC-GOLD 2010). Primary forests were disaggregated into two types: intact and degraded. Intact primary forest has a minimum area unit of 50,000 ha with the absence of detectable signs of human-caused alteration or fragmentation, and is based on the Intact Forest Landscape definition of Potapov et al. (2008). Degraded primary forest is a primary forest that has been fragmented or subjected to forest utilization, e.g. by selective logging or other human disturbances, which have led to partial canopy loss and altered forest composition and structure (ITTO 2002, Margono et al. 2012)."

2 BP-REDD+ (2015) further estimates that as an impact of deforestation, green-house gas (GHG) emissions from peat decomposition rose from 3.3 $MtC0_2e$/yr in 2000–2001 to 61.7 $MtC0_2e$/yr in 2011–2012.

villages located within or adjacent to the boundaries of the state-administered Forest Estate *(Kawasan Hutan)* (Departemen Kehutanan and BPS 2009). Many of these communities have managed forests under customary *(adat)* tenure institutions for generations and directly depend on forest resources for their livelihoods and well-being. Tenurial uncertainty and forest conversion, in addition to uncontrolled corruption, have resulted in land previously controlled by communities being redistributed to large-scale corporations (KPK 2010). In many cases this has catalyzed conflicts between local communities and commercial forestry or plantation companies. According to data compiled by the Ministry of Environment and Forestry through 2014, at least 81 companies holding licenses to develop Industrial Forest Plantations (*Hutan Tanaman Industri*, or HTI) are engaged in some form of documented conflict with local communities (KLHK 2015).

1.2 State losses from unreported timber production

The Ministry of Environment and Forestry holds broad authority to administer forest resources within the Forest Estate, which extends over 131 million ha to cover 72 percent of the country's land area (Directorate General of Forestry Planology 2012). In this way, the rapid depletion of Indonesia's natural forests must be understood in terms of the corresponding loss of state assets. Until now, the Government of Indonesia has not yet calculated the value of such state losses in a systematic or comprehensive manner. However, investigations by KPK and other law enforcement agencies have documented bribery and corruption at all levels of the state forestry bureaucracy; and it is widely recognized that a significant portion of the country's commercial timber production has been harvested illegally since at least the late 1990s (cf ANATARA News 2015, Detiknews 2013, Republika 2013, Suara Alam 2013, Hukum Online 2010, Badan Penelitian dan Pengembangan Kehutanan 2010, Harwell 2009, Obidzinski 2005). Official audits by the Supreme Audit Agency (*Badan Pemeriksaan Keuangan*, or BPK) have also documented extensive violations of Government forestry regulations and losses to state agencies within specific provinces and districts.

To quantify state losses from the nation's forestry sector in a more comprehensive manner, it is first necessary to estimate the volumes of logs that have been harvested illegally and/or have not been captured by the Government's timber reporting system. There are various methods for arriving at such estimates, and given the opaque nature of illegal logging, each approach is unavoidably based on imprecise data, assumptions, and in some cases, rational 'best guesses'. Nevertheless, meaningful estimates of unreported timber production can be obtained through careful analysis of Government statistics on areas under license to commercial forestry companies; deforestation analyses based on remote sensing; documented productivity levels at selective logging and land-clearing sites; and reported production capacity and wood consumption data for Indonesia's wood processing industries.

Using such methods, several analyses conducted over the past decade, including at least one official analysis produced by the Ministry of Forestry, have concluded that the Government's own forestry statistics substantially under-state the actual volumes of timber harvested, potentially by tens of millions of cubic meters per year (Luttrell et al. 2011, Harwell 2009, Manurung et al. 2007). The World Bank has also recently estimated that illegal logging in Indonesia generates state losses of US$ 4.0 billion per annum, while the Government collects only US$ 300 million annually from forest license holders (Sri Mulyani 2015).

State losses from under-collection of non-tax forest revenues

With such large volumes of unreported logs apparently flowing out of the Forest Estate, one important measure of state losses is the amount of non-tax revenues, or PNBP, that the Government fails to collect on the logs produced. Within Indonesia's forest fiscal system, the Government requires commercial forestry companies to

pay various kinds of royalties, levies, and fees. The two largest of these, by far, are the Reforestation Fund (*Dana Reboisasi*, or DR) and the Forest Resource Provision (*Provisi Sumber Daya Hutan*, or PSDH), both of which are structured as volume-based levies (differentiated by species, grade, diameter, and region) on timber harvested. Over the past decade, Government receipts from the DR and PSDH have amounted to approximately US$ 271.9 million (Rp. 2.58 trillion) per year.

The value of state losses from uncollected DR and PSDH can be calculated by applying the prevailing rates for each of these to the estimated volumes of actual timber production over a specified period of time. The resulting figures represent the potential amount of DR and PSDH that the Government should have collected under existing regulations. By deducting the reported receipts from this sum, it is possible to calculate the amount of revenues the Government should have collected, yet failed to collect.

State losses from the commercial value of unreported timber

A second, far more significant, measure of state losses relates to the economic value of the logs that have been harvested outside the Government's timber reporting system. Timber in state forests that is harvested in sanctioned areas under valid licenses, accounted for in production reports, and for which the required tariffs are paid becomes the property of the concessionaire. When timber is not reported and the required tariffs are not paid, this timber becomes a stolen state asset.

The value of this stolen state asset can be calculated by accounting for the market value of the timber, the value of the ecosystem services it provides to nearby communities, and the value of the carbon stored in its biomass. But corruption cases related to timber production that have been prosecuted in Indonesia have used only the market price to value this timber, which is a significant though only partial accounting of the total value of this state asset.[3] For the purposes of this study, this method, which has precedent in legal court proceedings, is used to calculate state loss from unreported timber production. It is noted, however, that this approach does not capture the full value of state loss.

In cases prosecuted until now, the method for calculating state losses from illegally harvested timber has relied on government-regulated benchmark prices (*harga patokan*) as a way to measure market value. The *harga patokan*, according to Government Regulation No. 51/1998 on Forest Resource Provision (State Gazette 1998 No. 84), should reflect an average of domestic and international market prices for specific grades of wood and the regions in which they are harvested. Subsequent analysis presented in this report, however, shows that throughout the study period, the *harga patokan* in the forestry sector have been significantly less than prevailing market prices. Therefore, the study uses domestic market prices provided by the International Tropical Timber Organization (ITTO) for large-diameter logs (*kayu bulat*), and domestic prices reported by Wood Resource Quarterly, an international proprietary service provider, for small-diameter logs (*kayu bulat kecil*), or pulpwood.

Even though the regulation PP. 51/1998 describes *harga patokan* as an average of domestic and international market prices, only domestic prices are used in this study to calculate state loss. During the period of this study, a log export ban was in effect in Indonesia, so at least officially, Indonesian timber producers were unable to access international market prices. Since it is unknown how much of the unreported timber production left Indonesia in unprocessed form, a conservative estimate of state loss should be based on domestic market prices.

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3 In Supreme Court Decision No. 736 K/Pid.Sus/2009, the head of Pelalawan District in Riau Province, Tengku Azmun Jaafar, was found guilty of taking bribes to issue *Izin Usaha Pemanfaatan Hasil Hutan Kayu-Hutan Tanaman Industri* (IUPHHK-HTI) licenses for areas not designated for that purpose. In the case, Azmun Jaafar's actions were qualified as corruption with state losses of Rp. 1.2 trillion. This sum was calculated by subtracting the non-tax revenues companies had already paid from the timber values and production amounts.

Seen from another perspective, the aggregate market value of the unreported timber also represents a useful estimate of the scale of proceeds from illegal logging in Indonesia. Under Indonesia's Law No. 8/2010 on Eradication of Money Laundering (State Gazette 2010 No. 122), the use of the proceeds of a crime is a criminal offence. Law enforcement agencies including KPK are mandated to eradicate predicate offences to money laundering with support from the Financial Transaction Reports and Analysis Center (*Pusat Pelaporan dan Analisis Transaksi Keuangan*, or PPATK) to monitor transactions in the financial system.

1.3 Legal basis of the study

Laws and regulations forming the legal basis for the study are as follows:

1. Article 6 of Law No. 30/2002 – the Corruption Eradication Commission is tasked with:
    a. Letter b: "supervising authorized institutions in eradicating corruption."
    b. Letter e: "monitoring the governing of the State."
2. Article 8, paragraph (1) of Law No. 30/2002 – "In performing its supervision task as provided in Article 6 letter b, KPK is authorized to conduct surveillance, research, or studies on institutions' tasks and authority in relation to corruption eradication, and institutions performing public services."
3. Article 14 of Law No. 30/2002 – "In performing its monitoring task as provided in Article 6 letter e, KPK is authorized to:
    a. Conduct studies on the administration management systems of all state and government institutions;
    b. Provide suggestions to officers of state and government institutions to make changes if based on study results, such administration management systems show potential for corruption;
    c. Report to the President of the Republic of Indonesia, DPR, and BPK, if its suggestions proposing changes are ignored."
4. Law No. 17/2003 on State Finances:
    a. Article 1 number 1 states "State Finances are all state rights and responsibilities that can be valued monetarily, as well as everything either in the form of currency or goods that can be made state property in relation to performing these rights and responsibilities."
    b. Article 2 states: "State Finances as provided in Article 1 number 1 and Article 2 letter (i) include: Assets of other parties secured by using facilities provided by the Government."
5. United Nations Convention Against Corruption (UNCAC), Article 12, which has been ratified by Law No. 7/2006 on the Ratification of the United Nations Convention Against Corruption states that: "Each State Party shall take measures, in accordance with the fundamental principles of its domestic law, to prevent corruption involving the private sector, enhance accounting and auditing standards in the private sector and, where appropriate, provide effective, proportionate and dissuasive civil, administrative or criminal penalties for failure to comply with such measures."
6. KPK Strategic Plan 2011–2015 designates the Natural Resources/Energy Security sector as one focus for corruption eradication. The forestry sector constitutes one such sector under this category.
7. The Joint Memorandum of Understanding on the National Movement to Save Indonesia's Natural Resources signed by 27 ministries/agencies and 34 provincial governments on 19 March 2015.
8. The Declaration to Save Indonesia's Natural Resources, signed by the Commander of the Armed Forces, the Chief of Police, the Attorney General, and the KPK Chair on 19 March 2015.

1.4 Purpose of the study

This study aims to:

1. Identify fundamental problems with the forestry sector's non-tax revenue collection system.
2. Calculate potential state losses from the forestry sector resulting from weaknesses in the non-tax revenue management system.
3. Produce recommendations for improving the non-tax revenue management system in the forestry sector.

1.5 Scope of the study

The study analyzes the Government's non-tax revenue collection system and state losses associated with unreported timber production from Indonesia's natural forests during the period 2003–2014.

1.6 Methodology

To address these issues, the study uses a quantitative model to estimate actual timber production from natural forests, including both reported and unreported harvests, during 2003–2014. These estimates are derived using conservative assumptions for areas harvested and productivity levels achieved in each of Indonesia's major timber producing regions (reported by major island). To the extent possible, these assumptions have been based on data published both by Government agencies, particularly the Ministry of Environment and Forestry, and by independent technical analyses (further details are described in Chapter Three below). This model is used to generate two estimates (Estimate 1 and Estimate 2) of overall timber production based on conservative assumptions for timber productivity levels and production areas.

Based on timber production volumes generated by this model, the study then calculates the amounts of DR and PSDH that should have been collected under Indonesian law at prevailing rates during 2003–2014. Again, these figures are presented as two estimates, both of which are based on conservative assumptions. To quantify state losses from under-collection of PNBP forest revenues, the Government's reported receipts of DR and PSDH are subtracted from each of these estimates of potential DR and PSDH that should have been collected.

The study estimates the domestic market value of the unreported timber production by multiplying the volumes of unreported large- and small-diameter logs by the annual average market prices for each grade. For large-diameter logs, prices are obtained from reports published by the International Tropical Timber Organization (ITTO); and for small-diameter pulp logs, prices are obtained from Wood Resource Quarterly, a proprietary data provider. The study then uses these estimates of market value to calculate state losses associated with unreported timber production.

To better understand how such large volumes of logs could go unreported and such significant amounts of PNBP could go uncollected during the study period, the report then presents a detailed institutional analysis of the Government's timber production reporting and PNBP revenue collection systems in the forestry sector. This analysis is based on a careful review of Government laws and regulations that considers three main variables: 1) performance, relating to the institutional and regulatory capacity to implement policies, including through sanctions and law enforcement; 2) policy making, used to evaluate objective conditions and opportunities for discretion in policies; and 3) transparency and conflicts of interest, to assess the accountability of related policies. Within the KPK, such studies of laws and regulations with these variables are called Corruption Impact Assessments (CIA).

To further verify this analysis, the study team also interviewed key informants at the national, provincial and district levels in Central Kalimantan, East Kalimantan, and Riau; and conducted an analysis of published and unpublished data obtained from the Ministry of Environment and Forestry, regional forestry agencies *(Dinas Kehutanan)* from provinces across Indonesia, *Dinas Kehutanan* in select districts (*kabupaten*) in the abovementioned provinces; and reviewed relevant audit reports prepared by BPK, the state's Supreme Audit Agency.

Finally, the study presents a number of recommendations for strengthening the Government's timber production reporting and PNBP forest revenue collection systems. These recommendations have been discussed with key informants at the national, provincial, and district levels, and have been refined based on feedback received.

1.7 Study implementation

The study has been implemented in 2015 with a breakdown of activities as follows:

Table 1.1. Study stages and schedule

NO.	STUDY STAGE	SCHEDULE
1	Preparation of Terms of Reference for the study	January 2015
2	Study kick-off meeting	February 2015
3	Data and information collection	February–August 2015
3a	Meeting with the Indonesian Forest Concessionaires Association (APHI)	30 March 2015
3b	Meeting with OPN team at Badan Pengawasan Keuangan dan Pembangunan (BPKP)	30 March 2015
3c	Meeting with the Secretary General of the Ministry of Environment and Forestry	17 April 2015
3d	Meeting with the Director General of Budgeting, Ministry of Finance	17 April 2015
3e	Meeting with the Director General of State Assets, Ministry of Finance	17 April 2015
3f	Meeting with Main Auditor IV – Supreme Audit Agency (BPK)	17 April 2015
4a	Field studies	
4b	Field study in Central Kalimantan	7–10 April 2015
4c	Field study in East Kalimantan	26 April–30 April 2015
4d	Field study in Riau	6 May–8 May 2015
5	Data analysis	May–August 2015
6	Report preparation	August–September 2015
7	Exit meeting	27 August 2015
8	Internal review of findings	9 September 2015
9	External release of the study	9 October 2015
10	Action plan agreement	November–December 2015

Section I

Estimating state losses from unreported timber production

Chapter 2: Estimating the volume of actual timber production from Indonesia's natural forests

In exercising administrative control over the nation's Forest Estate, the Ministry of Environment and Forestry (*Kementerian Lingkungan Hidup dan Kehutanan,* or KLHK) holds far-reaching authority for defining the functional classification of forestlands and determining who may have access to these. Since Indonesia's regional autonomy laws took effect in the early 2000s, the Ministry has shared significant components of this authority with regional government forestry agencies *(Dinas Kehutanan)* at the provincial and district levels. For areas designated for timber production and/or conversion to other land uses, the Ministry and regional forestry agencies share responsibility for issuing licenses to commercial logging companies, monitoring timber production, and collecting various non-tax forest revenues on the volumes of logs harvested.

In carrying out these functions, the Ministry and regional forestry agencies also have a responsibility to compile and publish accurate forestry statistics, including timber production figures. The publication of these statistics represents an essential form of public accountability as it is these institutions that oversee the management and exploitation of Indonesia's forest resources. In recent years, however, as the nation's deforestation rate has accelerated, a growing body of evidence has suggested that the official statistics on timber production and forest conversion may significantly underestimate the actual log volumes harvested and forest areas cleared.

This chapter summarizes the Ministry of Environment and Forestry's reported timber production levels for the period 2003–2014, including volumes harvested both through selective logging and land clearing. It then describes the methods, data, and assumptions used by the study's model to estimate actual timber production for this period. The model presents two scenarios, a lower-end estimate (Estimate 1) and a higher-end estimate (Estimate 2), both of which are based on available data and conservative assumptions concerning areas harvested and per hectare productivity levels. Results indicate that the Ministry's figures for reported timber production grossly underestimate the volumes of logs that were actually harvested in Indonesia during the study period.

2.1 State administration of timber production

In administering the nation's forest resources, the Ministry of Environment and Forestry and regional governments have prioritized commercial exploitation of timber, classifying nearly 60 percent of the Forest Estate as Production Forest *(Hutan Produksi)* (Directorate General of Forestry Planology 2012). From the late 1960s through the early 2000s, commercial logging was largely carried out through the HPH *(Hak Pengusahaan Hutan)* timber concession system. During this period, the Ministry allocated over 600 commercial timber concessions, covering an aggregate area of nearly 65 million ha, to state-owned and privately-held logging companies.

Under Indonesia's 'selective logging and replanting' (*Tebang Pilih dan Tanam Indonesia*, or TPTI) guidelines, HPH license holders are allowed to harvest trees above 30 centimeters (cm) in diameter at approved logging sites on a 35-year rotation. After harvest, concession holders are supposed to carry out enrichment planting within their cutting blocks in order to encourage regrowth. In theory, the TPTI guidelines have been designed to ensure that HPH holders manage the forests within their concession areas on a sustainable basis, allowing them to return

to previously-logged sites every 35 years and to harvest these productively over multiple rotations. In practice, however, relatively few HPH holders have succeeded in managing their concessions sustainably over the long term. Overall, reported timber production levels from the HPH system have declined steadily from a peak of more than 20 million cubic meters (m^3) in the early 1990s to 5.3 million m^3 in 2014.

Since the mid-1990s, a growing portion of Indonesia's commercial wood production has come from natural forest conversion. The Ministry of Forestry and regional governments have facilitated this process by allocating millions of hectares of degraded natural forests for the development of industrial timber and pulpwood plantations (*Hutan Tanaman Industri*, HTI) and for conversion to other commercial land uses, including oil palm estates and mining operations. In these areas, companies holding HTI licenses or IPK *(Izin Pemanfaatan Kayu)* 'wood utilization permits' are allowed to clear-fell all standing natural forest timber before the sites are developed for alternate land uses.[1] Analysis of KLHK forestry statistics suggests that commercial wood production from land clearing has grown sharply in recent years, rising from 2.8 million m^3 in 2008 to 19.1 million m^3 in 2011.

This increase in wood production from land clearing is not readily apparent in statistics published by KLHK. In 2010, according to *Statistik Kehutanan* (Table IV. 6.1), 14,488,152 m^3 of timber came from 'IPK/ILS' wood-utilization permits (i.e. effectively permits to harvest wood during land-clearing operations). However, in 2011 the figure fell to 600,598 m^3. But also in 2011 there was a sharp increase in a category called '*Sumber Lainnya*' ('Other Sources') to 21,786,505 m^3 from 3,720,785 m^3 the previous year (2010). In Table IV. 6.2 of *Statistik Kehutanan*, the '*Sumber Lainnya*' ('Other Sources') category is divided into three sub-categories: '*Hutan Rakyat*' ('Community Forest'), '*Kayu Perkebunan*' ('Wood from Estate Crops') and '*Lainnya*' ('Other'). In 2011, total production for the '*Lainnya*' ('Other') category was 18,530,228 m^3. This study considers this volume to be timber produced from land clearing, which in previous years was categorized as 'IPK/ILS'.

To calculate the total volume of timber originating from land clearing in 2011 – and in subsequent years – the study added this figure to the volume reported as 'IPK/ILS' (600,598 m^3 in 2011). For 2013, however, Table IV. 6.1. in *Statistik Kehutanan 2013* only reports volumes of timber produced from HPH concessions and HTI plantations, and does not include production from other categories. Consequently, this study uses the 7,951,705 m^3 reported in the RPBBI industrial wood supply report under the category 'Land Preparation for HTI' *('Penyiapan Lahan untuk HTI'),* and adds it to the 949,607 m^3 categorized as IPK/ILS in the same report. The resulting figure of 8,901,312 m^3 is the reported production volume for land clearing in 2013.

2.2 Reported timber production during 2003–2014

According to Ministry statistics, timber production from natural forests in Indonesia during the twelve-year period 2003–2014 reached 143.7 million m^3, or an average of 12.0 million m^3 per year. This timber is reported to have been sourced from natural forests, either through selective logging or land clearing (see Chart 2.1). Through this period, the Ministry reports that selective logging from HPH concession holders remained relatively steady, ranging between 3.5 and 6.4 million m^3 per year. By contrast, commercial wood produced through land clearing is reported to have risen sharply in recent years, despite the Government's moratorium on forest and peatland conversion since May 2011.

1 Degraded forests, in the Indonesian definition is anything that is not "primary forest", or completely untouched by logging or other anthropogenic changes. Often, these "degraded" forests still have significant timber standing stock. As Gunarso et al. (2013) explain, "The conversion of forest in Kalimantan is a step-wise process where undisturbed forest is impacted by logging, which is sometimes followed by wildfire that further degrades areas into shrub land. The establishment of plantations or crops is largely the consequence of the conversion of disturbed forest or shrub land; this trajectory of degradation prior to conversion occurs on both upland and swamp habitats."

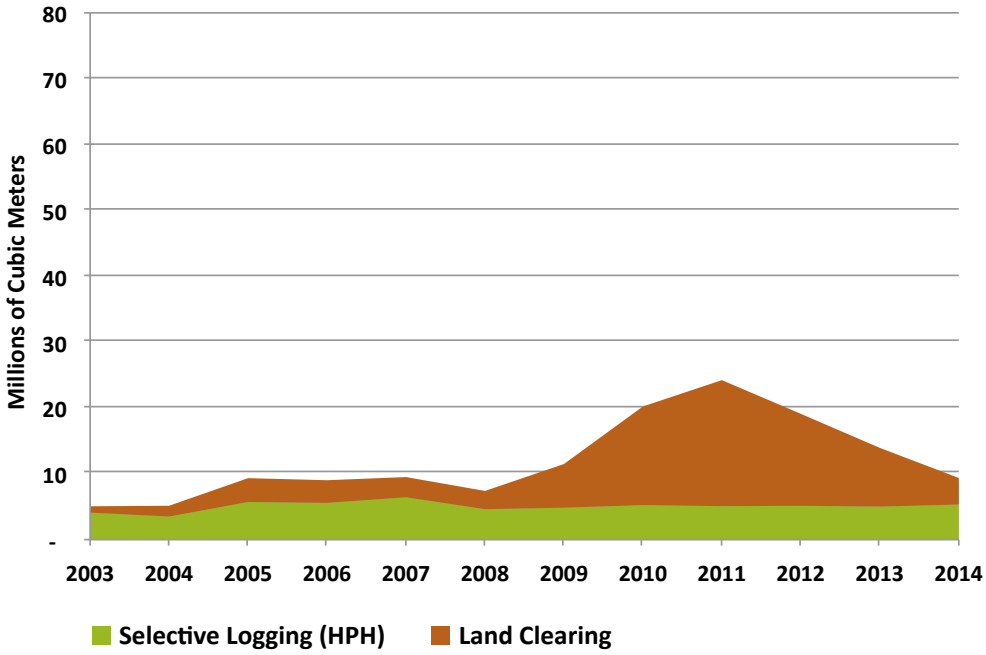


Chart 2.1. Reported timber production from natural forests in Indonesia, 2003–2014

2.3 Methodology to estimate actual timber production

This section describes the methods used to model Indonesia's actual timber production during the period 2003–2014. The model generates quantitative estimates of logs harvested from three sources: 1) high-intensity selective logging (also referred to as "HPH logging"); 2) low-intensity selective logging (also referred to as "encroachment logging"); and 3) land clearing for commercial purposes. For each of these categories, the model uses available data and conservative assumptions to estimate both the areas harvested and the productivity per hectare. The model then generates both a low-end and a high-end estimate, respectively referred to as Estimate 1 and Estimate 2.

High-intensity selective logging

For the high-intensity selective logging component of natural forest harvest, this study uses two assumptions that produce low and high estimates of production volumes. The first assumption concerns the area harvested each year, and the second is a set of island-specific averages for productivity per hectare.

Assumed area: This study assumes that the area harvested by HPH concession-holders through high-intensity selective logging is based on data reported in *Statistik Kehutanan* published by the Ministry of Environment and Forestry. For the low estimate, the study assumes the harvest area is equivalent to 1% of the HPH concession areas under active license. This estimate is lower than the cumulative areas stated in the concession-holders' official RKT annual workplans for each year during the five-year period 2010–2014, except for 2013 (see Table 2.1). For the high estimate, the study assumes the harvest area is equivalent to 1.75% of the licensed HPH area. This is still a conservative estimate considering that the TPTI system allows for logging on a 35-year rotation. This means that up to 2.85% of HPH licensed area could be logged each year under Indonesia's guidelines for sustainable forest management.

Table 2.1. Estimated area of high-intensity selective logging

YEAR	RKT AREA (HA)	1% OF HPH AREA (HA)	1.75% OF HPH AREA (HA)
2010	322,704	246,890	432,057
2011	279,883	232,786	407,376
2012	253,866	232,786	407,376
2013	171,577	208,997	365,744
2014	244,162	208,997	365,744

Source: Ministry of Forestry statistics for HPH and RKT area

Assumed productivity: This study makes conservative assumptions for the productivity of high-intensity selective logging based on historical data from RKT annual workplans and discussions with leading forestry experts in Indonesia. The productivity figures are differentiated by island as follows: 35 m^3/ha for Sumatra and Papua, 40 m^3/ha for Kalimantan, and 38 m^3/ha for the other islands (predominantly Sulawesi and Maluku). In 2005, the average production from HPH concessions, according to the Ministry of Forestry's Production Report, was 39.5 m^3/ha (5,631,846 m^3 was reported to have been harvested from 142,725 ha). Leading forestry experts in Indonesia report that average productivity at HPH concessions is currently between 35 and 40 m^3/ha. For many HPH concessions, the actual production is likely to have been higher than these estimates, especially in the earlier years of the study period. In interviews, several members of the Indonesian Forest Concession Holders Association (*Asosiasi Pengusaha Hutan Indonesia*, or APHI) also claimed that natural forest concessions needed to maintain productivity of at least 40 m^3/ha for them to remain a profitable enterprise.

Low-intensity selective logging ('encroachment logging')

It is well known that substantial volumes of timber are harvested by a variety of actors operating outside the Government's legal-regulatory framework for commercial logging. In various regions, these actors may include illegal logging syndicates, legitimate forestry companies harvesting outside licensed areas, and/or members of local communities. In many cases, these actors carry out harvesting activities through encroachment on forests classified for protection or conservation or on areas of Production Forest that have been licensed to other parties or that are not currently under license (hence the term 'encroachment logging').

Unfortunately, there is very little empirical data available to quantify how much 'encroachment logging' occurs on an annual basis. Anecdotal evidence from illegal logging cases and Indonesia's pattern of forest degradation suggests, however, that the volumes harvested in this way are significant in aggregate even if much of the logging is carried out in a small-scale or low-intensity manner. So conceptually it is important to represent this type of logging in the study's estimates even if the estimate is necessarily imprecise.

Assumed area: The study uses the Ministry of Forestry's interpretation of Landsat 7 ETM+ satellite images reported in the annual *Statistik Kehutanan* to derive the area of forested land (primary and secondary forest) within the functional categories designated as: Production Forest (*Hutan Produksi,* or HP), Limited Production Forest (*Hutan Produksi Terbatas*, or HPT), Protection Forest (*Hutan Lindung,* or HL) and Production Forest for Conversion (*Hutan Produksi Yang Dapat Dikonversi,* or HPK). Since no data was yet available for 2014, the area figures for 2013 were used as a proxy. Between 2010 and 2013, the area of forested land inside each of these categories was reported separately in the statistics. However, prior to 2010 (i.e. 2003–2009 in the data used for this study), plantation forest (*hutan tanaman*) was not differentiated from primary forest (*hutan primer*) and secondary forest (*hutan sekunder*). The area reported as plantation forest *(hutan tanaman)* was, therefore, subtracted from the total area of forested land in the HP, HPT, HL, and HPK categories.

For all years in the data set, the high estimate for high-intensity logging area (1.75% of HPH licensed area) is subtracted from the total area of forested land, so as not to double-count any of the land in both the high-intensity and low-intensity logging categories. With this modification, the estimated forested land area that is vulnerable to 'encroachment logging' is around 70 million ha.

Assumed productivity: This study assumes that logging occurred on less than 3% of the area vulnerable to encroachment logging at a production rate of 5 m^3/ha/yr. Under these assumptions, annual production from this low-intensity 'encroachment logging' is around 10 million m^3. It must be emphasized that this is a crude estimate based on minimal data. It is very possible that some kind of logging occurred on more or less than 3% of this area in any given year, and that in many places considerably more than 5 m^3/ha was logged.

Forest land clearing

The land clearing component of natural forest timber production in Indonesia is difficult to model because there is sparse historical data available with which to estimate the volumes of logs produced per hectare. Land clearing occurs on forested areas that range across the spectrum from largely untouched primary forests to severely degraded forests on which unsustainable logging practices have left few trees standing.

There is too little information in the public domain about the standing stock and commercial timber yield from land clearing to know how much of the land clearing has occurred on intact primary forest, primary forest that has been selectively logged (often referred to as 'secondary forest' in the Indonesian context), and degraded forest, which could allow production rates to be differentiated and applied to the relevant area measurements. In an effort to capture the range of forest landscapes, this study therefore uses average production rates differentiated by island.

Assumed area: An estimate of the area of land clearing from which commercial timber was harvested is derived from Margono et al.'s 2014 study on deforestation in Indonesia between 2000 and 2012. It should be noted, however, that not all deforestation or forest land clearing supplied timber to commercial markets. Forest fires, for instance, generally destroy the timber in areas that are burned. Similarly, much of the timber from deforestation carried out by rural small-holders is used for subsistence purposes like building houses and fires for cooking/heating.

This study considers that between 70% and 80% of the land deforested in Indonesia produces timber that enters the commercial wood supply. These two percentages form low and high estimates for the area on which commercial timber is produced from land clearing. This includes deforestation from commercial oil palm and rubber development (both large- and small-scale), coal mining, as well as HTI plantation development for pulpwood. The aggregate estimates for deforestation caused by those land uses exceed 80% of the deforestation rate, so the range between 70% and 80% is considered to be a conservative estimate of the total forest area cleared for commercial purposes (Abood et al. 2014).

The loss of forest cover during this time period was much greater (exceeding 1,000,000 ha/year) than the area measurements used in this study (Hansen et al. 2013). But not all the forest cover loss in Indonesia is from natural forest, just as not all of the timber from natural forest loss enters the commercial wood supply. Forestland cleared by local communities for farming is often used by those communities for subsistence purposes (building materials and household fires) or sold locally. Some timber, mainly small-diameter logs and non-commercial species, is also sometimes left in the forest when its commercial value is not worth the cost of extraction. In addition, forest fires damage or destroy the timber in forests that are burnt.

Still, the conversion of forests to oil palm plantations and fast-growing plantations for pulp and paper mills were the main cause of deforestation in Indonesia during the study period. A 2013 study on oil palm and land-use change found that in Sumatra, Kalimantan, and Papua between 2000 and 2005, oil palm concessions grew by 1,477,000 ha, and that between 2006 and 2010 oil palm concessions increased by 2,569,000 ha (Gunarso et al. 2013). Furthermore, 66% of the oil palm plantation expansion between 2000 and 2005 occurred on land previously converted for agroforestry and plantations. In the latter period between 2005 and 2010, only 14% of the palm oil expansion occurred on land previously used for agroforestry or plantations.

The difference between those two periods is that in the first much of the oil palm expansion occurred in Sumatra, where there were higher levels of past land-use change. In the second period, oil palm expansion accelerated in Kalimantan where there was greater conversion of natural habitat, much of which was undisturbed and disturbed forest and upland shrub and grassland (which can have significant timber biomass). So, for oil palm plantations, both the rate of expansion and the rate of natural habitat conversion were increasing across the time period.

One way to parse out commercially harvested land clearing from all deforestation is to assume that much of the wood harvested from land clearing on industrial HTI and/or mining concessions is sold commercially. A study in 2014 mapped concession areas over forest loss in Indonesia between 2000 and 2010 and found that of a total 14.7 million ha of deforestation, 6.6 million ha[2] occurred inside industrial concessions (Abood et al. 2014). This equates to an annual average of forest loss inside industrial concessions of 660,000 ha/yr.

Margono et al. (2014) finds that Indonesia's deforestation rate increased from 209,000 ha in 2001 to 839,000 ha in 2012. This contradicts the argument that most deforestation between 2000 and 2010 was the result of large-scale forest clearing occurring during the decentralization period in the early 2000s. Though Abood et al. (2014) does not present deforestation figures broken down by year, their analysis does suggest – especially when considered alongside Margono et al. (2014) – that deforestation increased during the latter part of the study period, although it occurred at an average rate of 660,000 ha/yr.

Many have argued that deforestation rates spiked in the few years directly following the fall of Suharto and beginning of *reformasi* and decentralization. This view would advise weighting annual averages of forest loss towards the beginning part of the period in the study. However, the acceleration in the expansion of oil palm and pulp plantation concessions to the present time actually suggests that forest loss within industrial concessions occurred at a greater annual rate towards the latter part of the study period.

Assumed productivity: Average timber production rates differentiated by island are based on standing stock data from permanent sample plots reported by the Ministry of Forestry in *Statistik Kehutanan 2011*. The figures used are from 1996–2009 and were reported for permanent sample plots by province for volume in cubic meters per hectare (m^3/ha) (see Table 2.2). The volume figures are reported for standing stock with diameter at breast height (DBH) in the following categories: 20 cm and up, 50 cm and up, and 60 cm and up.

To estimate the commercial standing stock, the study relied on the advice of Indonesia forestry experts to use 70% of the total standing stock as the volume of merchantable timber. This yielded average production rates of 65 m^3/ha in Sumatra, 76 m^3/ha in Kalimantan, 87 m^3/ha in Papua, and 81 m^3/ha in Sulawesi and Maluku.

Also, since there are different DR and PSDH rates for small- and large-diameter timber, the study divided the commercial standing stock into categories of 30 cm in diameter and above, and below 30 cm. It is assumed that

2 Of the 6.6 million ha of forest loss inside industrial concessions, 4.9 million ha was lowland forest, while the remainder was peat swamp forest.

Table 2.2. Ministry of Forestry data on average standing stock per hectare for all species by province (except Java)

TABEL/ *Table* I.1.8 : RATA-RATA POTENSI TEGAKAN PER HA UNTUK SEMUA JENIS DI MASING-MASING PROVINSI , (Selain P. Jawa) /

Average Forest Stand Potential for all species by Province (Except Java)

NO	PROVINSI	JUMLAH KLASTER	ENUMERASI TSP-PSP TAHUN 1990 - 1996				RE-ENUMERASI PSP TAHUN 1996 - 2009					
			N Awal (N/HA)		V Awal (M3/HA)		N Akhir (N/HA)			V Akhir (M3/HA)		
			20 cm up	50 cm up	20 cm up	50 cm up	20 cm up	50 cm up	60 cm up	20 cm up	50 cm up	60 cm up
1	2	3	4	5	6	7	8	9	10	11	12	13
1	Aceh	30.00	104.80	26.70	144.10	95.10	85.50	17.13	10.50	120.87	70.19	55.06
2	Sumatera Utara	34.00	97.20	17.40	138.40	75.90	92.06	16.03	7.22	119.75	57.98	35.71
3	Riau	99.00	125.50	16.70	124.30	53.50	98.06	12.29	5.56	100.92	41.62	26.81
4	Kepulauan Riau	-	-	-	-	-	-	-	-	-	-	-
5	Sumatera Barat	72.00	95.10	16.40	126.40	68.40	68.26	11.62	6.00	90.91	49.09	36.39
6	Sumatera Selatan	44.00	111.80	13.10	111.80	54.20	30.56	3.47	1.87	29.23	13.14	9.90
7	Jambi	48.00	152.60	19.30	164.90	82.60	121.50	17.06	8.64	118.97	48.60	32.75
8	Bengkulu	18.00	123.10	17.70	143.40	85.40	60.67	11.00	6.33	68.24	35.95	26.82
9	Bangka Belitung	-	-	-	-	-	-	-	-	-	-	-
10	Lampung	10.00	86.80	12.10	99.60	54.90	71.67	11.00	6.33	74.12	40.23	31.74
	SUMATERA	**355.00**	**115.63**	**17.38**	**131.96**	**67.86**	**82.54**	**12.37**	**6.25**	**93.52**	**44.20**	**30.84**
11	Banten	5.00	-	-	-	-	69.60	13.40	9.60	113.12	82.35	76.83
12	DKI. Jakarta	-	-	-	-	-	-	-	-	-	-	-
13	Jawa Barat	4.00	-	-	-	-	47.00	3.00	1.75	69.18	11.80	9.82
14	Jawa tengah	-	-	-	-	-	-	-	-	-	-	-
15	DI. Yogyakarta	-	-	-	-	-	-	-	-	-	-	-
16	Jawa Timur	4.00	-	-	-	-	33.75	10.75	8.50	60.29	47.10	42.95
	JAWA	**13.00**					**51.62**	**9.38**	**6.85**	**83.34**	**49.80**	**45.79**
17	Kalimantan Timur	250.00	60.30	15.80	88.80	60.60	73.50	16.20	9.87	103.47	64.92	51.50
18	Kalimantan Selatan	39.00	108.90	21.50	142.00	87.20	76.85	15.36	8.28	111.59	68.34	52.19
19	Kalimantan Tengah	144.00	110.00	15.40	146.80	74.20	84.42	10.70	5.85	96.75	45.89	34.21
20	Kalimantan Barat	116.00	133.60	24.30	208.00	123.60	91.29	16.39	9.66	139.17	79.58	63.71
	KALIMANTAN	**549.00**	**92.28**	**17.90**	**132.98**	**79.37**	**80.36**	**14.74**	**8.66**	**109.83**	**63.27**	**49.59**

Sumber/ *Source* : Direktorat Jenderal Planologi Kehutanan/ Directorate General of Forestry Panning

TABEL/ *Table* I.1.8 : (Lanjutan/ *Continued*)

NO	PROVINSI	JUMLAH KLASTER	ENUMERASI TSP-PSP TAHUN 1990 - 1996				RE-ENUMERASI PSP TAHUN 1996 - 2009					
			N Awal (N/HA)		V Awal (M3/HA)		N Akhir (N/HA)			V Akhir (M3/HA)		
			20 cm up	50 cm up	20 cm up	50 cm up	20 cm up	50 cm up	60 cm up	20 cm up	50 cm up	60 cm up
1	2	3	4	5	6	7	8	9	10	11	12	13
21	Sulawesi Selatan	15.00	91.80	17.30	105.60	54.40	55.33	7.00	2.67	47.09	22.43	16.19
22	Sulawesi Barat	29.00	149.24	15.07	97.93	51.91	93.55	14.09	7.76	104.85	53.51	38.88
23	Sulawesi Tengah	42.00	116.50	21.50	159.70	88.30	101.15	21.10	11.48	143.28	82.59	61.05
24	Sulawesi Tenggara	44.00	136.40	15.50	132.20	52.90	76.96	15.79	8.70	111.95	65.76	49.85
25	Gorontalo	9.00	172.78	25.00	181.54	122.56	112.40	21.00	11.80	180.20	111.40	88.00
26	Sulawesi Utara	12.00	108.30	26.70	178.30	114.30	138.18	29.27	16.82	185.43	110.61	84.77
	SULAWESI	**151.00**	**128.84**	**18.72**	**137.23**	**71.74**	**91.70**	**17.45**	**9.52**	**122.77**	**70.07**	**52.56**
27	Bali	18.00	75.20	4.00	29.40	7.70	86.10	9.60	7.08	67.75	36.69	33.04
28	NTB	34.00	112.40	18.20	89.90	49.40	81.37	15.38	9.31	80.08	55.03	46.38
29	NTT	53.00	81.70	10.70	63.30	29.50	47.27	6.80	3.31	34.08	17.75	13.28
	NUSA TENGGARA	**105.00**	**90.53**	**11.98**	**66.10**	**32.21**	**64.97**	**10.06**	**5.90**	**54.75**	**33.07**	**27.39**
30	Maluku	31.00	155.48	15.84	114.62	68.39	89.05	26.90	8.80	183.90	134.17	56.85
31	Maluku Utara	21.00	175.95	24.86	167.62	104.20	103.80	23.40	13.90	157.70	94.80	71.50
	MALUKU	**52.00**	**163.75**	**19.48**	**136.02**	**82.85**	**95.01**	**25.49**	**10.86**	**173.32**	**118.27**	**62.77**
32	Papua	43.00	140.00	11.95	72.92	43.43	89.83	16.50	8.83	103.85	59.40	43.84
33	Papua Barat	27.00	165.96	19.26	112.72	78.00	124.33	26.33	16.00	157.64	94.21	73.12
34	**PAPUA**	**70.00**	**150.01**	**14.77**	**88.27**	**56.76**	**103.14**	**20.29**	**11.60**	**124.60**	**72.83**	**55.13**
	INDONESIA	**1,295.00**	**107.86**	**17.09**	**124.14**	**69.62**	**82.56**	**14.70**	**8.10**	**105.48**	**58.98**	**43.79**

Sumber/ *Source* : Direktorat Jenderal Planologi Kehutanan/ Directorate General of Forestry Panning

Keterangan :

- Dari 1.295 Klaster terdapat 5.014 jenis pohon dan yang dominan yaitu : meranti, medang, keruing, kelat, bintangur, nyatoh, jambu-jambu, ubah, resak dan balam
- Letak Klaster di Seluruh Fungsi Hutan
- Hasil Pengukuran ulang Re-enumerasi dilakukan terhadap klaster yang sama pada Enumerasi dan dilakukan setiap 5 tahun sekali,
- Sampai saat ini data masih dimasukan dalam provinsi lama, Provinsi Kepulauan Riau (Provinsi Riau) dan Provinsi Bangka Belitung (Provinsi Sumatera Selatan)

Source: Statistik Kehutanan 2011

one-half of the standing stock in this range is below 30 cm in diameter (*Kayu Bulat Kecil*, or KBK) and one-half of it is 30 cm and above (*Kayu Bulat*, or KB). This 50:50 split is intentionally a conservative estimate so as to be sure not to overestimate the volume of KB, which carries substantially higher DR and PSDH rates.

The only exception to this methodology is the standing stock calculated for Sumatra. Since almost all of Indonesia's pulp mills are located in Sumatra, the demand for KBK small-diameter timber is higher there than in other regions. So it is assumed that KBK accounts for a higher percentage of overall production from land clearing activities relative to the other islands. The study estimates that commercial stock in Sumatra is 85% of total standing stock, or 79.5 m^3/ha. The study assumes that 60% or 47.5 m^3/ha of this standing stock is KBK, while 40% or 32 m^3/ha is KB.

As a point of comparison, a 2005 CIFOR study on the conversion of land for pulpwood plantations in Sumatra documented mixed tropical hardwood (MTH) yields from land-clearing at four HTI concessions that were all in excess of 90 m^3/ha, and in some cases in excess of 120 m^3/ha (Maturana 2005).

A 2002 workplan for clearing 49,500 ha of forest in Central Kalimantan, half of which was primary forest and the other half forest degraded from mining activities, illustrates high commercial stocking rates and indicates that estimates used in this study are conservative for both primary and degraded forests. In the commercial work plan (*Bagan Kerja Usaha Pemanfaatan Hasil Hutan Kayu Pada Hutan Alam)* prepared in 2003 for PT Sarang Sapta Putra, which cleared 49,500 ha of forest in Central Kalimantan, calculated yields on the half of the land area that was primary forest exceeded 200 m^3/ha of timber over 20 cm in diameter. On the other half of the land that was degraded from mining activities, calculated yields exceeded 93 m^3/ha.

A 2008 study by Jikalahari, a network of advocacy organizations promoting forest conservation in Riau, found that the average timber yield from land clearing in seven HTI concessions in Riau was 89.56 m^3/ha (based on annual work plans, or *Rencana Kerja Tahunan Bagan Kerja HTI IUPHHKHT,* issued by the Governor of Riau). The yields on the seven HTI concessions, which have a total area of 17,314 ha, ranged from 80.17 m^3/ha to 108.25 m^3/ha. Also in Riau province, annual logging plans (RKT) submitted in 2010 by HTI companies affiliated with Indonesia's two largest paper and pulp companies, Asia Pulp & Paper (APP) and Asia Pacific Resources International Ltd. (APRIL), show that stocking rates towards the latter part of the study period are higher than the productivity estimates used in this study. On the 112,914 ha of land to be cleared by the two groups, the average timber commercial timber production was 92 m^3/ha.

2.4 Actual timber production during 2003–2014 – Estimate 1

According to the model's lower estimate (Estimate 1), Indonesia's actual timber production from natural forests totaled 630.1 million m^3 during 2003–2014 (see Chart 2.2). This volume is 4.4 times higher than the volume of reported production during this period (as shown by the red dotted line), suggesting that the Ministry of Environment and Forestry's production statistics captured less than 25 percent of the volumes of logs actually harvested and that over 75 percent of total production went unreported (see Chart 2.2).

In Estimate 1, annual timber production from natural forests ranged from a low of 33.4 million m^3 in 2003 to a high of 64.8 million m^3 in 2012 (see Chart 2.2). Over the course of the study period, the volume of timber harvested through high-intensity selective logging fell from 10.3 million m^3 in 2003 to 7.9 million m^3 in 2014 as the area of active HPH timber concessions experienced a slow, but steady decline. By contrast, the volumes of timber harvested from land clearing rose sharply from a low of 13.2 million m^3 in 2003 to a high of 46.1 million m^3 in 2014. Of the volumes harvested from land clearing, 55 percent were small-diameter logs, mainly used for the

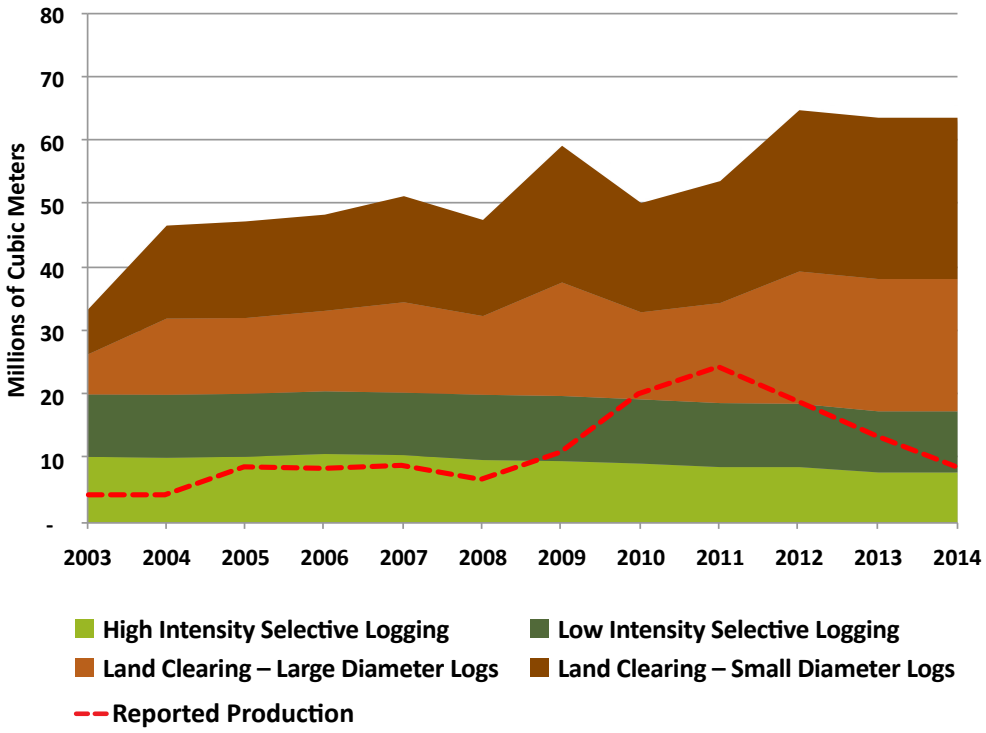


Chart 2.2. Estimate 1 of actual timber production in Indonesia, 2003–2014

production of pulp, and 45 percent were large-diameter logs used for sawnwood, furniture-making, plywood and other structural uses. Timber production from low-intensity logging – or "encroachment logging" – remained at approximately 10 million m^3/yr for the duration of the study.

According to Estimate 1, 40 percent of Indonesia's timber production from natural forests during 2003–2014 occurred in Kalimantan, 34 percent in Sumatra, and 16 percent in Papua (see Chart 2.3). The fact that Kalimantan and Sumatra together accounted for nearly three-quarters of total timber production is largely driven by the high levels of forest conversion to other land uses in these two islands over the past twelve years. By contrast, most of the timber production in Papua during this period was from HPH selective logging concessions.

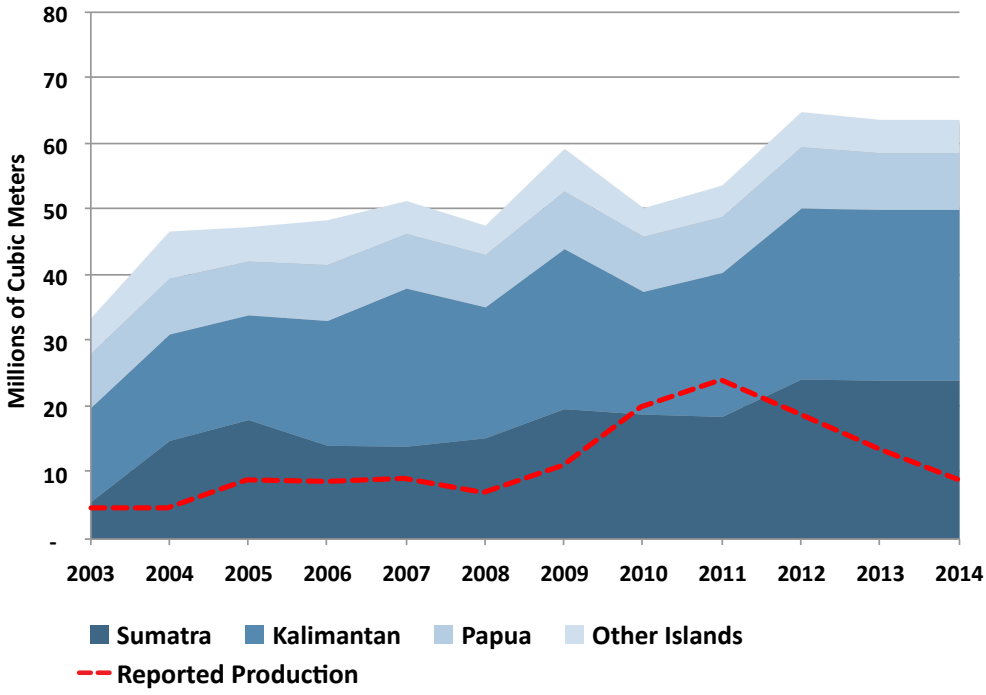


Chart 2.3. Estimate 1 of actual timber production by major island, 2003–2014

2.5 Actual timber production during 2003–2014 – Estimate 2

Under the model's higher estimate (Estimate 2), Indonesia's actual timber production from natural forests totaled 772.8 million m^3 during 2003–2014 (see Chart 2.4). This volume is 5.4 times higher than the volumes of reported production (as shown by the dotted red line), suggesting that the Ministry of Environment and Forestry's official statistics reported less than 20 percent of the logs actually harvested. In other words, Estimate 2 finds that over 80 percent of Indonesia's actual production from natural forests during the study period was unreported.

In Estimate 2, annual timber production from natural forests ranged from a low of 43.1 million m^3 in 2003 to a high of 78.0 million m^3 in 2012. Over the course of the study period, the volume of timber harvested through high-intensity selective logging declined from 18.1 million m^3 in 2003 to 13.8 million m^3 in 2014 as several active HPH timber concessions were taken out of production. In Estimate 2, the volumes of timber harvested from land clearing rose even more sharply than under Estimate 1, growing from a low of 15.1 million m^3 in 2003 to a high of 52.7 million m^3 in 2014. Of the volumes harvested from land clearing, 55 percent were small-diameter logs and 45 percent were large-diameter logs. As with Estimate 1, timber production from low-intensity selective logging, or "encroachment logging", was constant at approximately 10 million m^3/yr throughout the study period.

It is found in Estimate 2 that 41 percent of Indonesia's timber production during 2003–2014 occurred in Kalimantan, 32 percent in Sumatra, and 17 percent in Papua (see Chart 2.5). Again, the fact that approximately three-quarters of total timber production occurred in Kalimantan and Sumatra during this period is largely driven by the high levels of forest conversion to other land uses on these two islands.

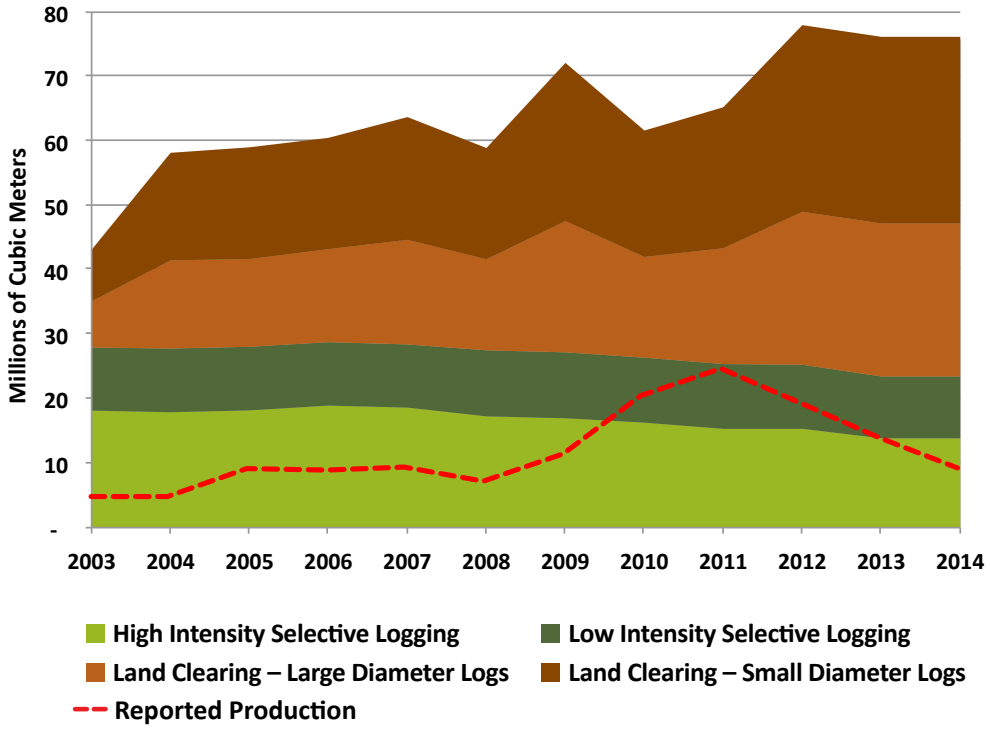


Chart 2.4. Estimate 2 of actual timber production in Indonesia, 2003–2014

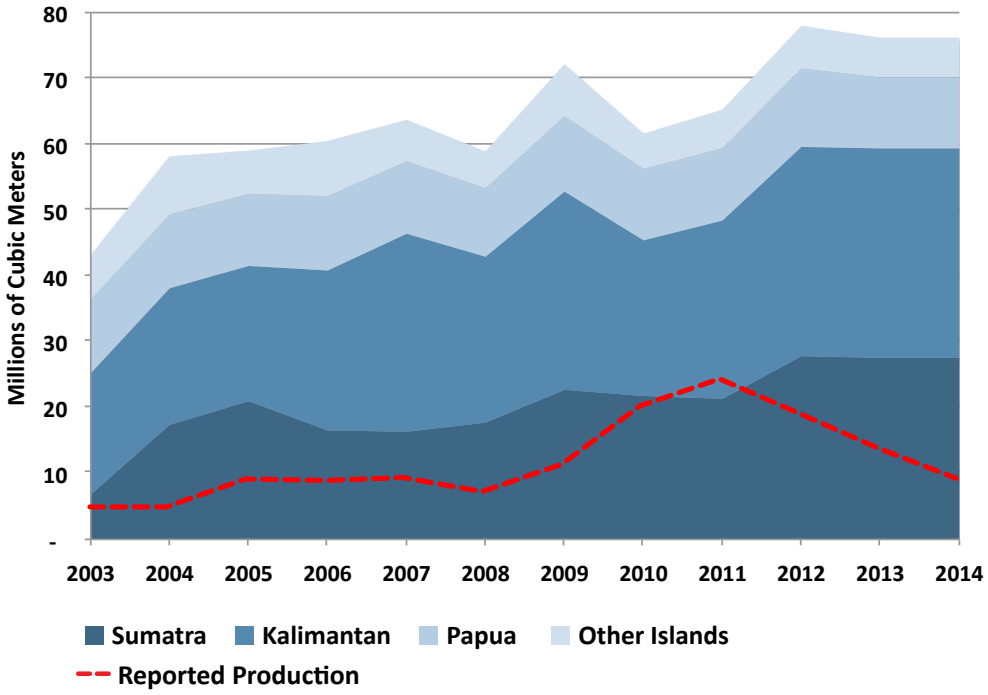


Chart 2.5. Estimate 2 of actual timber production by major islands, 2003–2014

Chapter 3: Calculating state losses from uncollected non-tax forest revenues

In Indonesia, as in most timber producing countries, the Government collects a number of royalties, levies, and fees on commercial logging operations within the nation's Forest Estate. Some of these charges are based on the area of forestland under permit to logging companies and other license-holders, while other charges are based on the volume and value of timber harvested. Collectively, these non-tax state revenues, or PNBP, represent the most direct legal mechanism through which the Government is able to capture monetary benefits from commercial forestry and land-clearing activities. Since the early 2000s, the Government has collected on average Rp. 3.0 trillion per year in PNBP receipts within the forestry sector.

This study's estimate that unreported timber production during 2003–2014, on average, ranged between 40.5 million and 52.4 million m^3 per year suggests the Government has failed to collect large amounts of PNBP forest revenues that it should have collected under prevailing regulations. This chapter aims to calculate the state losses associated with these uncollected PNBP forest revenues during this period. The analysis focuses on under-collection of the sector's two largest sources of non-tax revenues: the Reforestation Fund (*Dana Reboisasi*, or DR) and the Forest Resource Provision (*Provisi Sumber Daya Hutan*, or PSDH).

By applying average DR and PSDH rates to the estimated volumes of timber actually harvested during the 12-year study period, the model calculates the total amounts of DR and PSDH the Government should have collected. These figures are then compared to reported receipts to determine the amount of revenues that the Government failed to collect. It is calculated that state losses from uncollected DR and PSDH during 2003–2014 averaged between US$ 539 million and US$ 749 million per year (Rp. 5.24 and 7.24 trillion per year).

3.1 Indonesia's non-tax forest revenue system

In Indonesia's forestry sector, the Ministry of Environment and Forestry collects various types of royalties, levies, and fees from forest license holders, which are considered to be PNBP. Through the study period, the most significant sources of non-tax forestry revenues include the following:

- **Reforestation Fund (DR)**: a volume-based levy on timber harvested from natural forests;
- **Forest Resource Provision (PSDH)**: a volume-based levy on timber harvested from both natural forests and timber/pulpwood plantations;
- **Commercial Forest Utilization License Fee** (*Iuran Izin Usaha Pemanfaatan Hutan*, or IUPHH): an area-based fee collected from holders of most types of commercial forest utilization licenses;
- **Forest Estate User Fee** (*Penggunaan Kawasan Hutan*, or PKH): an area-based fee collected from mining and plantation companies holding Forest Estate Temporary Use Licenses (*Izin Pinjam Pakai Kawasan Hutan*, or IPPKH);
- **Stumpage Value Replacement** (*Pengganti Nilai Tegakan*, or PNT): a volume-based fee collected on timber harvested from natural forests through forest land-clearing.

During 2003–2013, the DR and PSDH accounted for the vast majority of the revenues collected. Through the first half of this period, DR revenues accounted for over 70 percent of PNBP receipts in the forestry sector and PSDH revenues accounted for over 20 percent. Since 2009, the significance of revenues from the PKH Forest Estate User

Fee has grown as the Ministry of Forestry has allocated increasingly large areas of state forestland to mining and plantation companies for temporary use. Nevertheless, DR and PSDH payments have continued to account for over 75 percent of the sector's total PNBP receipts.

Reforestation Fund (DR)

The DR levy was introduced in 1989 with the stated aim of collecting revenues that would be used to finance reforestation and forest rehabilitation activities. According to Article 5 (1) of Ministerial Regulation 52/Menhut-II/2014 on Procedures for the Levying, Collection and Payment of Forest Resource Provision, Reforestation Fund, Stumpage Value Replacement and Standing Stock Compensation, the DR is collected on all timber from natural forests that: originates from within state forests; grew naturally before title has been issued for sections of state forest that have been excised from the Forest Estate; originates from the sale or replacement of standing stock; is sourced from the auction of found or confiscated goods; and/or sourced from holders of IUPHHK-HD licenses to manage village forests (*hutan desa*).

The DR is not collected on timber sourced from: plantation forests within the Government-administered Forest Estate; from forests under customary management (*hutan adat*) used by customary (*adat*) communities and not sold for commercial use; used by local communities and not sold for commercial use; harvested from privately-owned forest (*hutan hak*) or community forest (*hutan rakyat*) that grew after title was issued; or used to provide assistance to victims of natural disasters (P.52/2014, Article 5 (2)).

Rates for the DR levy are based on the volume of wood harvested and vary by region, species, and grade of timber. As Table 3.1 shows, DR rates range from US$ 2 per ton for small-diameter logs to US$ 20 per ton for high-value ebony. DR rates for *Meranti* logs (*Shorea sp.*) range between US$ 13 and 16 per m^3, depending on the region where the logs are harvested.

The DR levy is denominated in US Dollars. However, the Government has permitted forestry companies to make payments in Indonesian Rupiah since the financial crisis of the late 1990s. Significantly, the rates of the DR levy have remained largely unchanged since 1999.

Forest Resource Provision (PSDH)

The PSDH was introduced in 1998 and is defined as the "intrinsic replacement value" of forest products harvested from: a) state forests; b) sections of the state forest that have been relinquished from the Forest Estate; and/or c) state forest that is designated for development outside the forestry sector.

According to Article 3 (1) of Ministerial Regulation 52/Menhut-II/2014, the PSDH is collected on timber and non-timber forest products from natural forests and/or plantations that: originate from within state forests; grew naturally before title has been issued for sections of state forest that have been excised from the Forest Estate; are harvested from state forest that has been designated for development needs outside the forestry sector; originate from the sale or replacement of standing stock; are sourced from the auction of found or confiscated goods; and/or are sourced from community forests (*hutan kemasyarakatan*) or village forests (*hutan desa*).

The PSDH does not apply to timber or non-timber forest products that are: sourced from forests under customary management (*hutan adat*) used by customary (*adat*) communities and not sold for commercial use; used by local communities and not sold for commercial use; sourced from privately-owned forest (*hutan hak*) and community forests (*hutan rakyat*) that grew after title was issued; or used to provide assistance to victims of natural disasters (P.52/2014, Article 3 (2)).

Table 3.1. Rates of the DR levy according to Government Regulations No. 92/1999 and No. 12/2014

	DIAMETER	PP NO. 92/1999 (US$)	UNIT	PP NO. 12/204 (US$)	UNIT
Sumatra and Sulawesi					
Meranti	> 30 cm	14.00	m^3	14.00	m^3
	30–49 cm			14.50	m^3
Mixed tropical hardwood	> 30 cm	12.00	m^3	12.00	m^3
	30–49 cm			12.50	m^3
Kalimantan and Maluku					
Meranti	> 30 cm	16.00	m^3	16.00	m^3
	30–49 cm			16.50	m^3
Mixed tropical hardwood	> 30 cm	13.00	m^3	13.00	m^3
	30–49 cm			13.50	m^3
Papua and Nusa Tenggara					
Meranti	> 30 cm	13.00	m^3	13.00	m^3
	30–49 cm			13.50	m^3
Mixed tropical hardwood	> 30 cm	10.50	m^3	10.50	m^3
	30–49 cm			11.00	m^3
Indonesia					
Fancy wood	> 30 cm	18.00	m^3	18.00	m^3
Ebony	> 30 cm	20.00	ton	20.00	ton
Merbau	> 30 cm			16.00	m^3
Teak from natural forest	> 30 cm	16.00	m^3		
Sandalwood	> 30 cm	18.00	ton	18.00	ton
Pulpwood	< 29 cm	2.00	ton	4.00	m^3

Sources: Government Regulation No. 92/1999 and Government Regulation No. 12/2014

For logs harvested from natural forests, the PSDH is calculated as a percentage of a volume-based benchmark price *(harga patokan)* set by the Government, which is differentiated according to region of production, commercial grade, and diameter (see Table 3.2). The basic formula used to calculate PSDH payments is as follows:

PSDH = *harga patokan* X rate (%) X volume

Through the study period, the PSDH rate for timber harvested from natural forest remained at 10 percent of the *harga patokan*. For most types of large-diameter logs, average PSDH rates stood at approximately Rp. 60,000 per m^3 until September 2014, at which point they were raised to Rp. 70,000 per m^3. For small-diameter logs, average PSDH rates stood at Rp. 24,500 per m^3 until September 2014, at which point they were raised to Rp. 31,000 per m^3.

3.2 Reported receipts of DR and PSDH from natural forest timber during 2003–2013

During 2003–2013, PNPB receipts from the forestry sector totaled Rp. 33.2 trillion, or an average of Rp. 3.0 trillion per year, or approximately US$ 300 million annually at an assumed exchange rate of Rp. 10,000 per US dollar (see Table 3.3).

Table 3.2. PSDH benchmark prices (*harga patokan*) according to Ministerial Regulations 06/MPP/Kep/1/1999, 12/M-Dag/PER/3/2012, 22/M-Dag/PER/4/2012 and P.68/Menhut-II/2014

	DIAMETER	6 JAN 1999	7 FEB 2007	6 MAR 2012	24 APR 2012	31 DEC 2014	
		06/MPP/KEP/1/1/1999	8/M-DAG/PER/2/2007	12/M-DAG/PER/3/2012	22/M-DAG/PER/4/2012	P.68/ MENHUT-11/2014	UNIT
Sumatra and Sulawesi							
Meranti	> 30 cm	Rp. 640,000	Rp. 600,000	Rp. 1,270,000	Rp. 600,000	620,000	m^3
	30–49 cm					640,000	m^3
Mixed tropical hardwood	> 30 cm	360,000	360,000	953,000	360,000	320,000	m^3
	30–49 cm					340,000	m^3
Kalimantan and Maluku							
Meranti	> 30 cm	640,000	600,000	1,270,000	600,000	730,000	m^3
	30–49 cm					760,000	m^3
Mixed tropical hardwood	> 30 cm	360,000	360,000	953,000	360,000	430,000	m^3
	30–49 cm					450,000	m^3
Papua, Nusa Tenggara and Bali							
Meranti	> 30 cm	530,000	504,000	1,700,000	504,000	620,000	m^3
	30–49 cm					640,000	m^3
Mixed tropical hardwood	> 30 cm	265,000	270,000	1,150,000	270,000	320,000	m^3
	30–49 cm					340,000	m^3
Merbau			1,500,000	2,649,000	1,500,000	1,800,000	m^3
Indonesia							
Fancy wood	> 30 cm	905,000	1,086,000	2,363,000	1.086,000	1,500,000 (2nd group)	m^3
Ebony	> 30 cm	6,000,000	7,200,000	15,000,000	7,200,000	9,150,000	ton
Merbau	> 30 cm		1,500,000	2,649,000			m^3
Natural forest teak	> 30 cm	764,000	2,500,000	3,789,000	2,500,000		m^3
Sandalwood core	> 30 cm	7,000,000	8,400,000	36,000,000	8,400,000	10,600,000	m^3
Sandalwood exterior	> 30 cm		840,000	3,600,000	840,000	1,060,000	m^3
Ironwood	> 30 cm		1,086,000			1,200,000	m^3
Ramin	> 30 cm	905,000	1,086,000			7,000,000	m^3
Pulpwood	< 29 cm	204,000	245,000	550,000	245,000	310,000	m^3

Sources: Ministry of Trade Regulations 06/MPP/Kep/1/1999, 12/M-Dag/PER/3/2012, 22/M-Dag/PER/4/2012 and Ministry of Forestry Regulation P.68/Menhut-II/2014

Table 3.3. Government receipts of PNBP in Indonesia's forestry sector (in billion Rp), 2003–2013

YEAR	DR	PSDH	IUPHH	PKH	OTHER PNBP	TOTAL
2003	2,452.9	675.7	216.7	0.0	8.4	3,353.8
2004	2,415.1	906.9	89.5	0.0	11.9	3,423.5
2005	2,550.3	653.4	42.0	0.0	2.9	3,248.8
2006	1,731.9	560.6	111.3	0.0	25.4	2,429.3
2007	1,368.1	669.7	67.5	0.0	9.8	2,115.2
2008	1,643.0	618.4	68.1	0.0	15.9	2,345.6
2009	1,455.0	674.3	74.1	169.5	193.9	2,397.5
2010	1,721.3	797.3	271.5	175.8	388.7	3,178.9
2011	1,822.9	868.5	119.2	432.5	682.8	3,493.5
2012	1,597.1	986.2	102.6	472.9	677.2	3,877.2
2013	1,668.4	697.6	105.4	582.4	247.8	3,350.4

Source: Ministry of Forestry (various years)

Between 2003 and 2013, the Government collected US$ 2.2 billion (Rp. 20.6 trillion) in revenue from *Dana Reboisasi*, according to the Ministry of Forestry (see Chart 3.1). During this eleven-year period, annual receipts ranged between US$ 140 and US$ 286 million (Rp. 1.36 and 2.45 trillion), and the average annual collection was approximately US$ 200 million (Rp. 1.87 trillion). Receipts from *Dana Reboisasi* in 2013 were approximately US$ 180 million (Rp. 1.88 trillion).

During the same period, the Government collected Rp. 8.10 trillion in revenue from PSDH, according to the Ministry of Forestry. (The PSDH is assessed and collected in Indonesian Rupiah while the DR is assessed and collected in US Dollars.) Unlike the DR which is only levied on timber from natural forest, the PSDH is levied on timber from both natural and plantation forest, albeit at different rates. In this study, therefore, the estimated contributions from HTI plantation concessions, plantations managed by the state forestry corporation Perum Perhutani, and agro-forestry sites are removed to derive the amount of PSDH revenue generated from natural forest.[1]

The revenue generated only from PSDH levied on timber from natural forests during 2003–2013 amounted to Rp. 7.51 trillion. Based on prevailing average annual Rupiah/US Dollar exchange rates, this was equivalent to US$ 806 million. Annual receipts of PDSH ranged between US$ 58 and 97 million (Rp. 531 and 910 billion) during 2003–2013, and average annual collection was about US$ 73 million (Rp. 683 billion). In 2013, the PSDH collected on timber from natural forests was approximately US$ 58 million (Rp. 611 billion).

3.3 Methodology to calculate uncollected DR and PSDH

To calculate the amount of DR that should have been collected, prevailing DR rates are multiplied by timber production estimates generated from the study's model. For timber 29 centimeter (cm) in diameter and below (referred to as small-diameter logs), the DR rate is $2 per ton. For timber with a diameter of 30 cm and up (referred to as large-diameter logs), the DR rate differs by harvest location and species.

1 This study assumes that the appropriate PSDH is collected on reported HTI and Perum Perhutani production.

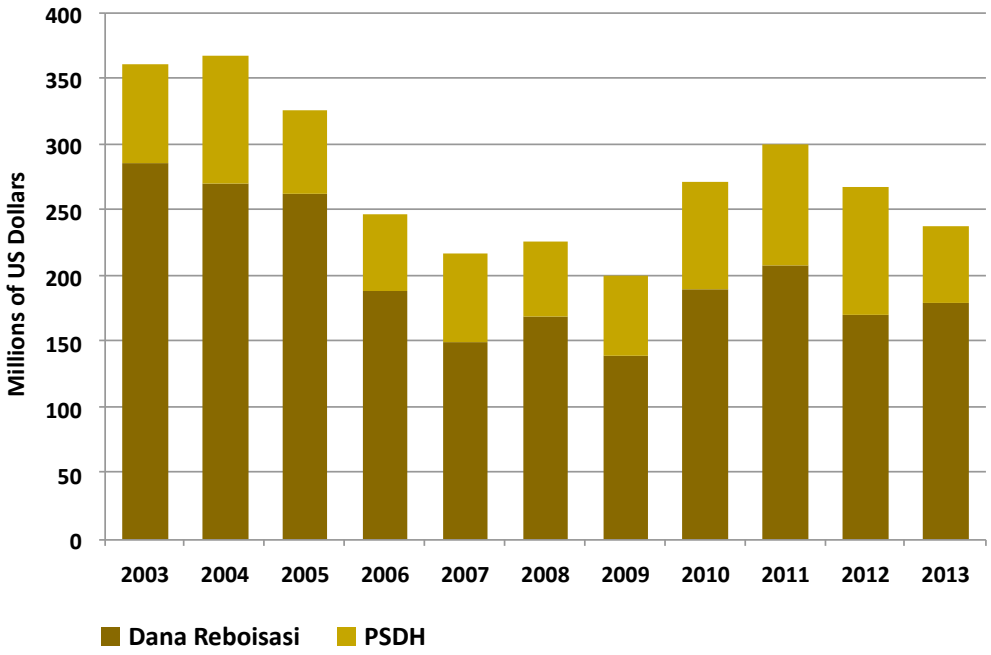


Chart 3.1. Receipts for Dana Reboisasi and PSDH, 2003–2013

Source: Ministry of Forestry (various years).

Note: PSDH receipts adjusted to include only PSDH payments for natural forest timber (excludes payments for plantation timber), and PSDH receipts have been converted from Indonesian Rupiah to US Dollars using official IDR/USD exchange rates from the World Bank (supplied in appendix).

The DR rates during the study period range from $10.50 per m^3 to $20.00 per m^3 (see Table 3.1 above which shows DR rates from Regulation No. 92/1999 on Second Amendment to Government Regulation No. 59/1998 on Rates for Non-Tax State Revenues Applicable to the Department of Forestry and Estate Crops, PP 92/1999, State Gazette 1999 Number 201). An average large-diameter rate of US$ 15 per m^3 is calculated based on data collected between 2009 and 2013 in the Ministry of Environment and Forestry's Forest Products and DR/PSDH Administration Information System (*Sistem Informasi Penatausahaan Hasil Hutan dan Penatausahaan PSDH/DR),* which is accessible online at: http://puhh2.dephut.net:7778/pls/itts/home_default. This average large-diameter rate is then applied to the volumes of large-diameter logs harvested from HPH concessions and land clearing sites.

Similarly, to calculate the amount of PSDH revenue that should have been collected, PSDH rates are multiplied by the estimated production volumes generated from the model. The PSDH rate is based on a percentage of the *harga patokan* (a benchmark price) set by Government regulations issued by the Ministry of Trade. During 2003–2014, the PSDH rate on natural forest timber was 10 percent of the *harga patokan*. The *harga patokan* during the study period was changed in 2007 and 2012 and again in 2014.[2] Though the 2014 change did not have an impact during the study period, it is discussed in later sections of this analysis.

Like the DR rate, the *harga patokan* (and therefore the PSDH rate) is the same for all small-diameter logs and differs by location and species for large-diameter timber. For small-diameter logs, the *harga patokan* was Rp. 204,000 per m^3 at the beginning of the study period, and therefore the PSDH rate was Rp. 24,500 per m^3. The *harga patokan* for large-diameter timber ranged between Rp. 270,000 and Rp. 1,500,000 per m^3.[3]

To calculate an average PSDH rate for large-diameter timber, the same data from the SI-PUHH online database were used to calculate the average large-diameter DR rate. The average PSDH rate was determined to be Rp. 60,000

2 See Ministry of Trade Regulations 8/M-DAG/PER/2/2007, 12/M-Dag/PER/3/2012, and 22/M-DAG/PER/4/2012, and Ministry of Forestry Regulation P.68/Menhut-II/2014

3 The *harga patokan* was dramatically increased in 2012. However, the rate increase was reversed after only a month and a half, so those increased rates are not detailed here (though they are discussed in a later section of the study).

per m^3. To calculate how much PSDH revenue the Government should have collected, the small-diameter rate of Rp. 20,400 per m^3 and, for the later period Rp. 24,500 per m^3, is multiplied by the production estimate for small-diameter logs; and the average large diameter rate of Rp. 60,000 per m^3 is multiplied by the production estimate for large-diameter logs. Note that 2014 receipts are assumed to be equivalent to the amount collected in 2013.

3.4 DR that should have been collected during 2003–2014 – Estimates 1 and 2

According to the study's model, the Government of Indonesia should have collected between US$ 6.62 and 8.36 billion (Rp. 64.0 and 80.7 trillion) in DR revenue during 2003–2014 (see Chart 3.2). On an annual basis, the Government's DR receipts should have averaged between US$ 552 and 696 million (Rp. 5.33 and 6.72 trillion) per year. As reported above, however, DR receipts during this time period totaled US$ 2.39 billion (Rp. 20.6 trillion), or an average amount of US$ 199 million per year (Rp. 1.87 trillion).[4] These figures indicate that the Government failed to collect between US$ 4.23 and 5.96 billion (Rp. 41.2 and 57.9 trillion) in DR revenue that should have been collected, or an average of between US$ 352 and 497 million (Rp. 3.43 to 4.82 trillion) per year, during the 12-year study period.[5] The efficiency of the Government's collection of DR revenues during these years ranged between 29 percent (Estimate 2) and 37 percent (Estimate 1), depending on estimated timber production levels.

3.5 PSDH that should have been collected during 2003–2014 – Estimates 1 and 2

According to the volumes of logs produced under Estimates 1 and 2, the Government should have collected between US$ 3.11 and 3.89 billion (Rp. 29.8 and 37.3 trillion), respectively, in revenue from PSDH collection on natural forest timber during 2003–2014 (see Chart 3.3). On average, annual PSDH receipts should have amounted to between US$ 259 and 324 million (Rp. 2.48 and 3.10 trillion) per year. However, the Government's PSDH receipts on natural forest timber during this period was US$ 869 million (Rp. 8.26 trillion), or an average of US$ 72.4 million (Rp. 688 billion) per year.[6] It is, therefore, estimated that the Government failed to collect between

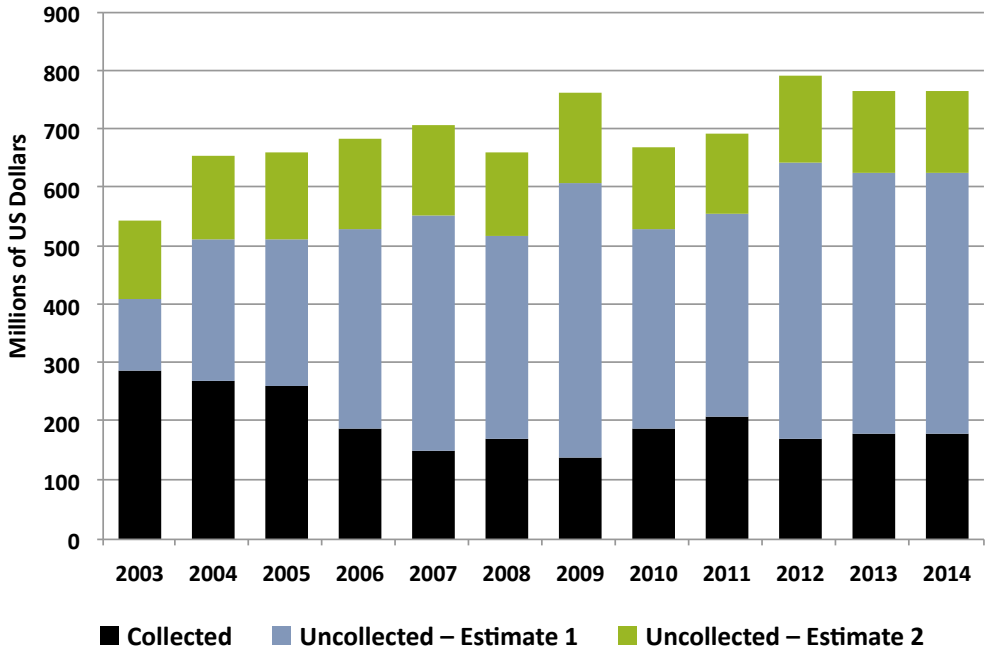


Chart 3.2. Estimated state losses from uncollected DR revenues, 2003–2014 (in US dollars)

4 DR receipts for 2014 are assumed to be the same as 2013.

5 Since DR receipts for 2014 were not reported at the time of this study's publication, DR receipts for 2014 are assumed to be the same as 2013.

6 The study uses PSDH receipts of Rp. 827 billion in 2014 for these calculations. This figure was reported in several media outlets referring to KLHK sources.

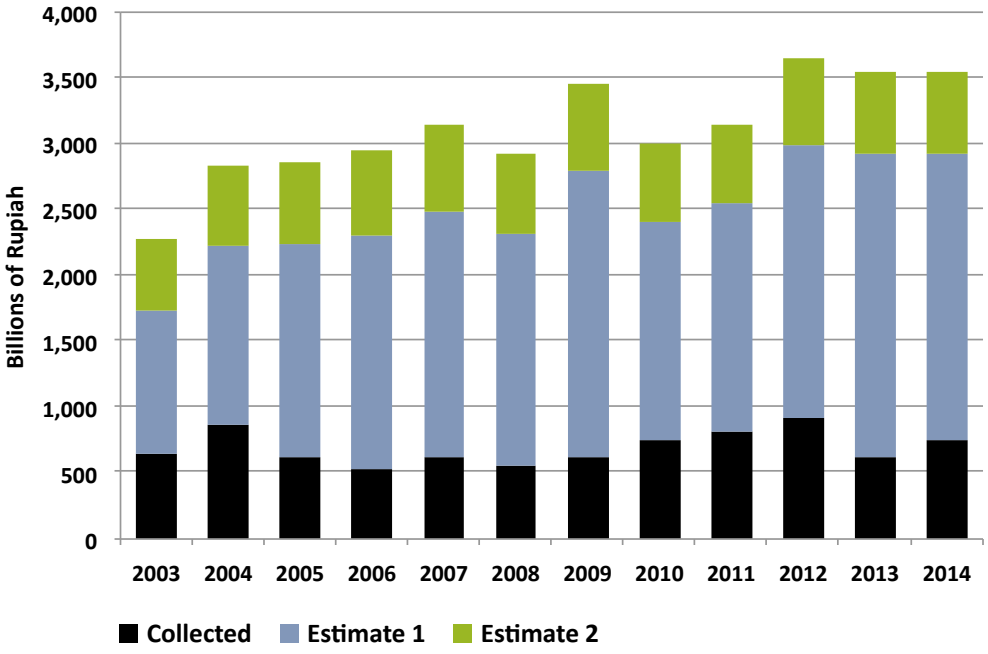


Chart 3.3. Estimated state losses from uncollected PSDH revenues, 2003–2014 (in Rupiah)

US$ 2.24 and 3.02 billion (Rp. 21.6 and 29.0 trillion) in PSDH revenue that it should have collected, or an average of US$ 186 to 251 million (Rp. 1.80 and 2.42 trillion) per year, during the 12-year study period. These figures suggest the Government's PSDH revenue collection system performed at an efficiency level of between 22 percent (Estimate 2) and 28 percent (Estimate 1), depending on estimated timber production.

3.6 Combined state losses from uncollected DR and PSDH during 2003–2014

During 2003–2014, the Government of Indonesia should have collected aggregate revenues of between US$ 9.73 and 12.25 billion (Rp. 93.9 to Rp.118.0 trillion) from the *Dana Reboisasi* and PSDH based on the volumes of timber harvested from natural forests, according to the study's model. In fact, however, combined DR and PSDH receipts for this period amounted to only US$ 3.26 billion (Rp. 31.0 trillion). These figures suggest that state losses from under-collection of DR and PSDH revenues totaled between US$ 6.47 and 8.98 billion (Rp. 62.8 and 86.9 trillion) – or between US$ 539 and 749 million (Rp. 5.24 and 7.24 trillion) per year – during the 12-year study period (see Chart 3.4).

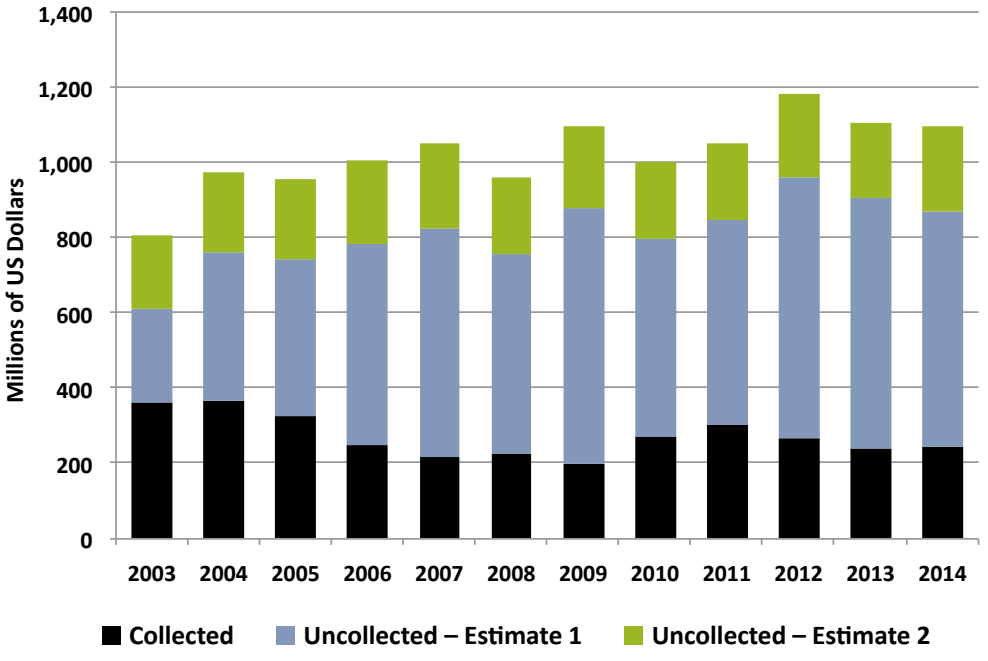


Chart 3.4. Estimated state losses from uncollected Dana Reboisasi and PSDH revenue, 2003–2014 (in US Dollars)

Chapter 4: Calculating state losses of commercial value from unreported timber production

The value of state losses from uncollected PNBP forest revenues during 2003–2014 is substantial, amounting to between US$ 6.47 and 8.98 billion (Rp. 62.8 and 86.9 trillion) as shown in Chapter Three. These losses, however, represent only the foregone royalties that the Government should have collected, yet did not collect, on unreported timber production. By definition, these royalties represent a fraction of the underlying commercial value of the logs harvested outside the state's timber production reporting system. To the extent this timber was harvested illegally, it represents an asset that has been stolen from the state and the value of which belongs to the state. In this way, the commercial value of the unreported timber harvested from Indonesia's Forest Estate represents an important quantitative measure of the scale of state losses from undocumented, and arguably illegal, logging.

This chapter calculates state losses of commercial value associated with unreported timber production during 2003–2014. It bases these calculations on the estimated volumes of unreported log harvests presented in Chapter Two, which are multiplied by average domestic log prices for each year during the study period. These calculations demonstrate that the Government incurred aggregate state losses of between US$ 60.7 and 81.4 billion (Rp. 598.0 and 799.3 trillion) during this period, and that annual state losses rose steadily to reach between US$ 7.7 and 9.9 billion (Rp. 80.7 and 104.3 trillion) in 2013 alone.

4.1 Legal basis for defining state losses from the commercial value of unreported timber

In Indonesia, the legal basis for calculating state losses from the commercial value of unreported timber is well established. Legal precedents indicate various methods to be used for calculating state losses resulting from corruption in the forestry sector. In the case of Adelin Lis in Mandailing Natal District of Aceh Province, for instance, state losses were calculated and recorded based on the non-tax state revenues not collected by the state. By contrast, in the case of Azmun Jaafar, the former Bupati of Pelalawan District in Riau Province, state losses were calculated based on the total value of timber harvested by companies that had secured their permits through the accused by corrupt means. In the Azmun Jaafar case, state losses were calculated to have reached Rp. 1.2 trillion.[1]

In this study, state losses are determined using the methods applied in the Azmun Jaafar case, which calculate timber value by multiplying the log price by the volumes of timber harvested.[2] In the Azmun Jaafar case, state losses were calculated by subtracting revenues that the state had already received in the form of PSDH and DR on the companies' timber harvests from the value of the timber. But in the case of unreported timber, the PSDH and DR was never paid, so this study does not subtract that amount from the value of the unreported timber. Also, as will be established later in the study, the benchmark prices (*harga patokan*) are significantly less than market

1 See Azmun Jaafar indictment p. 36

2 In 2012 the Ministry of Environment issued Ministerial Regulation No. 5/2012 on Economic Valuation Guidelines for Forest Ecosystems, which provides methods for calculating the economic value of forests above and beyond the value of the timber, either through changes in production or based on changes in environmental quality. This "ecosystem services" method of calculating economic loss from forest destruction is an important measure even though it is not quantified in this study.

prices for logs. Since the intention of using the benchmark prices is to value the timber at market rates, this study uses sources other than the government's official benchmark rates as a proxy for market prices.

Under Indonesia's legal framework for curbing money laundering, state losses can also be treated as proceeds of crime. According to Law No. 8/2010 on Money Laundering, forestry crime and corruption are included in the list of predicate offenses (Article 2 (1)) to money laundering. Therefore, the use of or transactions involving the proceeds of forestry crime or corruption can qualify as money laundering. Furthermore, with this legal framework, Law No. 8/2010 also grants the Financial Transaction Reports and Analysis Center (*Pusat Pelaporan Analisis dan Transaksi Keuangan,* or PPATK) the authority to conduct investigations and submit reports on potential money laundering crimes to law enforcement agencies (Article 44 (1)). Based on analyses submitted by PPATK, law enforcement agencies may conduct criminal prosecutions against predicate offences to money laundering, including forestry crime and corruption. Consequently, law enforcement agencies investigating predicate offences may also conduct investigations into the laundering of the proceeds from those predicate offenses.

4.2 Methodology for calculating commercial value of unreported timber production

The methods for calculating the commercial value of unreported timber production are straightforward. In simplest terms, the volumes of unreported timber production calculated for the study's lower estimate (Estimate 1) and upper estimate (Estimate 2) for 2003–2014, as presented in Chapter Two, are multiplied by average domestic log prices for each year during the study period. Average log prices are differentiated by the following grades: 1) small-diameter logs (*kayu bulat kecil*, or KBK); and 2) large-diameter logs (*kayu bulat*, or KB).

For small-diameter logs, annual domestic market prices are obtained from Wood Resources Quarterly, a proprietary industry data provider that tracks domestic and international pulplog prices around the world. For Indonesia, these prices are reported on a freight on board (FOB) basis, thereby incorporating the costs of delivery of the logs either to the mill or to the shipment vessel.

For large-diameter logs, annual domestic market prices are obtained from reports published by the International Tropical Timber Organization (ITTO). The ITTO publishes average domestic timber prices for Indonesia and other tropical forestry countries on an annual basis. For Indonesia, log prices are only reported for Meranti and for core logs. For the purposes of this analysis, the commercial value of large-diameter logs from selective logging is calculated using a blended log price, 35 percent of which is based on the Meranti log price and 65 percent of which is based on the core log price. The commercial value of large-diameter logs from land clearing is calculated using a blended price, 20 percent of which is based on the Meranti log price and 80 percent of which is based on the core log price. These prices are similarly reported on an FOB basis.

The blended price for large-diameter domestic logs is considered to be conservative in light of the fact that it does not include either high-value fancy grades of timber such as Merbau and/or log sales (legal or illegal) to international buyers.

4.3 Commercial value of reported timber production in domestic markets during 2003–2014

Before calculating the commercial value of unreported logs, it is useful to determine the market value of Indonesia's reported timber production during the study period. Applying average domestic log prices to the reported volumes of timber harvested, it is calculated that the nation's formal logging industry generated US$ 20.9 billion (Rp. 202 trillion) worth of logs during 2003–2014. Of this total, large-diameter logs from

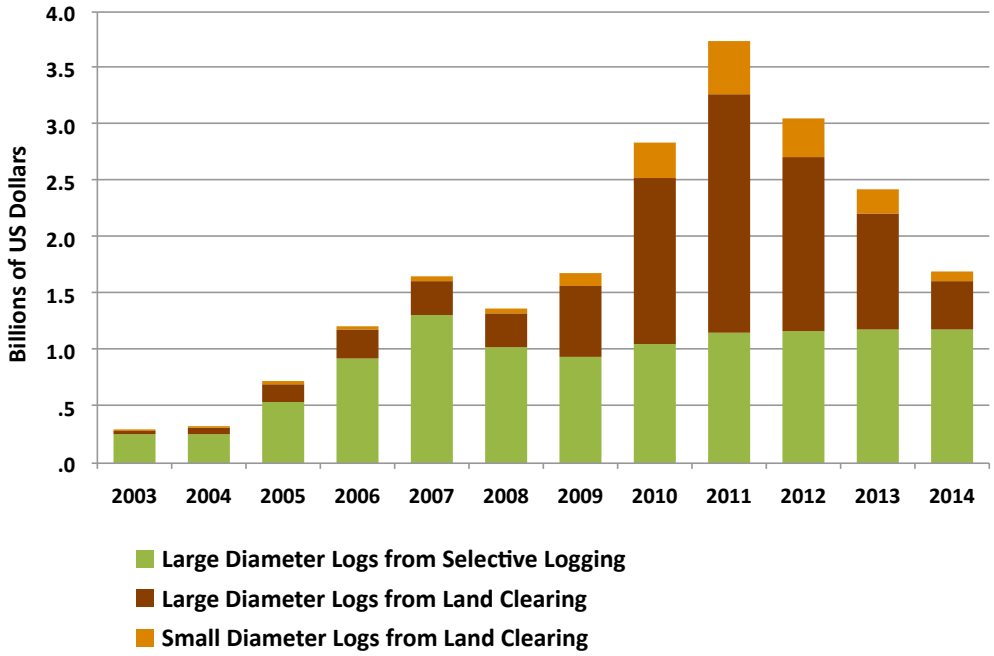


Chart 4.1. Commercial value of reported timber production in Indonesia, 2003–2014 (in US Dollars)

selective-logging concessions accounted for US$ 10.9 billion (Rp. 106.4 trillion), or about 50 percent of the total; and large-diameter logs from land clearing accounted for US$ 8.3 billion (Rp. 79.4 trillion). Small-diameter logs from land clearing accounted for the remaining US$ 1.7 billion (Rp. 16.2 trillion).

On an annual basis, the average market value of reported timber production was US$ 1.8 billion (Rp. 16.8 trillion) per year over the course of the study period. As Chart 4.1 shows, the market value of legally harvested logs rose from a low of US$ 284 million (Rp. 2.43 trillion) in 2003 to a high of US$ 3.74 billion (Rp. 32.8 trillion) in 2011. By 2014, this figure had fallen to US$ 1.70 billion (Rp. 20.1 trillion).

4.4 State losses of commercial value from unreported timber – Estimate 1

Under Estimate 1, aggregate state losses from the commercial value of the 486.3 million m^3 of unreported timber production during 2003–2014 amounts to US$ 60.7 billion (Rp. 598.0 trillion), or roughly three times the value of Indonesia's reported timber production (see Chart 4.2). Of this total, large-diameter logs harvested through selective logging (high-intensity and low-intensity combined) account for state losses of US$ 29.8 billion (Rp. 288.6 trillion), or 50 percent of the total. Large-diameter logs harvested through land clearing account for losses of US$ 24.7 billion (Rp. 247.4 trillion); and small-diameter logs from land clearing account for losses of US$ 6.2 billion (Rp. 62.0 trillion).

On an annual basis, Estimate 1 indicates the state incurred average losses of US$ 5.0 billion (Rp. 49.8 trillion) per year over the 12-year study period. The magnitude of annual losses, however, climbed sharply from a low of US$ 1.4 billion (Rp. 12.1 trillion) in 2003 to a high of US$ 7.7 billion (Rp. 80.7 trillion) in 2013. This dramatic increase was driven both by the rapid expansion of commercial land clearing and a significant rise in domestic log prices, corresponding to a similar increase in international timber prices. According to ITTO data, Indonesia's domestic prices for Meranti rose from US$ 77 per m^3 in 2003 to US$ 244 per m^3 in 2013.

4.5 State losses of commercial value from unreported timber– Estimate 2

Under Estimate 2, aggregate state losses from the commercial value of the 629.0 million m^3 of unreported timber production during 2003–2014 amount to US$ 81.4 billion (Rp. 799.3 trillion), equivalent to roughly four times the

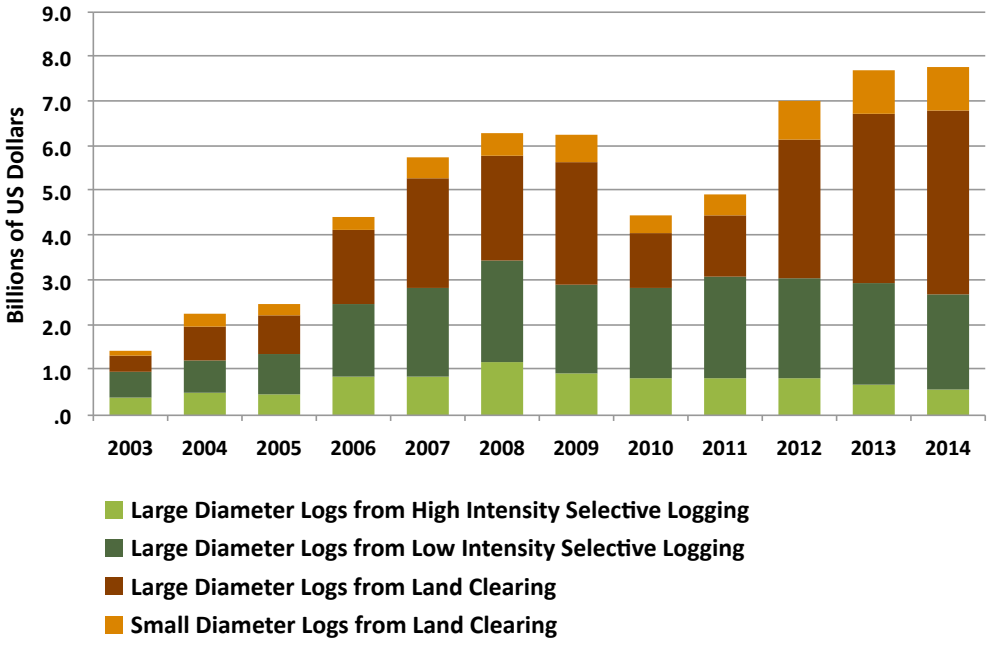


Chart 4.2. Commercial value of unreported timber production in Indonesia, 2003–2014 – Estimate 1 (in US Dollars)

value of reported timber production (see Chart 4.3). Of this total, large-diameter logs harvested through selective logging (high-intensity and low-intensity combined) account for state losses of US$ 44.6 billion (Rp. 431.9 trillion), or 55 percent of the total. Large-diameter logs harvested through land clearing account for losses of US$ 29.4 billion (Rp. 294.1 trillion); and small-diameter logs from land clearing account for losses of US$ 7.3 billion (Rp. 73.1 trillion).

On an annual basis, Estimate 2 indicates the state incurred average losses of US$ 6.7 billion (Rp. 66.6 trillion) per year over the study period. As with Estimate 1, the magnitude of annual losses climbed sharply through this period, rising from a low of US$ 1.9 billion (Rp. 16.8 trillion) in 2003 to a high of US$ 9.9 billion (Rp. 104.3 trillion) in 2013.

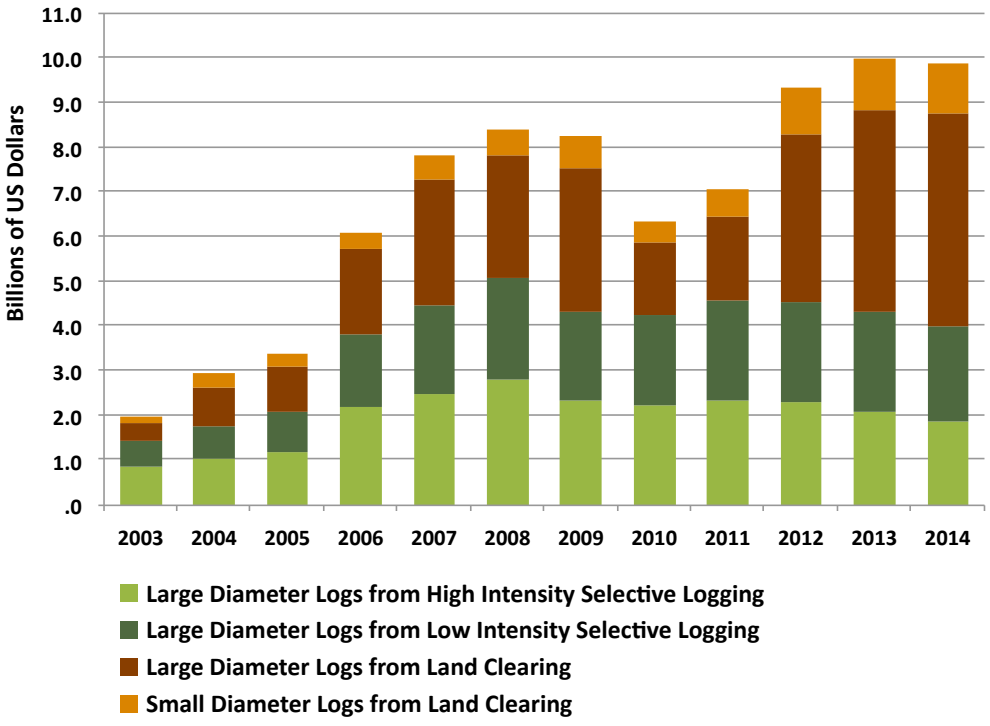


Chart 4.3. Commercial value of unreported timber production in Indonesia, 2003–2014 – Estimate 2 (in US Dollars)

Section II

Analysis of weaknesses in the timber administration and non-tax revenue collection system

Chapter 5: Regulatory framework for non-tax state revenue collection in the forestry sector

5.1 Overview of the PNBP regulatory framework

In Indonesia, non-tax state revenues, or PNBP, are regulated under a number of laws, including Law No. 20/1997 on Non-Tax State Revenue, Law No. 17/2003 on State Finances, and Law No. 1/2004 on the State Treasury. Based on these laws, PNBP governance, including in the forestry sector, is considered to be part of the national budget administration. These three laws form the basis for the Government to organize, plan, collect, manage, spend and account for non-tax revenues.

Based on the norms it contains, Law 17/2003 on State Finances functions as a *lex generalis* for the regulation of state revenue sources. Under this law, non-tax revenues are regulated as forms of state revenue along with taxes and grants (Article 11). The law mandates the Government to collect revenues from these sources, including PNBP and receivables, and to manage them for the state (Article 9). Law 1/2004 on the State Treasury provides for regulation similar to Law 17/2003, in addition to providing revenue management and accountability mechanisms. Law 1/2004 stipulates that the Government has the authority to collect state revenue, to appoint a state treasurer to carry out that collection, and to determine procedures for how ministries and agencies use the collected revenue (Article 16 (2) and (4)).

Specific provisions forming the basis for non-tax state revenue collection policy are regulated under Law No. 20/1997 on Non-Tax State Revenue. This law regulates various aspects of PNBP governance, including management, control and accountability, and a verification mechanism. To ensure the law's provisions are enforced, Law 20/1997 also specifies the penalties for violations. The law also defines the sources from which the state is permitted to collect PNBP. The law identifies natural resources (on, under, and above the surface of the earth) as one such source, and it provides examples of natural resource PNBP revenues including forestry, fisheries and mining (Article 2 (1)). Without explaining in detail the forms of PNBP collection, the law mandates that specific arrangements for PNBP classification should be provided under a subordinate regulatory framework.

In addition to the laws above, Law No. 41/1999 on Forestry provides norms relating to the state's collection of PNBP associated with forest utilization. This law states that part of the proceeds from the exploitation of forest products constitutes state revenue. This revenue includes the Reforestation Fund (*Dana Reboisasi,* or DR), the Forest Resource Provision (*Provisi Sumber Daya Hutan,* or PSDH), license fees and also investment guarantee funds. The DR is defined as a fee collected for the rehabilitation and restoration of degraded forests, while the PSDH is defined as the "intrinsic replacement value" of forest products harvested (Elucidation Article 35). Law No. 41/1999 mandates the Government (the Ministry of Forestry and the Ministry of Finance, in equal measure) to issue technical regulations supporting the collection and management of forestry sector PNBP (Article 35 (4)).

The regulatory framework for PNBP administration, as with other countries' revenue collection systems, begins with policies for setting PNBP rates and targets. As part of the national budgetary process, ministries must set

Figure 5.1. Flow chart of PNBP governance

state revenue targets on an annual basis, including for PNBP collection. In the forestry sector, as this study shows, PNBP rates and targets not only function as tools for the Government to collect revenue, but also as instruments to govern the forestry business. Government policies on PNBP rates determine, in part, how timber markets and forestry businesses utilize forestry resources. Chapter 10 of this study presents a more detailed explanation of how PNBP rates and the mechanism to set those rates can potentially be problematic from the perspective of efficient management, use, and allocation of forest resources (Barr 2001).

Once PNBP targets are established, it is the Government's responsibility to ensure optimal revenue collection and to prevent state loss from under-collection. The Ministry of Environment and Forestry delegates PNBP collection authority to each region, while the Ministry itself carries out oversight and control functions. The latter consist of reporting and reconciliation mechanisms that are incorporated into the forest production administration system. The administration of PNBP collection is subject to audit by BPK, Indonesia's Supreme Audit Agency.

5.2 Rate setting policy for non-tax state revenues

The initial component of PNBP policy or governance is how the state regulates the types of PNBP collected and their rates. According to Article 3, paragraph (1) of Law No. 20/1997 on Non-Tax State Revenue, PNBP rates are set by considering the impacts of their imposition on society and its business activities, the costs of implementing Government activities associated with the types of PNBP in question, and the imposition of equitable burdens on society. Rates are set in laws or government regulations which designate relevant types of PNBP. However, these laws do not specify further how the rates or formal mechanisms for PNBP should be determined.

In practice, the Government sets PNBP types and rates in various forms of legislation. The general structure of the DR and PSDH, for instance, were set forth in Law No. 41/1999. However, this law does not specify a formula for their imposition or their rates. At present, specific DR and PSDH formulae and rates are provided under regulation PP 12/2014. The annex to this regulation explains that the DR is collected with volume-based rates for different kinds of timber. Meanwhile, the PSDH is collected as a percentage of the intrinsic value of timber based on volume and type of wood. In contrast to the DR, the formula for setting the PSDH rates includes a Government-set benchmark price (*harga patokan*). As the PSDH is expected to be a derivative of the intrinsic value of timber harvested, its collection should be based on the actual value of the timber. Under existing regulations, the actual intrinsic value of timber is supposed to be represented by the *harga patokan*.

Table 5.1. Regulatory framework for PNBP collection in the forestry sector

COMPONENT OF PNBP COLLECTION	DR GOVERNANCE	PSDH GOVERNANCE
Types of PNBP	UU 41/1999	UU 41/1999
Tariff and formula	PP 12/2014	PP 12/2014
Benchmark price *(harga patokan)*	–	MoF Regulation P.68/Menhut-II/2014

In fact, the *harga patokan* benchmark prices have been changed a number of times. The last time the *harga patokan* was modified was under Minister of Forestry Regulation No. P.68/Menhut-II/2014 on 31 December 2014. This regulation established *harga patokan* based on log measurement, region, and species for both Meranti and mixed tropical hardwoods. Before that, the *harga patokan* was set through decrees issued by the Ministry of Trade. This arrangement changed following the issue of regulation PP 12/2014, under which authority for setting the *harga patokan* was transferred to the Minister of Forestry. This government regulation explains that the *harga patokan* is set based on the average selling price for:

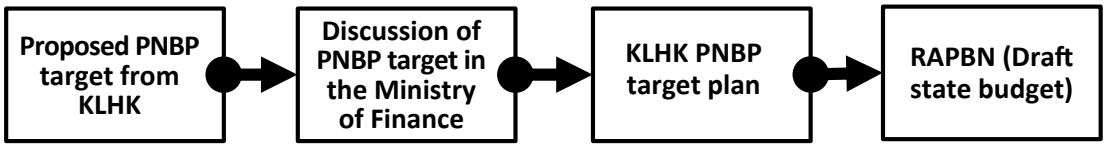
1. Timber from natural forests in the log pond;
2. Timber from plantation forests based on the average value of standing stock;
3. Non-timber forest products at collection points;
4. Plants or wildlife domestically or overseas;
5. Forest plant seeds in the seed's place of origin.

With this authority, KLHK can fully establish how much PNBP the Government should receive.

5.3 Non-tax revenue target planning policy

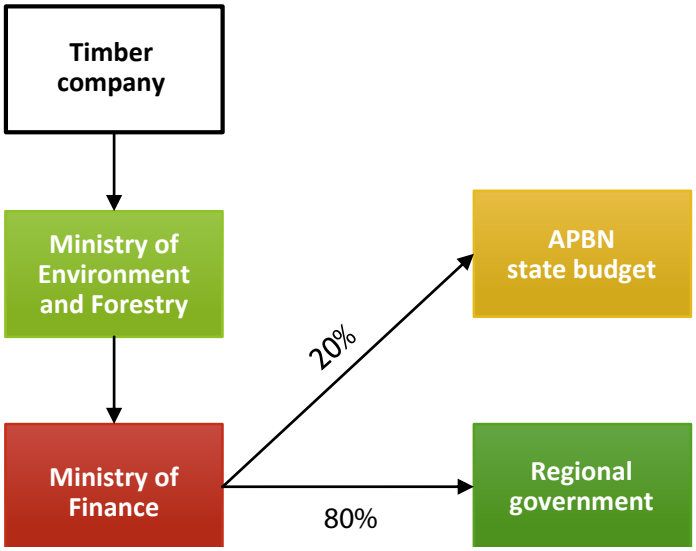
As mentioned above, PNBP collection constitutes part of the national budgetary process. Consequently, every year the Government sets policies for revenue targets from PNBP collection. These revenue targets become the benchmarks for ministries to prepare their budgets. PNBP is considered more flexible than other fiscal mechanisms, as a portion of the non-tax revenues collected can be used for the needs of the sector in which they are generated, or more specifically for the ministry or agency that collects the funds (UU 20/1997, Article 8).

Figure 5.2. Flow chart for setting PNBP targets



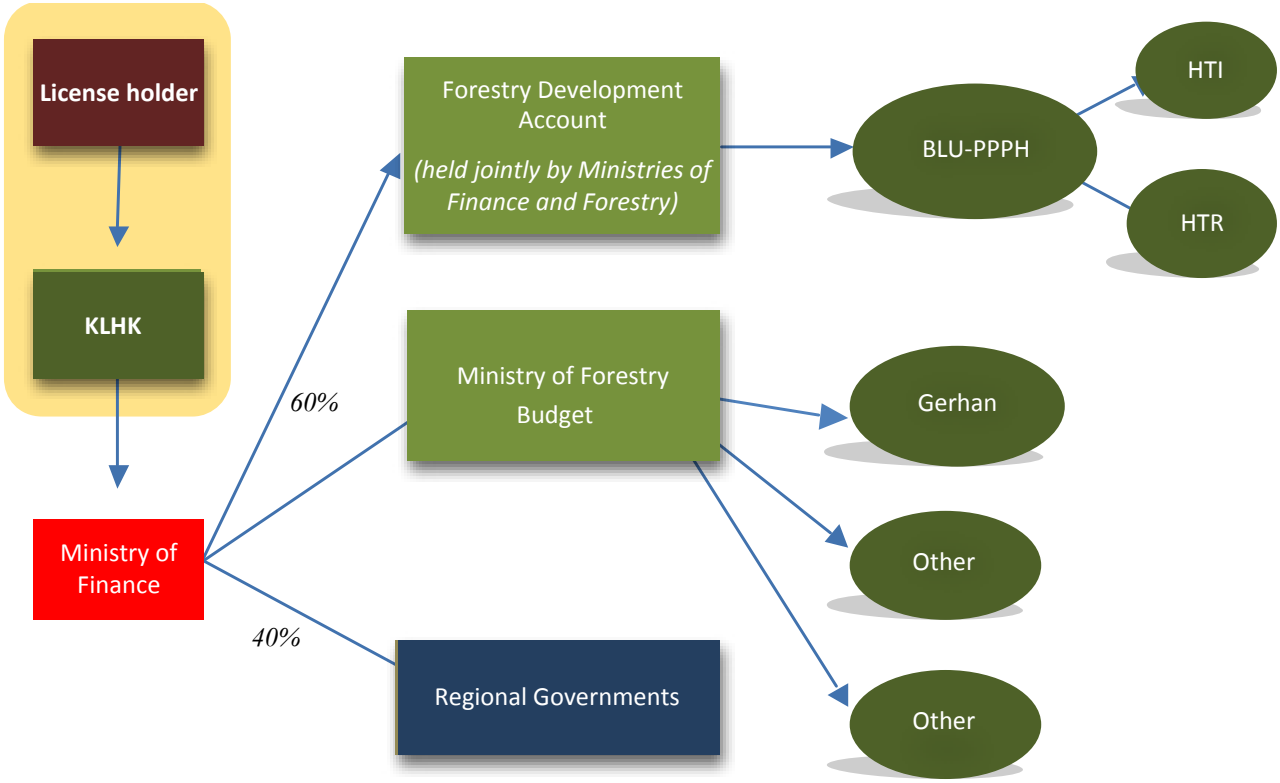
A series of policies on setting PNBP targets is provided through Government Regulation No. 1/2004 on Procedures for Submitting Non-Tax State Revenue Plans and Realization Reports (PP 1/2004). This regulation provides that PNBP targets are submitted by also describing actual conditions within each sector. This arrangement is then provided in more detail in Minister of Finance Regulation No. 152/PMK.02/2014 on Guidelines for State Ministries/Agencies to Prepare Non-Tax State Revenue Plans (Article 4). Referring to Minister of Finance Regulation 152/2014, the PNBP plans prepared must be realistic and must take into consideration historic data and information (Article 4). If the planned PNBP target is lower or higher than the realization for the

Figure 5.3. Division of PSDH through the Special Allocation Fund



previous year, then the ministry must also include an objective justification (Article 5 (4)). In addition, PNBP target planning should also be prepared in tiers according to its institution's organizational structure. The Ministry of Finance can determine PNBP targets if the relevant ministry or work unit does not submit its target.

Figure 5.4. Flow of the DR through the Special Allocation Fund



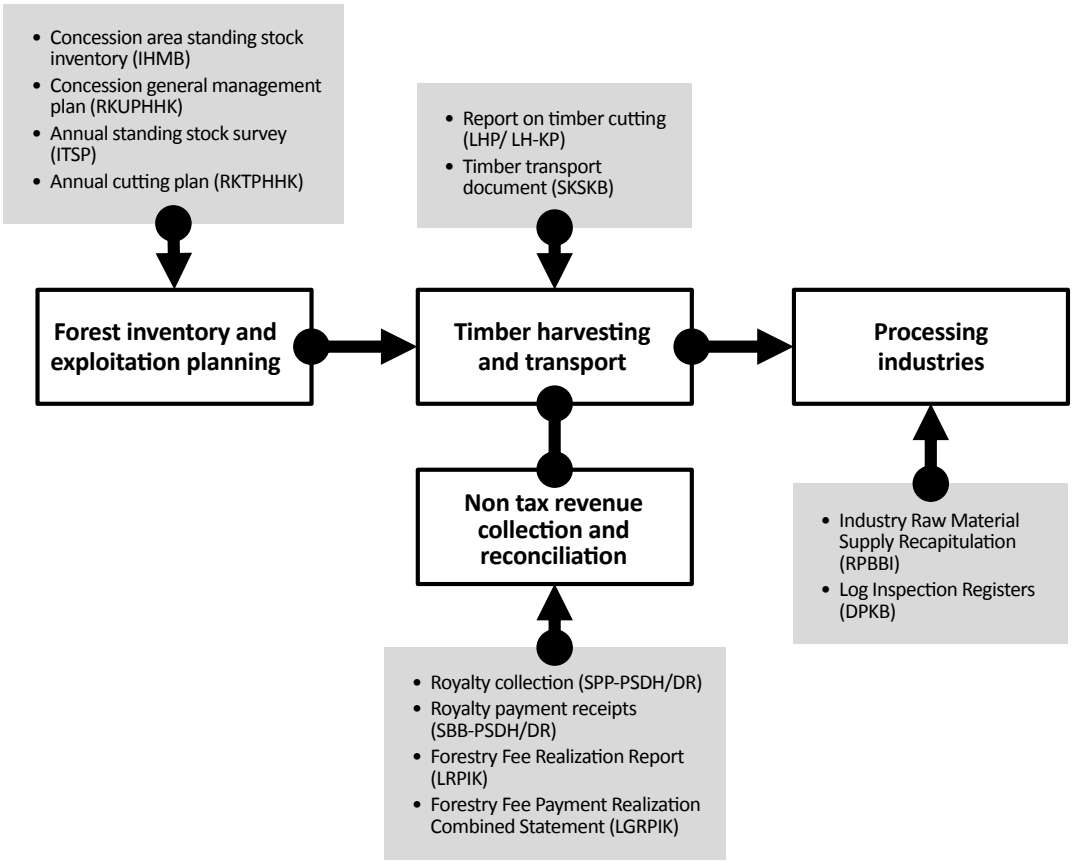
5.4 Non-tax revenue collection and forest product administration

Based on the abovementioned laws and regulations, the regulatory framework in Indonesia stipulates various governance provisions that must be considered with respect to the Government's PNBP collection arrangements, particularly in relation to the DR, PSDH, and PNT. Some key regulations to examine are Government Regulation No. 12/2014 on Types and Rates of Non-Tax State Revenue Applicable to the Ministry of Forestry (PP 12/2014), Government Regulation No. 35/2002 on the Reforestation Fund (PP 35/2002), and Government Regulation No. 51/1998 on the Forest Resource Provision (PP 51/1998).

Regulation PP 12/2014 describes various kinds of PNBP in the forestry sector, including the DR and PSDH, and details the rate formulations for each. Meanwhile, regulations PP 35/2002 and PP /1997 stipulate more detailed provisions for setting PNBP rates and collection procedures. Other regulations that support PNBP collection are provided in the form of ministerial regulations, including Minister of Forestry Regulation No. P.52/Menhut-II/2014 on Procedures for the Levying, Collection and Payment of the Forest Resource Provision, the Reforestation Fund, Stumpage Value Replacement and Standing Stock Compensation (P.52/2014). This regulation and several other pieces of legislation will be explored in depth in this study, specifically in relation to their weaknesses and contributions to PNBP collection.

Norms and mechanisms forming the basis for timber administration in Indonesia are regulated under Government Regulation No. 6 /2007 on Forest Administration and the Preparation of Forest Management and Forest Utilization Plans, later revised through Government Regulation No. 8/2003 on Amendments to Government Regulation No. 6/2007. Regulation PP 3/2008, in conjunction with regulation PP 6/2007, establishes various norms associated with all aspects of forest management mandated by Law No. 41/1999 (Article 39),

Figure 5.5. System for administration of timber production and PNBP revenue collection



from issuing licenses to issuing transport documents, including imposition of sanctions for administrative non-compliance in the forestry sector. With such a broad scope, regulation PP 3/2008 is further supplemented with various ministerial regulations that establish rules of different components of forest utilization in further detail. For the purposes of this study, however, the various stages involved in timber production administration and forestry PNBP collection will be elaborated further below.

Generally, PNBP collection and timber administration are covered by at least four administrative systems, including: inventory and planning; harvesting and distribution of timber; PNBP collection; and fulfilling raw material requirements of wood-processing industries. In this study, however, analysis is limited to the PNBP collection stage. The next section will explain that under the current regulatory framework, all of these stages also represent control systems. These systems are structured in a hierarchical manner from district forestry offices up to the Ministry of Forestry. Some specific arrangements also involve other ministries and/or agencies, such as the Ministry of Finance. In simple terms, improvements in PNBP collection, therefore, are inseparable from how effectively timber administration and its oversight are carried out.

Administrative systems in timber planning and production

Before timber from natural forests can be harvested, Indonesia's regulatory framework requires license holders to issue a series of inventory and planning documents. The requirements and obligations to conduct inventories are strictly regulated under Law No. 41/1999 on Forestry, Government Regulation No. 44/2004 on Forestry Planning, and PP 6/2007 in conjunction with PP 3/2008. Regulation PP 44/2004 defines a hierarchical forest inventory process, from the national level to the field level (Article 5). Other obligations associated with forest inventories are regulated under PP 3/2008 in conjunction with PP 6/2007. Although they do not specifically refer to PP 44/2004, these regulations also stipulate various responsibilities for license holders to conduct inventories before commencing harvesting. These include:

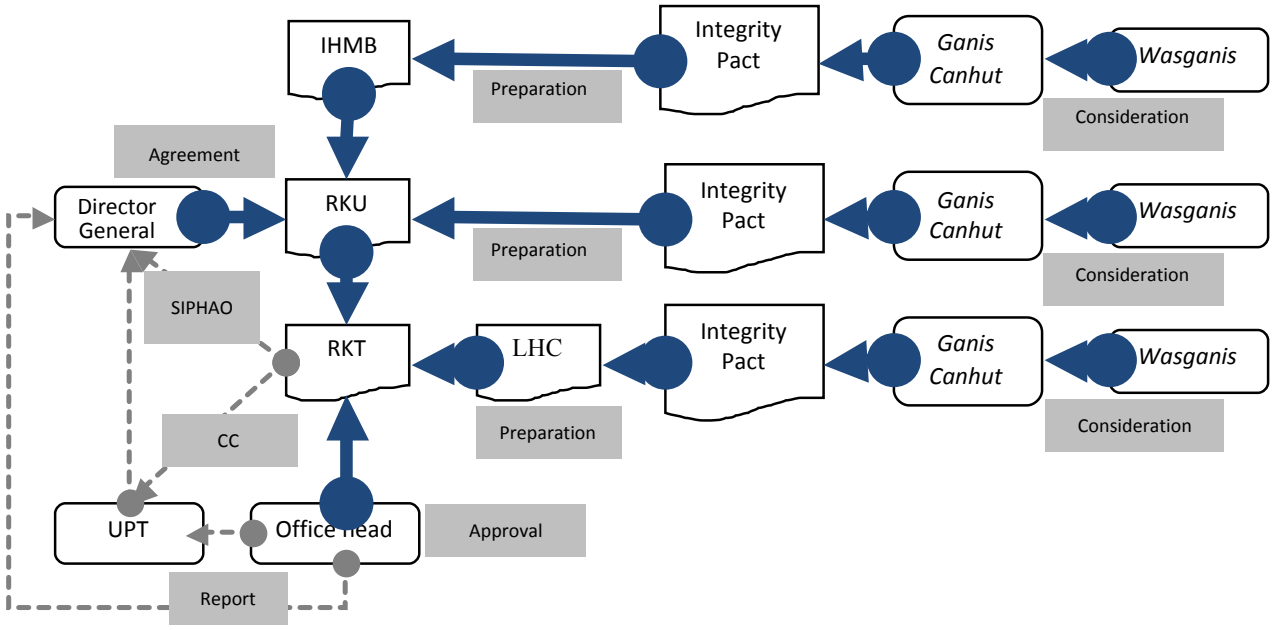
1. Concession Area Standing Stock Inventories (*Inventarisasi Hutan Menyeluruh Berkala*, or IHMB)
2. Pre-Harvest Standing Stock Inventories (*Inventarisasi Tegakan Sebelum Penebangan*, or ITSP).

Results of these inventories become part of the assessments of license holders' work plans for their concession areas. In forestry sector administration, in addition to conducting inventories of standing stock that will be harvested, license holders must also prepare harvest plans, namely:

1. Timber Utilization Concession Management Plans (*Rencana Kerja Usaha Pemanfaatan Hasil Hutan Kayu*, or RKUPHHK)
2. Timber Utilization Annual Harvest Plans (*Rencana Kerja Tahunan Pemanfaatan Hasil Hutan Kayu*, or RKTPHHK)

The next section will explain the administrative systems relating to inventories and forest production planning in both natural and plantation forests. In many respects, inventories and production planning in forest management are regulated in complicated ways, involving various levels of government from district office heads to the Director General, and various forms of evaluation mechanisms. Implementation of inventory and planning administration is deemed critical, particularly as their implementation forms the basis for forest exploitation activities over the long term.

Figure 5.6. Administrative system for timber production planning



Concession area standing stock inventories (IHMB)

Forestry planning and its governance in Indonesia dictates that any form of forest utilization must be preceded by a comprehensive forest inventory called a Concession Area Standing Stock Inventory (*Inventarisasi Hutan Menyeluruh Berkala*, or IHMB). Under PP 3/2008, in conjunction with PP 6/2007, license holders are specifically obliged to conduct such inventories every ten years (Article 73 and Article 75). These inventories are aimed at securing information on available standing stock inside the forest before exploitation commences, which can be used to ensure that exploitation of timber is carried out sustainably.

Laws and regulations clearly differentiate between natural and plantation forest, in terms of their inventories and planning. In accordance with this differentiation, IHMB inventories are regulated under the following ministerial regulations:

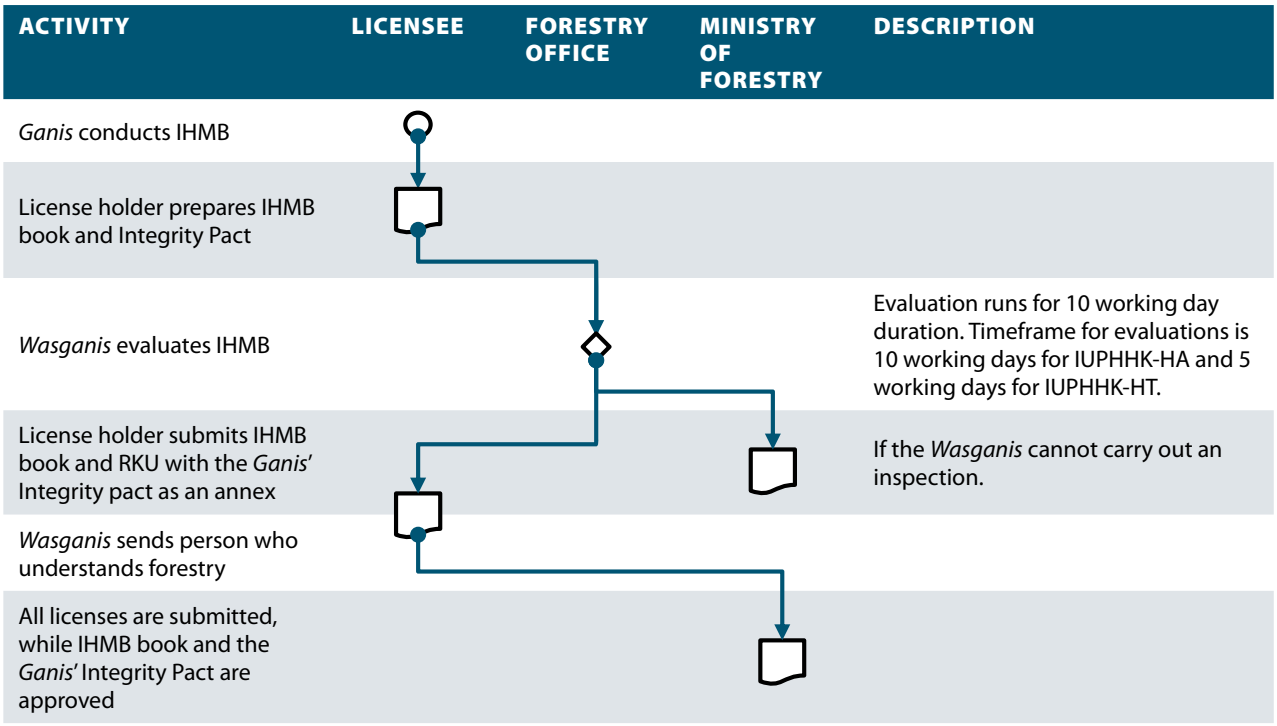
1. Minister of Forestry Regulation No. P.33/Menhut-II/2014 on Concession Standing Stock Inventories and Harvest Plans for Natural Forest Timber Utilization Licenses.
2. Minister of Forestry Regulation No. P.30/Menhut-II/2014 on Concession Standing Stock Inventories and Harvest Plans for Plantation Forest Timber Utilization Licenses.

Under Ministerial regulations P.30/2014 and P.33/2014, forest inventories are conducted under the oversight of Forest Planning Technical Officers (*Tenaga Teknis Perencanaan Hutan*, or *Ganis Canhut*) (Article 2 (2)). Implementation of IHMB inventories and the resulting IHMB book are then evaluated by a Forest Technical Officer Supervisor (or *Wasganis PHPL-Canhut*) (Article 3 (2)). Evaluations are supposed to be completed within ten days for selective logging concessions (IUPHHK-HA) (Article 3 (3)) and five working days for HTI plantation concessions (IUPHHK-HT) (Article 3 (3)), with the costs borne by the Government. If the *Wasganis* does not carry out an evaluation, then the IHMB material prepared by the *Ganis* can be used straight away to prepare a Forest Concession Management Plan (*Rencana Kerja Usaha Pemanfaatan Hasil Hutan Kayu*, or *RKUPHHK*), as long as the *Ganis* also prepares an Integrity Pact (*Pakta Integritas*).[1] If at a later date the *Ganis* is found to have violated the Integrity Pact, then their license to carry out IHMBs can be revoked.[2]

1 See P.33/2014 and P.30/2014, Article 3 (3)

2 See P.30/2014, Article 3 (4)

Figure 5.7. Flow chart for IHMB inventory preparation



Proper implementation of IHMB inventories is of fundamental importance, bearing in mind they function as the basis for the Government to set annual harvest quotas. In general, the calculation of higher volumes of standing stock on a forestry concession will allow the license-holder to report higher levels of commercial productivity for the site. With these figures, the concession-holder can often capture greater economic returns by harvesting greater volumes of timber than they might have been able to do had the standing stock been recorded at a lower level.

Yet, IHMB inventories themselves have limitations in their validity and implementation. With survey sampling limited to only 0.25%, timber company officers interviewed for this study reported feeling that IHMBs are unreliable and have few practical benefits for license holders' business activities.[3] Since their inventories are only based on limited samples, the results of IHMBs can only provide a general overview of forest resources and tree locations, and have almost no specific benefit in exploitation activities. In addition, IHMBs are considered redundant when compared with annual pre-harvest standing stock inventories.

As explained earlier, inventories carried out through the IHMB process should have more far-reaching uses, including for supervision of forested landscapes or developing forest resource balance sheets (Article 13 (1) of Law No. 41/1999). These should include information on the physical condition of the forest itself, its wildlife and biodiversity, and the activities of nearby communities (Article 13 (2)). Hopefully, information collected through such inventories can provide space for the Government to make logical and systematic estimations on forest condition and forest resource planning in the future (Article 13 (4)).

Law No. 41/1999 and regulation PP 44/2004 both regulate hierarchical forest inventories from the national to local levels, including:

1. National-level inventories
2. Province- and district-level inventories

3 Interviews with APHI Central Kalimantan Regional Commission on 7 April 2015 and APHI in Jakarta on 30 March 2015.

3. Watershed-level inventories
4. Management unit-level inventories

Referring to these provisions, the obligation for management units to carry out inventories has been regulated since Law No. 41/1999 (Article 13 (3)) was issued. This inventory obligation is regulated further in PP 44/2004, Article 12 (2), which explains that management units at the local level must conduct at least two kinds of inventory, the first of which is conducted once every five years and the other conducted annually as part of their annual harvest plan (Article 12 (3) and (4)). The different forest inventory arrangements under Law No. 41/1999 and PP 44/2004 are bridged in PP 3/2008, in conjunction with PP 6/2007. While PP 44/2004 requires inventories every five years for local-level management units, PP 3/2008 stipulates that IHMBs only need to be carried out once every ten years, except when substantial changes to forest condition are found.

The need to verify IHMB inventories can be considered vital if they are understood to be instruments for protecting against over-exploitation. However, regulation PP 3/2008 in conjunction with PP 6/2007 does not establish an effective mechanism for verifying IHMBs. As explained earlier, regulations P.30/2014 and P.33/2014 both state that IHMBs are supervised and evaluated by a *Wasganis*, who can apply administrative sanctions to a *Ganis*, if necessary. Yet, the current arrangements provide no concrete criteria for carrying out verifications of IHMBs.

Another thing to consider is that there are no regulations governing the use of IHMB inventories apart from the formulation of concession management plans for license holders. Whatever information the Government obtains through IHMBs is also difficult for the public to access, even though Law No. 41/1999 on Forestry mandates forest inventories to be used as instruments for systematic oversight of standing stock and for anticipating land cover changes. This instruction should become part of the Government's interest to collect and manage information on forests.

Forest concession management plans (RKUPHHK)

Following forest inventories, concession holders must prepare ten-year forest concession management plans called *Rencana Kerja Usaha Pemanfaatan Hasil Hutan Kayu* (RKUPHHK, or in abbreviated form, RKU). Even though Law No. 41/1999 does not specifically regulate this obligation, PP 3/2008 in conjunction with PP 6/2007 instructs all license holders to prepare RKUs as the basis for long-term forest management. These plans must cover various activities, including: work area boundary demarcation, standing stock inventories, land preparation, silviculture, forest protection, and also empowerment of village communities living around the forest. By preparing RKUs, in theory all license holders should be able to manage and exploit forests sustainably.

The preparation and approval of RKUPHHKs is stipulated in the same regulations that govern IHMBs, i.e. P.30/2014 and P.33/2014. Two regulations associated with RKUs are:

a. Director General of Forestry Business Development Regulation No. P.9/VI-BUHA/2014 on Guidelines for Preparing, Evaluating, and Approving Timber Utilization Work Plans in Natural Forest Timber Utilization Concessions, which regulates the preparation, drafting, evaluation, and approval of RKUs in natural forests; and
b. Director General of Forestry Business Development Regulation No. P.7/VI-BUHT/2014 on Guidelines for the Preparation, Evaluation, and Approval of Timber Utilization Work Plans in Industrial Plantation Forest Timber Utilization Concessions.

Both of these regulations consider RKUs to be important obligations, which, if not carried out, can result in license revocation. Draft RKUs must be submitted to the Ministry of Forestry no later than one year after concession license approval. All license holders must have a qualified forest planning technical officer (*Ganis Canhut*) to prepare the RKU, which according to requirements should be based on:

1. A UPHHK concession map;
2. Forest estate map;
3. Interpretation of satellite imagery with coverage of at least the last two years at a scale of 1:50,000 or 1:100,000; and
4. The result of the IHMB inventory.

All RKU documents and proposals are sent to the Director General responsible for production forests.[4] Copies of these proposals are also forwarded to the heads of the provincial forestry office, the district/municipal forestry office, the technical implementation unit (UPT), and the forest management unit (KPH).

RKUs are evaluated and approved by the Director General of Forestry Business Development or a delegated official. Within 20 working days, the Director General must inspect and decide whether to agree and approve or to reject the RKU. If necessary, the Director General can also make suggestions for improving the RKU, after which the revised RKU must be finalized within 14 working days. Regulations also state that any costs arising from these inspections are charged to the Government budget. Subsequently, the RKU becomes the basis for the next stage: preparation of annual harvest plans for forest timber utilization (*Rencana Kerja Tahunan Pemanfaatan Hasil Hutan Kayu*, or RKT-UPHHK).

In addition, the arrangements explained above also allow for evaluations of RKUs to be conducted once every five years. These evaluations are submitted to the Director General with copies forwarded to the heads of the provincial forestry office, the district/municipal forestry office, the technical implementation unit (UPT), and the forest management unit (KPH). Existing rules, however, provide no information on how the Government can carry out evaluations of RKUs or make decisions.

Considering their content, RKUs should actually strengthen the capacity of license holders and the Government to ensure all forests are managed sustainably. These concession planning documents provide information on standing stock, biodiversity, and the economic feasibility of the management unit to exploit the forest. The same information makes RKUs function not only as planning documents for license holders, but also as control instruments. As with IHMB inventories, the Government is highly dependent on RKU work plans to determine annual harvest quotas. As explained below, the same arrangements also apply to annual harvest plans.

Figure 5.8. Forest standing stock in the PT Bhara Induk concession according to the IMHB inventory in the RKU work plan[5]

Tabel 2-b: Sebaran [illegible]

No	Kelompok Jenis	Kelas Diameter (Cm)							
		10 - <20		20 - <30		>30		>40	
		N	V	N	V	N	V	N	V
1	Meranti	8.969.093	608.266,61	1.784.987	445.074,59	687.952	621.322,56	197.965	342.373,97
2	Rim. Campuran	8.780.485	607.459,42	2.100.984	514.672,37	898.130	770.967,59	234.788	410.617,01
3	Kayu Indah	1.542.659	108.331,14	286.517	68.101,61	106.809	70.412,77	13.918	19.140,55
4	Dilindungi	-	-	-	-	-	-	-	-
Jumlah		19.292.237	1.324.057,17	4.172.488	1.027.848,57	1.692.891	1.462.702,92	446.671	772.131,53
Rata-rata/Ha		454	31,13	98	24,16	40	34,39	11	18,15

4 See Article 4 (4) of P.33/2014 for natural forest

5 See page III-14 IHMB based RKUPHHK-HA 2014-2023 PT Bhara Induk, Indragiri Hilir district, Riau province.

Furthermore, interviews also revealed that mechanisms for the approval and verification of RKUs are often viewed as being in conflict with normal business activities. Despite agreeing that forestry work plans are important for ensuring sustainability, economic feasibility and social responsibility, many companies advised that forest management planning is an internal management issue.

Timber cruising and cruising reports (LHC)

After getting approval for long-term management plans, license holders must also prepare annual harvest plans for logging rotations within their concessions. As the basis for preparing these work plans, license holders must also carry out timber cruising in their felling blocks. The obligation to conduct annual standing stock surveys is included neither in Law No. 41/1999 nor in PP 6/2007 in conjunction with PP 3/2008, but it is required under PP 44/2004 (Article 12 (4)). This regulation states that annual inventories or cruising are necessary for management units at the local level to prepare annual harvest plans. Technical arrangements on timber cruising are provided in regulations P.33/2014 for natural forest and P.30/2014 for plantation forest concessions. In addition, cruising is obligatory for forest conversion licenses or processes stipulated in Minister of Forestry Regulation No. P.62/Menhut-II/2014 on Timber Utilization Permits.

Regulations P.30/2014 and P.33/2014 instruct license holders to carry out annual cruising of the standing stock in their felling blocks. Cruising reports, called *Laporan Hasil Cruising* (LHC), then become the basis for approving annual harvest plans. These reports provide comprehensive information on commercial harvest potential from standing stock in the felling block, including species, measurement, class, height, and estimated volumes.[6] It is important to note that cruising intensity is not clearly regulated. Heads of district forestry offices are delegated to verify LHC reports. This process must be completed within 14 working days of receiving a forwarded annual harvest plan proposal.[7] With such a limited timeframe, the district office head generally has time to verify no more than 1% of the details recorded in an LHC.

Referring to regulation P.62/214, timber cruising must also be carried out by holders of forest conversion licenses. Before approval, timber utilization permit (IPK) applicants must carry out cruising at an intensity of 5% to evaluate standing stock. Cruising must take place within 25 days of a decree being issued (Article 8 (1)) a) allowing the licensed area to be cleared. The results of cruising are then recorded in a cruising recapitulation report (*Rekapitulasi Laporan Hasil Cruising*, or RLHC). To ensure cruising is carried out accurately, it must be conducted by a company technical officer (*Ganis*). If the company in question does not have a member of staff qualified to serve as a *Ganis*, it can use one from another site. The applicant must send the RLHC together with an activity report (*Berita Acara*) signed by the company management, an Integrity Pact, and an inspection statement by the forestry office head. Nevertheless, laws and regulations provide different cruising intensities for land acquisitions. As an example, for Forest Estate Temporary Use Licenses (*Izin Pinjam Pakai Kawasan Hutan*), cruising should be carried out at an intensity covering 100% of the total stock within the concession, while for HTIs cruising intensity is limited to only 5%.

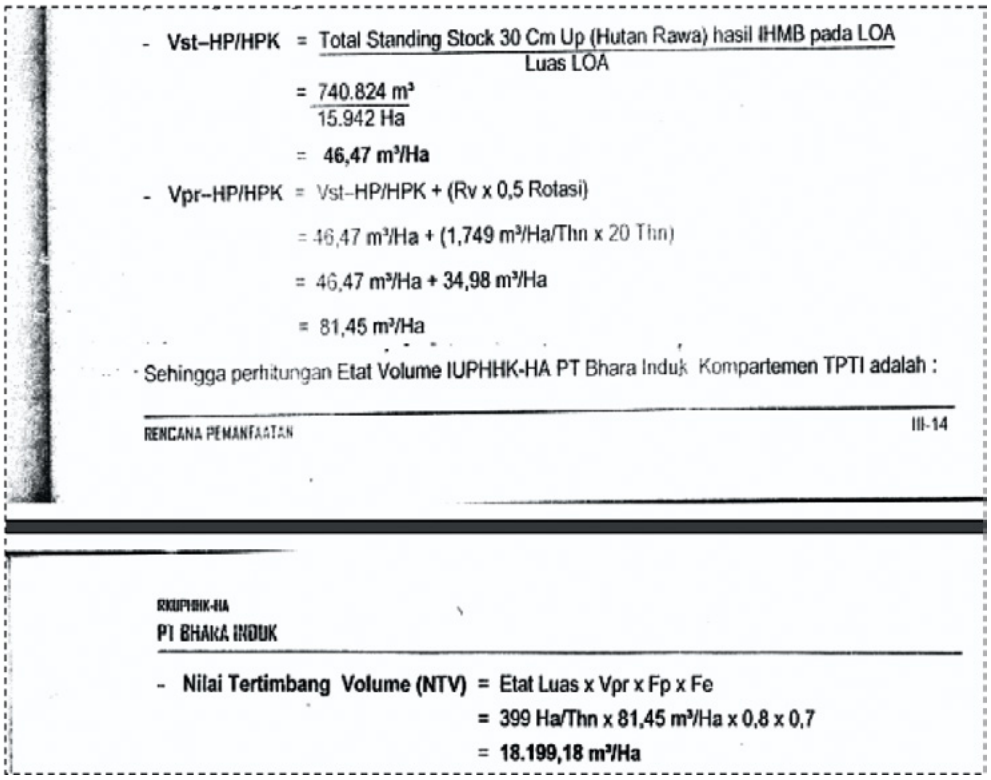
For both forest and land-clearing concessions, timber cruising constitutes an important instrument for limiting over-exploitation. In UPHHK concessions, LHC reports constitute restrictions on annual logging operations. As will be explained further, annual harvest plans themselves become the basis for differentiating between legally and illegally harvested timber. In the context of forest conversion, timber cruising forms the basis for issuing IPK permits, determining harvest quotas, and securing bank guarantees. Pre-production timber cruising in felling blocks provides room for the Government to ascertain or secure tangible information on standing stock, so it

6 See P.33/2014, Article 1 (9)

7 See P.33/2014, Article 13 (1)

can plan for sustainable management. Moreover, with this information the Government can determine carrying capacity to avert over-exploitation, and can then prepare more effective targets for PNBP collection.

Meanwhile, in the context of commercial forestry, timber cruising as recorded in the LHC report functions in almost the same way as the IHMB inventory. Compared to IHMBs, however, license holders consider LHC cruising reports to be more beneficial. In interviews conducted for this study, officers of PT Dwima Jaya considered that LHCs with intensities of 100% and thorough spatial mapping of every stand facilitate efficient forest product utilization. Accordingly, license holders can design better transport routes for harvesting and timber extraction. Specifically, cruising also records detailed information for producing spatial forest maps. However, such benefits do not necessarily apply for all forestry concessions. For instance, 100% cruising and forest maps with georeferenced coordinates can become unnecessary or illogical bearing in mind that forest landscapes are not always flat and easily accessible.



- Vst–HP/HPK = Total Standing Stock 30 Cm Up (Hutan Rawa) hasil IHMB pada LOA / Luas LOA
  = 740.824 m³ / 15.942 Ha
  = 46,47 m³/Ha
- Vpr–HP/HPK = Vst–HP/HPK + (Rv x 0,5 Rotasi)
  = 46,47 m³/Ha + (1,749 m³/Ha/Thn x 20 Thn)
  = 46,47 m³/Ha + 34,98 m³/Ha
  = 81,45 m³/Ha

Sehingga perhitungan Etat Volume IUPHHK-HA PT Bhara Induk Kompartemen TPTI adalah :

RENCANA PEMANFAATAN III-14

RKUPHHK-HA
PT BHAKA INDUK

- Nilai Tertimbang Volume (NTV) = Etat Luas x Vpr x Fp x Fe
  = 399 Ha/Thn x 81,45 m³/Ha x 0,8 x 0,7
  = 18.199,18 m³/Ha

Figure 5.9. PT Bhara Induk's annual harvest quota based on its RKUPHHK-HA management plan

Source: Page III-14 RKUPHHK-HA 2014 PT Bhara Induk

As with illegal uses of the Forest Estate, legal requirements for cruising and timber administration in forest conversion are often not strictly enforced. In many cases, in spite of oversight being carried out, the current system remains inadequate for preventing forest conversion. A recent development is the emergence of Forest Estate Temporary Use Licenses (*Izin Pinjam Pakai Kawasan Hutan*, or IPPKH), the holders of which are considered to have legitimate reasons to utilize forests without IPK permits, as their motives for accessing land are different from other forest users. Rather than securing timber, IPPKH license-holders are often believed to be more interested in quick access to the land, so they consider timber administration to be an excessive burden. This problem drives various illegal forest conversion activities, such as concealing timber stock.

Forest timber concession annual harvest plan (RKT-UPHHK)

Regulation PP 3/2008 in conjunction with PP 6/2007 states that both natural and plantation forest concession holders are obliged to submit annual harvest plans (*Rencana Kerja Tahunan Usaha Pemanfaatan Hasil Hutan Kayu* (RKT-UPHHK, or in abbreviated form, RKT) for approval. These annual harvest plans form the basis for license

Figure 5.10. PT Arara Abadi's 2009 cruising target for Rokan Hilir District, Riau Province

No	Kegiatan	Satuan	Sasaran	Cara Pencapaian
1	2	3	4	5
3.	Penataan Ruang	Ha	- TP = 3.145,20 - TK = - - TU = 183,00 - KL = - - SP = 82,00	Berdasarkan peraturan yang berlaku dan kondisi fisik di lapangan dan hasil delniasi mikro yang telah disahkan
4.	Penataan Areal Kerja	Ha	- TP = 3.145,20 - TK = - - TU = 183,00 - KL = - - SP = 82,00	Overlay berbagai kondisi kawasan yang kemudian menentukan peruntukan (landscaping)
5.	Inventarisasi	Ha	Blok dan petak = 75 Tanaman seluas = 2.747,00	Dilakukan inventarisasi dengan metode sistematis melalui penarikan contoh awal secara acak intensitas sampling 1 % utk daur II dan 5 % utk daur I yang ada hutan alamnya.

holders to carry out logging operations. Any logging carried out prior to approval of the RKT annual harvest plan, or in excess of the allowable logging quota in the RKT, will be subject to administrative penalties (Article 74). Arrangements governing annual harvest plans are specified in regulations P.33/2014 for natural forest and P.30/2014 for plantation forest, which instruct license holders to submit their RKT proposals to the heads of provincial forestry offices at least two months before the RKT for the current year expires.

Regulations P.33/2014 and P.30/2014 also stipulate that RKT preparation must be based on:[8]

1. Approval of the RKUPHHK;
2. Interpretation of satellite imagery with coverage of the last two years at a scale of 1:50,000; and
3. A cruising recapitulation report (RLHC).

In addition to being submitted to the head of the provincial forestry service, these proposals should also be forwarded to the Director General, and the head of the district forestry office, technical implementation unit (UPT) and the forest management unit (KPH). To participate in evaluation of the RKT proposals, heads of district forestry offices form teams to verify information provided in RKT proposals. These inspections cover:[9]

1. Felling block boundary demarcation;
2. Timber cruising with an intensity of 1%; and
3. Implementation of silviculture.

The results of inspections are then listed in Inspection Reports (*Berita Acara Pemeriksaan*). This verification is carried out by a *Wasganis PHPL-Canhut*. District forestry offices that do not have a certified *Wasganis* can also request the services of a *Wasganis* from the UPT or the provincial forestry office to carry out an assessment. Within 14 days of assessments, district forestry offices must send the outcome to the head of the provincial forestry office together with the cruising report and proof of fulfillment of financial obligations. For the next

8 See P.33/2014, Article 10 (1)

9 See P.33/2014, Article 13 (1)

14 days, the head of the provincial forestry office must also assess the *Berita Acara* and decide to approve or reject the proposed RKT. Then, if the head of the provincial forestry office refuses to assess or inspect the RKT proposal, current rules also authorize the Director General on behalf of the Minister of Forestry to take over the administrative process.[10] Additionally, a license holder that has PHPL certification can also issue an RKT through self-approval.[11] Once approved, the license holder must submit the RKT to the Director General, and the heads of the provincial forestry office, the UPT, and the district forestry office.[12]

In the overall bureaucracy RKTs, like RKUs, are not only instruments for planning, but also instruments of control for the Government. Approval of an RKT document also includes the plan, commitment and restriction to exploit forest for a one-year timeframe. Within this framework, approved RKTs also cover:

1. The silviculture and harvest system;
2. Use of forest timber;
3. Forest protection;
4. Management of human resources, including technical and non-technical staff;
5. Research and community empowerment;
6. Collection points, log ponds, machinery and trails; and
7. Planting and seeding plans.

The likelihood of ineffective internal controls can be found if evaluations conducted by provincial and district forestry offices are compared with self-assessments prepared by forest concession-holders. Internal controls can be weakened when self- assessments do not follow standard formats usually included in RKTs.

Administration systems for timber production and distribution

Once timber has been harvested, timber administration begins. The first stage of timber administration involves reporting the volume, class, species and measurements of harvested timber. This process is recorded and verified right up to the end users, namely wood-processing industries. The Government regulates several administrative documents for this purpose as a means for inspecting and verifying the origins of timber at each stage of trading, starting from the collection point up to the processing industry. The scope of this study, however, is limited only to collection and flow of forestry sector PNBP. Generally, timber administration aims to ensure that all wood on the market originates from legitimate sources and has fulfilled its financial obligations to the state.[13]

After timber has been harvested and reported, the next stage is to ensure that all timber removed from the forest is reported and is legal. Generally, laws and regulations demand that all logs transported from forests be accompanied by transport documents stating that the timber was obtained legally. This obligation is regulated in the form of penalties in Law No. 41/1999. Referring to this law, these documents are used to verify physical congruity in terms of species, amount and volume. If inconsistencies are found, then the law deems the control or transport of timber not to be accompanied with legitimate papers.[14]

The obligation to have documents explaining the legitimacy of timber being transported is mentioned expressly in Article 119 of regulation PP 6/2007 in conjunction with PP 3/2008. In the following article, the regulation

10 See Article 14 (4)

11 See P.33/2014, Article 11 (1)

12 See P.33/2014, Article 11 (2)

13 See P.41/2014, Article 2 and P.42/2014, Article 2 (2)

14 Penalties for transporting timber without accompanying documents showing legality are specified under Law No. 18/2013.

also states that congruity must be checked by qualified technical officers with measuring and testing methods determined based on Indonesian National Standards. The elucidation section stipulates that documents explaining timber legality must always be attached during in the transport, possession and ownership of logs.

Minister of Forestry regulations P.41/2014 and P.42/2014 stipulate various papers that function as timber transport documents, including:

1. *Surat Keterangan Sah Kayu Bulat* (SKSKB) and/or *Daftar Kayu Bulat* (DKB);
2. *Faktur Angkutan Kayu Bulat* (FA-KB) and/or *Daftar Kayu Bulat Faktur Angkutan* (DKB-FA);
3. *Faktur Angkutan Kayu Olahan* (FA-KO) and/or *Daftar Kayu Olahan* (DK-O);
4. *Surat Angkutan Lelang* (SAL); and
5. *Nota Angkutan*.

The use of these varies according to the stage at which the logs are being transported. The next part of the paper will explain materials, administrative procedures and critical points in the preparation and administration of these transportation documents. This administrative system begins with the documentation of how much timber is harvested at each concession site.

Logging yield reports and timber harvest production reports (LHP and LP-KHP)

Timber is administrated with different regulatory frameworks depending on source. If it originates from natural forest, then it is regulated under Minister of Forestry Regulation No. P.41/Menhut-II/2014 on Administration of Timber Originating from Natural Forests (P.41/2014), while for plantation forests, it is regulated under Minister of Forestry Regulation No. P.42/Menhut-II/2014 on Administration of Timber Originating from Plantation Forests (P.42/2014). As the initial basis for carrying out timber administration, both of these regulations instruct license holders to measure and record every length of wood felled. Records must be made in a measurement book (*buku ukur*), and then transferred into logging yield reports (*Laporan Hasil Penebangan,* or LHP) for natural forest timber and timber harvest production reports (*Laporan Produksi Kayu Hasil Pemanenan*, or LP-KHP) for plantation forest timber.

Logs harvested are reported by species, class, and measurement, and verified by license holders' qualified log measurement technical officers (*Ganis PHPL-PKB*) in timber collection points (TPn). The same rules also allow measurement to be simplified by a staple meter method if the timber is a small-diameter log (KBK) or if it originates from land preparation for plantation forest development. According to regulations P.41/2014 and P.42/2014, all LHP or LP-KHP document approvals are the responsibility of a *Wasganis*, except in cases where a *Wasganis* cannot inspect the logs within a certain timeframe, in which case a *Ganis* can approve the LHP or LP-KHP.

However, these regulations do not provide clear mechanisms on procedures for verifying documents or following up on verification outcomes. There are also no arrangements on treatment of LHP or LP-KHP documents by the Ministry of Environment and Forestry once they have already been approved, except only that they should be submitted to a P2PSDH/DR invoicing officer as the basis for issuing an SPP payment order. Meanwhile, P2PSDH/DR invoicing officers have no mechanisms for checking the veracity of the LHP or LP-KHP documents they receive.

Log legality statements (SKSKB)

As explained earlier, log legality statements *(Surat Keterangan Sahnya Kayu Bulat,* or SKSKB) are documents that must accompany all logs owned or transported. The obligation to use SKSKB documents is mentioned

No	Kegiatan	Satuan	Rencana	Keterangan
1	2	3	4	5
13.2.	Volume			Sisa RKT Tahun 2008 :
a.	Pada Areal Hutan Alam Bekas Tebangan	M^3	-	-
b.	Pada Tanah Kosong Termasuk Areal Bekas Pemanenan			
	(1) Tanaman Pokok	M^3	746.794	386.061
	(2) Tanaman Unggulan	M^3	-	-
	(3) Tanaman Kehidupan	M^3	-	-
	Total	***M^3***	***746.794***	***386.061***
14.	Pemasaran			Sisa RKT Tahun 2008 :
14.1.	Jual Bebas	M^3	-	-
14.2.	Industri Sendiri	M^3	746.794	386.061
14.3.	Industri Terkait	M^3	-	-
	Total	***M^3***	***746.794***	***386.061***
C.	**Kelestarian Fungsi Lingkungan**			
15.	Perlindungan dan Pengamanan Hutan		Tiap Hari	
16.	Pengendalian dan Pengamanan Hutan		Tiap Bulan	
17.	Pengendalian Kebakaran	Unit	55	
D.	**Kelestarian Fungsi Sosial**			
18.	Pembinaan dan Pemberdayaan Masrakat		Tiap dua bulan	
19.	Pembinaan Kelembagaan Manusia		Tiap dua bulan	
E.	**Pemantauan dan Evaluasi**			
20.	Pemantauan Kegiatan Operasional Secara Periodik		Tiap Minggu	
21.	Evaluasi Keberhasilan Secara Periodik		Tiap Minggu	

Figure 5.11. Executive summary of PT RAPP's 2009 RKT in Pelalawan District, Riau Province

KEDUA : Kegiatan usaha pemanfaatan hasil hutan kayu di areal IUPHHK-HA PT. Diamond Raya Timber sebagaimana dimaksud pada DIKTUM PERTAMA merupakan gabungan dari blok tebangan RKT UPHHK-HA Tahun 2014 (murni), dengan target produksi sebesar 100% tebangan tahunan seluas 1.815 Ha dan jumlah pohon sebanyak 8.698 pohon serta volume sebesar 15.071,37 m^3 di daerah Sei Senepis ditambah dengan sisa target produksi dari RKT UPHHK-HA Tahun 2013 seluas 1.862,5 Ha dan jumlah pohon sebanyak 34.955 pohon serta volume sebesar 68.068,26 m^3 di daerah Senepis, sehingga jumlah total target produksi untuk tahun 2014 sebanyak 43.653 pohon serta volume sebesar 83.139,63 m^3, dengan rincian sebagai berikut.

RKT UPHHK-HA Tahun 2014 (Murni)

1. Petak 230, seluas 100 Ha, jumlah pohon 1.057, volume 1.846,38 m^3
2. Petak 231, seluas 100 Ha, jumlah pohon 1.720, volume 2.910,12 m^3
3. Petak 232, seluas 100 Ha, jumlah pohon 1.881, volume 3.252,62 m^3
4. Petak 233, seluas 100 Ha, jumlah pohon 2.047, volume 3.435,61 m^3
5. Petak 234, seluas 95 Ha, jumlah pohon 1.805, volume 3.313,49 m^3
6. Petak 235, seluas 15 Ha, jumlah pohon 188, volume 313,15 m^3
7. Petak 202, seluas 100 Ha, jumlah pohon 0, volume 0,00 m^3
8. Petak 203, seluas 100 Ha, jumlah pohon 0, volume 0,00 m^3
9. Petak 204, seluas 100 Ha, jumlah pohon 0, volume 0,00 m^3
10. Petak 205, seluas 100 Ha, jumlah pohon 0, volume 0,00 m^3

Figure 5.12. Self-assessment of PT Diamond Raya Timber's RKT in 2014

specifically in Minster of Forestry Regulation P.41/2014 for timber obtained directly from natural forests and P.42/2014 for timber from plantation forests. These SKSKB documents must contain information on the timber owned or transported, but are only used to accompany logs being transported from legitimate log ponds (TPK) within concessions or timber collection points (TPn) in natural forests to outside the concession area (P.41/2014, Article 11). In addition, SKSKB documents can only be used once, for one owner, timber species, transporter and destination – with the exception being if a series of transporters is used.

Current arrangements position SKSKB documents not only as statement letters, but also as control instruments for ensuring legal ownership or transportation of timber. With these SKSKBs, forestry authorities or law enforcers have documentation of the legal status of every log leaving the Forest Estate. Information in an SKSKB letter is used to ensure more strictly that the timber being transported is accompanied by the necessary administrative documents. In addition, SKSKBs can only be issued by forestry officials qualified as *Wasganis PHPL-PKB* (P.41/2014, Article 12 (2)). However, exceptions are made for timber already recorded in the SI-PUHH Online system (P.41/2014, Article 12 (1)).

PNBP collection and reconciliation administration systems

Generally, administration systems relating to PNBP collection are directed to ensure the full state revenue potential of PNBP can be collected. To manage these administration systems, the Government has passed a number of regulations, most of which were mentioned in the previous section, i.e. Government Regulation No. 12/2014 on Types and Rates of Non-Tax State Revenue Applicable to the Ministry of Forestry, Government Regulation No. 51/1998 on Forest Resource Provision, and Government Regulation No. 35/2002 on the Reforestation Fund. To understand forestry PNBP collection specifically, a regulation that should be examined closely is Minister of Forestry Regulation No. P.52/Menhut-II/2014 on Procedures for the Levying, Collection and Payment of Forest Resource Provision, Reforestation Fund, Stumpage Value Replacement and Standing Stock Compensation.

Figure 5.13. Timber marked with barcodes

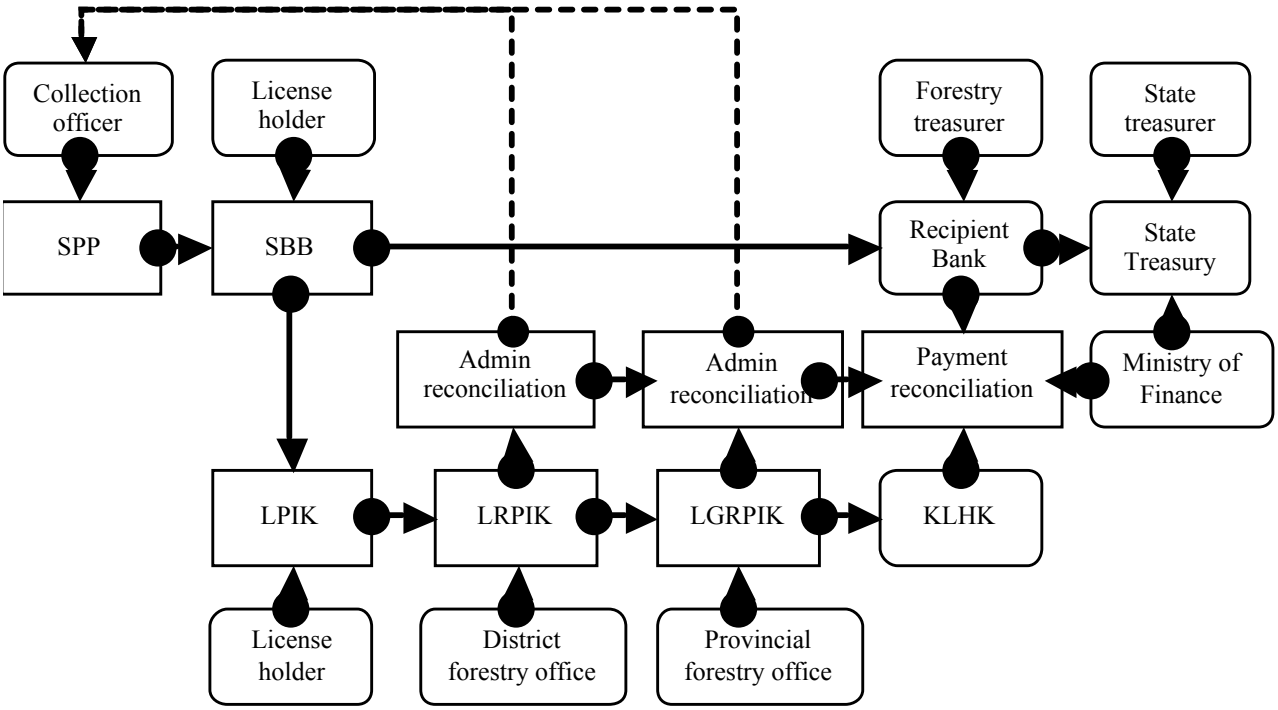
Based on the regulations above, the various stages of PNBP collection in the forestry sector include billing, collection, and control in the form of reconciliation. The process begins when designated forestry officials carry out billing and ends with a payment reconciliation process between the Ministry of Environment and Forestry and the Ministry of Finance. Each stage represents not only state administration of PNBP collection, but also the implementation of internal controls to prevent state losses from the forestry sector.

For PNBP in the forestry sector, the billing process runs from the moment timber harvesting begins, and license holders are prohibited from controlling or distributing the timber until forest royalties are fully paid. The Government then carries out payment reconciliation activities to avoid possible information asymmetry in PNBP collection. In addition, the entire PNBP collection process is also subject to audit by BPK, Indonesia's Supreme Audit Agency. The next section examines forestry PNBP billing, collection and reporting administration.

Invoicing and collection of DR and PSDH

Invoicing and PNBP collection begins with the appointment of a Collection Officer by the head of the district forestry office. With this appointment, the Collection Officer has the authority to issue Payment Orders (*Surat Perintah Pembayaran,* or SPP) for the DR (SPP-DR) or PSDH (SPP-PSDH) as the Government's means to carry out invoicing. For both the DR and PSDH, the amounts invoiced are based on LHP production reports, which concession holders submit to the Collection Officer. Generally, these LHPs should have already been approved by a P2LHP verification officer, except in the case of self-assessment. Current regulations oblige LHPs to be submitted to the Collection Officer within five working days of their approval (Article 11 (2)). After receiving an LHP, the Collection Officer has two days to issue a Payment Order (Article 11 (5)).

Figure 5.14. Flow chart of PNBP collection administration in the forestry sector



This mechanism shows that the state only applies PNBP levies concretely on the value of timber actually exploited or cut down. In this way, PNBP levies are expected to be carried out in the most efficient manner; namely, no timber is supposed to be harvested without the appropriate royalties being collected. In addition, the calculation of PNBP based on LHP production reports is also meant to ensure that no timber is removed from the forest without financial obligations being met beforehand. This control function is expected to ensure the system runs effectively, so that even if logs are harvested without proper permits, they will not be allowed to be removed from the logging site and to enter the marketplace. This barrier is expected to be a disincentive for those actors engaged in illegal logging.

Nevertheless, the current system is still likely to experience problems, particularly as existing arrangements provide no mechanisms for verification. Collection Officers do not have adequate information and mechanisms for verifying the veracity of the LHPs they receive in the limited time available. Furthermore, if for some reason an LHP is not available, perhaps due to the timber being damaged, lost or buried, then PNBP dues are estimated based on the LHC cruising report (Article 9 and 13 (1)). If an LHC is also unavailable, PNBP can be calculated by basing it on the standing stock availability ratio in the region (Article 9 and 13 (2)). These rules, however, provide no mechanism for using the standing stock availability ratio, and make no mention of what references should be used in applying them. When carried out without the provision of strict references or criteria, such arrangements provide too much discretion for billing amounts of PNBP. According to the annex of regulation P.52/2014, a payment order must include the 15-digit license holder number, harvest block location, LHP and LP-KHP reference numbers, and tabulation tracing lists of all timber subject to payments with classification by species and royalty.

Returning to billing, once a payment order is issued, the party responsible for payment (*Wajib Bayar*), in this case the concession harvesting the timber, has six working days to pay its obligations. Furthermore, the *Wajib Bayar* can be subject to administrative fines (Article 24 (2)). Yet, generally, PNBP collection carried out by the Collection Officer is highly dependent on the implementation of administration beforehand. Similarly, the issuing of an SKSKB is highly dependent on internal controls carried out by the Collection Officer. As explained earlier, proof of payment from the recipient bank (*Bank Persepsi*) constitutes the basis for a P2SKSKB verification officer to issue an SKSKB transport document. With this proof of payment, rights over the timber move from state control to private ownership. Oversight, therefore, is critical for the P2SKSKB verification officer to ensure the veracity of the proof of payment, or consider the thoroughness of the information submitted.

PNBP payment obligations, as regulated under P.52/2014, are made to the Ministry's Comptroller (*Bendaharawan Penerima*) (Article 24 (1)). This has the potential to cause uncertainty as Law No. 20/1997 on Non-Tax State Revenue mandates that PNBP payments must be transferred directly to the State Treasury account (Article 6 (2) of Law No. 20/1997). This article states that:

> *Appointed Government Institutions as stipulated in paragraph (1), are obliged to pay Non-Tax State Revenues they receive directly to the State Treasury as stipulated in Article 4.*

DR and PSDH reconciliation

In addition to billing and payment administration mechanisms, PNBP governance in the Ministry of Environment and Forestry also provides a PNBP collection control mechanism. This tiered control process is carried out from the district forestry office level up to the Ministry. The various stages show how there is an awareness of the likelihood of errors or manipulation occurring in PNBP collection, so a second-layer control mechanism should be provided for ensuring PNBP collection administration runs effectively.

Minister of Forestry Regulation No. P.52/2014 provides that on the fifth day of each month, forestry fee payment reports (*Laporan Pembayaran Iuran Kehutanan*, or LPIK) should be submitted to the head of the district forestry office with copies forwarded to the heads of the provincial forestry office and the technical implementation unit (UPT) (Article 29). The Collection Officer submits similar reports to the head of the district forestry office. Consequently, every month district forestry offices should have reports of forestry sector PNBP invoices and payments.

District forestry offices then do the same thing by issuing forestry fee deposit realization reports (*Laporan Realisasi Penyetoran Iuran Kehutanan,* or LRPIK). These reports must be submitted by heads of district forestry offices on the tenth of every month to the head of the provincial forestry office with copies forwarded to the Secretary General, the Director General, and UPT head. Meanwhile, heads of provincial offices also send combined forestry fee revenue realization statements (*Laporan Gabungan Realisasi Penerimaan Iuran Kehutanan,* or LGRPIK) to the Secretary General, with copies forwarded to the Director General and UPT head. So, the Ministry *should* manage data on state revenue receipts from every company holding a forestry license, for every month and from every location.

In addition to the submission of these documents, there is also a tiered reconciliation process. Every three months, heads of district forestry offices must reconcile SPP Payment Orders with the various company documents proving control and distribution of forest timber (Article 26 (1)). In addition to quarterly checks, reconciliation between license holders and district forestry offices is also carried out annually. Heads of provincial forestry offices then carry out administrative reconciliation with district forestry offices. Minister of Forestry Regulation P.52/2014 firmly states that collection officers must immediately invoice for any PNBP shortfalls.

Chapter 6: The management of data on reported timber production and non-tax revenue collection is insufficient for holding companies accountable to meet fiscal obligations to the state.

Effective timber administration and efficient non-tax revenue collection depend on accurate and comprehensive data. This study examined publicly available data on timber production and PNBP collection, as well as non-published data obtained from the Ministry of Environment and Forestry, several of the Ministry's regional forestry offices (BP2HP), and regional government forestry agencies *(Dinas Kehutanan)* in select provinces. In addition to compilations of statistics, this data included company-specific information that is not publicly available.

The study found that KLHK's collection and management of timber production data is far from adequate. Data is often incomplete, internally inconsistent, and/or inaccurate. The incomplete data contributes to weakening internal controls, meaning data cannot be cross-checked or verified. The poor quality of data collection and management is both an indicator of poor oversight of timber administration and PNBP collection as well as a substantial barrier to improving timber administration and PNBP collection.

6.1 The Ministry of Environment and Forestry does not keep records of PNBP collection by company.

In a September 2014 letter, KPK's Deputy of Corruption Prevention requested that KLHK provide, among other items, documentation of the following:

1. Reforestation Fund receipts by province for 2000–2014.
2. Reforestation Fund receipts by company for 2000–2014.
3. Reforestation Fund receipts detailed as (company) payments based on year and based on arrears for the years 2000–2014.
4. Reforestation Fund payment arrears data by company for 2000–2014.
5. PSDH receipts by province for 2000–2014.
6. PSDH receipts by company for 2000–2014.
7. PSDH receipts detailed as (company) payments based on year and based on arrears for the years 2000–2014.
8. PSDH payment arrears data by company for 2000–2014.

In response to this request, KPK received a letter from the Head of the Financial Bureau at the Ministry of Forestry *(Surat Kepala Biro Keuangan S.518/KEU-2/2014)* dated 29 October 2014, stating that the Ministry's Comptroller (*Bendahara Penerima*) does not compile data on DR or PSDH by the parties responsible for payment (*Wajib Bayar*) or by province.

If it is indeed true that the Ministry does not maintain these basic records on DR and PSDH receipts and outstanding obligations, then KLHK cannot possibly hold companies accountable for meeting their fiscal obligations to the state. This is a fundamental flaw in KLHK's accounting practices and data management related to non-tax revenue collection.

6.2 Timber production volumes reported by KLHK are inconsistent across sources, historical data are changed in reports from subsequent years, and categories for reporting sources of wood production vary from one year to the next without explanation.

The most fundamental questions regarding the administration of timber production are what volumes of logs originating from natural forests were reported, and from what sources was the timber harvested? In order to manage Indonesia's forest resources effectively, these two questions must be explained with accountable information. However, the manner in which KLHK reports timber production data makes it difficult to obtain responses to these questions that are accurate and unambiguous. This conclusion is based on a detailed examination of KLHK's official timber production statistics over the 12-year study period. The two main sources of information on timber production that the Ministry makes available to the public are: 1) an annual statistical yearbook called *Statistik Kehutanan*; and 2) an online database for the Recapitulation of Industrial Raw Material Supply (*Rekapitulasi Pemenuhan Bahan Baku Industri*, or RPBBI) for wood-processing industries. The RPBBI database publishes annual statistics for both planned and realized log consumption for wood-processing industries with a capacity above 6,000 m^3/year.

Particularly in the last several years, timber production data reported by the Ministry has been inconsistent across sources, and the reporting categories have changed without adequate explanation. In 2013, for example, log production from HPH selective-logging concessions was reported to be 3,672,594 m^3 in *Statistik Kehutanan,* (see Tabel IV.6.1 "*Rekapitulasi Produksi Kayu Bulat Berdasarkan Sumber Produksi*"). In a different table within the same yearbook (Tabel IV.5.3 "*Realisasi Penggunaan Bahan Baku IPHHK Kapasitas Izin di atas 6000 m^3/Tahun per Provinsi Tahun 2013*"), timber production sourced from HPH concessions is reported to be 6,621,643 m^3. In the RPBBI 2013 statistics published on KLHK's website, industry use of timber from HPH concessions is reported to be 5,029,626 m^3. With such widely diverging reported figures and no explanation of the variation between them, it is unclear how much timber was actually produced by HPH concession-holders and how much of that was consumed by wood-processing industries.

Similar issues were observed for the reported volumes of wood production by HTI plantation concessions and the use of timber from HTI plantations by wood-processing industries. In Table IV.6.1 of *Statistik Kehutanan 2013*, HTI wood production is reported to be 19,554,418 m^3 for 2013. In Table IV.5.3 of the same document, consumption of wood from HTI concessions by forest industries is reported to be 35,288,880 m^3. It remains unclear what accounts for this difference of 15,734,462 m^3 of HTI wood that was reportedly consumed by forest industries and where this additional wood may have come from. Also, in the 2013 RPBBI data published on the KLHK website, the use of HTI wood by forest industries is reported to be 29,668,946 m^3, or 5,619,934 m^3 less than the figure reported in Table IV.5.3.

Though wood recorded as being produced by HTI is presumably not from natural forests, discrepancies in reported production and industry consumption statistics raise important questions as to whether this is actually the case. According to forestry experts interviewed for this study, the fact that industry consumption of wood from HTI sources is reported to be so far higher than reported HTI production suggests that natural forest timber

produced from land clearing for the preparation of HTI plantations may be getting included in the statistics as HTI wood. If, indeed, this is the case, it would represent a significant and unexplained change in how KLHK reported commercial wood production from land clearing in previous years. Such a change could potentially have significant negative impacts on PNBP collection, as DR is not collected on wood harvested from plantations and PSDH rates for plantation-grown wood are substantially lower than natural forest timber.

Furthermore, changes in the Ministry's statistics raise ambiguities as to the sources of large amounts of timber produced, particularly bearing in mind the Government's moratorium on the clearing of primary forests since 2011.[1] In *Statistik Kehutanan 2011*, the volume of logs produced from land clearing (recorded under the category IPK/ILS2) during 2010 is reported to be 14,488,152 m^3. In 2011, timber from IPK/ILS is reported to be 600,598 m^3, a 95% decrease from the previous year. During the same period, a category in the same table (Table IV.6.1) called "*Sumber Lainnya*" ("Other Sources") is reported to have increased from 3,720,785 m^3 in 2010 to 21,786,505 m^3 in 2011.

Table IV.6.2. indicates that the "*Sumber Lainnya*" ("Other Sources") category is comprised of "*Hutan Rakyat*" ("Community Forests"), *"Kayu Perkebunan"* ("Wood from Estate Crops"), and a third category simply called "*Lainnya*" ("Other"). For 2011, production from *Hutan Rakyat* is reported to be 2,828,037 m^3. Production from *Kayu Perkebunan* is reported to be 428,240 m^3, and production classified as "*Lainnya*" ("Other") is reported to be 18,530,228 m^3 (see Table 6.2). In other words, the Ministry of Environment and Forestry officially classified 39% of Indonesia's total reported timber production of 47,429,335 m^3 in 2011 as being harvested from sources described, without further explanation, simply as "Other".

Table 6.1. Log production based on source of production during 2007–2011, as reported in *Statistik Kehutanan 2011*

Tabel IV.6.1. REKAPITULASI PRODUKSI KAYU BULAT BERDASARKAN SUMBER PRODUKSI TAHUN 2007-2011
Log Production Based on Source of Production in 2007-2011

No	Tahun	Sumber Produksi (m3)					Jumlah (m3)
		Hutan Alam		Hutan Tanaman		Sumber Lainnya	
		IUPHHK-HA	IPK/ILS	Perhutani	IUPHHK-HT		
1	2	3	4	5	6	7	8
1	2007	6,437,685	4,391,657	48,034	20,614,209	705,462	32,197,046
2	2008	4,629,017	2,764,015	97,480	22,318,886	2,191,387	32,000,786
3	2009	4,857,150	6,619,247	87,828	18,953,930	3,802,381	34,320,536
4	2010	5,251,576	14,488,152	98,003	18,556,254	3,720,785	42,114,770
5	2011	5,088,695	600,598	112,858	19,840,679	21,786,505	47,429,335

Sumber/Source : Direktorat BPPHH, Ditjen BUK.

Source: Statistik Kehutanan 2011

This trend continued in 2012. In KLHK's statistics for that year, 13,208,596 m^3, or 27% of the total reported timber production of 49,258,228 m^3, was reported to be from "*Sumber Lainnya*" ("Other Sources") (see Tables 6.3 and 6.4). The "*Sumber Lainnya*" and "*Lainnya*" categories are not defined in KLHK documents. This study has assumed that this production is from land clearing and included it in reported production from land clearing as the basis for calculations of actual timber production in Chapter Two.

1 The Ministry of Environment and Forestry's definition of "primary forest" refers to intact natural forest which has not been disturbed by human activity. This differs from the more common understanding outside Indonesia, where the term "primary forest" generally refers to any old-growth forest, regardless of whether it has been selectively logged or otherwise disturbed. So, under Indonesia's moratorium on conversion of primary forest, the clearing of previously-logged natural forest may still be legal.

2 The abbreviation IPK/ILS stands for Izin *Pemanfaatan Kayu/Izin Lain yang Sah*, or Wood Utilization Permits/Other Valid Permits.

Table 6.2. National log production based on source of production in 2011, as reported in *Statistik Kehutanan 2011*

Tabel V.6.2. PRODUKSI KAYU BULAT NASIONAL BERDASARKAN SUMBER PRODUKSI TAHUN 2011

Log Production Based on Source of Production in 2011

No	Provinsi	Produksi Kayu Bulat Per Sumber Produksi (m3)							Jumlah
		Hutan Alam		Hutan Tanaman		Sumber Lainnya			
		IUPHHK-HA (HPH)	Izin Lainnya Yang Sah (ILS)/IPK	IUPHHK-HT (HTI)	Perum Perhutani	Hutan Rakyat	Kayu Perkebunan	Lainnya	
1	2	3	4	5	6	7	8	9	10
1	Aceh	0	0	0	0	0	0	0	0
2	Sumatera Utara	116,181	37,731	965,091	0	49,259	89,735	806,633	1,257,997
3	Sumatera Barat	0	0	0	0	0	0	0	0
4	Riau	489,638	121,070	11,321,769	0	252,415	12,252	7,820,860	12,197,144
5	Kepulauan Riau	0	0	0	0	0	0	0	0
6	Jambi	7,393	0	3,227,104	0	97,455	30,284	2,155,880	3,362,236
7	Sumatera Selatan	0	0	2,109,808	0	35,459	177,542	1,489,395	2,322,809
8	Bangka Belitung	0	0	0	0	0	0	0	0
9	Bengkulu	0	0	0	0	2,119	9,840	7,668	11,959
10	Lampung	28,119	5,005	7,104	0	12,070	60,934	72,605	113,232
11	Banten	0	0	0	46.32	40,878	17,945	37,747	58,869
12	DKI Jakarta	9,541	0	0	0	0	0	6,118	9,541
13	Jawa Barat	0	0	0	0	36,640	4,164	26,164	40,804
14	Jawa Tengah	441,011	31,751	33,608	20,547	952,199	289.17	948,601	1,479,405
15	DI Yogyakarta	0	0	0	0	0	0	0	0
16	Jawa Timur	487,902	44,898	0	92,265	1,127,931	1,866	1,125,225	1,754,862
17	Bali	18,964	5,453	0	0	0	0	15,656	24,417
18	Nusa Tenggara Barat	0	0	0	0	0	0	0	0
18	Nusa Tenggara Timur	0	0	0	0	0	0	0	0
20	Kalimantan Barat	762,703	0	35,080	0	2,564	0	513,186	800,347
21	Kalimantan Tengah	682,897	0	31,295	0	18,655	18,702	481,896	751,549
22	Kalimantan Selatan	224,006	58,834	4,609	0	18,678	0	196,290	306,127
23	Kalimantan Timur	926,605	180,375	2,102,617	0	66,735	0	2,100,798	3,276,332
24	Sulawesi Utara	0	0	0	0	0	0	0	0
25	Gorontalo	0	0	0	0	0	0	0	0
26	Sulawesi Tengah	0	0	0	0	0	0	0	0
27	Sulawesi Tenggara	0	0	0	0	0	0	0	0
28	Sulawesi Selatan	168,707	56,241	2,594	0	114,981	4,686	222,632	347,209
29	Sulawesi Barat	0	0	0	0	0	0	0	0
30	Maluku	5,496	12,972	0	0	0	0	11,842	18,468
31	Maluku Utara	0	0	0	0	0	0	0	0
32	Papua	447,289	37,036	0	0	0	0	310,551	484,325
33	Papua Barat	272,243	9,233	0	0	0	0	180,484	281,476
Jumlah		5,088,695	600,598	19,840,679	112,858	2,828,037	428,240	18,530,228	47,429,334

Sumber : Direktorat BPPHH, Ditjen BUK.

Keterangan : - IPK/ILS termasuk LC Penyiapan Lahan HTI.

- Data tersebut di atas tidak termasuk stock, impor KB, Hasil lelang, Pemilik Yang Sah dan IPHHK Lain

Source: Statistik Kehutanan 2011

Table 6.3. Log production based on source of production during 2008–2012, as reported in *Statistik Kehutanan 2012*

Tabel IV.6.1. REKAPITULASI PRODUKSI KAYU BULAT BERDASARKAN SUMBER PRODUKSI TAHUN 2008-2012
Log Production Based on Source of Production in 2008-2012

No	Tahun	Sumber Produksi (m3)					Jumlah (m3)
		Hutan Alam		Hutan Tanaman		Sumber Lainnya	
		IUPHHK-HA	IPK/ILS	Perhutani	IUPHHK-HT		
1	2	3	4	5	6	7	8
2	2008	4.629.017	2.764.015	97.480	22.318.886	2.191.387	32.000.786
2	2009	4.857.150	6.619.247	87.828	18.953.930	3.802.381	34.320.536
3	2010	5.251.576	14.488.152	98.003	18.556.254	3.720.785	42.114.770
4	2011	5.088.695	600.598	112.858	19.840.679	21.786.505	47.429.335
5	2012	5.142.385	747.792	142.458	26.126.582	17.099.010	49.258.228

Sumber/Source : Direktorat BPPHH, Ditjen BUK.

Source: Statistik Kehutanan 2012

In *Statistik Kehutanan 2012*, the Ministry of Forestry stopped reporting land clearing altogether. In the years prior to 2013, Table IV.6.1. in *Statistik Kehutanan* presents five major categories of timber production: IUPHHK-HA (HPH), IPK/ILS, Perhutani, IUPHHK-HT (HTI), and *Sumber Lainnya* (see Table 6.5). But in *Statistik Kehutanan* for 2013, Table IV.6.1. was reduced to only two categories: HPH and HTI. No explanation is given as to why the other three categories have been excluded.

In some issues of *Statistik Kehutanan*, timber production numbers from past years have been changed without explanation. For example, in *Statistik Kehutanan 2011*'s Table IV.6.1, HTI production is reported to be 19,840,679 m^3. In *Statistik Kehutanan 2013*'s Table IV.6.1, the HTI production for 2011 is reported to be 13,379,630 m^3, or 6,461,049 m^3 less than the volume reported in *Statistik Kehutanan 2011*. Similarly, in *Statistik Kehutanan 2011*'s Table IV.6.1., HPH production is reported to be 5,088,695 m^3. In *Statistik Kehutanan 2013*'s Table IV.6.1., HPH production in 2011 is reported to be 6,277,012 m^3, or 1,188,317 m^3 more than was reported in *Statistik Kehutanan 2011*. If it is assumed that PNBP was not collected on the unreported volumes during the year they were harvested, the differences in these numbers are quite significant. It can be estimated, for example, that 1,188,317 m^3 of timber from HPH concessions should have generated US$ 17,824,755 in DR receipts and Rp. 71.3 billion in PSDH receipts (using an average of $15 per m^3 for Dana Reboisasi and an average of Rp. 60,000 per m^3 for PSDH).

The official statistics published by KLHK, as shown above, leave it very unclear exactly how much timber was produced and from which sources. In such a situation, it is impossible to determine from reported statistics whether the appropriate amount of PNBP was collected and entered government accounts relative to the amount of timber that was harvested. This has serious implications for external accountability, since KLHK's data management does not allow any other institution, such as the Ministry of Finance, to hold it responsible for properly collecting PNBP.

6.3 The Ministry of Environment and Forestry's internal records of timber production from land clearing are severely deficient.

In a September 2014 letter, KPK's Deputy of Corruption Prevention requested that KLHK provide, among other items, documentation of the following:

1. Types of licenses associated with forest conversion and land clearing, along with information on the costs required for the process of issuing each of these licenses.

Table 6.4. National log production based on source of production in 2012, as reported in *Statistik Kehutanan 2012*

Tabel / Table IV.6.2 PRODUKSI KAYU BULAT NASIONAL BERDASARKAN SUMBER PRODUKSI TAHUN 2012

Log Production Based on Source of Production in 2012

No	Provinsi	Produksi Kayu Bulat Per Sumber Produksi (m3)							
		Hutan Alam		Hutan Tanaman		Sumber Lainnya		sumber lainnya	Jumlah
		IUPHHK-HA (HPH)	Izin Lainnya Yang Sah (ILS)/IPK	IUPHHK-HT (HTI)	Perum Perhutani	Hutan Rakyat	Kayu Perkebunan		
1	2	3	4	5	6	7	8	9	10
1	Aceh	-	-	-	-	-	-	-	-
2	Sumatera Utara	89.380,76	21.464,19	1.040.678,67	-	47.069,94	101.009,74	476.174,72	1.299.603,30
3	Sumatera Barat	-	-	-	-	-	-	-	-
4	Riau	669.646,64	138.678,27	17.024.463,38	-	164.474,93	42.746,53	6.609.860,58	18.040.009,75
5	Kepulauan Riau	-	-	-	-	-	-	-	-
6	Jambi	4.107,07	-	3.707.053,21	-	168.844,73	49.589,01	1.439.803,47	3.929.594,02
7	Sumatera Selatan	-	-	1.594.411,13	-	125.230,98	219.540,56	710.516,64	1.939.182,67
8	Bangka Belitung	-	-	-	-	-	-	-	-
9	Bengkulu	-	-	-	-	3.218,21	6.490,21	3.557,17	9.708,42
10	Lampung	-	-	-	-	-	70.617,07	25.874,10	70.617,07
11	Banten	-	-	-	-	87.502,47	18.548,72	38.857,16	106.051,19
12	DKI Jakarta	11.509,59	-	-	-	-	-	4.217,11	11.509,59
13	Jawa Barat	0	-	-	-	38.784,91	95.143,13	49.071,24	133.928,04
14	Jawa Tengah	512.015,86	51.650,64	4.709,35	18.979,02	996.256,28	2.738,95	581.238,77	1.586.350,10
15	DI Yogyakarta	-	-	-	-	-	-	-	-
16	Jawa Timur	563.688,65	49.871,49	2.794,82	122.668,44	1.314.412,39	10.381,31	756.182,70	2.063.817,10
17	Bali	42.847,87	-	-	-	1.248,04	-	16.156,74	44.095,91
18	Nusa Tenggara Barat	-	-	-	-	-	-	-	-
18	Nusa Tenggara Timur	-	-	-	-	-	-	-	-
20	Kalimantan Barat	727.665,06	0	61.797,24	-	349,22	-	289.386,99	789.811,52
21	Kalimantan Tengah	267.205,02	42.520,47	28.373,72	-	34.588,55	21,09	136.560,54	372.708,85
22	Kalimantan Selatan	677.438,59	15.572,13	10.758,35	810,33	32.357,90	4.535,48	271.675,67	741.472,78
23	Kalimantan Timur	904.570,89	148.123,26	2.651.542,12	-	139.161,32	-	1.408.221,09	3.843.397,59
24	Sulawesi Utara	-	-	-	-	-	-	-	-
25	Gorontalo	-	-	-	-	-	-	-	-
26	Sulawesi Tengah	-	-	-	-	-	-	-	-
27	Sulawesi Tenggara	-	-	-	-	-	-	-	-
28	Sulawesi Selatan	141.884,32	74.141,39	-	-	98.075,48	17.503,69	121.500,05	331.604,88
29	Sulawesi Barat	-	-	-	-	-	-	-	-
30	Maluku	-	10.146,82	-	-	-	-	3.717,80	10.146,82
31	Maluku Utara	-	-	-	-	-	-	-	-
32	Papua	295.179,54	180.391,16	-	-	-	-	174.249,13	475.570,70
33	Papua Barat	235.245,61	15.232,30	-	-	-	-	91.775,12	250.477,91
Jumlah		**5.142.385,47**	**747.792,12**	**26.126.581,99**	**142.457,79**	**3.251.575,35**	**638.865,49**	**13.208.596,79**	**49.258.255,00**

Sumber : Direktorat BPPHH, Ditjen BUK.

Keterangan : - IPK/ILS termasuk LC Penyiapan Lahan HTI.
- Data tersebut di atas tidak termasuk stock, impor KB, Hasil lelang, Pemilik Yang Sah dan IPHHK Lain

Sumber: Statistik Kehutanan 2012

Table 6.5. Log production based on source of production in 2010–2013, as reported in *Statistik Kehutanan 2013*

Tabel /*Table* IV.6.1. REKAPITULASI PRODUKSI KAYU BULAT BERDASARKAN SUMBER PRODUKSI TAHUN 2010-2013/*Log Production Based on Source of Production in 2010-2013*

NO	TAHUN	SUMBER PRODUKSI		Total m^3
		HPH m^3	HTI m^3	
1	2010	572.481,78	12.632.094	13.204.575,78
2	2011	6.277.012,76	13.379.630	19.656.642,76
3	2012	5.122.301,86	20.216.635	25.338.936,86
4	2013	3.672.594,25	19.554.418	23.227.012,25
JUMLAH		**15.644.390,65**	**65.782.777**	**81.427.167,65**

Sumber : Direktorat BUHA dan BUHT Ditjen BUK berdasarkan laporan dari pemegang ijin

Source: Statistik Kehutanan 2013

2. A list of Forest Estate Temporary Use Permits (*Izin Pinjam Pakai Kawasan Hutan*) for mining, and Forest Estate releases (*pelepasan Kawasan Hutan*) for estate crops, issued by the Ministry of Forestry from 2000–2014, including company names, lists of managers' names, numbers and dates of license endorsement letters *(surat keputusan,* or SK), and timber potential in those areas (in cubic meters).
3. A list of Wood Utilization Permit (IPK) holders from 2000–2014, including company names, company managers' names, numbers and dates of license endorsement letters (SK), area, as well as reports on production potential, actual production and PSDH/DR payments.
4. Data on land clearing permits submitted by regional governments to the Ministry of Forestry from 2000–2014, including work plans, company names, company managers' names, permit numbers and dates of issue, area, production potential, and state revenue collected from each permit.

The documents that KPK received from KLHK in response to this request suggest that the Ministry's records of IPK permits and the timber produced under those licenses are extremely limited. It is especially notable that the Ministry was unable to provide a complete list of IPK permits that have been issued during 2000–2014. Instead, the Directorate of Natural Forest Production sent a letter (*Surat Direktorat Bina Usaha Hutan Alam* (BUK) S.702/BUHA-3/2014) dated 29 October 2014 to the heads of provincial forestry offices (*Kepala Dinas Kehutanan Provinsi*) requesting data on all land-clearing permits in IPK areas.

It is clear that a majority of IPK licenses and related timber production reports are not recorded in the data KLHK provided to KPK. Oil palm companies require an IPK to clear forest before establishing plantations (*perkebunan*). However, in Riau where much of Indonesia's oil palm plantation development has been occurring, KLHK's data for the period between 2010 and 2013 shows no IPK licenses, no license area, no planned timber production, and no realized timber production. In Jambi, another province with significant land converted to oil palm, KLHK data reports only three IPK licenses between 2010 and 2013 with a total licensed area of 890 ha. For these areas, the planned timber production is 24,234.90 m^3, and the reported production is 1,943.96 m^3, or only 8% of the target.

The reporting by KLHK of commercial wood production from IPK areas shows significant gaps where other sources of information could be compared. For example, the Ministry's regional office (BP2HP) in Papua Barat

reported in its *Statistik Kehutanan 2011* that 4 IPK licenses had produced 19,163.17 m^3 of timber. None of these licenses or production is listed in the IPK records that KLHK submitted to KPK in response to the abovementioned data request.

This study also compared the IPK report received from KLHK with a report provided by the Central Kalimantan Forestry Office (*Dinas Kehutanan Kalimantan Tengah*) for 2011, entitled *Laporan Gabungan Realisasi Pembayaran Iuran Kehutanan (LGRPIK) Perijinan IPK (IPPKH, Pelepasan dan IPK pada APL)*. The study found that the Central Kalimantan office's statistics reported realized production of 62,285 m^3 under IPK licenses issued to five companies. However, neither these licenses nor the volume of production appear in the data KLHK provided to KPK.

Table 6.6. IPK data from Central Kalimantan

YEAR	COMPANY	VOLUME (M^3)	REPORTED BY KLHK
2011	Sawit Graha Manunggal	2,272.96	No data on area, target or realization
2011	Wahana Andalan Subur	6,812.47	No data
2011	Putra Katingan Pratama	41,245.45	No data
2011	Karya Budi	8,700.62	No data
2011	Fajar Jaya	3,863.61	No production realization

Source: Laporan Gabungan Realisasi Pembayaran Iuran Kehutanan (LGRPIK) Perijinan IPK (IPPKH, Pelepasan dan IPK pada APL) 2011, Central Kalimantan; IPK report from KLHK

As explained above, a very significant portion of Indonesia's commercial timber supply is currently produced from land clearing, much of which is conducted by companies holding IPK and HTI licenses. But the data available on the volumes and sources of timber produced from land clearing is highly incomplete and subject to little verification. Given the rapid rate at which Indonesia's natural forests are being converted to other uses, these weaknesses in data management suggest that much of the timber produced is not reported and much of the non-tax revenue that should be received by the state is not collected.

6.4 The Ministry of Environment and Forestry's internal records of timber production from IUPHHK-HA (HPH) natural forest selective-logging concessions indicate consistent over-estimating of planned production and/or under-reporting of actual production, and significant gaps in reported production area.

Data on log production within active natural forest concession areas was found to be better than that from land clearing, but still showed significant weaknesses. KPK received information on HPH volume targets for 2010–2013, according to management plans submitted annually by the companies, and on reported production.[3] This data showed that either the targets consistently over-estimate actual timber production and/or that actual production is consistently under-reported.

During 2010–2013, HPH licensees reported log production volumes that were, on average, about one-half of the volumes they had planned to harvest (see Table 6.7). In the five provinces with the highest levels of HPH

3 Concession holders submit an Annual Work Plan (*Rencana Kerja Tahunan*, or RKT) to the Ministry of Forestry for approval of its logging plan for the following year. The RKTs are lengthy documents based on the ten-year General Work Plan (*Rencana Kerja Umum*, or RKU) documents previously submitted, which in turn are based on forest inventories called IHMB. The annual harvest plan (or RKT-rencana) volumes are based on a yearly inventory of logging called ITSP.

timber production – Central Kalimantan, East Kalimantan, West Kalimantan, Papua, and West Papua – reported production volumes ranged between 23% and 76% of planned production. At the company level, the gap between planned and reported production was even wider. Records provided by KLHK indicate that some HPH companies submitted production plans, but then had no reported production. For example, 15 HPHs in East Kalimantan in 2010 had planned production, but no reported production; and another 14 HPHs in 2011 had a similar discrepancy. Other HPHs had reported production of less than 20% of planned production, according to KLHK records.

Table 6.7. Reported log production as a percentage of planned production by IUPHHK-HA (HPH) license holders, 2010–2013

PROVINCE	2010	2011	2012	2013
North Sumatra	13%	45%	30%	57%
West Sumatra	51%	87%	107%	84%
Riau	63%	75%	51%	57%
West Kalimantan	**31%**	**54%**	**47%**	**48%**
Central Kalimantan	**71%**	**71%**	**71%**	**65%**
South Kalimantan	42%	47%	109%	270%
East Kalimantan	**49%**	**45%**	**63%**	**50%**
North Sulawesi	41%	15%	45%	22%
Central Sulawesi	19%	75%	0%	0%
West Sulawesi	25%	–	28%	28%
Maluku	29%	31%	29%	4%
North Maluku	22%	42%	–	–
Papua	**65%**	**46%**	**39%**	**58%**
Papua Barat	**23%**	**25%**	**76%**	**23%**
Indonesia	**50%**	**46%**	**58%**	**49%**

Source: IUPHHK RKTUPHHK-HA log production monitoring 2010–2013, Directorate of Natural Forest Production, KLHK

Furthermore, KLHK records on reported production contain many examples where reported area of production is absent. In East Kalimantan, for example, 22 out of 44 HPH concession-holders that reported production in 2011 had no reported area of production; and similar discrepancies occurred for 28 out of 39 HPH's in 2011, 34 out of 48 HPH's in 2012, and 41 out of 46 HPH's in 2013. Without a reported area of production, it is clear that KLHK officials will not know the productivity of areas logged (cubic meters per hectare) or how much of the concession was harvested each year. Even in cases where HPH production areas are reported, these are often significantly less than planned production area. According to KLHK records, 23 HPHs in East Kalimantan in 2011 reported production areas of less than 35% of planned production area. This represents a significant lapse of record-keeping and severely undermines efforts to monitor timber production and its effects on forest condition, as well as PNBP revenue collection.

6.5 The SI-PUHH online database is a positive step towards greater transparency and accountability in timber production administration; however, the reported production volumes can vary significantly from internal KLHK records and not enough documentation is provided for users to assess the veracity of production reports and HPH performance.

For the last several years, KLHK has maintained an online system to monitor HPH timber production called *Sistem Informasi Penatausahaan Hasil Hutan* (SI-PUHH), which represents a significant step toward transparency and accountability. As of 2014, approximately 60% of reported production by HPH concessions appears to be included on this system, but not production from any other sources. This study compared reported production volumes from the SI-PUHH system with annual HPH concession-holder (or IUPHHK RKTUPHHK-HA) production reports for 2010–2013, which KLHK submitted to KPK in response to the data request. The study found that many of the production volumes did not match. In Table 6.8, a sampling of these results are provided for HPHs in East Kalimantan as evidence of the variation in reported production volumes between SI-PUHH and internal KLHK records.

Table 6.8. A comparison of reported log production according to SI-PUHH and log production reports from the Directorate of Natural Forest Production, 2010–2013

Company	SI-PUHH Report (m^3)	RKT Report (m^3)	% Difference between SI-PUHH and RKT reports
2010			
PT Essam Timber	5,298	15,740	34%
Inhutani I Unit Meraang	18,850	14,354	131%
PT Kiani Lestari	26,387	18,936	139%
PT Narkata Rimba	20,089	36,419	55%
PT Rimba Karya Rayatama	12,741	–	
PT Sumalindo Lestari Jaya II	37,146	19,468	191%
PT Sumalindo Lestari Jaya V	5,014	2,515	199%
2011			
PT Barito Nusantara Indah	14,327	7,750	185%
PT Batu Karang Sakti	9,053	1,642	551%
PT Daisy Timber	22,341	14,220	157%
PT ITCI Kayan Hutani	67,144	35,861	187%
PT Narkata Rimba	24,522	16,645	147%
PT Rimba Karya Rayatama	13,008	27,100	48%
PT Sumalindo Lestari Jaya II	36,285	6,945	522%
PT Sumalindo Lestari Jaya IV	14,337	3,611	397%
PT Wana Bhakti Persada Utama	36,454	–	
2012			
PT Balikpapan Forest Industries	54,919	36,524	150%
PT Barito Nusantara Indah	34,918	92,127	38%
PT Belayan River Timber	28,959	67,176	43%
PT Hanurata Coy Ltd	47,339	66,448	71%
PT Harapan Kaltim Lestari	18,980	38,605	49%

PT Indowana Arga Timber	19,903	28,470	70%
PT Rimba Karya Rayatam	23,905	6,873	348%
PT Sumalindo Lestari Jaya V	5,728	8,783	65%
PT Timber Dana	8,742	16,409	53%
PT Wana Bhakti Persada Utama	17,615	10,848	162%
2013			
PT Barito Nusantara Indah	33,301	–	–
PT Daisy Timber	27,714	–	–
PT Gunung Gajah Abadi	27,356	40,247	68%
PT Harapan Kaltim Lestari	38,605	439	8794%
PT Kedung Madu Tropical W.	13,426	19,688	68%
PT Rimba Karya Rayatam	35,748	1,254	2851%
PT Seroja Universum Narwastu	3,735	22,906	16%

Sources: SI-PUHH; IUPHHK RKTUPHHK-HA log production monitoring 2010–2013, Directorate of Natural Forest Production, Ministry of Environment and Forestry

Such variations indicate that the SI-PUHH online database, as it currently functions, does not provide adequate transparency and accountability. If actual production reports were uploaded to the system, for example, and these showed the signatures of the technical officers (*Ganis*) and technical monitors (*Wasganis*) who had prepared and/or approved the documents, there would be little doubt that the production numbers were those actually reported by the company. By not providing reported production area, SI-PUHH also does not allow users of the system to calculate productivity levels, which can be used to determine whether HPH concession-holders, according to reported figures, are over-harvesting or under-performing. And without including copies of the ten-year management plans (RKUs) and annual production plans (RKTs), SI-PUHH does not allow users to see how reported production volumes compare to planned production volumes.

6.6 The Ministry of Environment and Forestry does not use spatial data to verify inventory and production reports, but instead relies on self-reporting by companies and field checks by local forestry officials.

Currently, KLHK and *Dinas Kehutanan* rely on self-reporting by companies and field checks to verify the accuracy of those reports. As will be explained later in this study, data reported by license holders is insufficient as a basis for control. There is no use of remote sensing imagery and spatial data to verify inventory reports of land-clearing sites or pre- and post-harvest inventories of selective logging (HPH) sites. Nor does KLHK use remote sensing imagery and spatial data to identify timber production outside of approved concession areas and cutting blocks.

Chapter 7: Internal controls are inadequate for ensuring accountability in timber administration and non-tax revenue collection.

The system of internal controls for ensuring accountability in Indonesia's timber administration and non-tax revenue collection systems is both complicated and focused upon the administration of documents. This complex, paper-based administrative structure can be considered inadequate in many ways because timber administration and non-tax revenue collection are fragmented and undergo minimal verification. Information is prone to asymmetry as the Ministry of Environment and Forestry is highly dependent on limited verification of information by regional forestry offices, most of which is produced by the companies whose activities are being monitored. As a result of fragmentation, weaknesses in the instruments of control have become systematic. Errors in and/or manipulation of the timber administration system can occur in the absence of meaningful oversight. Despite the recently developed Forest Product Administration Information System (SI-PUHH) being able to rectify some weaknesses, this online system does not apply to all forest products in circulation.

As a result of such weak controls, the Government is unable to produce credible data on standing stock and timber production as the basis for policymaking. This is because almost all the data and information generated through document-based administration comes from private timber companies, including even vital data on commercial standing stock and the volumes of logs harvested from licensed forest areas. This has further consequences on how forests and, more broadly, the overall Forest Estate can be managed by the Government. Unreliable information on standing stock means the Government also loses the capacity to prepare more effective policies or plans, including, for instance, on limitations in forest product exploitation, or targeting state revenue planning policies to hinder negative incentives of over-exploitation. As an example, despite *Statistik Kehutanan 2013* recording only 5.1 million m^3 of annual log production from HPH selective logging concessions, calculations used in this study estimate that recorded production from such concessions should have been 9.5 to 16.7 million m^3. This means there is more timber than there should be in the marketplace, especially since the annual allowable cut is only 9 million m^3 a year.

Another important thing to consider is that internal controls on forest conversion are completely inadequate. Uncontrolled forest conversion occurs because of a corrupt licensing system. Furthermore, administrative controls over timber produced through forest conversion are not maintained or even recorded properly. Ministry data published in *Statistik Kehutanan 2013* reports only 6.9 million m^3 of timber being produced through forest land clearing, but as explained in Chapter Two, timber production from changing land use or forest land clearing should have been recorded at between 33.0 and 37.7 million m^3. With this gap, it is safe to say that enormous state losses have resulted from uncontrolled forest conversion. Generally, this can be attributed not only to the licensing system, but also to logs sourced from conversion being treated differently in the timber administration system. Some policies, such as the designation of the *Penggantian Nilai Tegakan* (PNT) levy, have tried to restrict the rates of forest conversion, but such efforts have been ineffective due to weak internal controls.

7.1 Important information for managing forests and monitoring timber administration and non-tax revenue collection systems is produced by concession holders, while forestry agencies carry out physical verification only intermittently and with uncertain methods, and can even neglect to do so altogether.

Despite the intricacies of the various stages in forest timber product administration, not one of them is fully verified. Internal controls do regulate verification of some stages to try and ensure the accountability of data produced, however the regulations for field verifications allow these to be carried out in extremely limited ways. These limitations are apparent both in terms of their methods and in the administration stages themselves. Samples used for verification are too small to become effective instruments for checking the volumes of logs produced. Some regulations even provide room for ignoring verification altogether and replacing it with weaker administrative mechanisms. Meanwhile, limitations in these stages are apparent from the absence of arrangements for increased Government oversight of administrative documents or for acting on infringements discovered during field verification processes.

Table 7.1. Documents and information provided by forest license holders

NO.	INFORMATION	FOREST MANAGEMENT	DOCUMENT	PREPARED BY
1	Standing stock based on samples taken from the concession landscape	Selective logging	Concession Area Standing Stock Inventory (*Inventarisasi Hutan Menyeluruh Berkala* (IHMB)	*Ganis PHPL-TC/ Ganis PHPL-Canhut*
		Land clearing	None, see box on standing stock in felling block	None
2	License holder's ten-year concession management plan (RKU)	Selective logging	Ten-year Concession Management Plan (*Rencana Kerja Umum* (RKU)	*Ganis PHPL-TC/ Ganis PHPL-Canhut*
		Land clearing	None	*None*
3	Standing stock in felling block	Selective logging	Cruising Report (*Laporan Hasil Cruising* (LHC)	*Ganis PHPL-TC/ Ganis PHPL-Canhut*
		Land clearing	Timber Cruising Report (*Laporan Hasil Cruising* (LHC), 1) 5% for all tree species for APL, 2) 100% for PPKH, 3) 5% of all tree species for conversion and land swap HPK, 4) 5% for plantation forest development, 5) 100% for forest subject to HGU	*Ganis PHPL-TC/ Ganis PHPL-Canhut*
4	Timber production realization	Selective logging	Harvest Report (*Laporan Hasil Penebangan* (LHP)	*Ganis PHPL-PKB*
		Land clearing	Harvest Report (*Laporan Hasil Penebangan* (LHP)	*Ganis PHPL-PKB*
5	PNBP payment realization	Selective logging	Bank deposit slip	*Ganis*
		Land clearing	Bank deposit slip	*Bank Persepsi* (public bank designated for non-tax revenue deposits)
6	Timber distribution	Selective logging	Transport documents (*Surat Keterangan Sahnya Kayu Bulat*, *FIM*, *Faktur Kayu Olahan*, and *Nota Angkutan*)	*P2SKSKB, Ganis*
		Land clearing	Transport documents (*Surat Keterangan Sahnya Kayu Bulat*, *Faktur Kayu Bulat*, *Faktur Kayu Olahan*, and *Nota Angkutan*)	*P2SKSKB, Ganis*

Of the six types of important information associated with timber administration and PNBP collection, most are provided by the forestry companies whose activities are being regulated. Such information is important not only for seeing whether concession-holders are managing forests properly, but also because the information provided – whether on standing stock or log production – constitutes the basis for the Ministry of Environment and Forestry to make decisions or issue certain policies. As explained in the previous section, information on standing stock or available timber in the field should be an integral part of Government forest planning. Therefore, ensuring data is credible and accountable is not only important for considering state losses in the narrow definition of curbing timber theft, but also for ensuring the state can issue more appropriate policies, and prevent wider state losses.

The collection of information on standing stock through timber cruising is not only dependent on license holders, but its regulation is not directed towards the generation of coherent information on the condition of forests and the products they generate. When timber cruising is conducted fully, it is only on forest land that will clearly be converted for other land uses. This includes, for example, land clearing for the development of oil palm estates or for mining. For other types of forestry concessions, inventories are either not clearly regulated or involve very limited sampling.

With all these limitations, current internal control mechanisms do not allow the Government to produce credible data on timber production or standing stock within the Forest Estate. This is because the information and data in timber administration and non-tax revenue collection documents are not verified comprehensively by forestry agencies. Most documents are considered verified once sampling tests on the ground have been conducted, even though the samples are extremely small and methods are not clearly regulated.

Information on standing stock prior to harvesting or before management activities get underway is essential as baseline for the Government in determining land use policies, thus allowing land allocation and forest use to be determined rationally. For management units on the ground, such information should be available through concession holders' IHMB comprehensive forest inventories or from timber cruising reports. Meanwhile, information on timber production is vital for the Government to estimate the volumes of timber circulating on the market. Logically, timber trading interventions or policies, as well as law enforcement, could be more effective if they were based on accurate timber production figures.

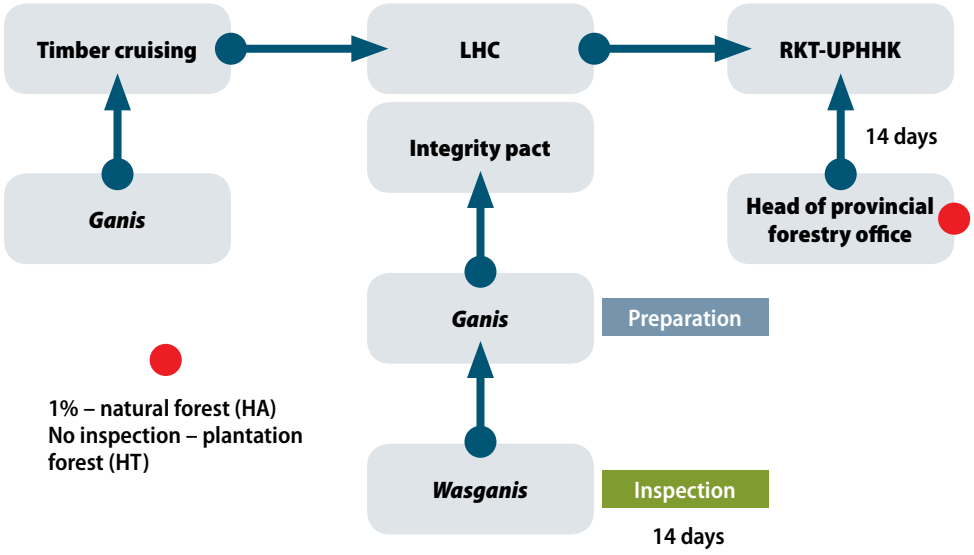
Table 7.2. Verification methods in Minister of Forestry Regulations P.30/2014, P.33/2014, P.62/2014, P.41/2014 and P.42/2014

NO.	DOCUMENT	PREPARER/ APPLICANT	VERIFICATION METHOD	INTENSITY	VERIFIER
1	Concession Area Standing Stock Inventory (IHMB)	*Ganis*	Evaluation	Not strictly regulated	*Wasganis*
2	Ten-year Concession Management Plan (RKU)	*Ganis*	Not strictly regulated	Not strictly regulated	Director General
3	Cruising Report (LHC)	*Ganis*	Sampling	Regulated in a variety of ways (see the Table on cruising for the various types)	*Wasganis*
4	Work Chart (*Bagan Kerja*)	*Ganis*	Field checks	Not strictly regulated	District forestry office
5	Annual Logging Plan (*Rencana Kerja Tahunan* (RKT)	*Ganis* /License holders	Sampling and field inspection Self assessment if PHPL is fine	Boundary demarcation, timber cruising 1%, forest development	*Wasganis*

NO.	DOCUMENT	PREPARER/ APPLICANT	VERIFICATION METHOD	INTENSITY	VERIFIER
6	Timber Measurement Book (*Buku Ukur*)	*Ganis*	Not regulated	Not regulated	Not regulated
7	Harvest Report (LHP)	*Ganis*	Sampling	Not regulated	*Wasganis*
9	Payment receipt (*Surat Bukti Bayar*)	*Bank Persepsi* (public bank designated to receive non-tax revenue payments)	Administrative reconciliation	Not regulated	District and provincial forestry offices
9	Timber transport document (*Surat Keterangan Sahnya Kayu Bulat* (SKSKB)	*Ganis*	Cross checked against LHP and deposit slip	Not strictly regulated	*Wasganis*

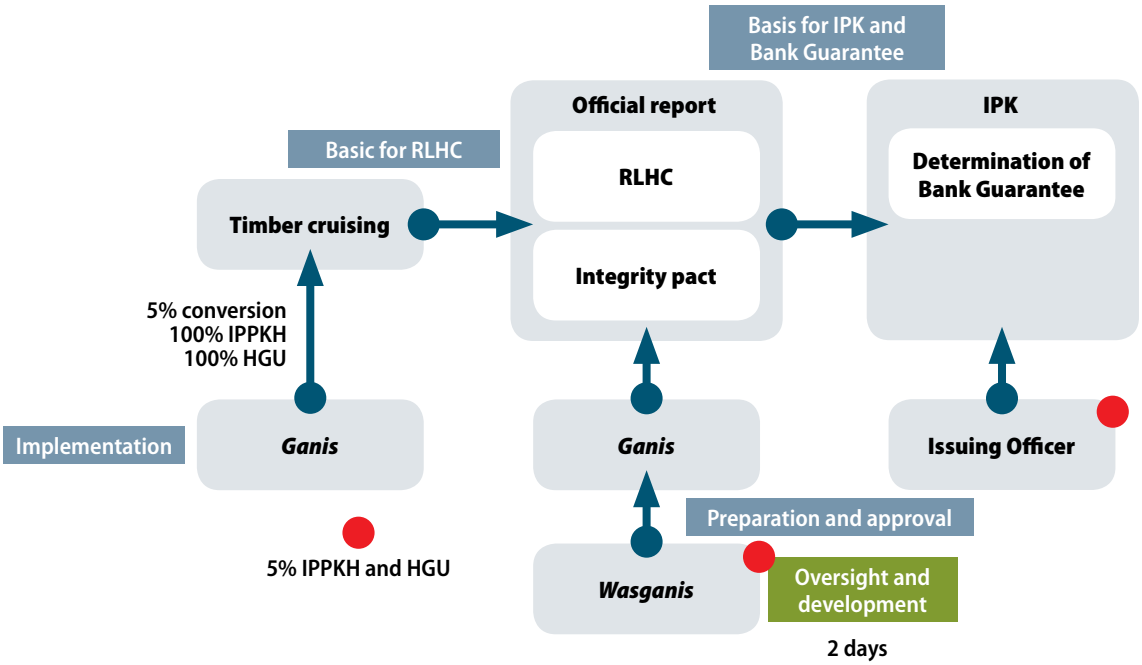
In relation to information on standing stock prior to harvesting or other forest management activities, Minister of Forestry Regulations P.30/2014 and P.33/2014 regulate mechanisms for evaluating the concession holders' comprehensive forest inventories (IHMB). Referring to P.30/2014 and P.33/2014, the *Wasganis PHPL-Canhut* have ten working days to carry out such evaluations. However, there are no mechanisms regulating control functions for the *Wasganis* to verify IHMBs when they do not carry out such evaluations.

Figure 7.1. Flowchart on LHC and RKT inspection and approval



The same thing applies to timber cruising: Minister of Forestry Regulations P.30/2014 and P.33/2014 instruct license holders to conduct timber cruising with a licensed technical officer *(Ganis)*, who is hired by the company. Cruising reports in the form of RLHCs are the basis for approving the license-holders' RKT annual work plans. However, regulation of cruising report oversight and control mechanisms is extremely weak, with next to no verification on the ground. Meanwhile, P.33/2014 instructs the forestry staff overseeing the licensed technical officers *(Wasganis)* to carry out field inspections with an intensity of only 1%. Minister of Forestry Regulation P.30/2014 even states specifically that no inspections of cruising reports (LHCs) are necessary for plantation forests. Officials approving RKT work plans, in this case provincial forestry offices, rely on available documents and the *Wasganis* evaluations for verifying the veracity of LHC cruising reports. Further, once an LHC has been approved, there is no mechanism for using the LHC as a control instrument.

Figure 7.2. Flowchart for LHC inspection and IPK approval



In addition to selective logging forest concessions, collecting information on standing stock is equally important in forests allocated for conversion to other land uses; particularly for ensuring no state assets are lost in the conversion process. Regulation P.62/2014 provides various mechanisms for carrying out standing stock inventories based on land allocation, and also includes oversight and development by the *Wasganis* coordinated by Ministry's regional production forest supervision offices (BP2HP). However, regulation P.62/2014 says very little regarding verification mechanisms and numbers of samples, either for changing the designated use of an area within the Forest Estate or land preparation for plantation forests. Sampling intensity for verification purposes is only listed for IPPKHs and HGU land clearing licenses, though with low cruising intensities, meaning verification mechanisms will still be deficient.

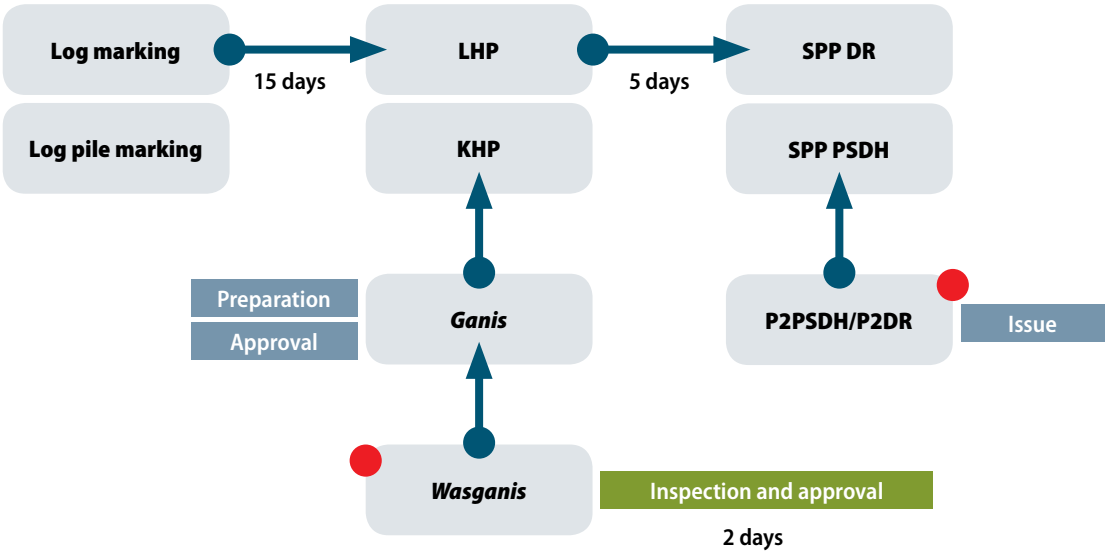
Officials that issue IPK licenses have no other instruments or mechanisms for testing the veracity of timber cruising reports. Consequently, once land conversion has taken place it is extremely difficult for the Government to determine the potential timber production that should have been reported. Likely occurrences include IPK holders reporting low timber potential to then harvest large amounts, or reporting cruising of the licensed area, but logging in other places. When such manipulation occurs, realized production will be extremely hard to verify, not only in terms of the volumes of timber that should be reported, but also their sources.

Table 7.3. Timber cruising for various types of forest use and utilization

FOREST USE AND UTILIZATION	CRUISING INTENSITY	VERIFICATION INTENSITY
Forest concessions	Unclear	1%
Land clearing in IPPKHs	100%	5%
Land clearing in APLs with land use licenses	5%	Not regulated
Land clearing for conversion forest or land swap	5%	Not regulated
Land clearing for plantation forest concessions	5%	Not regulated
Land clearing for HGUs	100%	5%

Similar to information on standing stock, the current system is basically incapable of providing KLHK with reliable information on timber production. The study noted that current provisions on timber administration provide very limited room for carrying out physical verification for timber production data – apart from using data from the forestry companies managing the licensed areas. Under both regulations P.41/2014 and P.42/2014 all LHPs or LP-KHPs are approved by a *Wasganis*, except in cases where an inspection is not carried out within a certain timeframe, in which case approval is by a technical officer *(Ganis)* hired by the company. Neither of these provisions regulates how LHP production reports prepared by a *Ganis* are inspected before being approved. There are also no arrangements on treatment of LHP/KHP documents by the Ministry of Environment and Forestry once they have already been approved, except only that they should be submitted to P2PSDH/DR issuing officers as the basis for issuing invoices (SPP) for the payment of the DR and PSDH royalties. However, as explained in the following section, P2PSDH/DRs officers have no mechanisms for checking the veracity of the LHP/LP-KHPs production reports they receive.

Figure 7.3. Flowchart on administration relating to LHP logging yield reports



In addition, all of these verification mechanisms can also be ignored under various simple conditions, such as not being inspected within three days and so on. Verification mechanisms can then be replaced by an official statement called an 'Integrity Pact', the accountability mechanisms for which are not regulated. This arrangement provides opportunities for data manipulation, particularly when oversight is not carried out the way it should be. From another perspective, despite its complexities, the Government's timber administration system is entirely reliant on forestry license holders and business entities producing truthful and accurate information.

7.2 The Ministry of Environment and Forestry entrusts its internal controls to verification processes carried out by regional forestry agencies.

If all stages of data and information coordination in internal controls are examined closely, most processes involve the distribution of documents with no clear accountability or verification by the Ministry of Environment and Forestry. All information managed by KLHK and used for decision making originates from an administration that is wholly dependent on verifications conducted by regional forestry agencies. But, as explained in the previous section, such information is rarely adequately verified or managed systematically and transparently. Field research in various regions has frequently found that important documents,

such as licenses, are not managed institutionally, but controlled by certain members of staff in forestry agencies. In some cases, it was found that when these staff members no longer work in these agencies, data or information can no longer be accessed or can even disappear altogether.

Generally, almost all information on timber standing stock, timber production and PNBP collection is managed by the regional forestry agencies, while KLHK has no mechanisms for verification or control. Based on regulations governing natural forests and HTI plantations, only ten-year concession management plans (RKU) are verified by KLHK. Referring to Minister of Forestry Regulations P.33/2014 and P.30/2014, RKUs prepared by license holders must be inspected by the Director General, who can then delegate the task to directors or heads of technical implementation units (UPTs) in accordance with their authority. By inspecting an RKU, the Ministry should also be able to inspect not only all management planned by the license holder, but also standing stock, as the RKU was prepared based on an inventory (IHMB) that has already been approved or conducted by the license holder. However, neither of these ministerial regulations explains decision-making criteria for approving RKUs, so it is not clear what in the RKU should be verified or evaluated. Meanwhile, the verification of IHMB inventories, as explained earlier, is in itself inadequate. For IHMB inventories, and various other forms of information, KLHK is completely dependent on regional forestry agencies.

Figure 7.4. Sample integrity pact

Lampiran Peraturan Menteri Kehutanan
Nomor : P. 14/Menhut-II/2009
Tanggal : 5 Maret 2009

Format Pakta Integritas.

PAKTA INTEGRITAS

Saya, (Nama), (Jabatan) dengan ini menyatakan sebagai berikut :

1. Menggunakan segala potensi yang saya miliki untuk mempercepat pembangunan Hutan Tanaman Industri (HTI) di Provinsi Riau sesuai ketentuan peraturan perundang-undangan yang berlaku;
2. Berperan secara pro-aktif dalam upaya-upaya pencegahan dan pemberantasan korupsi, serta tidak melibatkan diri dalam perbuatan tercela;
3. Melindungi saksi yang menyampaikan informasi penyimpangan pelaksanaan Pakta Integritas ini;
4. Melibatkan Lembaga Independen untuk memantau penerapan Pakta Integritas ini; dan
5. Bila saya melanggar hal-hal tersebut di atas, saya siap menghadapi konsekuensinya.

....., ...20.....

Menyaksikan
(Jabatan Atasan Pembuat Pakta Integritas)

Pembuat Pernyataan,

(N a m a)

(N a m a)

Salinan sesuai dengan aslinya
Kepala Biro Hukum dan Organisasi,

ttd.

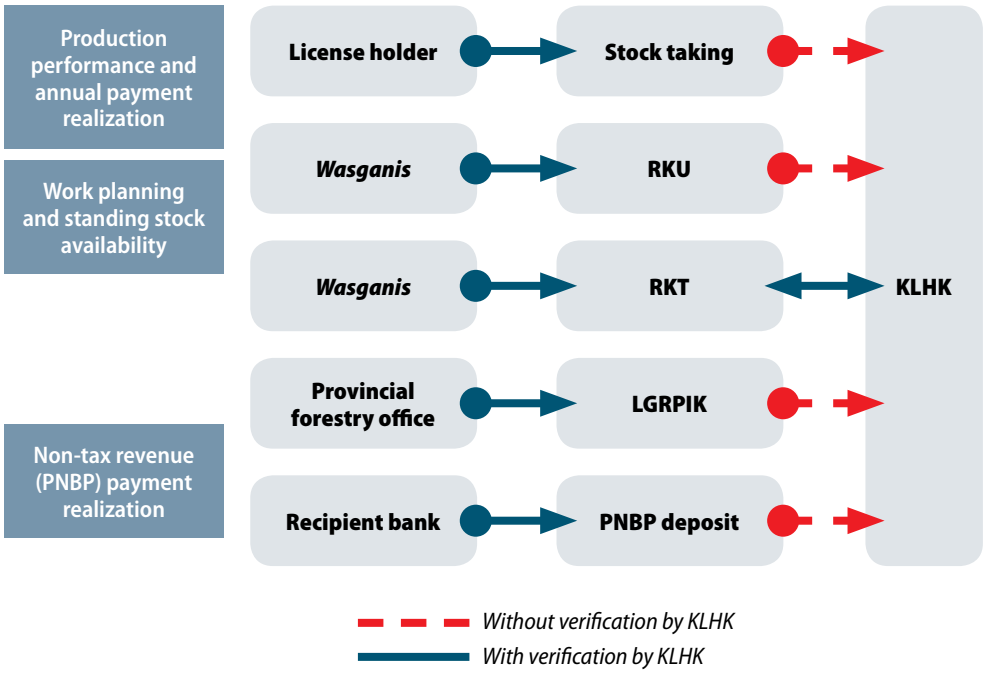
SUPARNO, SH.
NIP. 19500514 198303 1 001

MENTERI KEHUTANAN,

ttd.

H. M.S. KABAN

Figure 7.5. KLHK internal control mechanisms and roles



7.3 Most internal controls are run via a complex document submission system, while current regulations do not provide clear mechanisms for responding to the documents submitted.

One of the main characteristics of current internal controls associated with timber administration and non-tax revenue collection is the submission of documents, including the abovementioned reports, and the forwarding of copies of these documents to relevant agencies. However, this mechanism is inadequate, as documents are often not properly verified, and those receiving copies of documents submitted are not able to use these for implementing specific controls. Current regulatory arrangements provide no instructions for agencies to follow up on document copies that have been received, even when erroneous documents are discovered. The submission of documents, copies and reports is only carried out as an administrative requirement.

As the table below illustrates, few of the 16 (sixteen) documents in timber administration and non-tax revenue collection clearly explain how the institutions to which copies are submitted should respond to the documents they receive. Some do state what follow up should be carried out with the copies, including if any irregularities are found in the forwarded documents. For instance, district and provincial forestry offices are instructed to reconcile forwarded payment orders (*Surat Perintah Pembayaran,* or SPP) and compare them with proof of deposit letters and logging reports every three months and every semester.

One thing that is clearly regulated is when cross checks uncover non-tax revenue payment shortfalls. In such cases, the collection officer must immediately send a non-tax revenue payment order (SPP PNBP). However, not all forwarded documents become the basis for, or are linked to specific internal control mechanisms in timber administration or non-tax revenue collection. At least ten documents that are forwarded to particular institutions cannot be linked with specific control functions.

Table 7.4. Submission of documents and copies for internal control of forest production administration and non-tax revenue collection

NO	DOCUMENT	LICENSE HOLDER	DISTRICT FORESTRY OFFICE	PROVINCIAL FORESTRY OFFICE	PRODUCTION FOREST UPT	KPH	DIRECTOR GENERAL	SECRETARY GENERAL
1	Concession area standing stock inventory (IHMB)	Preparer	Primary recipient (Evaluation)	–	–	–	–	–
2	Ten-year concession management plan (RKU)	Preparer (Evaluation every 5 years to Director General)	CC (*Wasganis*, Implementation oversight)	CC (monthly and annual reports)	CC	CC	Primary recipient (Evaluation and agreement)	–
3	Cruising Report (LHC)	Preparer	Not explained (*Wasganis*, Development and oversight)	Part of the RKT that must be inspected by a *Wasganis*	Not explained	Not explained	Not explained	–
4	Work chart (*Bagan Kerja*)	Preparer	CC (*Wasganis*, Implementation oversight)	Primary recipient (field inspection)	CC	CC	CC	–
5	Annual logging plan (RKT)	Preparer	CC (*Wasganis*, Implementation oversight)	Primary recipient (Field inspection and approval) (Monthly and annual reports to Director General)	CC (Implementation realization recapitulation)	CC	CC (Evaluation, if not conducted by provincial forestry office)	–
6	Timber Measurement Book	Preparer	–	–	–	–	–	–
7	Harvest Report (LHP)/(LK-HP)	Preparer (Approval if P2LHP/ P2LP-KHP does not carry out an inspection)	Primary recipient (*Wasganis* P2LHP/ P2LP-KHP, approval) (P2SKSKB, CC)	CC (PUHH Development and oversight)	CC (PUHH Development and oversight)	CC	–	–
8	Payment Order (*Surat Perintah Pembayaran*)	Primary recipient	Preparer (P2SPP) CC (Quarterly and annual administrative reconciliation, if shortfalls are found the collection officer issues an SPP)	CC (Semestral district forestry office administrative reconciliation, if shortfalls are found the collection officer issues an SPP)	CC	–	–	–
9	Proof of Deposit (Surat Bukti Setoran)	Primary recipient	CC (Quarterly and annual administrative reconciliation, if shortfalls are found the collection officer issues an SPP)	CC (Semestral district forestry office administrative reconciliation, if shortfalls are found the collection officer issues an SPP)	–	–	–	

NO	DOCUMENT	LICENSE HOLDER	DISTRICT FORESTRY OFFICE	PROVINCIAL FORESTRY OFFICE	PRODUCTION FOREST UPT	KPH	DIRECTOR GENERAL	SECRETARY GENERAL
10	Forestry Fee Payment Report (*Laporan Pembayaran Iuran Kehutanan*)	Preparer	Primary recipient	CC	CC	–	–	–
11	Forestry Fee Deposit Realization Statement (*Laporan Realisasi Penyetoran Iuran Kehutanan*)	–	Preparer	Primary recipient	CC	–	CC	CC (quarterly SPP-PNBP reconciliation with deposits with the Ministry of Finance)
12	Forestry Fee Payment Realization Combined Statement (*Laporan Gabungan Realisasi Penyetoran Iuran Kehutanan*)	–	–	Preparer	CC	–	CC	–
13	Timber transport document (*Surat Keterangan Sahnya Kayu Bulat*)	Applicant	Primary recipients (P2SKSKB, issuer) (P3KB, physical inspection and administration)	–	–	–	–	–
14	Log Mutation Report (*Laporan Mutasi Kayu Bulat*)	Preparer	–	–	–	–	–	–
15	Stock taking report (*Berita Acara Stock Opname*)	Preparer	Preparer (P2LP-KHP/ P2LHP) Primary recipients (forestry office heads)	CC	CC	–	–	–
16	Production and payment realization report (*Laporan Produksi dan Realisasi Pembayaran*)	Preparer	Primary recipient	CC	CC	–	CC	–

As an example, in addition to the various documents directly relating to timber administration, license holders must also prepare Stock Taking Reports, or production reports and payment reports for submission to district/ municipal forestry offices. Copies of these documents must also be sent to other agencies, including provincial forestry offices, technical implementation units (UPTs) and the Director General. However, current rules do not explain how recipients should use these copies of stock taking, production or payment reports, bearing in mind the same information is already available in various other reports and administrative documents.

A further consequence is that all of these documents ultimately illustrate critical points in timber production administration and non-tax revenue collection systems, bearing in mind each stage has the potential to provide

room for moral hazard to occur. When their complexities are factored in, these crisis points also become opportunities for errors and even manipulation that weaken oversight and control functions. As an example, current documents are prepared only as formalities, so systemically these points in timber administration and non-tax revenue collection in fact become points of vulnerability to corruption and other criminal acts. Information secured from discussions with BP2HPs indicate a current trend where, to avoid complications, logs felled through land-clearing processes often end up not being administered, or even sold in timber markets, but are instead buried to avoid the complications and informal costs associated with timber administration.

Figure 7.6. Timber felled without being administered and buried in the ground

Source: East Kalimantan BP2HP report

7.4 The flow of documents relating to timber movement and non-tax revenue collection is administered in a fragmented manner, adding complexity and chances of errors in non-tax revenue collection.

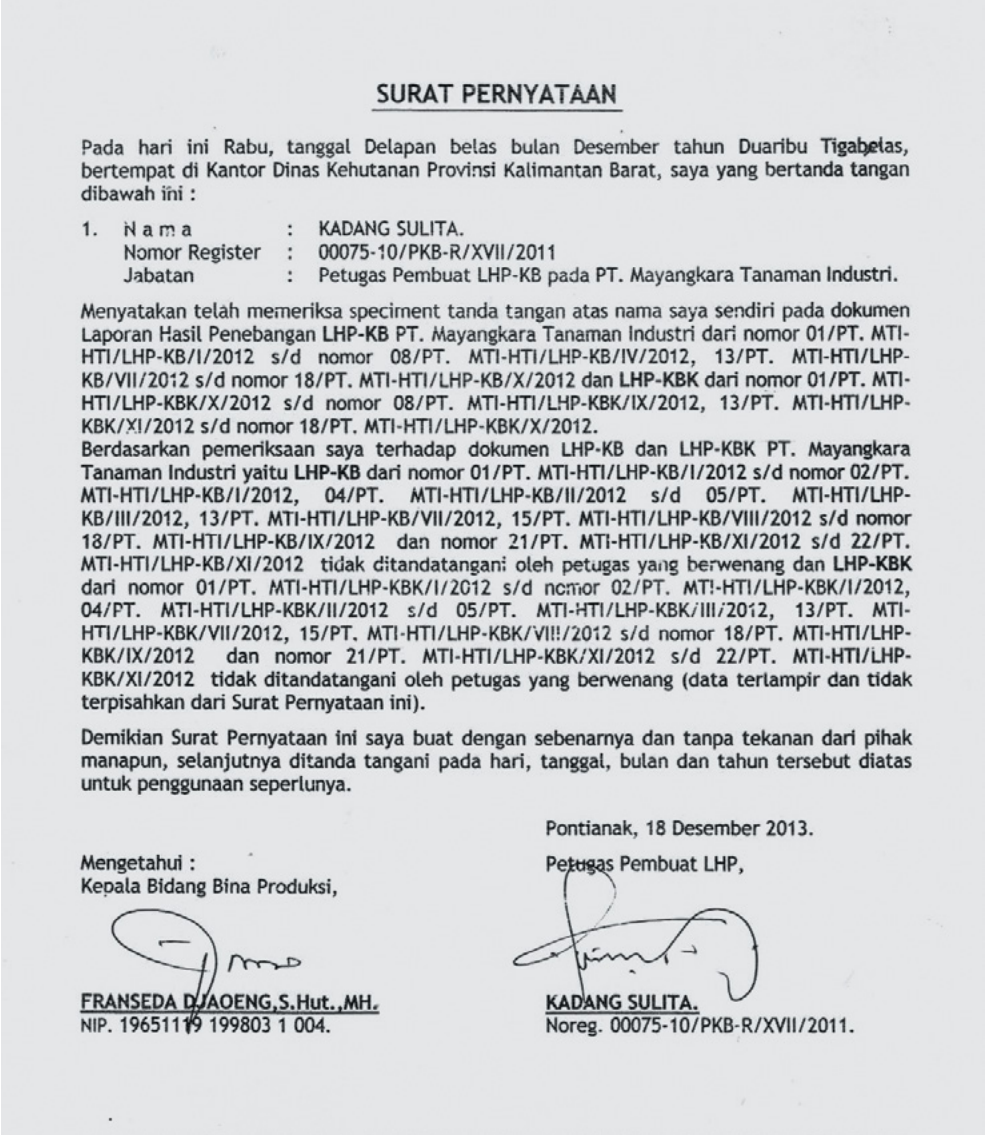
Timber administration in the forestry sector tends to be extremely complicated. However, the 17 documents that have to be prepared for approval, or issued by the various levels of the forestry hierarchy, generally do not strengthen control objectives because each stage or document in its administration is either fragmented and/or not interconnected. Possibilities of fragmentation occurring in timber administration and non-tax revenue collection come in various forms: 1) document requirements, 2) control mechanism workflow, and 3) provision of information used for decision making or oversight. In several ways, each stage or document becomes merely a formal prerequisite for the following stage, so data or information in documents can easily be manipulated or even passed over without being tested or overseen directly.

Table 7.5. Timber administration documents and their requirements

NO.	DOCUMENT	PRECONDITIONS	USES
1	Concession Area Standing Stock Inventory (IHMB)	Concession area, inventory	Determine rotation, harvest quota
2	Ten-year Concession Management Plan (*Rencana Kerja Umum*)	IHMB	Silviculture, concession arrangement, rotation
3	Cruising Report (LHC)	RKU or BKU	Annual harvest quota
4	Work Chart (*Bagan Kerja*)	–	RKT
5	Annual Logging Plan (*Rencana Kerja Tahunan*)	RKU, LHC	RKT, annual harvest quota

NO.	DOCUMENT	PRECONDITIONS	USES
6	Timber Measurement Book	Logging, RKT	Record all harvest production
7	Harvest Report (LHP)	Timber Measurement Book	Record all harvest production by period
8	Payment order (*Surat Perintah Pembayaran*)	LHP	Record non-tax revenue payment obligations
9	Proof of deposit (*Surat Bukti Setor*)	SPP, Payment	Proof of payment in accordance with payment order
10	Timber transport document (*Surat Keterangan Sahnya Kayu Bulat*)	LHP, Proof of Deposit	Proof that logs being transported are legal and non-tax obligations have been paid

Almost all existing timber administration documents basically constitute preconditions for other stages. Results of IHMB inventories of standing stock form the basis for preparing ten-year concession management plans (RKUs) and so on, up to the issue of transport documents like SKSKB letters, which explain that timber being transported has been obtained legally and that financial obligations have been met. Looking at the flow of documents, it is clear that each stage in the timber administration process is carried out based on other formal documents. However, looking at the ways in which mechanisms for control are fragmented, it is apparent that formal requirements alone are inadequate as instruments of control.



SURAT PERNYATAAN

Pada hari ini Rabu, tanggal Delapan belas bulan Desember tahun Duaribu Tigabelas, bertempat di Kantor Dinas Kehutanan Provinsi Kalimantan Barat, saya yang bertanda tangan dibawah ini :

1. Nama : KADANG SULITA.
   Nomor Register : 00075-10/PKB-R/XVII/2011
   Jabatan : Petugas Pembuat LHP-KB pada PT. Mayangkara Tanaman Industri.

Menyatakan telah memeriksa speciment tanda tangan atas nama saya sendiri pada dokumen Laporan Hasil Penebangan **LHP-KB** PT. Mayangkara Tanaman Industri dari nomor 01/PT. MTI-HTI/LHP-KB/I/2012 s/d nomor 08/PT. MTI-HTI/LHP-KB/IV/2012, 13/PT. MTI-HTI/LHP-KB/VII/2012 s/d nomor 18/PT. MTI-HTI/LHP-KB/X/2012 dan **LHP-KBK** dari nomor 01/PT. MTI-HTI/LHP-KBK/X/2012 s/d nomor 08/PT. MTI-HTI/LHP-KBK/IX/2012, 13/PT. MTI-HTI/LHP-KBK/XI/2012 s/d nomor 18/PT. MTI-HTI/LHP-KBK/X/2012.
Berdasarkan pemeriksaan saya terhadap dokumen LHP-KB dan LHP-KBK PT. Mayangkara Tanaman Industri yaitu **LHP-KB** dari nomor 01/PT. MTI-HTI/LHP-KB/I/2012 s/d nomor 02/PT. MTI-HTI/LHP-KB/I/2012, 04/PT. MTI-HTI/LHP-KB/II/2012 s/d 05/PT. MTI-HTI/LHP-KB/III/2012, 13/PT. MTI-HTI/LHP-KB/VII/2012, 15/PT. MTI-HTI/LHP-KB/VIII/2012 s/d nomor 18/PT. MTI-HTI/LHP-KB/IX/2012 dan nomor 21/PT. MTI-HTI/LHP-KB/XI/2012 s/d 22/PT. MTI-HTI/LHP-KB/XI/2012 tidak ditandatangani oleh petugas yang berwenang dan **LHP-KBK** dari nomor 01/PT. MTI-HTI/LHP-KBK/I/2012 s/d nomor 02/PT. MTI-HTI/LHP-KBK/I/2012, 04/PT. MTI-HTI/LHP-KBK/II/2012 s/d 05/PT. MTI-HTI/LHP-KBK/III/2012, 13/PT. MTI-HTI/LHP-KBK/VII/2012, 15/PT. MTI-HTI/LHP-KBK/VIII/2012 s/d nomor 18/PT. MTI-HTI/LHP-KBK/IX/2012 dan nomor 21/PT. MTI-HTI/LHP-KBK/XI/2012 s/d 22/PT. MTI-HTI/LHP-KBK/XI/2012 tidak ditandatangani oleh petugas yang berwenang (data terlampir dan tidak terpisahkan dari Surat Pernyataan ini).

Demikian Surat Pernyataan ini saya buat dengan sebenarnya dan tanpa tekanan dari pihak manapun, selanjutnya ditanda tangani pada hari, tanggal, bulan dan tahun tersebut diatas untuk penggunaan seperlunya.

Pontianak, 18 Desember 2013.

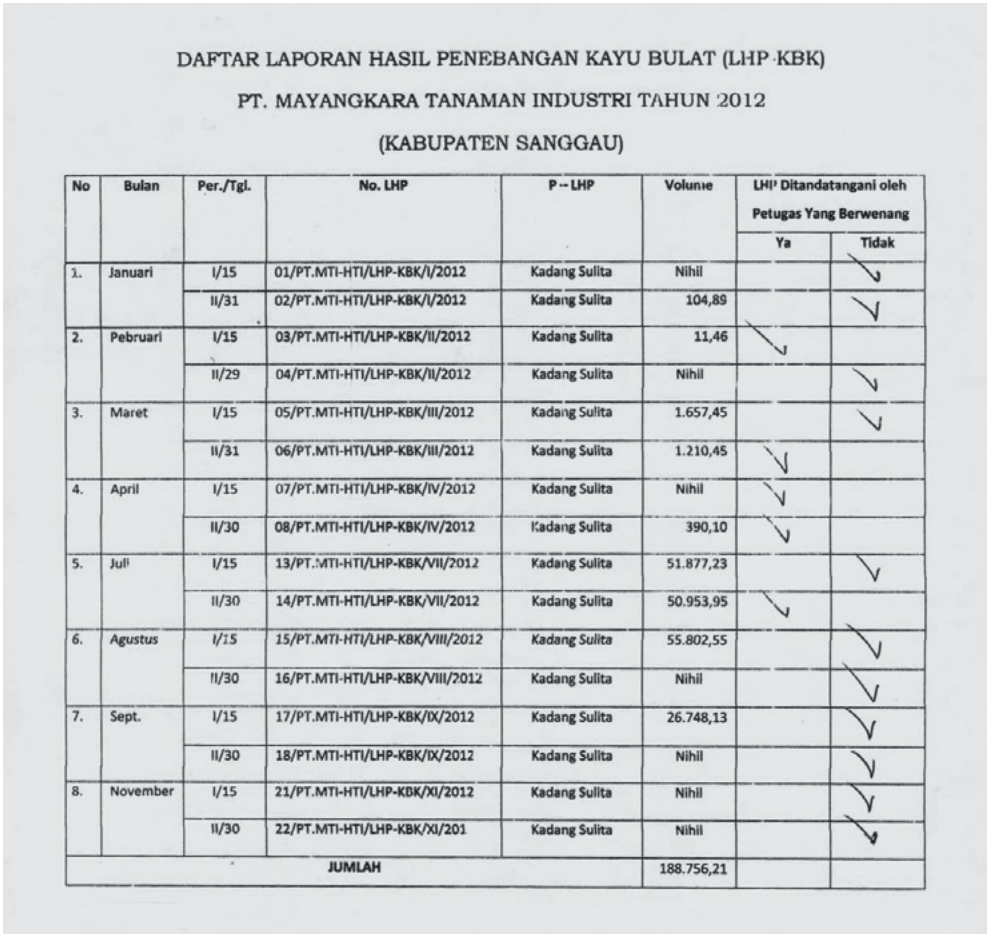
Mengetahui :
Kepala Bidang Bina Produksi,

FRANSEDA DJAOENG,S.Hut.,MH.
NIP. 19651119 199803 1 004.

Petugas Pembuat LHP,

KADANG SULITA.
Noreg. 00075-10/PKB-R/XVII/2011.

Figure 7.7. Statement from P2LHP officer refuting the veracity of PT MTI's LHP-KB log production report



DAFTAR LAPORAN HASIL PENEBANGAN KAYU BULAT (LHP-KBK)

PT. MAYANGKARA TANAMAN INDUSTRI TAHUN 2012

(KABUPATEN SANGGAU)

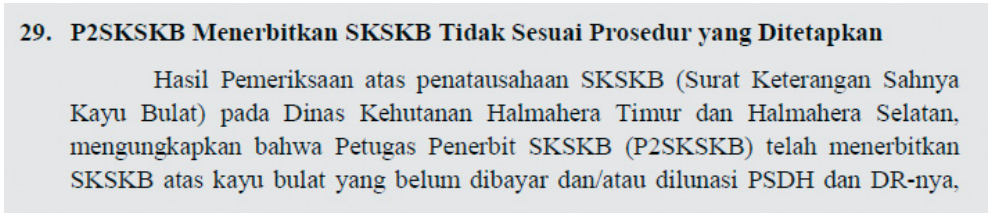
No	Bulan	Per./Tgl.	No. LHP	P -- LHP	Volume	LHP Ditandatangani oleh Petugas Yang Berwenang	
						Ya	Tidak
1.	Januari	I/15	01/PT.MTI-HTI/LHP-KBK/I/2012	Kadang Sulita	Nihil		√
		II/31	02/PT.MTI-HTI/LHP-KBK/I/2012	Kadang Sulita	104,89		√
2.	Pebruari	I/15	03/PT.MTI-HTI/LHP-KBK/II/2012	Kadang Sulita	11,46	√	
		II/29	04/PT.MTI-HTI/LHP-KBK/II/2012	Kadang Sulita	Nihil		√
3.	Maret	I/15	05/PT.MTI-HTI/LHP-KBK/III/2012	Kadang Sulita	1.657,45		√
		II/31	06/PT.MTI-HTI/LHP-KBK/III/2012	Kadang Sulita	1.210,45	√	
4.	April	I/15	07/PT.MTI-HTI/LHP-KBK/IV/2012	Kadang Sulita	Nihil	√	
		II/30	08/PT.MTI-HTI/LHP-KBK/IV/2012	Kadang Sulita	390,10	√	
5.	Juli	I/15	13/PT.MTI-HTI/LHP-KBK/VII/2012	Kadang Sulita	51.877,23		√
		II/30	14/PT.MTI-HTI/LHP-KBK/VII/2012	Kadang Sulita	50.953,95	√	
6.	Agustus	I/15	15/PT.MTI-HTI/LHP-KBK/VIII/2012	Kadang Sulita	55.802,55		√
		II/30	16/PT.MTI-HTI/LHP-KBK/VIII/2012	Kadang Sulita	Nihil		√
7.	Sept.	I/15	17/PT.MTI-HTI/LHP-KBK/IX/2012	Kadang Sulita	26.748,13		√
		II/30	18/PT.MTI-HTI/LHP-KBK/IX/2012	Kadang Sulita	Nihil		√
8.	November	I/15	21/PT.MTI-HTI/LHP-KBK/XI/2012	Kadang Sulita	Nihil		√
		II/30	22/PT.MTI-HTI/LHP-KBK/XI/201	Kadang Sulita	Nihil		√
JUMLAH					188.756,21		

Figure 7.8. Annex to the statement listing LHP logging yield reports not signed by the relevant official(s)

Although certain documents are frequently required at one stage of the timber reporting process, in practice not all of these can be used as instruments of control during the following stage, not least because they cannot be fully verified. An example is LHP production reports being submitted to PSDH/DR collection officers as the basis for issuing SPP invoices, while PSDH/DR collection officers have no mechanisms for verifying the accuracy of the LHP/KHP production reports they receive, or whether they really have been issued by those with the authority to do so. Each stage of administration can only test one step back, and even then, information included in reports often cannot be verified when irregularities are discovered in the field. If P2LHP officers do not issue statements like the one shown above, it will be difficult for other institutions, including KLHK itself, to determine the veracity of timber production reports submitted by license holders.

Further fragmentation occurs with the layers through which information is provided. Findings show that available control systems do not provide information that can be tested or cross-checked. For example, with an LHC cruising report, it should be possible to calculate available timber potential in a given felling block. However, in reality an LHP production report cannot guarantee that the timber or standing stock harvested was the same timber or standing stock listed in the LHC cruising document. Despite a harvest having to be based on the harvest quota determined by the LHC, the LHP is not necessarily based on information in the LHC. Information in LHPs or LHCs is insufficient or inadequate for ensuring that the timber harvested originated from the felling block in accordance with the law. Generally, these administrative mechanisms provide no clear purpose regarding what information must be used from the documents that would constitute a precondition for the verification of documents at the next stage – including how to verify them.

In addition, unsupervised manipulation of information or documents can result in the failure of the entire oversight or internal control system. To overcome this, governance institutions for timber administration or non-



29. **P2SKSKB Menerbitkan SKSKB Tidak Sesuai Prosedur yang Ditetapkan**

Hasil Pemeriksaan atas penatausahaan SKSKB (Surat Keterangan Sahnya Kayu Bulat) pada Dinas Kehutanan Halmahera Timur dan Halmahera Selatan, mengungkapkan bahwa Petugas Penerbit SKSKB (P2SKSKB) telah menerbitkan SKSKB atas kayu bulat yang belum dibayar dan/atau dilunasi PSDH dan DR-nya,

Figure 7.9. Officers issuing SKSKB log transport permits are found to have issued SKSKBs without following procedures (BPK-RI audit 2012)

tax revenue collection should regulate more specific internal controls beyond the existing document verification mechanisms. This could include, for instance, reconciliation of non-tax revenues being regulated every three months between forestry agencies and license holders and right up to the KLHK and Ministry of Finance levels. It could also include post-harvest stock taking activities. Controls outside the timber administration workflow could also function as mechanisms for the Government to look at internal controls beyond formal documents that are only partial in nature.

Table 7.6. KLHK controls in timber administration

NO.	STAGE	CONTROL	FOLLOW-UP ACTION
1	Determining harvest planning	Not regulated	Not regulated
2	Logging or harvesting	Stock taking	Not regulated
3	Non-tax revenue collection	Administrative and financial reconciliation	Collection Officer collects payments
4	Timber transport	Stock taking	Not regulated

Referring to Minister of Forestry Regulations No. P.41/2014 and P.42/2014, KLHK also manages a stock taking mechanism aimed specifically at cross checking the timber production administration, transport and log availability report data submitted by P2LHP officers and license holders at the end of every year. Nevertheless, arrangements on stock taking, how conclusions can be drawn, and how follow up is managed are not regulated clearly. This also includes how to determine whether violations constitute administrative infringements, requiring guidance or administrative reprimands, or whether they are criminal violations. It should also be stressed that any manipulation of data or information that results in state losses constitutes a criminal act under Law No. 20/1997.

Errors and manipulation in timber transport processes have been revealed, at least partially, by external audits, although these too have certain limitations, as will be discussed in the next section. Findings in various audits submitted by the Supreme Audit Agency (BPK) have put considerable emphasis on logs being transported without non-tax revenue obligations being paid. Without these audits, KLHK basically has no control mechanism for examining the movement of timber – except through general administration such as Industry Raw Material Supply Plans (RPBBI), which, as explained in a previous section, are not easy to verify.

Of course, cross checking does not necessarily guarantee laws will not be broken or regulations will be complied with. Findings report that even with existing control mechanisms, the potential remains for state losses in their implementation. BPK audits have documented various types of administrative non-compliance, including the issuing of SKSKB transport documents without LHP production reports, and non-payment of PSDH and DR. BPK audit findings, for instance, recorded the harvesting and transportation of *Merbau* logs without LHP production reports. During an audit, large *Merbau* logs with diameters ranging from 44–128 cm that had not been recorded in the LHP were discovered at the PT JDIPI log pond. This finding of 216 m^3 of unreported *Merbau* logs amounted to Rp. 32 million in uncollected PSDH and US$ 2,800 in lost DR.

Figure 7.10. BPK findings on SKSKBs being issued without prior settlement of DR and PSDH

Rekapitulasi Penerbitan SKSKB pada Kabupaten Halmahera Selatan yang Tidak Sah

No	Pemegang IUPHHK-HA/HT/IPK	SKSKD Diterima Tim	SKSKB Sah dan Legal					SKSKB Tidak Sah dan Ilegal									
								Pembayaran PSDH dan DR terlambat					Belum ada Pembayaran PSDH dan DR *)				
			Jml	Vol	K. Indah	Meranti	R. Camp	Jml	Vol	K. Indah	Meranti	R. Camp	Jml	Vol	K. Indah	Meranti	R. Camp
A.	IUPHHK HA/HT																
1	PT. Telaga Bakti Persada	18	17	34.081,40	68,01	29.070,63	4.942,76	1	1.357,93	1,92	842	514,01	0	-	-	-	-
2	PT. Bela Berkat Anugerah	4	1	5.082,95	-	2.809,04	2.273,91	1	6.229,50	-	3.317,93	2.911,57	2	3.873,99	-	2.076,80	1.797,19
	Jumlah A	22	18	39.164,35	68,01	31.879,67	7.216,67	2	7.587,43	1,92	4.159,93	3.425,58	2	3.873,99	-	2.076,80	1.797,19
B.	IPK																
1	BUMD Prima Niaga	2	2	4.664,65	-	824,91	3.839,94	0	*				0	-	-	-	-
2	UD. Mutiara Hati	2	2	3.605,93	-	1.064,25	1.741,68	0	-	-	-	-	0	-	-	-	-
	Jumlah B	4	4	8.270,78	-	2.689,16	5.581,62	0	-	-	-	-	0	-	-	-	-
	Total A + B	26	22	47.435,13	68,01	34.568,83	12.798,29	2	7.587,43	1,92	4.159,93	3.425,58	2	3.873,99	-	2.076,80	1.797,19

Perhitungan Nilai Kayu Tidak Sah dan Ilegal

No	Kelompok Kayu	Volume (M^3)	H. Patokan* (Rp)	Nilai Kayu (Rp)
1	Kayu Indah	1,92	1.086.000,00	2.085.120,00
2	Kayu Meranti	6.236,73	600.000,00	3.742.038.000,00
3	Kayu Rimba Campuran	5.222,77	360.000,00	1.880.197.200,00
	Jumlah	11.461,42	2.046.000,00	5.624.320.320,00

*) Harga Kayu berdasarkan Harga Patokan Kayu menurut Permendag Tahun 2007

Source: BPK-RI Audit 2012

Daftar Kayu Bulat Jenis Merbau yang Belum Diterbitkan LHP
Di TPK Hutan PT JDIPI

No	No Panduan Kayu	Petak dan No LHC	Panjang (m)	Diameter (cm)					Volume (m^3)
				Pangkal		Ujung		Rata-rata	
1	2	3	4	5	6	7	8	9	10
1	206	30BD-342	13,80	42	50	47	63	51	2,76
2	9	-	9,50	142	144	114	110	128	12,12
3	1188	-	17,20	104	104	84	86	95	12,06
4	427	-	7,00	-	-	94	100	97	5,17
5	1170	-	17,30	80	80	64	66	73	7,14
6	1189	-	16,00	75	67	60	63	66	5,51
7	555	30BD-1727	17,85	70	80	70	85	76	8,15
8	1172	-	17,72	78	80	68	72	75	7,72
9	1151	-	10,20	52	52	59	63	57	2,56
10	1114	-	18,70	66	63	52	52	58	4,98
11	1192	-	15,00	72	75	62	63	68	5,44
12	475	30BD-512	18,20	60	68	58	53	60	5,10
13	647	-	16,00	50	58	44	46	50	3,08
14	738	30BD-2455	12,20	70	80	67	67	71	4,83
15	1152	-	11,20	50	50	46	50	49	2,11
16	763	30BD-2159	9,30	83	74	70	70	74	4,02
17	854	-	14,20	55	54	60	60	57	3,65
18	766	-	10,00	74	68	57	62	65	3,34
19	532	30BD-1610	9,30	60	64	50	50	56	2,29
20	453	30BD-691	10,00	77	81	60	62	70	3,85
21	452	30BD-1321	11,00	59	59	63	62	61	3,19
22	1173	-	16,00	72	66	50	54	61	4,60
23	646	-	13,00	78	76	50	65	67	4,62
24	-	-	14,00	60	50	50	50	53	3,03
25	656	-	13,00	60	78	60	65	66	4,41
26	623	-	12,00	74	73	60	65	68	4,36
27	683	-	12,70	48	44	40	45	44	1,95
28	1216	-	19,20	56	55	69	65	61	5,65
29	1222	-	13,60	70	69	100	81	80	6,83
30	1240	-	11,90	44	40	65	60	52	2,55
31	1230	-	17,70	80	100	135	120	109	16,43
32	1154	30BF-1929	15,60	100	117	105	106	107	14,02
33	1174	30BF-621	13,60	156	140	160	140	149	23,70
34	1156	30BF-1917	12,80	100	100	-	-	50	2,51
35	1220	-	13,30	50	50	54	60	54	2,99
36	1241	-	21,80	35	40	58	60	48	3,98
37	104	30BF-1730	15,80	50	45	64	57	54	3,62
35	1234	-	7,00	60	70	73	73	69	2,62
Total Kayu Merbau									216,94

Kewajiban PSDH (Ruplah) = 10% x Rp1.500.000,00 x Volume	32.541.000,00
Kewajiban DR (USD) = USD 13.00 x Volume	2.820,22

Source: BPK-RI Audit 2012

Table 7.7. Movement of timber without LHP logging yield reports

7.5 Incentives for manipulation by forestry officials in important positions are very strong and opportunities for doing so are wide open.

Regional forestry authorities face strong incentives to accept bribes, and with such weak oversight, they often have ample opportunities for doing so. The Government is unable, for example, to provide adequate logistical support for forestry officials to conduct oversight of timber company operations. It is often the case that the companies being monitored provide forestry staff with transport and accommodations during field visits. In an interview, it was revealed that for a day's oversight of a timber concession, a forestry officer is given no more than 50% of the budgeted amount that should be paid for going to the field.[1] For regions that are inaccessible to land vehicles, such budgets can be huge. Such budget shortfalls must finally be covered by contributions from forestry license holders. Irrational payment standards for supervisory officers ultimately lead to weak oversight becoming systemic and supervisory mechanisms facilitating the payment of bribes and other criminal acts.

Table 7.8. Payment standards for forest timber administration and PNBP collection

NO.	DOCUMENT	VERIFIER	PAID BY	REGULATION
1	Concession Area Standing Stock Inventory Report (IHMB)	*Wasganis PHPL-Canhut*	License holder	P.33/2014, Art. 3 (4) and P.30/2014, Art. 4 (6)
2	Ten-year Concession Management Plan (RKU)	Director General	The Government	P.33/2014, Art. 7 (1)
3	Cruising Report (LHC)	*Wasganis PHPL-Canhut*	Not stated. But district forestry offices pay for APL	Not stated. For APL see Director General Regulation P.3/VI-BIKPHH/2014.
4	Work Chart (*Bagan Kerja*)	*Wasganis PHPL-Canhut*	Applicant	P.33/2014, Art. 20 (4) and P.30/2014, Art. 25 (4)
5	Annual Logging Plan (RKT)	*Wasganis PHPL-Canhut*	License holder	P.33/2014, Art. 13 (4) and P.30/2014, Art.10 (1)
7	Harvest Report (LHP) or (LK-HP)	*Wasganis PHPL-PKB*	Not stated	Not stated
8	Timber transport document (*Surat Keterangan Sahnya Kayu Bulat*)	*P2SKSKB (Wasganis PHPL-PKB)*	Not stated	Not stated
9	Log receipt register (*Daftar Penerimaan Kayu Bulat*)	*P3KB (Wasganis PHPL-PKB)*	Not stated	Not stated

In addition, many budgets or expenditures for internal control mechanisms are charged to license holders as forms of public service costs. When the costs of important components of the oversight process (for instance, assessing standing stock prior to harvest or evaluating reported timber production) are charged to concession holders, this is accompanied by significant risks that internal controls will be weakened. The regulations framing timber administration for both natural forests and HTI plantations do not clearly specify standard costs for inspections, evaluations or verification of documents.

As an example, forestry companies bear the costs of overseeing LHP and LK-HP timber production reports and LHC cruising reports, as well as timber cruising recapitulations and log receipt registers (DPKBs), even though

1 In an interview, a *Wasganis* stated that the travel budget for on-site supervision was only around Rp. 150,000 per visit.

these documents must be approved and inspected in the field. DPKB registers, for instance, must be inspected by P3KB officers in ports receiving logs. Under such conditions, both inspectors and license holders often have a common interest (Obidzinski 2004). For license holders, this becomes an opportunity to weaken the control function, which they have a strong incentive to exploit if it enables them to capture significant economic rent. When such informal costs are considered economically rational, as found in interviews, some companies even give monthly wages to the forestry agency's in-field supervisor (i.e. the *Wasganis*) to 'facilitate' administration of their forest products. When this happens, oversight mechanisms are not only vulnerable to bribery and other crimes, but also become structurally corrupt.

Chapter 8: External accountability mechanisms are inadequate for preventing state losses from manipulation of information on timber production and non-tax revenue collection.

Within the structure of the Indonesian state, few institutions hold as much administrative authority as that vested in the Ministry of Environment and Forestry. Under the nation's basic forestry laws, KLHK is assigned primary responsibility to oversee the management, exploitation, and use of all forest resources located within the Forest Estate, which covers 131 million hectares. In exercising its authority over these resources, KLHK has prioritized commercial timber production from selective logging and land clearing and the collection of PNBP forestry revenues. In managing both the underlying forest resource and the collection of PNBP revenues, KLHK holds a responsibility to ensure these are managed in a way that supports economic growth, conserves forests, and provides equity and justice for the Indonesian people.

To a significant degree, the high levels of unreported timber production and under-collection of PNBP revenues in the forestry sector have been facilitated by the absence of effective external controls to ensure KLHK is fulfilling these responsibilities. This chapter examines four areas where external controls over KLHK's administration of timber production and collection of PNBP have not functioned effectively. These include: inefficient coordination between KLHK and the Ministry of Finance in setting accountable PNBP collection targets; the absence of a comprehensive audit of PNBP forestry revenue collection by Indonesia's Supreme Audit Agency (BPK-RI); institutional weaknesses in the Government's SVLK timber legality verification system; and the limited public accountability demonstrated by KLHK in releasing accurate and verifiable data on timber production and PNBP collection.

8.1 The Ministry of Finance holds ultimate authority for overseeing collection of PNBP by the Government, but it has done little to hold the Ministry of Environment and Forestry accountable for the low levels of PNBP collected in the forestry sector.

According to Law No. 20/1997 on Non-Tax State Revenues, the Ministry of Finance is responsible for overseeing the collection of PNBP revenues from all sources, including forests and other natural resources. The Ministry of Finance is allowed to delegate responsibility to invoice (*menagih*) and collect (*memungut*) PNBP to relevant Government institutions (*Instansi Pemerintah*), which in turn are required to deposit revenues collected into the National Treasury account (*rekening Kas Negara*) (Article 6 paragraph 1 and 2). These institutions are charged with carrying out this function under the oversight of the Ministry of Finance, and they are subject to legal sanctions if they fail to fulfill these responsibilities (Article 6 paragraph 3). In the forestry sector, the Ministry of Finance has delegated authority to collect PNBP to the Ministry of Environment and Forestry (PP No. 12/2014 and P.52/2014).

In carrying out this function, KLHK is required to submit to the Ministry of Finance routine written plans for PNBP collection and reports of amounts collected in order to ensure the administration of PNBP is planned

and orderly *(agar pengelolaan Penerimaan Negara Bukan Pajak terencana dan tertib)* (Article 7 paragraph 1 Law No. 20/1997 and its elucidation). KLHK is required to submit these reports every three months in the form of a *Laporan Realisasi PNBP Triwulan* (PP No. 1/2004). According to interviews with officials at KLHK and the Ministry of Finance, the content of these reports is generally limited to quantitative summaries of planned and realized receipts from the various royalties, levies, and fees that make up the PNBP in the forestry sector; the amounts transferred to the National Treasury account *(Rekening Kas Umum Negara);* as well as the balance of funds in the Forestry Development Account (*Rekening Pembangunan Hutan)* and other depository accounts held by KLHK to manage PNBP receipts.[1,2]

In reviewing these reports, the Ministry of Finance generally does little more than to assess whether previously reported receipts have been transferred to the National Treasury Account and whether the balances in the various accounts match with the financial reports. Without access to accurate data on commercial timber production, the Ministry of Finance has little basis to evaluate whether the annual PNBP collection targets submitted by KLHK are a reasonable reflection of the amounts that should be collected. Moreover, without reliable information on the amounts of PNBP owed and/or collected either by payer (*Wajib Bayar*) or by region, the Ministry of Finance has no direct means to determine whether the receipts reported by KLHK are accurate based on the volumes of wood actually harvested. In short, the Ministry of Finance's external oversight of KLHK's collection of PNBP in the forestry sector is extremely limited and apparently has not gone beyond reconciling receipts after they have entered Government accounts.

The failure of the Ministry of Finance to exercise greater oversight over KLHK's collection of PNBP revenues in the forestry sector, however, cannot be attributed to a lack of data alone. Based on Law No. 20/1997, Article 14, paragraph 2, the Ministry of Finance can request the Finance and Development Supervisory Board (*Badan Pengawasan Keuangan dan Pembangunan,* or BPKP) to conduct a special purpose audit of KLHK's timber product administration and PNBP revenue collection systems. Given the high rates of deforestation and illegal logging that have been documented in Indonesia over the past decade, it is surprising that the Ministry of Finance has not made such a request and taken more direct steps to strengthen KLHK's performance in PNBP revenue collection.

8.2 The Supreme Audit Agency (BPK-RI) has not yet conducted a comprehensive audit of KLHK's administrative systems for timber production and PNBP collection, and routine audits of KLHK's financial statements have not examined how much revenue should be collected.

According to Law No. 15/2006, BPK-RI is an independent agency with a mandate to audit the management of state finances by the Central Government, Local Government, State Institutions, Bank Indonesia, State-Owned Enterprises, Public Service Boards, Region-Owned Enterprises and other agencies or institutions which manage state finances.[3] BPK-RI conducts financial audits, performance audits, and special purpose audits.[4] It holds authority to determine the value of state losses caused by violations of the law, whether through intent or negligence, committed by the treasurers or managers of state-owned enterprises, region-owned enterprises, agencies, or institutions that manage state finances.[5]

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1 For the DR, these accounts include: 1) *Rekening DR Murni, giro dalam dolar AS*; 2) *Rekening Tunggakan DR, giro dalam dolar AS*; and *Rekening Pengembalian Pinjaman, giro dalam rupiah*.

2 For the PSDH, these accounts include: 1) *Rekening PSDH Murni, giro dalam rupiah*; and 2) *Rekening Tunggakan PSDH, giro dalam rupiah*.

3 Law No. 15/2006 on the Supreme Audit Agency, Article 6, paragraph 1

4 Law No. 15/2006 on the Supreme Audit Agency, Article 6, paragraph 3

5 Law No. 15/2006 on the Supreme Audit Agency, Article 10, paragraph 1

During the study period, BPK-RI conducted numerous special purpose audits focusing on the administration of PNBP and other issues related to the management of state finances in the forestry sector. These audits were carried out at the national level and at the provincial and district levels in several of the major timber producing regions. Collectively, these audits served an extremely important function by identifying specific cases of state loss, documenting weaknesses in PNBP revenue collection and management by state institutions and agencies at each level, and offering recommendations for how these could be addressed.

As an example, a special purpose audit released by BPK-RI in 2012 examined forestry sector PNBP management, the Forest Development Account, and the forestry Natural Resources Profit Sharing Fund for fiscal years 2009 until the third quarter of 2011 in the Ministry of Forestry, Ministry of Finance, provincial and district/municipal governments, as well as other relevant institutions in Jakarta, Riau, South Sumatra, East Java, West Kalimantan, Central Kalimantan, East Kalimantan, North Maluku, West Papua, and Papua.[6] In the audit report, BPK-RI listed 29 findings covering specific cases of state loss, weaknesses in financial management, and violations of laws and regulations. BPK-RI summarized its conclusions as follows:

> *The BPK audit concludes that the Internal Control Systems (Sistem Pengendalian Internal, or SPI) for managing PNBP, the Forest Development Account (Rekening Pembangunan Hutan, or RPH), and the forestry Natural Resource Profit Sharing Fund (Dana Bagi Hasil Sumber Daya Alam, or DBH SDA) are inadequate and have yet to meet the principle of compliance. This is because of the continuing presence of weak policies and weaknesses in PNBP collection, and management of the RPH, and forestry DBH SDA, which increase risks of PNBP targets not being achieved, state losses, and forest degradation. . . .*

Although these special purpose audits document extensive problems in the collection and administration of PNBP in the forestry sector, BPK-RI has never conducted a comprehensive audit to determine the overall scale of state losses from unreported timber production and the under-collection of PNBP revenues. With the current study estimating such large state losses, it is now essential that BPK-RI carry out a thorough audit of the state's administrative systems for overseeing timber production and the collection of PNBP in the forestry sector.

The general objective of such a comprehensive audit is to provide input for improving the forestry PNBP collection system in order to prevent further state losses from under-collection of DR, PSDH, PNT, and PKH revenues. Specific objectives are as follows:

1. Calculating timber production amounts licensed by the central and/or regional governments in the audit period;
2. Estimating actual amounts of timber produced in the audit period;
3. Calculating the amounts of DR, PSDH, PNT, and PKH the central Government should have received in the audit period;
4. Calculating the amounts of forestry resources PNBP collected in accordance with prevailing laws and regulations;
5. Calculating the amounts of uncollected, under-collected and overdue forestry PNBP revenues;
6. Assessing the quality of internal controls for forestry PNBP collection systems;

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6 Supreme Audit Agency of the Republic of Indonesia, Audit Report (Special Purpose Audit) Fiscal Year 2011, Semester II – forestry sector PNBP management, the Forest Development Account, and the Forestry Natural Resources Profit Sharing Fund for fiscal years 2009 until the third quarter of 2011 in the Ministry of Forestry, Ministry of Finance, provincial and district/municipal governments, as well as other relevant institutions in Jakarta, Riau, South Sumatra, East Java, West Kalimantan, Central Kalimantan, East Kalimantan, North Maluku, West Papua, and Papua, Number: 07/LHP/XVII/01/2012, dated 26 January 2012.

7. Assessing the quality of external controls for forestry PNBP collection systems;
8. Evaluating the timber benchmark price (*harga patokan*) for forestry PNBP and forestry PNBP rates;
9. Preparing recommendations for recognizing companies and public officials that comply with prevailing laws and regulations;
10. Preparing recommendations for imposing sanctions on companies and public officials that fail to comply with prevailing laws and regulations; and
11. Preparing recommendations for improving forestry PNBP collection systems specifically for DR, PSDH, PNT, and PKH.

A precedent for conducting such a comprehensive audit of forest royalties can be found in a 1999 audit of the Reforestation Fund, which was commissioned by the Ministry of Finance as part of the Government's Letter of Intent (LoI) with the International Monetary Fund signed in January 1998 (Barr et al. 2011). This audit was conducted by the international auditing firm Ernst & Young, and it examined the Government's collection, management, and losses from the Reforestation Fund during the five-year period FY1993/94–FY 1997/98 (Ernst & Young 1999). The Ernst & Young audit documented state losses of US$ 5.2 billion, approximately 50 percent of which came from under-collection of the DR while the remainder came from mismanagement after the DR funds entered the state accounts.

On a separate point, it is notable that BPK-RI has not addressed the issues of state losses from uncollected PNBP revenues and the significant deterioration of the underlying forest resource due to unreported timber production in its annual audits of the Ministry of Environment and Forestry. These issues are not explained in KLHK financial reports and Central Government Financial Reports (*Laporan Keuangan Pemerintah Pusat*, or LKPP) even though such reports are the main mechanism for public accountability from the Minister of Environment and Forestry and the Government. BPK-RI gave an unqualified opinion (*Wajar Tanpa Pengecualian,* or WTP) for 2011 and 2012 Financial Reports and WTP with explanation due to problems with the budgetary notes for 2013. BPK-RI reports of audits of LKPP for the same years also failed to explain either losses of forestry PNBP, or deforestation and forest degradation.

8.3 In principle, the SVLK Timber Legality Verification System represents an important step towards ensuring legality of timber and processed wood products, but the system's effectiveness is limited by its focus on auditing administrative compliance with only limited verification in the field.

Over the past decade, the Government has taken a series of measures both on its own and in cooperation with international organizations and other governments to curb illegal logging within the forest estate. Among the most important of these measures has been the implementation of Indonesia's Timber Legality Verification System (*Sistem Verifikasi Legalitas Kayu*, or SVLK). SVLK is an "operator-based licensing" approach to legality certification, and it began implementation in September 2009 based on P.38/Menhut-II/2009. This regulation was revised in 2011 as P.68/Menhut-II/2011. Since 2013, SVLK certification has become mandatory for all Indonesian exporters of specified wood products.

The auditing procedure for SVLK is largely based on review of documentation to ensure that the company is in possession of the correct license and planning documents. The procedure does include a field visit component, but these visits are typically very brief, and always scheduled with the company well beforehand. There are no provisions for surprise visits by the auditing agency, which forestry experts have indicated as a critical weakness.

Furthermore, companies that have already secured SVLK certification are also granted the right to self-approval for three years.

In addition, consultations on SVLK began in 2003 at a time when, as this study points out, much of the timber from natural forests entering the processing industries came from HPH selective logging concessions. SVLK was understandably designed to audit and certify HPH operations. However, now the majority of timber from natural forests is coming from land clearing sites, not selective logging areas. But the SVLK procedure has not adapted to this shift, leaving loopholes that could potentially lead to SVLK certified processing operations sourcing timber that has not been reported and/or from unlicensed areas. For example, a sawmill or pulp mill may receive SVLK certification without the auditing agency making a field check to land-clearing areas where timber entering the mill is sourced.

8.4 The Ministry of Environment and Forestry's SI-PUHH online information system is an important step towards greater transparency in timber production and PNBP collection, but its current form does not achieve sufficient transparency for public accountability.

The SI-PUHH system is, in part, intended to increase transparency of timber production and PNBP collection. The online database is linked from KLHK's website, and it includes information for about 60% of timber production from HPH concessions. The information includes the volumes listed in Timber Production Reports (*Laporan Hasil Penebangan*, or LHP), along with the document number, as well as the corresponding DR and PSDH obligations and payments (*Surat Perintah Pembayaran* and *Surat Bukti Bayar*). This is a strong foundation from which KLHK can strengthen and widen the system.

By not including all sources of timber production – including from land clearing (which, according to reported statistics, is supplying increasing amounts of natural forest timber relative to HPHs), plantation forests, community forests, and Perum Perhutani – the SI-PUHH system is only recording around 10% of total timber production even when all HPH production is included (not only the present 60%).

Also, the information from the LHP timber production reports displayed on SI-PUHH only includes realized volumes. It does not include the realized area, which could be used for determining productivity. Nor does SI-PUHH include planned production volumes or area, which is essential information to assess a company's performance relative to the plan approved by the government. For this, the SI-PUHH system should include full copies of official inventory documents (IHMB), along with harvest and management planning documents (RKU and RKT). Alongside this information, it could provide links to spatial data of concession locations, linked to KLHK's existing WebGIS system.

Chapter 9: Ineffective law enforcement in the forestry sector has facilitated the emergence of a 'shadow economy' in illegally harvested timber.

The poor quality of law enforcement in Indonesia's forestry sector, in combination with an ineffective timber reporting system, has provided the conditions for a shadow economy in the trade of timber that has not been reported to the state. Until now, law enforcement agencies have yet to formulate a comprehensive strategy to tackle forestry sector crimes, and enforcement actions that have been taken frequently focus on inneffective targets. Law enforcement of this kind, even when it is carried out, will never be capable of providing an adequate deterrent to illegal activities in the forestry sector. Moreover, existing law enforcement institutions make effective oversight impossible. The pervasive nature of corruption in forestry governance means that control and oversight of the forestry sector has become increasingly weak.

9.1 Government law enforcement policies have yet to use economic approaches, including enforcement strategies for curbing tax evasion and other financial crimes, as the basis for tackling criminal activity in the forestry sector.

The significant disparity between the value of economic rents associated with legal and illegal timber provides incentives for perpetrators of forestry crime to secure huge profits from the illegal timber market. Substantial state losses occurred consistently throughout the 12-year study period, as explained in earlier sections, leading to the conclusion that the organized trade and use of illegally harvested timber continues unabated. To overcome these economically motivated crimes, conventional approaches to law enforcement in the timber sector, which generally focus on catching perpetrators in the field, are inadequate. The cases of PT Asian Agri and Labora Sitorus, for instance, reaffirmed the organized and systematic character of criminal activity related to commercial forestry and plantation development and the powerful economic incentives involved in each. As these crimes generate enormous proceeds, this economic motive makes the proceeds themselves the lifeblood of the crime.

Yet, the Government appears not to have a comprehensive strategy for law enforcement against forestry crimes that targets large-scale corporate actors and white-collar criminals. For example, the National Medium-Term Development Plan (RPJMN) for 2015–2019 makes no mention of specific strategies and directives for eradicating organized forestry crime by targeting major perpetrators or by using a 'follow the money' approach in attempting to recoup state losses. Law enforcement trends have changed very little over the past 12 years. Even since the promulgation of Law No. 18/2013 on Eradication and Prevention of Forest Destruction, law enforcement continues to target perpetrators in the field, and has even been applied against farmers working on land for which they held the rights.

From a total of 48 cases examined, the highest numbers of those convicted under Law No. 18/2013 have been farmers and drivers, with average sentences of 16 months imprisonment (see Table 9.1). Not one of these convictions was linked with economic crime or used anti-money laundering laws to trace the proceeds of the crimes. Consequently, law enforcement efforts have generally been applied only against small-scale perpetrators, such as truck drivers and boat crews, while the ultimate beneficiaries of forestry crime are not held to account.

Table 9.1. 'Perpetrators of crimes' convicted under Law No. 18/2013

OCCUPATION	NUMBER	AVERAGE SENTENCE (MONTHS)
Laborer	7	18.86
Farmer	21	18.33
Broker	1	12.00
Driver	9	12.89
Private individual	8	13.25
Joiner	1	15.00
Boat crew	1	24.00
Total	**48**	**16.03**

Source: Supreme Court Decree

Indonesia's anti-money laundering regime and laws aimed at controlling other economic offences provide important instruments that can be used to deal with forestry crime (Setiono and Husein 2005). For example, from its establishment up until 2014, the Financial Transaction Reports and Analysis Center (PPATK) submitted a total of ten analysis reports (*Laporan Hasil Analisis*, or LHA), in which it suspected financial transactions of having links to the predicate offense of forestry crime. This figure does not include potential forestry crimes linked to analysis reports on corruption, bribery, or tax evasion. This number of analyses, however, is not directly proportional to the use of anti-money laundering laws by law enforcement agencies when handling forestry crimes. The approaches taken in other criminal law enforcement measures, such as tax evasion or corruption, are also rarely used. The only case linked to forestry that has been successfully prosecuted using Indonesia's anti-money laundering regime is that of Labora Sitorus. In that case, PPATK traced suspicious transactions of up to Rp. 1.5 trillion spread among 60 accounts linked to forestry crime and fuel hoarding.

Table 9.2. Analysis reports sent by PPATK to law enforcers

ALLEGED PREDICATE OFFENSE	PRIOR TO LAW 8/2010	2011	2012	2013	2014	AFTER LAW 8/2010	TOTAL
Corruption	580	237	158	168	215	778	1,358
Bribery	40	30	8	8	2	48	88
Narcotics	47	20	15	8	15	58	105
Banking	46	6	3	8	5	22	68
Capital markets	0	1	0	0	0	1	1
Insurance	1	0	0	0	0	0	1
Customs	9	0	2	2	10	14	23
Terrorism	19	9	7	5	9	30	49
Theft	4	1	0	3	1	5	9
Embezzlement	42	14	3	12	19	48	90
Fraud	419	28	42	43	74	187	606
Counterfeiting	5	0	0	1	4	5	10
Gambling	17	5	0	5	9	19	36

ALLEGED PREDICATE OFFENSE	PRIOR TO LAW 8/2010	2011	2012	2013	2014	AFTER LAW 8/2010	TOTAL
Prostitution	4	0	0	0	0	0	4
Tax crime	7	12	15	6	35	68	75
Forestry	**6**	**3**	**1**	**0**	**0**	**4**	**10**
Human trafficking	0	0	0	0	3	3	3
Other crimes	0	6	5	2	7	20	20
Unidentified	185	70	18	30	27	145	330

Source: Financial Transaction Reports and Analysis Center (PPATK), 2015

These analysis reports submitted by PPATK show how crucial the agency's role is in ensuring these huge state losses can be stopped and even returned to the state. Under Law No. 8 /2010 on Money Laundering, PPATK is authorized both to receive information on financial transactions from reporting institutions, as well as to request that financial service providers temporarily block financial transactions it suspects involve the proceeds of crime. With this authority, PPATK should actively pay attention to the enormous losses of state assets in the forestry sector.

9.2 Bribery and corruption occur at every stage of forestry sector governance and timber administration.

Corruption occurs in every stage of state administration over forestry resources, including not only the issuing of commercial licenses, but even during forest planning processes and their supervision. This corruption involves various levels of the state apparatus, and bribes or informal costs can reach Rp. 787 million to 22 billion a year for one forestry concession (KPK 2013). A number of interviews revealed that even after the implementation of regulatory reforms following earlier recommendations, bribes and informal costs remain prevalent. Companies often made payments outside the framework of particular bureaucratic requirements to maintain close relations with forestry officials. In some cases, companies channeled such payments to officials by providing them with company shares or even placing forestry officers tasked with supervision on the payroll.

Legal proceedings carried out by the Corruption Eradication Commission (KPK) have made similar findings. From 2002 to 2015, KPK charged 26 perpetrators of forest-related corruption with various types of bribes: In the case of Tengku Azmun Jaafar, the former head of Pelalawan District (Riau Province), this included bribery in the licensing stage which allowed the perpetrators to secure economic gains even though their licenses should not have been granted. Corruption also occurs during the planning stage, when forest conversion policies are geared towards illegal self-enrichment. All of these have the potential to cause very sizeable state losses. In the case of Suwarna Abdul Fatah, the former Governor of East Kalimantan, the state lost at least Rp. 346 billion as the result of his abuse of authority in forest conversion. It must be noted, moreover, that this figure only reflects the value of the timber that was harvested.

Table 9.3. List of corruption cases linked to the forestry sector handled by KPK

NO.	SUSPECT	POSITION	OFFENCE	STATE LOSS	VERDICT
1	Amran Batalipu	District head of Buol	Bribery in PT Hardaya Inti Plantation HGU recommendation		7 years 6 months in prison
2	Siti Hartati Murdaya	Businessperson	Bribery in PT Hardaya Inti Plantation HGU recommendation		2 years 8 months in prison
3	Gondo Sudjono	Businessperson	Bribery in PT Hardaya Inti Plantation HGU recommendation		1 years 6 months in prison
4	Yani Ansori	Businessperson	Bribery in PT Hardaya Inti Plantation HGU recommendation		1 years 6 months in prison
5	Putranevo	Director of PT Masaro	Bribery in Integrated Radio Communications System project procurement		6 years in prison
6	Wandojo Siswanto	Head of Forestry Department Planning and Finance Bureau	Bribery in Integrated Radio Communications System project procurement		3 years in prison
7	Al Amin Nasution	Member of DPR Commission IV	Bribery linked to changing land use of Pulau Bintan protection forest		8 years in prison
8	Azirwan	Bintan District Secretary	Bribery linked to changing land use of Pulau Bintan protection forest		2 years 6 months in prison
9	Sarjan Taher	Member of DPR Commission IV	Bribery linked to changing land use of Banyuasin mangrove forest		4 years 6 months in prison
10	Yusuf Erwin Faisal	Member of DPR Commission IV	Bribery linked to changing land use of Banyuasin mangrove forest		4 years 6 months in prison
11	Azwar Chesputra	Member of DPR Commission IV	Bribery linked to changing land use of Banyuasin mangrove forest		4 years in prison
12	Fahri Andi Laluasa	Member of DPR Commission IV	Bribery linked to changing land use of Banyuasin mangrove forest		4 years in prison
13	Hilman Indra	Member of DPR Commission IV	Bribery linked to changing land use of Banyuasin mangrove forest		4 years in prison
14	Chandra Antoni Tan	Businessperson	Bribery linked to changing land use of Banyuasin mangrove forest		3 years in prison
15	Syahrial Oesman	Governor of South Sumatra	Bribery linked to changing land use of Banyuasin mangrove forest		1 years in prison
16	Rusli Zainal		BKT UPHHK issue bribes		14 years in prison
17	Burhanuddin Husin	District head of Kampar	Illegal issue of IUPHHK-HT	Rp. 519 billion	2 years 6 months in prison
18	Syuhada Tasman	Head of Riau Forestry Office	Illegal issue of IUPHHK-HT	Rp. 153 billion	5 years in prison

NO.	SUSPECT	POSITION	OFFENCE	STATE LOSS	VERDICT
19	Arwin AS	District head of Siak	Illegal issue of IUPHHK-HT	Rp. 301 billion	4 years in prison
20	Asral Rachman	Head of Riau Forestry Office	Illegal issue of IUPHHK-HT	Rp. 889 billion	5 years in prison
21	Tengku Azmun Jaafar	District head of Pelalawan	Illegal issue of IUPHHK-HT	Rp. 1.2 trillion	11 years in prison
22	Suwarna Abdul Fatah	Governor of East Kalimantan	Illegal issue of IPK	Rp. 346.8 billion	4 years in prison
23	Annas Maamun	Governor of Riau	Bribery for forest estate allocation change linked to PT Duta Palma		6 years in prison
24	Gulat Manurung	College lecturer	Bribery for forest estate allocation change linked to PT Duta Palma		3 years in prison

Source: KPK Anti-Corruption Clearinghouse (www.acch.kpk.go.id)

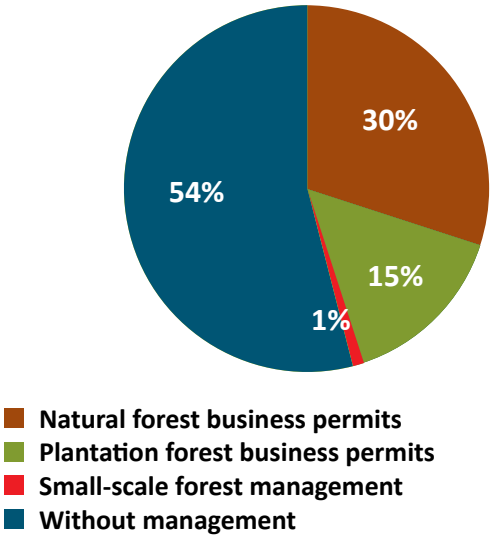
These convictions by KPK, however, may only be the tip of the iceberg. It is possible that a far larger number of forestry corruption cases are as yet undetected, recognizing the factors that limit KPK from carrying out actions comprehensively. Law No. 30/2002 on the Corruption Eradication Commission limits KPK's authority to handling corruption cases involving state losses of at least Rp. 1 billion or those involving state officials (Article 11). In addition, most actions taken by KPK use the approaches in articles regulating bribery rather than illegal acts that lead to state losses. Also, in its law enforcement practices, KPK has yet to use an anti-money laundering approach to catch the perpetrators of corruption in the forestry sector.

9.3 Much of the Forest Estate classified as Production Forest has not been placed under management units and is therefore vulnerable to over-harvesting and illegal logging.

Another equally important problem is that much of the Forest Estate is not managed by specific management units. According to data from *Statistik Kehutanan 2013*, the total area of Production Forest covers 72.1 million hectares. Of this total, 21.2 million hectares is subject to IUPHHK-HA natural forest utilization concessions; and 10.9 million hectares has been allocated as IUPHHK-HT plantation concessions. However, based on Ministry of Environment and Forestry data, only 125 of the 273 recorded IUPHHK-HA natural forest concessions reported harvesting activities in 2013. This shows how most Production Forest under active concession licenses may be vulnerable to illegitimate forest clearing.

The Government has yet to allocate commercial forestry licenses for small-scale enterprises to any significant degree. By 2013, only 1.0 million hectares – or just 3.18% of the total 34.3 million hectares of Forest Estate under some form of

Chart 9.1. Production forest not subject to management units



Source: KLHK, 2014

commercial license – had been allocated to small-scale businesses. This suggests there is considerable scope to expand government policies supporting greater management of forests by small-scale enterprises, especially those managed by local communities, in accordance with the targets specified in the RPJMN for 2015–2019.

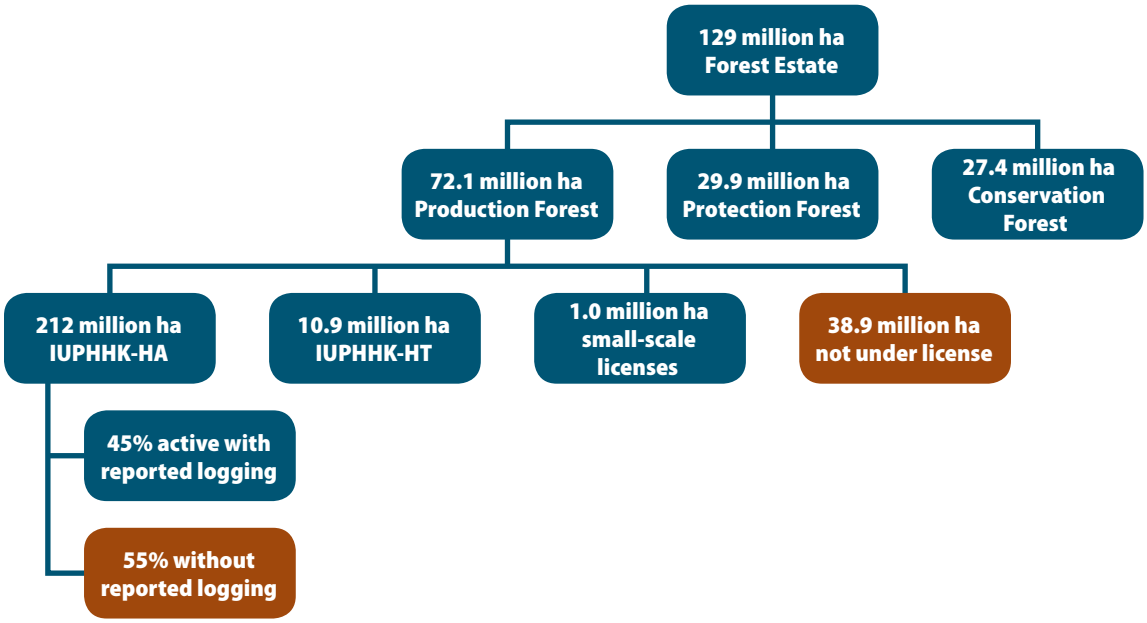
Table 9.4. Comparison between small-scale and large-scale forest management

NO.	DESCRIPTION	NUMBER (UNITS)	AREA (HA)	ALLOCATION (%)
1.	IUPHHK-HA	272	22,801,113	
2.	IUPHHK-HTI	252	10,053,520	
3.	IUPHHK-RE	8	377,428	
Sub-total	**Large-scale businesses**		**33,232,061**	**96.82**
4.	IUPHHK-HTR	85 cooperatives, 6,230 people	184,121	
5.	IUPH-Sylvo Pastura	1	73	
6.	IUPHHBK	7	513,317	
7.	IUPHHK-HD and HKm	332	394,030	
Sub-total	**Small-scale businesses**		**1,091,541**	**3.18**
Total			**34,323,602**	**100**

Source: Statistik Kehutanan 2013, KLHK

Significantly, approximately 38 million hectares, or 54% of areas classified as Production Forest, are not currently under any form of management unit, suggesting there is little active management of the forests within such areas on the ground. Consequently, a majority of the nation's Production Forest tends to be relatively easy to access illegally. The effects of this are compounded by the extent of overlapping land use that occurs across sectors, particularly with mining operations and large-scale estate crop businesses operating within and around the Forest Estate, making these areas vulnerable and prone to conflict.

Figure 9.1. Forest Estate designation and the area of Production Forest under management units



Sources: Statistik Kehutanan 2013, KLHK and Monitoring Produksi Kayu Bulat, Kegiatan IUPHHK RKTUPHHK-HA selama tahun 2013, Direktorat Bina Usaha Hutan Alam, KLHK

These conditions have contributed to a low level of legal certainty for many activities that occur within the Forest Estate. According to data submitted during the monitoring and evaluation process for the GN-SDA initiative in Bangka Belitung (2015), the final gazettement of the Forest Estate has reached 75,254,123 hectares, or 62.3% of the total area within the estate. This figure reflects a significant increase over the area that had been classified as such even just a few years ago. By 2009, for instance, only 13.82 million hectares, or 11.4% of the total area, had been fully gazetted. Nevertheless, this designation still requires further action, particularly when local communities, who should be positioned as forest managers, are not afforded clear rights of tenure. During a meeting for the coordination and supervision of a Joint Memorandum of Understanding on the Acceleration of Forest Estate Gazettement held in South Barito District on 21 October 2014, civil society organizations in Central Kalimantan reported that despite boundary demarcation of the Forest Estate being conducted in South Barito, this process had yet to accommodate the tenurial rights of communities in that district.

Figure 9.2. Description of the management region, public facilities, and social facilities in Madara village inside the Barito River Protection Forest

Source: WALHI Central Kalimantan et al. 2014

Table 9.5. Forest Estate designation

TIME	DESIGNATED FOREST ESTATE	NUMBERS OF DECREES AND ANNEXES
Before 2009	13,819,510.12 ha (11.44%)	830 decrees and 830 map annexes
October 2014	75,254,123.06 ha (62.30%)	1,640 decrees and 13,625 map annexes

Source: KLHK presentation in Bangka Belitung for GN-SDA Monev, September 2015

In many areas, such conditions mean that forest management on the ground is a grey area, without managers or specific supervision. Similar conditions also apply to areas designated as Protection Forest and Conservation Forest, where the ratio of Forest Estate area to law enforcement personnel is still too high. Data from *Statistik Kehutanan 2013* explains that the Government currently employs only 1,025 forest police officers and 7,908 civil service investigators (*Penyidik Pegawai Negeri Sipil*, or PPNS) to oversee the entire 129 million hectares of Forest Estate. Forest police are unevenly distributed, and the provinces with the highest ratios of Forest Estate area to forest police officers are actually the provinces with the largest areas of forest in need of protection, i.e. West Kalimantan, Papua and East Kalimantan (UNDP 2015).

Table 9.6. Numbers of forest police (*Polhut*) and forestry civil service investigators (*PPNS Kehutanan*)

FOREST POLICE (INDIVIDUALS)		PPNS (INDIVIDUALS)	
Ministry of Forestry	**Provincial forestry offices**	**PPNS forest police**	**Non forest police**
2,999	4,909	721	304

Source: Statistik Kehutanan 2013, KLHK

In addition to the challenges these conditions pose in terms of controlling forest crime, administrative oversight in the forestry sector is also inadequate. Oversight is frequently lacking as a result of a shortage in the numbers of staff available for supervising the technical aspects of forest exploitation and utilization (i.e. *Wasganis*). Interviews conducted during this study revealed that one *Wasganis* often has to monitor activities at more than one forestry concession, making it difficult to oversee timber harvesting and forest management effectively. According to BP2HP statistical data (2014) for Central Kalimantan, even where there are a significant number of *Wasganis*, their credentials are also unevenly distributed. In Central Kalimantan, most *Wasganis* are qualified as log inspectors (PKB); and even though there are 82 IPHHK management unit license holders in the province, very few *Wasganis* with forest planning (*Canhut*) qualifications are available (Central Kalimantan BP2HP statistics 2014).

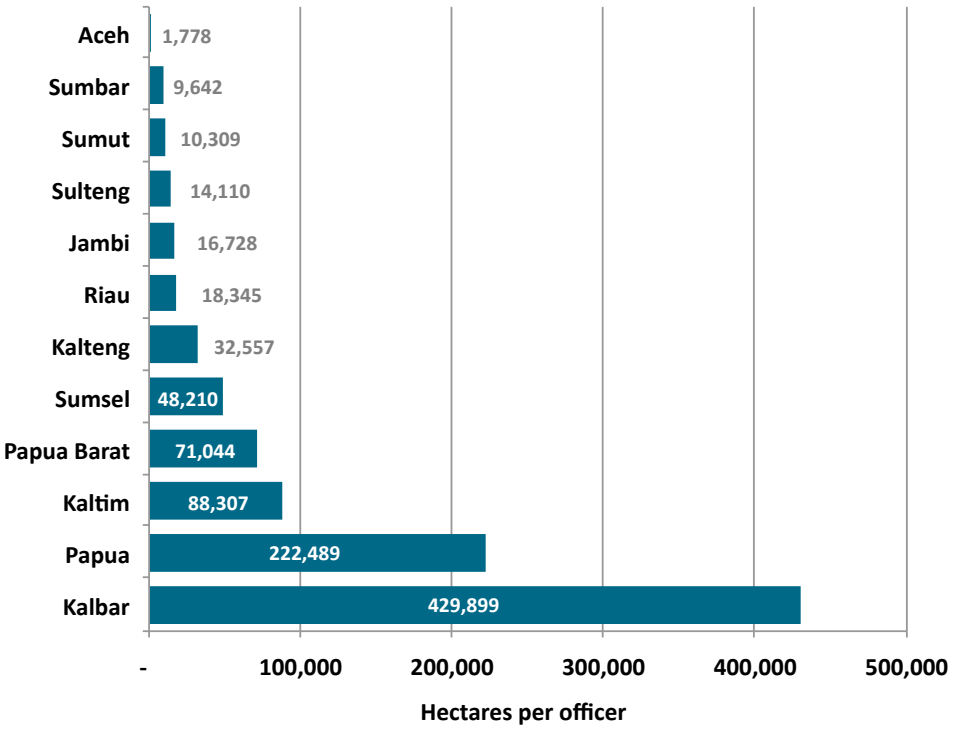


Chart 9.2. Ratio of Forest Estate area to forest police officers (*Polhut*) (hectares per officer)

Source: 2014 Forest Governance Index, UNDP March 2015

Table 9.7. Forest supervisory staff (*Wasganis PHPL*) in Central Kalimantan

NO.	DISTRICT	LOG INSPECTION (PKB)	SAWNWOOD INSPECTION (PKG)	PLYWOOD INSPECTION (PKL)	FOREST PLANNING (CANHUT)	FOREST PRODUCT HARVEST (NENHUT)	FOREST DEVELOPMENT (BINHUT)	TRUNK GROUP INSPECTION (JIPOKTANG)	LATEX GROUP INSPECTION (JIPOKTAH)	TOTAL
1	BP2HP Wil. XII	25	11	0	10	9	5	2	2	64
2	Central Kalimantan Provincial Forestry Office	39	6	1	16	7	3	0	0	72
3	Murung Raya District Forestry Office	30	3	0	7	1	0	1	0	22
4	North Barito District Forestry and Estate Crops Office	32	4	0	3	1	2	1	0	43
5	South Barito District Forestry Office	24	3	0	5	2	1	0	0	35
6	East Barito District Forestry and Estate Crops Office	9	2	0	1	0	0	0	0	12
7	Kapuas District Forestry Office	31	5	0	11	0	0	0	0	47
8	Pulang Pisau District Forestry and Estate Crops Office	16	0	0	0	0	0	0	0	16
9	Gunung Mas District Forestry Office	24	4	0	8	2	2	0	0	40
10	Palangka Raya District Forestry and Estate Crops Office	17	4	0	1	2	1	0	0	25
11	Katingan District Forestry Office	66	19	0	14	5	6	0	0	110
12	East Kotawaringin District Forestry Office	41	2	0	2	3	4	0	0	72
13	Seruyan District Forestry and Estate Crops Office	35	4	0	8	8	3	0	0	58
14	West Kotawaringin District Forestry Office	24	5	0	3	1	2	0	0	35
15	Sukamara District Forestry and Estate Crops Office	4	0	0	0	0	0	0	0	4
16	Lamandau District Forestry and Estate Crops Office	27	3	0	6	3	0	0	0	39

Sumber: Statistik Kehutanan BPPHP Kalimantan Tengah 2013

Chapter 10: Indonesia's forest royalty rates are set at levels that facilitate only limited capture of economic rents by the Government and provide implicit incentives for unsustainable forest management.

The exploitation of natural resources often generates economic rent, defined as "supra-normal profits" or economic returns above and beyond "normal" profits. Forest economic rent can be especially high when primary forest is logged, according to Karsenty (2010), "since this type of forest yields the benefit of centuries of biomass accumulation which will not be reconstituted under the common 25–40 years felling cycle enforced in managed forests in tropical countries." Economic rent can also be generated through land clearing in areas of degraded forest if producers' input costs are sufficiently low and/or market prices for any timber harvested are sufficiently high.

Under most forest fiscal systems, a central objective of timber royalties, levies, and fees is to facilitate capture of economic rents by governments, which would otherwise go to the timber producers. In countries such as Indonesia, where forests are administered by the state, the government's capture of forest rents serves two important purposes. First, it secures economic value from the forest resource that can be used by public institutions, presumably for the benefit of the country's citizens. In cases where governments fail to capture forest rents, much of the value of forest products is lost and benefits only a handful of people.

Second, the capture of forest rents by governments serves as an important deterrent to over-harvesting and other unsustainable management practices (Repetto and Gillis 1998). When timber companies are able to obtain rents from their logging operations, these supra-normal profits often encourage them to extract as much value from the forests they manage as quickly as possible, regardless of the longer term impacts on the forest resource. In theory, governments can deter such short-term management practices by setting royalty rates at levels that allow the concession-holder to earn normal profits (typically assumed to be based on a 25% return on investment) without accessing rents.[1]

10.1 Historically, Indonesia's forest royalty system has been irrational, and allowed forest concession holders to capture significant economic rents.

During the 1980s and 1990s, numerous economic analyses of Indonesia's forestry sector documented high levels of economic rent being generated by commercial logging under the country's HPH timber concession system (Kartodihardjo 1999; Brown 1999; Scotland 1997; Ahmad and Ramli 1991; Gillis 1988; Ruzicka 1979). At that time, most concession-holders were still carrying out first rotation harvesting of primary forest and earning supra-normal profits through selective logging of large-diameter *Meranti* and other high-value timber. These studies found that the Government's concession fees and timber royalties – including the DR and the Forest Product Fee (*Iuran Hasil Hutan*, or IHH), the precursor to the PSDH – were set at rates that allowed the state to capture only a

1 This assumes minimal transaction costs. If this assumption is considered, then bribery/extortion causes barriers to raising forestry royalty rates as explained below.

small portion of the rents being generated. In effect, the Government's forest fiscal system during this period was designed to facilitate the transfer of economic rents from the nation's forest estate to private timber concession-holders, many of which were closely connected to political elites.

This report does not analyze the economic costs or profitability of commercial timber production in Indonesia during the study period, and therefore, does not provide quantitative estimates of the economic rents that may have been generated. However, two major trends within the sector suggest that forestry companies have continued to capture economic rents, at least over the short-term. First, as many HPH concessions have approached the end of their initial 35-year rotation period, commercial logging companies have had a strong economic incentive to ignore guidelines for sustainable forest management and, instead, to harvest the remaining timber in whatever way is most profitable. The low levels of oversight by state forestry agencies and wide opportunities for corruption suggest that many forest license holders have routinely harvested volumes above those approved in their annual work plans and/or logged outside their approved cutting blocks. In this way, because timber production costs have increased as access to high-value, large-diameter timber has declined, many concession holders have sought to maintain their access to economic rents by over-harvesting and evading royalty payments.

Second, the sharp increase in forest land clearing as a source of commercial wood production has allowed forestry companies to capture sizeable economic rents. The unit costs of harvesting timber through land clearing are substantially lower than they are for selective logging of timber under Indonesia's HPH concession regulations. On the one hand, land clearing is by definition a short-term activity and does not require long-term investments in infrastructure or sustainable concession management. On the other hand, companies holding land-clearing licenses are permitted to harvest the entire standing stock, as opposed to logging selectively. With DR and PSDH rates set well below the stumpage value of the timber, land-clearing companies can generate very high levels of profit, especially when they clear areas with a standing stock of 100 m^3/ha or more.

10.2 In nominal terms, DR rates have changed little since the late 1990s, and their value in real terms and as a percentage of market prices has declined significantly.

Since it was introduced in 1990, the Reforestation Fund, or *Dana Reboisasi*, has been structured as a volume-based levy with rates differentiated according to species, size class, and the region where the timber is harvested. DR rates are supposed to be adjusted periodically based on market conditions and other variables. In theory, this structure should allow the Government to set DR rates at optimal levels that facilitate state collection of economic rents (or some targeted portion of these) without harming commercial logging companies by cutting into their "normal profits". Because the DR is differentiated according to species, size class, and region of harvest, rates can in principle be set at levels that are highly attuned to frequent changes in harvesting and transport costs (industry inputs) and the prices of logs in either domestic or international timber markets.

In practice, the Government has not used the adjustment of DR rates as an effective fiscal tool. In nominal terms, DR rates have changed very little since the late 1990s (see Table 10.1). Yet between 1998 and 2014, domestic market prices for timber have more than tripled, according to data from the ITTO, so as a percentage of market price, DR rates have decreased (see Chart 10.1). At US$ 13–16 per m^3, for example, the DR rate for *Meranti* was equivalent to approximately 25% of the domestic market price when the fee was originally set in 1998. That fee has not changed in the last 17 years (except for a 3% increase in 2014 for logs over 50 cm), and in 2015 the DR fee

for *Meranti* is less than 10% of domestic market prices.[2] Similarly, the DR rate for small-diameter logs, which are mainly used as pulpwood, remained at US$ 2 per ton from 1998 to 2014. By contrast, the domestic market price for pulplogs rose from less than US$ 20 (Rp. 200,000 per ton) in the late 1990s to over US$ 40 (Rp. 400,000) per ton in 2014.

10.3 The benchmark price, on which the PSDH is based, is substantially below market prices and has changed very little in nominal terms since the late 1990s.

To calculate PSDH rates for logs harvested from natural forests, the Government uses a formula in which the volume of timber is multiplied by a specified percentage of an official benchmark price (*harga patokan*):

PSDH = harga patokan X rate (%) X volume.

Set by the Ministry of Trade, the *harga patokan* for PSDH is differentiated according to region of production, commercial grade, and diameter, and is supposed to be based on market prices.

2 Note that this calculation does not take into account international market prices, which are substantially higher than domestic market prices on account of Indonesia's log export ban.

Table 10.1. Reforestation Fund (DR) rates for 1999 and 2014

	DIAMETER	PP NO. 92/1999 (US$)	UNIT	PP NO. 12/2014 (US$)	UNIT
Sumatra and Sulawesi					
Meranti	>30 cm	14.00	m^3	14.00	m^3
	30 cm s/d 49 cm			14.50	m^3
Mixed hardwoods	>30 cm	12.00	m^3	12.00	m^3
	30 cm s/d 49 cm			12.50	m^3
Kalimantan and Maluku					
Meranti	>30 cm	16.00	m^3	16.00	m^3
	30 cm s/d 49 cm			16.50	m^3
Mixed hardwoods	>30 cm	13.00	m^3	13.00	m^3
	30 cm s/d 49 cm			13.50	m^3
Papua and Nusa Tenggara					
Meranti	>30 cm	13.00	m^3	13.00	m^3
	30 cm s/d 49 cm			13.50	m^3
Mixed hardwoods	>30 cm	10.50	m^3	10.50	m^3
	30 cm s/d 49 cm			11.00	m^3
Indonesia					
Fancy wood	>30 cm	18.00	m^3	18.00	m^3
Ebony	>30 cm	20.00	ton	20.00	ton
Merbau	>30 cm			16.00	m^3
Natural teak	>30 cm	16.00	m^3		
Cendana	>30 cm	18.00	ton	18.00	ton
Small-diameter logs	<29 cm	2.00	ton	4.00	m^3

Sources: Government Regulation No. 93/1999 and Government Regulation No. 12/2014

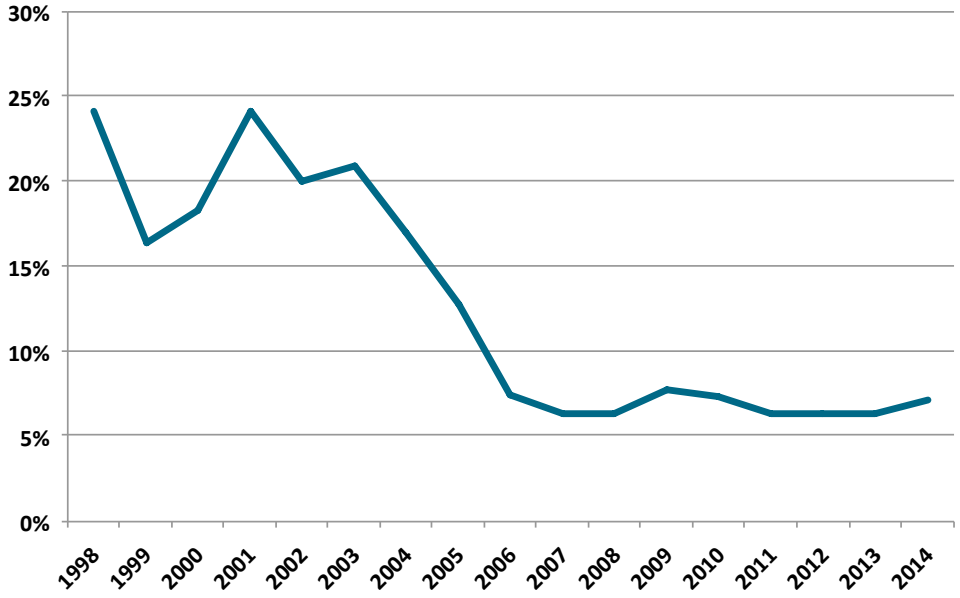


Chart 10.1. Reforestation Fund rate for *Meranti* logs as a percentage of domestic prices during 1998–2014

Sources: Data on prices for Meranti logs from Market Information Service, International Tropical Timber Organization

As with the DR rates, however, the *harga patokan* for natural forest timber has not been significantly adjusted since the late 1990s, even as its value in real terms has eroded with inflation and as market prices have changed dramatically. As shown in Table 10.2, the *harga patokan* for large-diameter (> 30 cm) *Meranti* logs harvested in Sumatra and Kalimantan was set at Rp. 640,000 per m^3 in 1999; was reduced to Rp. 600,000 per m^3 in 2007; and except for a brief period in March 2012, remained at this level until the end of 2014. With the PSDH rate set at 10% of the *harga patokan*, this meant that the PSDH due on a *Meranti* log in 1998 was Rp. 64,000 per m^3 and it remained at Rp. 60,000 per m^3 until late-2014. If the Government had simply allowed the *harga patokan* to adjust for inflation, the PSDH would have risen from Rp. 64,000 per m^3 to nearly Rp. 250,000 per m^3 over the same period – a nominal increase of over 300% (see Chart 10.2). In other words, inflation alone has eroded over 75% of the real value of the *harga patokan* since 1999.

Although the PSDH is defined as the "intrinsic replacement value" of timber harvested from state forests, the *harga patokan* is also set at levels well below both domestic and international log prices. In 2014, for instance, the *harga patokan* for *Merbau* logs was Rp. 1,800,000 per m^3 (US$ 130–140), while domestic market prices (FOB) averaged Rp. 3,500,000 (US$ 300) and the CIF price in China was US$ 600 per m^3. Bearing in mind the impacts on market and forest business practitioners, it is important for the Ministry of Environment and Forestry to consider the gap between the *harga patokan* and market prices. As shown in Figure 10.1, the Ministry's regional field office in West Papua (BPPHP) highlights in its annual report the significant differences between the *harga patokan* and domestic log prices for commercial timber species harvested in that province.

There are compelling reasons to believe the *harga patokan* is shaped by political considerations more than market prices or other technical variables. In March 2012, the Ministry of Trade raised the *harga patokan* very significantly with the issuance of Ministerial Regulation 12/M-Dag/PER/3/2012. Under this regulation, the *harga patokan* was increased from Rp. 245,000 to Rp. 550,000 for small-diameter logs; from Rp. 600,000 to Rp. 1,270,000 for *Meranti* logs; and from Rp. 1,500,000 to Rp. 2,490,000 for *Merbau* logs. This doubling of the *harga patokan* was vigorously opposed by the forest industry associations, and the following month the Ministry of Trade issued a new regulation (22/M-DAG/PER/4/2012) reducing the benchmark prices back to the pre-March 2012 levels. These policy changes indicate that the Government has no objective standard for determining rates or the benchmark prices on which those rates are based.

Table 10.2. Changes in the benchmark price for PSDH, according to Ministerlal regulations

	DIAMETER	6 JAN 1999 06/MPP/ KEP/1/1999	7 FEB 2007 8/M-DAG/ PER/2/2007	6 MAR 2012 12/M-DAG/ PER/3/2012	24 APR 2012 22/M-DAG/ PER/4/2012	31 DEC 2014 P.68/MENHUT-II/2014	UNIT
Sumatra and Sulawesi							
Meranti	>30 cm	Rp. 640,000	Rp. 600,000	Rp. 1,270,000	Rp. 600,000	Rp. 620,000	m^3
	30 cm s/d 49 cm					640,000	m^3
Mixed hardwoods	>30 cm	360,000	360,000	953,000	360,000	320,000	m^3
	30 cm s/d 49 cm					340,000	m^3
Kalimantan and Maluku							
Meranti	>30 cm	640,000	600,000	1,270,000	600,000	730,000	m^3
	30 cm s/d 49 cm					760,000	m^3
Mixed hardwoods	>30 cm	360,000	360,000	953,000	360,000	430,000	m^3
	30 cm s/d 49 cm					450,000	m^3
Irian Jaya, Nusa Tenggara, and Bali							
Meranti	>30 cm	530,000	504,000	1,700,000	504,000	620,000	m^3
	30 cm s/d 49 cm					640,000	m^3
Mixed hardwoods	>30 cm	265,000	270,000	1,150,000	270,000	320,000	m^3
	30 cm s/d 49 cm					340,000	m^3
Merbau			1,500,000	2,649,000	1,500,000	1,800,000	m^3
Indonesia							
Fancy wood	>30 cm	905,000	1,086,000	2,363,000	1,086,000	1,500,000 (Kelompok Dua)	m^3
Ebony	>30 cm	6,000,000	7,200,000	15,000,000	7,200,000	9,150,000	ton
Merbau	>30 cm		1,500,000	2,649,000			m^3
Natural teak	>30 cm	764,000	2,500,000	3,789,000	2,500,000		m^3
Kayu Cendana (Bagian teras)	>30 cm	7,000,000	8,400,000	36,000,000	8,400,000	10,600,000	m^3
Cendana (sapwood)	>30 cm		840,000	3.600,000	840,000	1,060,000	m^3
Ulin	>30 cm		1,086,000			1,200,000	m^3
Ramin	>30 cm	905,000	1,086,000			7,000,000	m^3
Small-diameter logs	<29 cm	204,000	245,000	550,000	245,000	310,000	m^3

Sources: 06/MPP/Kep/1/1999, 12/M-Dag/PER/3/2012, 22/M-Dag/PER/4/2012, P.68/Menhut-II/2014

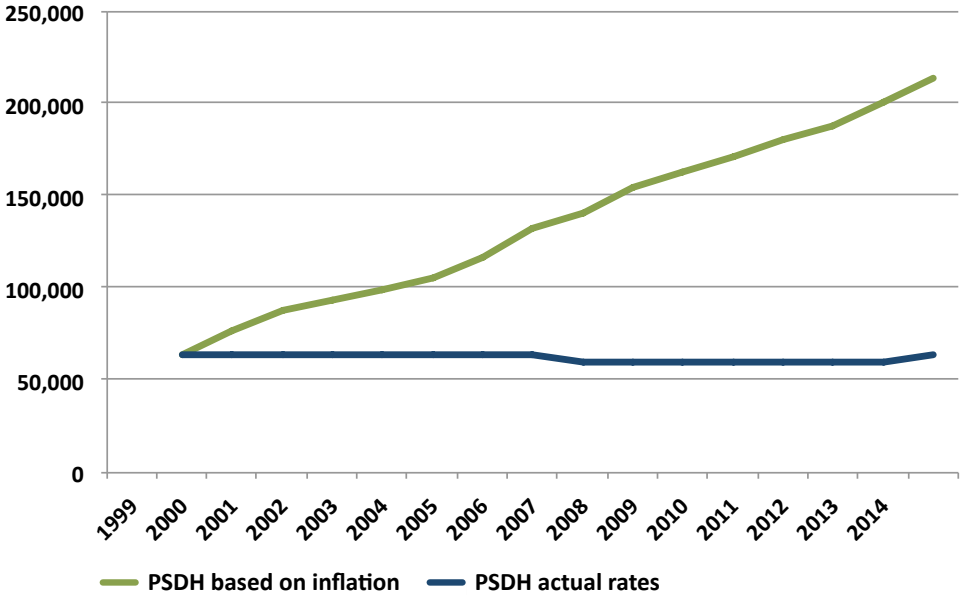


Chart 10.2. Comparison between PSDH rates and inflation during 1999–2014

Source: Inflation levels from Bank Indonesia

Harga Hasil Hutan Propinsi Papua Barat, 2012.

No	Kelompok/ Jenis Kayu	Harga Patokan (Sesuai Peraturan Meperindag)	Satuan	Perkembangan Harga Pasar Tingkat UPI	Satuan	Sebaran Wilayah Keberadaan Hasil Hutan (Kabupaten)	Keterangan
A.	KAYU BULAT						
A.1.	Kelompok Meranti						
	1 Merbau	1.500.000	M3	2.500.000	M3	Kab. Sorong	Sumber : IUPHHK PT. Multi Wahana W
				2.100.000	M3	Kab. Kaimana	Sumber : IUPHHK PT. Kaltim Hutama
				[illegible]	M3	Kab. Teluk Bintuni	Sumber : IUPHHK PT. Wanagalang Utama
				2.400.000	M3	Kab. Teluk Bintuni	Sumber : IUPHHK PT. Wana Irian Perkasa
				1.800.000	M3	Kab. Teluk Bintuni	Sumber : IPHHK PT. Hastra PP
	Meranti lainnya	504.000	M3	1.000.000	M3	Kab. Sorong	Sumber : IUPHHK PT. Multi Wahana W
	1. Metoo				M3	Kab. Teluk Bintuni	Sumber : IUPHHK PT. Hastra WM
	2. Merawa				M3	Kab. Kaimana	Sumber : IUPHHK PT. Kaltim Hutama
	3. Nyatoh, dll						
A.2.	Kelompok Rimba Campuran	270.000	M3	750.000	M3		
	1 Bintangur			800.000	M3	Kab. Kaimana	Sumber : IUPHHK PT. Kaltim Hutama
	2 Binuang			900.000	M3	Kab. Teluk Bintuni	Sumber : IUPHHK PT. Wanagalang Utama
	3 Ketapang			1.000.000	M3		
A.3.	Selain Kelompok Meranti dan Rimba Campuran						
A.3.1.	Kelompok Kayu Indah						
	1 Tanpa batasan diameter						
	- Sonokeling	1.086.000	M3	-			belum ter-record
	- Ramin	1.086.000	M3	*)			belum komersial di Papua Barat
	- Ulin	1.086.000	M3	*)			belum komersial di Papua Barat

Figure 10.1. Benchmark prices and domestic market prices recorded in West Papua BPPHP's annual statistics report

Source: West Papua BPPHP report, 2012

10.4 Access to economic rents provides forest license holders with a powerful incentive to engage in unsustainable and/or illegal forest management practices.

The Government's failure to capture a more sizeable share of the economic rents associated with commercial timber production has significant implications not only for state revenue collection, but also for how Indonesia's forests are managed. To the extent forestry concession-holders are able to earn supra-normal profits from logging, they will often seek to maximize these profits in the short term (Ahmad and Ramli 1991; Repetto and Gillis 1988). Companies holding commercial licenses permitting them to extract timber from the state-administered Forest Estate undoubtedly recognize that their access to these resources may last for only a brief period. In Indonesia, as in other tropical forestry countries, timber companies face a multitude of uncertainties: government policies may change (as for instance, with the 2011 moratorium on new forest conversion), royalty rates may increase, licenses may be revoked, conflicts with local communities or other land users could disrupt their operations, and so forth. Confronted with such risks, forestry companies are often highly motivated to extract as much value from the forests they manage as rapidly as possible.

For companies managing natural forest selective logging concessions, such incentives have often meant that producers see little benefit in making investments in reduced-impact logging, post-harvest replanting of cutting blocks, restoration of degraded forests, and other practices aimed at sustaining the productivity of the concession's forest beyond the first rotation. On the contrary, they are often motivated to extract high-value species at unsustainable levels, and when these are depleted, to harvest whichever other commercial species will generate the greatest economic returns. With the Government effectively under-valuing the forest resource with such low DR and PSDH rates, HPH-holders generally have seen little benefit in waiting to harvest timber at some point several years in the future when it can be cut immediately. By encouraging forestry companies to maximize short-term profits, the Government's weak forest fiscal system has contributed significantly to the overall breakdown of Indonesia's selective logging system (*Tebang Pilih Tanam Indonesia*, or TPTI) in natural forests as a model for sustainable forest management, as evidenced by the steady decline in active HPH concession areas, especially in heavily logged regions of Sumatra and Kalimantan.

In Indonesia's forestry sector, the economic rents associated with land clearing have further reinforced the perverse incentives for natural forest concession holders to mismanage their concession areas through over-harvesting, early logging of residual stands, and other violations of sustainable forest management guidelines. Under Ministry of Environment and Forestry policy, areas of production forest that are determined to be 'degraded' can be reclassified as conversion forest for conversion to HTI plantations or to non-forestry uses, such as oil palm and rubber estates. With the Government collecting such low levels of forest royalties, HPH concession-holders often have a powerful economic incentive to over-harvest their selective logging concessions until they are reclassified as conversion forest, at which point they can capture a final windfall of economic rents by harvesting the standing stock that remains.

10.5 Collection of the *Penggantian Nilai Tegakan* (PNT) is intended as a disincentive for land clearing, however rates do not reflect the real value of standing stock.

The Stumpage Value Replacement Fee (*Penggantian Nilai Tegakan,* or PNT), reintroduced in 2014 after being recalled following its original introduction in 2012, represents an important step towards addressing the economic incentives for deforestation. The harvesting costs per cubic meter for land clearing are significantly less than for selective logging. This cost differential means that land clearing is a more profitable enterprise, and producers have naturally gravitated to this type of logging. The analysis above of both reported and actual timber production from natural forests shows the increase in land clearing and steady decline of selective logging.

Looking at its scope, the PNT has the potential to reverse the emerging significance of land clearing as a source of natural forest timber to supply Indonesia's wood processing industries. To do this, PNT rates must, at minimum, be equal to the difference in production costs between land clearing and selective logging. However, the PNT is still being debated, particularly considering its weak position under prevailing legislation. In Supreme Court Judicial Review Register No.: 41/P/HUM/2011, when subject to legal action, PNT was deemed legally invalid as it was not regulated either by Law No. 41/1999 or Government Regulation No. 6/2007 in conjunction with Government Regulation No. 3/2008. With the issue of Government Regulation No. 12/2014, the position of PNT has been strengthened at the ministerial regulation level.

Chapter 11: Timber production administration and non-tax revenue collection in the forestry sector are not directed at the broader public interest.

The weaknesses explained in the last five chapters show that the PNBP collection and timber administration systems suffer from poor data management, lack of internal controls, weak external accountability, insufficient law enforcement, and outdated rates. Taken together, these weaknesses mitigate the benefits to the country of timber production while doing little to protect against the negative impacts.

In Indonesia, natural forests are a precious resource because they are a source of subsistence and livelihoods for tens of millions of people living in and around the Forest Estate. Indonesia's natural forest also has intrinsic environmental value, both in terms of biodiversity and carbon storage. So when the Government decides to harvest this resource and convert forested areas for other land uses, it should be a deliberate decision that weighs the cost of depleting the resource with the benefits that the country and its citizens can gain from doing so.

The Government of Indonesia could pursue various policy objectives through its timber production administration and non-tax revenue collection systems such as: achieving revenue targets set by policymakers; ensuring livelihood sources for communities in forested regions; preparing supplies of timber to the country's wood-processing industries; and/or limiting deforestation and environmental damage. Once its policy objectives are defined through planning processes that consider all the tradeoffs and determine priorities that suit the public interest, then the Government's timber production administration and PNBP collection systems can become the tools used to achieve those objectives.

But these systems, as they currently function, are not sharp and effective tools for achieving the objectives set by policymakers. As the previous chapter describes, the current system persists from a time when it was intentionally designed to ensure rent capture by private interests connected with the ruling elite. The civil servants tasked with implementing the systems struggle to make them work, but this has been largely a losing battle both from the perspective of revenue collection and sustainable forest management. That is, revenue collection is much lower than it should be while the forest resource is quickly being depleted.

PNBP targets are set in an opaque process with little to no input from the Ministry of Finance and other institutions outside the Ministry of Environment and Forests, and these targets are disconnected from the decisions made about timber production. The current system relies on province and district level forestry offices *(Dinas Kehutanan)* approving annual logging plans submitted by companies. Though KLHK receives copies of these plans, they provide no coordinating function to ensure that such logging plans, in aggregate, help Indonesia achieve policy objectives. And even though KLHK reviews the ten-year logging plans for each forestry concession-holder, this study found no evidence to suggest that even this review at the central government level is done in respect to achieving non-tax revenue, timber production, or environmental targets. Rather, this review is conducted within the Directorate General of Production Forestry (BUK, now renamed PHPL) without much involvement from the Directorate General of Forest Planology. The end result is that Indonesia's timber

production system is *de facto* controlled by companies, and the Government has very limited ability to harness this natural resource for the benefit of the country and its people.

The low levels of collection efficiency described in Chapter 3 indicate a poorly functioning system, but they also point to a huge opportunity. If previously it was assumed that increasing PNBP collection had to come at the cost of more rapid forest destruction, these results demonstrate that in fact there is tremendous scope to increase PNBP collection and at the same time decrease forest destruction. Such a positive-sum solution is an achievable goal, not a far-fetched dream, but it does require acute awareness of the current systems' weaknesses by all institutions involved and an appreciation of how they impact the way timber production translates into benefits for the country and people of Indonesia.

Section III

Towards an accountable and efficient timber administration and non-tax revenue collection system

Chapter 12: Roadmap for fixing the system

Within the context of the National Movement to Save Indonesia's Natural Resources (*Gerakan Nasional Penyelamatan Sumber Daya Alam,* or GN-SDA), KPK will be working together with the Ministry of Environment and Forestry, the Ministry of Finance, the Supreme Audit Agency (BPK-RI), the Financial Transaction Reports and Analysis Center (PPATK), regional governments and other institutions to address the weaknesses identified by this study. The findings are a starting point for establishing a more concerted focus on harnessing the economic benefits of Indonesia's forestry sector to support a more just and prosperous society.

For this to happen, the institutions tasked with managing Indonesia's forests, ensuring government revenue collection, providing accountability, and enforcing forest and financial laws must commit to addressing the significant weaknesses demonstrated in this study. With this study, KPK calls on the Government to examine the study's findings and to decide on the concrete steps it will take.

As the first step, the Ministry of Environment and Forestry, the Ministry of Finance, the Supreme Audit Agency, and PPATK will be required to submit action plans that address the study's findings and aim to improve timber production administration and PNBP revenue collection systems in the forestry sector. Within the GN-SDA framework, civil society organizations can become part of this improved implementation by providing responses to this study, and monitoring its implementation. These action plans are expected to be prepared within 30 days from the date of this study's release. As the next step, KPK will then coordinate review of all the action plans and consider CSO responses and, based on the results of that review process, facilitate discussions with officials of the respective institutions to revise and refine the action plans. The deadline for agreeing on revised action plans will be 90 days from this study's presentation. Following a signing ceremony shortly following that date, the action plans will immediately enter the implementation phase.

KPK recommends that at minimum these action plans include:

12.1 A comprehensive audit of non-tax forest revenues conducted by BPK-RI

This study provides quantitative estimates of state losses from unreported timber production and under-collection of PNBP during 2003–2014. These results indicate that the loss of state assets from Indonesia's forestry sector has occurred on a scale that requires a comprehensive audit by Indonesia's Supreme Audit Agency (BPK-RI). This audit should include a thorough analysis of the Government's PNBP collection system in the forestry sector and should seek to determine how much revenue should be collected under the current forest fiscal system. This audit will serve as the basis for subsequent actions to strengthen the Government's PNBP forest revenue collection system and to prevent future losses of state assets from the forestry sector. KPK will coordinate with BPK to determine the scope, methodology, and timetable for this audit.

12.2 All timber production from state-administered forests reported on KLHK's online and publicly-accessible SI-PUHH system, including official inventory, planning, production, non-tax revenue payment, and mill timber consumption reports

This study documents significant issues in management of data for timber production and PNBP collection. The SI-PUHH system hosted on KLHK's website is a positive step for greater transparency and accountability. At present, however, it only includes production and PNBP data from some HPH selective logging concession-

holders, and none from other sources of production such as land clearing. Therefore, it is imperative that the SI-PUHH online system include all timber production in Indonesia, both from natural forests (HPH concessions and land clearing by IPK license holders), as well as plantation forests (HTI plantations, Perum Perhutani, and Hutan Rakyat).

This study also shows inconsistencies between production data in the SI-PUHH system and KLHK's internal timber production monitoring reports. To ensure that these inconsistencies do not persist, KLHK must upload the official production reports, PNBP payment obligations (*Surat Perintah Pembayaran*), and proof of PNBP payment (*Surat Bukti Bayar*). Furthermore, the SI-PUHH system must also include the inventory (IHMB, ITSP) and planning documents (RKU and RKT) for every forestry company. Only then will KLHK and other institutions such as the Ministry of Finance, as well as the general public, be able to verify the truthfulness of production reports and accuracy of PNBP payments. This upgrade of the SI-PUHH system will be a critical tool for transparency, accountability, and performance enhancement in Indonesia's forestry sector.

12.3 Spatial monitoring tools used to verify forest inventory for all land-clearing areas prior to forest land-clearing

This study indicates that the majority of unreported timber production, and the source of largest state loss, comes from land-clearing sites, mainly for oil palm and rubber estates, pulpwood concessions, and mining areas. It also documents that inventory and production reports rely on company self-reporting and the system of verification depends on field checks by local forestry officials. These systems are highly vulnerable to corruption and fraud, resulting in widespread under-reporting of production and under-collection of PNBP.

Spatial monitoring tools that use satellite data should be used to address these problems. The Government of Indonesia already has existing resources that should be incorporated into the solution. The National Aeronautics and Space Agency (*Lembaga Penerbangan dan Antariksa Nasional*, or LAPAN) collects satellite data, and KLHK's Directorate General of Forest Planology already analyzes this data for environmental and forest planning purposes. Now this spatial monitoring data must be used to assess standing stock on land-clearing sites before it is harvested, and that information must be used to verify that companies' post-harvest production reports are accurate and PNBP obligations are met.

12.4 Enhanced law enforcement actions, including use of anti money laundering laws, against all actors identified to be under-reporting timber production and/or evading payments of forest royalties

This study indicates that unreported timber production is happening on a massive scale. Stronger law enforcement measures can provide a deterrent that changes this condition. Forestry companies and their owners must be held responsible for over-harvesting, under-reporting, and/or harvesting outside designated concession and work plan areas. Until now, law enforcement measures have largely focused on small-scale timber producers, while large timber operations harvest with impunity. This study also estimates the market value of unreported timber production, which represents the potential value of assets stolen from the state. Together with KPK and other law enforcement agencies, PPATK must pursue the proceeds from the sale of these stolen assets, empowered by Indonesia's anti-money laundering law which lists forestry crime as a predicate offense. Such actions should also encourage banks and other financial institutions to conduct enhanced due diligence and monitoring of suspicious transactions to ensure they are not involved in laundering money associated with illegal forestry activities.

12.5 In-depth review of the structure and rates of royalty fees to determine how the Government will increase collection efficiency and capture full economic rent on timber production

DR and PSDH rates have barely changed since the late 1990s, during which time their real value has dropped relative to inflation and the market price of timber. Without a non-political mechanism to adjust rates on a routine basis, the Government cannot use the DR and PSDH – and other forms of forest royalties, including the PNT – effectively as fiscal tools to capture economic rent. KLHK and the Ministry of Finance must perform a detailed review of the current rates and formulate a mechanism for adjusting these rates according to production costs and market prices. This mechanism should aim to be free of political interference, which has hampered the effective implementation of the current mechanism for setting PNBP rates in the forestry sector.

This in-depth review should also consider whether the current system of determining PNBP obligations based on post-harvest production reporting is effective, or whether other ways to calculate royalty fees may be easier to implement. For example, this review should consider whether an area-based fee tied to standing stock and payable prior to harvesting may be a more efficient way to collect PNBP from land-clearing areas.

12.6 Routine coordination between KLHK and the Ministry of Finance to plan forestry non-tax revenue targets based on empirical assessments of actual timber production levels

This study highlights that the Ministry of Finance exercises only very limited external oversight of KLHK's collection of PNBP in the forestry sector and its efforts are generally limited to reconciling PNBP receipts after they enter Government accounts. The Ministry of Finance must collaborate with KLHK and other relevant agencies to develop a mechanism to set PNBP collection targets based on the amounts that should be collected in relation to actual (reported and unreported) timber production levels. KPK will support these efforts by coordinating an inter-agency team to analyze state losses from unreported timber production and uncollected PNBP in the forestry sector for subsequent years following this initial study. Ultimately, efforts to reform the PNBP collection and timber administration systems will be judged by the metrics included in these reports: PNBP collection efficiency; Government economic rent capture; sustainably-sourced raw materials for wood processing industries and community-based enterprises; and the rate at which Indonesia's natural forests are lost to deforestation and forest degradation.

Appendices

Appendix Table 1. Estimates of actual timber production in Indonesia (in cubic meters), 2003–2014

ESTIMATE 1	SELECTIVE LOGGING HIGH INTENSITY	SELECTIVE LOGGING LOW INTENSITY	LAND CLEARING – LARGE DIAMETER LOGS	LAND CLEARING – SMALL DIAMETER LOGS
2003	10,379,536	9,792,705	6,270,810	7,005,390
2004	10,235,198	9,883,578	11,983,650	14,599,200
2005	10,400,993	9,871,213	11,913,230	15,174,320
2006	10,823,719	9,845,579	12,639,270	15,110,130
2007	10,648,461	9,801,250	14,206,360	16,666,090
2008	9,870,764	10,248,565	12,370,400	15,097,250
2009	9,701,926	10,228,816	17,835,020	21,474,530
2010	9,311,718	10,085,536	13,685,420	17,157,980
2011	8,765,173	10,051,457	15,729,420	19,146,330
2012	8,765,173	9,942,243	20,784,540	25,336,710
2013	7,925,078	9,597,470	20,784,540	25,336,710
2014	7,925,078	9,597,470	20,784,540	25,336,710
Total	**114,752,814**	**118,945,884**	**178,987,200**	**217,441,350**

ESTIMATE 2	SELECTIVE LOGGING HIGH INTENSITY	SELECTIVE LOGGING LOW INTENSITY	LAND CLEARING – LARGE DIAMETER LOGS	LAND CLEARING – SMALL DIAMETER LOGS
2003	18,164,188	9,792,705	7,166,640	8,006,160
2004	17,911,597	9,883,578	13,695,600	16,684,800
2005	18,201,738	9,871,213	13,615,120	17,342,080
2006	18,941,508	9,845,579	14,444,880	17,268,720
2007	18,634,806	9,801,250	16,235,840	19,046,960
2008	17,273,836	10,248,565	14,137,600	17,254,000
2009	16,978,370	10,228,816	20,382,880	24,542,320
2010	16,295,506	10,085,536	15,640,480	19,609,120
2011	15,339,052	10,051,457	17,976,480	21,881,520
2012	15,339,052	9,942,243	23,753,760	28,956,240
2013	13,868,886	9,597,470	23,753,760	28,956,240
2014	13,868,886	9,597,470	23,753,760	28,956,240
Total	**200,817,425**	**118,945,884**	**204,556,800**	**248,504,400**

Appendix Table 2. Estimates of Dana Reboisasi funds owed, collected, and uncollected, 2003–2014

ESTIMATE 1	OWED (US$)	COLLECTED (US$)	UNCOLLECTED (US$)	COLLECTION EFFICIENCY
2003	410,656,549	286,107,585	124,548,964	70%
2004	510,734,795	270,311,860	240,422,935	53%
2005	513,130,180	262,634,338	250,495,842	51%
2006	529,848,782	188,941,874	340,906,908	36%
2007	553,173,241	149,753,299	403,419,942	27%
2008	517,540,430	169,404,587	348,135,843	33%
2009	609,435,488	140,044,517	469,390,971	23%
2010	530,556,065	189,363,785	341,192,280	36%
2011	556,483,408	207,848,278	348,635,130	37%
2012	643,052,758	170,154,341	472,898,417	26%
2013	625,279,736	179,857,000	445,422,736	29%
2014	625,279,736	*179,857,001*	445,422,735	29%
Average	**552,097,597**	**199,523,205**	**352,574,392**	**37%**
Total	**6,625,171,169**	**2,394,278,465**	**4,230,892,704**	

ESTIMATE 2	OWED (US$)	COLLECTED (US$)	UNCOLLECTED (US$)	COLLECTION EFFICIENCY
2003	542,865,320	286,107,585	256,757,735	53%
2004	655,731,222	270,311,860	385,419,362	41%
2005	660,005,221	262,634,338	397,370,883	40%
2006	683,016,948	188,941,874	494,075,074	28%
2007	708,172,364	149,753,299	558,419,065	21%
2008	659,408,021	169,404,587	490,003,434	26%
2009	762,935,633	140,044,517	622,891,116	18%
2010	669,541,068	189,363,785	480,177,283	28%
2011	694,267,879	207,848,278	486,419,601	30%
2012	793,438,309	170,154,341	623,283,968	21%
2013	766,214,223	179,857,000	586,357,223	23%
2014	766,214,223	*179,857,001*	586,357,222	23%
Average	**696,817,536**	**199,523,205**	**497,294,330**	**29%**
Total	**8,361,810,430**	**2,394,278,465**	**5,967,531,965**	

Note: Italics indicates estimate because official 2014 data not yet available at time of publication.

Appendix Table 3. Estimates of PSDH funds owed, collected, and uncollected, 2003–2014

ESTIMATE 1	OWED (RP.)	COLLECTED (RP.)	UNCOLLECTED (RP.)	COLLECTION EFFICIENCY
2003	1,729,493,032,539	638,484,099,068	1,091,008,933,471	37%
2004	2,223,969,258,687	867,803,923,775	1,356,165,334,912	39%
2005	2,240,682,289,902	610,017,432,547	1,630,664,857,355	27%
2006	2,306,760,739,119	531,696,688,390	1,775,064,050,729	23%
2007	2,487,683,449,079	615,928,552,649	1,871,754,896,430	25%
2008	2,319,266,346,289	556,118,951,031	1,763,147,395,258	24%
2009	2,792,071,698,811	620,964,187,368	2,171,107,511,443	22%
2010	2,405,330,928,733	743,969,459,002	1,661,361,469,731	31%
2011	2,541,848,077,860	810,779,492,652	1,731,068,585,208	32%
2012	2,990,266,747,860	910,746,795,189	2,079,519,952,671	30%
2013	2,919,174,659,469	611,471,097,889	2,307,703,561,580	21%
2014	2,919,174,659,469	*743,258,213,816*	2,175,916,445,653	25%
Average	**2,489,643,490,651**	**688,436,574,448**	**1,801,206,916,203**	**28%**
Total	**29,875,721,887,817**	**8,261,238,893,376**	**21,614,482,994,441**	

ESTIMATE 2	OWED (RP.)	COLLECTED (RP.)	UNCOLLECTED (RP.)	COLLECTION EFFICIENCY
2003	2,270,737,663,239	638,484,099,068	1,632,253,564,171	28%
2004	2,829,816,409,137	867,803,923,775	1,962,012,485,362	31%
2005	2,855,062,674,852	610,017,432,547	2,245,045,242,305	21%
2006	2,946,199,919,319	531,696,688,390	2,414,503,230,929	18%
2007	3,146,964,296,029	615,928,552,649	2,531,035,743,380	20%
2008	2,922,323,083,739	556,118,951,031	2,366,204,132,708	19%
2009	3,456,690,812,561	620,964,187,368	2,835,726,625,193	18%
2010	3,001,714,750,733	743,969,459,002	2,257,745,291,731	25%
2011	3,138,116,595,360	810,779,492,652	2,327,337,102,708	26%
2012	3,651,531,195,360	910,746,795,189	2,740,784,400,171	25%
2013	3,542,634,851,769	611,471,097,889	2,931,163,753,880	17%
2014	3,542,634,851,769	*743,258,213,816*	2,799,376,637,953	21%
Average	**3,108,702,258,656**	**688,436,574,448**	**2,420,265,684,208**	**22%**
Total	**37,304,427,103,867**	**8,261,238,893,376**	**29,043,188,210,491**	

Note: Italics indicates estimate because official 2014 data not yet available at time of publication.

Appendix Table 4. Exchange rate (Rupiah/US$) used in this study

	RP./US$
2003	8,577.13
2004	8,938.85
2005	9,704.74
2006	9,159.32
2007	9,141.00
2008	9,698.96
2009	10,389.94
2010	9,090.43
2011	8,770.43
2012	9,386.63
2013	10,461.24
2014	11,865.21

Source: World Bank, Official Exchange Rate 2003–2014

Appendix Table 5. Estimates of Dana Reboisasi and PSDH (US$) funds owed, collected, and uncollected, 2003–2014

ESTIMATE 1	OWED (US$)	COLLECTED (US$)	UNCOLLECTED (US$)
2003	612,296,612	360,547,881	251,748,731
2004	759,532,935	367,394,138	392,138,797
2005	744,015,530	325,492,017	418,523,513
2006	781,697,253	246,991,673	534,705,580
2007	825,318,898	217,134,171	608,184,727
2008	756,665,692	226,742,585	529,923,107
2009	878,163,864	199,810,424	678,353,440
2010	795,156,411	271,204,739	523,951,673
2011	846,303,643	300,292,946	546,010,696
2012	961,619,352	267,180,302	694,439,050
2013	904,326,451	238,308,111	666,018,341
2014	871,307,801	*242,498,810*	628,808,992
Average	**811,367,037**	**271,966,483**	**539,400,554**
Total	**9,736,404,443**	**3,263,597,798**	**6,472,806,645**

ESTIMATE 2	OWED (US$)	COLLECTED (US$)	UNCOLLECTED (US$)
2003	807,608,615	360,547,881	447,060,734
2004	972,306,219	367,394,138	604,912,081
2005	954,197,819	325,492,017	628,705,802
2006	1,004,678,372	246,991,673	757,686,699
2007	1,052,441,514	217,134,171	835,307,342
2008	960,710,747	226,742,585	733,968,161
2009	1,095,631,569	199,810,424	895,821,145
2010	999,747,092	271,204,739	728,542,354
2011	1,052,074,348	300,292,946	751,781,402
2012	1,182,452,385	267,180,302	915,272,083
2013	1,104,858,098	238,308,111	866,549,987
2014	1,104,825,730	*242,498,810*	822,288,709
Average	**1,024,294,376**	**271,966,483**	**748,991,375**
Total	**12,291,532,508**	**3,263,597,798**	**8,987,896,499**

Note: Italics indicates estimate because official 2014 data not yet available at time of publication.

Appendix Table 6. Estimates of Dana Reboisasi and PSDH (Rp.) funds owed, collected, and uncollected, 2003–2014

ESTIMATE 1	OWED (RP.)	COLLECTED (RP.)	UNCOLLECTED (RP.)
2003	5,251,747,639,819	3,092,466,049,599	2,159,281,590,220
2004	6,789,350,978,039	3,284,081,093,536	3,505,269,884,503
2005	7,220,477,277,570	3,158,815,397,909	4,061,661,879,661
2006	7,159,815,283,050	2,262,275,773,756	4,897,539,509,294
2007	7,544,240,045,241	1,984,823,458,808	5,559,416,586,433
2008	7,338,870,278,367	2,199,167,264,161	5,139,703,014,207
2009	9,124,069,857,706	2,076,018,316,327	7,048,051,541,379
2010	7,228,313,695,812	2,465,367,691,080	4,762,946,004,732
2011	7,422,446,855,771	2,633,698,265,472	4,788,748,590,300
2012	9,026,365,059,704	2,507,922,637,050	6,518,442,422,654
2013	9,460,376,046,128	2,492,998,340,569	6,967,377,705,559
2014	10,338,250,037,245	*2,877,299,300,651*	7,460,950,736,594
Average	**7,825,360,254,538**	**2,586,244,465,743**	**5,239,115,788,794**
Total	**93,904,323,054,450**	**31,034,933,588,917**	**62,869,389,465,534**

ESTIMATE 2	OWED (RP.)	COLLECTED (RP.)	UNCOLLECTED (RP.)
2003	6,926,964,083,739	3,092,466,049,599	3,834,498,034,140
2004	8,691,299,445,453	3,284,081,093,536	5,407,218,351,917
2005	9,260,241,740,514	3,158,815,397,909	6,101,426,342,605
2006	9,202,170,709,915	2,262,275,773,756	6,939,894,936,159
2007	9,620,367,875,419	1,984,823,458,808	7,635,544,416,611
2008	9,317,895,102,464	2,199,167,264,161	7,118,727,838,304
2009	11,383,546,264,750	2,076,018,316,327	9,307,527,948,423
2010	9,088,130,958,633	2,465,367,691,080	6,622,763,267,553
2011	9,227,144,427,975	2,633,698,265,472	6,593,446,162,503
2012	11,099,243,028,267	2,507,922,637,050	8,591,320,391,217
2013	11,558,185,729,381	2,492,998,340,569	9,065,187,388,812
2014	12,633,927,511,966	*2,877,299,300,651*	9,756,628,211,314
Average	**9,834,093,073,206**	**2,586,244,465,743**	**7,247,848,607,463**
Total	**118,009,116,878,476**	**31,034,933,588,917**	**86,974,183,289,559**

Note: Italics indicates estimate because official 2014 data not yet available at time of publication.

Appendix Table 7. Commercial value of unreported timber production, 2003–2014

ESTIMATE 1	COMMERCIAL VALUE (US$)	COMMERCIAL VALUE (RP.)
2003	1,418,239,713	12,164,426,388,032
2004	2,243,997,780	20,058,759,560,160
2005	2,467,584,165	23,947,262,753,280
2006	4,422,874,772	40,510,525,359,743
2007	5,753,293,817	52,590,858,777,486
2008	6,284,537,858	60,953,481,299,020
2009	6,268,703,926	65,131,457,670,379
2010	4,461,633,900	40,558,170,657,800
2011	4,941,363,993	43,337,887,004,089
2012	7,014,843,032	65,845,736,052,058
2013	7,714,736,263	80,705,707,588,044
2014	7,776,678,298	92,271,921,104,279
Total	**60,768,487,518**	**598,076,194,214,368**
Average	**5,064,040,627**	**49,839,682,851,197**

ESTIMATE 2	COMMERCIAL VALUE (US$)	COMMERCIAL VALUE (RP.)
2003	1,957,995,272	16,793,979,986,142
2004	2,958,628,760	26,446,738,691,366
2005	3,380,873,374	32,810,497,063,529
2006	6,073,317,027	55,627,454,111,222
2007	7,839,300,851	71,659,049,075,588
2008	8,381,926,770	81,295,972,465,921
2009	8,255,670,484	85,775,920,989,813
2010	6,350,870,958	57,732,147,885,417
2011	7,060,220,468	61,921,169,403,343
2012	9,333,915,980	87,614,015,759,263
2013	9,971,175,179	107,644,074,739,183
2014	9,887,151,935	117,313,134,011,495
Total	**81,451,047,058**	**802,634,154,182,282**
Average	**6,787,587,255**	**66,886,179,515,190**

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Peraturan Menteri Kehutanan Republik Indonesia Nomor P.42/Menhut-II/2014 tentang Penatausahaan Hasil Hutan Kayu Yang Berasal Dari Hutan Tanaman

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