



Assessment of the Current Management Practices, the Current Harvest Control and Monitoring, and the Conservation Status of *Dalbergia latifolia* in Java and West Nusa Tenggara, Indonesia



**Jakarta, Indonesia
September 2022**



BRIN
BADAN RISET
DAN INOVASI NASIONAL



Assessment of the Current Management Practices, the Current Harvest Control and Monitoring, and the Conservation Status of *Dalbergia latifolia* in Java and West Nusa Tenggara, Indonesia

- Programme : CITES Tree Species Programme
Web Page: <https://cites-tsp.org/>
- Financial Support : The European Union and the CITES Tree Species Programme
- Implementing Agency : Directorate of Biodiversity Conservation of Species and Genetics, The Ministry of Environment and Forestry, and the National Research and Innovation Agency. Indonesia
- Authors : KS Yulita, T Setyawati, W Wardani, TD Atikah, BA Pratama, A Subiakto, S Nurjanah, N Arrofa, and I Kamal
- Indonesia Project Team and Contributors to the Report:
HH Rachmat, RA Fambayun, FG Dwiyantri, F Nopiansyah, D Widiyanto, and RL Rini
- Cover : Upper: Rosewood owned by the community in Central Java, Lower Right: Discussion with collectors in West Nusa Tenggara, Lower middle: Discussion with local government in East Java, Lower left: Piles of rosewood logs belonging to the industry in East Java
- Citation : KS Yulita, T Setyawati, W Wardani, TD Atikah, BA Pratama, A Subiakto, S Nurjanah, N Arrofa and I Kamal. 2022. Assessment of the Current Management Practices, the Current Harvest Control and Monitoring, and the Conservation Status of *Dalbergia latifolia* in Java and West Nusa Tenggara, Indonesia. Directorate of Biodiversity Conservation of Species and Genetics, the Ministry of Environment and Forestry, and the National Research and Innovation Agency, Indonesia
- Copyright : Directorate of Biodiversity Conservation of Species and Genetics, the Ministry of Environment and Forestry, and the National Research and Innovation Agency, Indonesia

Contents

List of Figures	4
ACKNOWLEDGMENTS.....	5
ACRONYMS AND ABBREVIATIONS.....	6
EXECUTIVE SUMMARY	8
1. INTRODUCTION	10
1.1. Background.....	10
1.2. Objectives	10
2. METHODS.....	11
2.1. Field survey.....	11
2.2. Review and meetings.....	13
2.3. Assessment of current management practices, harvest, trade and conservation of <i>Dalbergia latifolia</i>	14
3. CURRENT MANAGEMENT PRACTICES.....	14
3.1. Objectives of the management plan	14
3.2. Control and monitoring	30
4. ASSESSMENT OF CURRENT MANAGEMENT PRACTICES	34
4.1. Impact of the current management practices on the <i>D. latifolia</i> population.....	34
4.2. Impact of the current management practices on livelihoods	35
4.3. Impact of the current management practices on the ecosystem.....	35
4.4. Review of the current management practices on sustainable production.....	36
4.5. Impact of the current management practices on the market.....	36
5. CONSERVATION.....	36
5.1. Nasional conservation status.....	36
5.2. Threats	37
6. RECOMMENDATIONS.....	37
7. CONCLUSIONS	37
REFERENCES	39

List of Figures

Figure 1. Discussions with various groups related to the harvesting and trading in <i>Dalbergia latifolia</i> of (a) <i>Dalbergia latifolia</i> farmers in Yogyakarta, (b) collector in Sumbawa, West Nusa Tenggara, (c) timber collection in Cirebon, West Java, and (d) <i>Dalbergia latifolia</i> processing industry in East Java.....	13
Figure 2. Virtual meeting of (a) on 27 July 2020, (b) on 5 October 2020, and (c) virtual and physical meeting on 29 March 2021.....	14
Figure 3. <i>Dalbergia latifolia</i> stand on a community's owned land in Central Java	17
Figure 4. Mr Suratimin and his <i>D. latifolia</i> plantation in the Semoyo Village	18
Figure 5. <i>Dalbergia latifolia</i> stand in the community's owned land in West Nusa Tenggara of (a) monoculture, and (b) mixed plantation	19
Figure 6. SVLK scheme based on the Ministry Environment and Forestry Regulation No 8 of 2021	23
Figure 7. Flow chart of <i>D. latifolia</i> trade in Java and West Nusa Tenggara.....	24
Figure 8. (a) Small-sized wood branches, and (b) wooden block pieces with dark heartwood ready to be delivered to the industry in Central Java	25
Figure 9. Sales volume of <i>D. latifolia</i> from Perhutani.....	26
Figure 10. Recorded export of <i>Dalbergia latifolia</i> by Indonesia from 2017 to 2021	27
Figure 11. Gross export products of <i>Dalbergia latifolia</i> from Indonesia.....	27
Figure 12. Illegal harvest of <i>D. latifolia</i> from the news in the media during 2020-2022	29
Figure 13. Pie chart of the estimated value of potential stock and annual allowable cut from Java and export of <i>D. latifolia</i> in Indonesia	33
Figure 14. Wood production records from community-owned land based on the Ministry Decree of the Ministry of Environment and Forestry No 8 of 2021.....	34
Figure 15. The condition of <i>D. latifolia</i> stands in the Seteluk KPH area in Moyohilir, West Sumbawa.....	35

ACKNOWLEDGMENTS

The CTSP Indonesia Team wish to acknowledge the European Union for funding this project and the CITES Secretariat for coordinating the project. During this project, from preparation to post-project implementation, we owed our respect and gratitude to Mr Thang Hooi Chiew as the Regional Coordinator for Asia and Dr Milena Sosa Schmidt as the CITES Tree Species Programme Coordinator and Regional Coordinator for Central and South America and the Caribbean. We also acknowledge the support of Dr Haruko Okusu and Ms Sofie H. Flensburg from the CITES Secretariat.

We are grateful to Mrs Indra Exploitasia, Director of Biodiversity Conservation of Species and Genetics, Ministry of Environment and Forestry, and her staff, Dr Kirsfianti L. Ginoga, former Director of Forest Research and Development Center, which is currently the Center for Standardization of Sustainable Forest Management Instruments, Dr Atit Kanti, former Head of Research Center for Biology, Dr Anang Setiawan, Head of Research Center for Ecology and Ethnobiology, and Dr Bayu Adjie, Head of Research Center for Biosystematics and Evolution, National Research and Innovation Agency for their support and assistance in this project.

We express our appreciation to everyone who has assisted us during the field survey and collections, and also to all who have made valuable contributions until this report is completed.

On behalf of the project team,

Dr Kusumadewi Sri Yulita
Project Team Leader

ACRONYMS AND ABBREVIATIONS

AAC	Annual Allowable Cut
BAP	Investigation Report (<i>Berita Acara Pemeriksaan</i>)
BKPH	forest Management Unit (<i>Bagian Kesatuan Pengelolaan Hutan</i>)
BKSDA	Conservation for Natural Resources Regional Office (<i>Balai Konservasi Sumber Daya Alam</i>)
CITES	Convention on International Trade in Endangered Species of Wild Fauna and Flora
cm	centimeter
c.q.	casu quo (in which case)
CV	Commanditaire Vennootschap
CW-FSC	Controller Wood-Forest Stewardship Council
D.	<i>Dalbergia</i>
EOO	Extent of Occurrence
FGD	Focused Group Discussion
FSC	Forest Stewardship Council
ha	hectare
HCV	High Conservation Values
IDR	Indonesian rupiah
i.e.	stands for the Latin <i>id est</i> , or 'that is'
IEDN	Domestic Distribution Permits (<i>Ijin Edar Dalam Negeri</i>)
IELN	Foreign Marketing Permits (<i>Ijin Edar Luar Negeri</i>)
JPIK	Independent Forest Monitoring Network (<i>Jaringan Pemantau Independen Kehutanan</i>)
KBM	Independent Business Unit (<i>Kesatuan Bisnis Mandiri</i>)
KPH	Forest Management Unit (<i>Kesatuan Pengelolaan Hutan</i>)
m ³	cubic meter
NDF	Non-Detriment Findings
Perhutani	State-Owned Forestry Company (<i>Perusahaan Hutan Negara Indonesia</i>)
PermenLHK	Minister of Environment and Forestry Regulations (<i>Peraturan Menteri Lingkungan Hidup dan Kehutanan</i>)

POLRI	The Indonesian National Police (<i>Kepolisian Negara Republik Indonesia</i>)
PT	Limited Liability Company (<i>Perseroan Terbatas</i>)
RKT	The Annual Work Plan (<i>Rencana Kerja Tahunan</i>)
SAKR	Wood transport letter (<i>Surat Angkutan Kayu Rakyat</i>)
SATS	Document for Transport of Wild Plants and Animals (<i>Surat Angkut Tumbuhan dan Satwa</i>)
SATS-DN	Document for Domestic Transport of Wild Plants and Animals (<i>Surat Angkut Tumbuhan dan Satwa Dalam Negeri</i>)
SATS-LN	Document for Foreign Transport of Wild Plants and Animals (<i>Surat Angkut Tumbuhan dan Satwa Liar Luar Negeri</i>)
SETJEN	Secretariat General (<i>Sekretariat Jenderal</i>)
SIPUHH	Information Systems of Forest Product Administration (<i>Sistem Informasi Penatausahaan Hasil Hutan</i>)
SK	Decision letter (<i>Surat Keputusan</i>)
SKSHHK	Certificates of Legitimacy for Forest Products (<i>Surat Keterangan Sahnya Hasil Hutan Kayu</i>)
SM	Wildlife Reserves (<i>Suaka Margasatwa</i>)
SVLK	Timber Legality Verification System (<i>Sistem Verifikasi Legalitas Kayu</i>)
THPB	Reforested with Artificial Rejuvenation (<i>Tebang Habis Permudaan Buatan</i>)
THPA	Reforested with Nature Rejuvenation (<i>Tebang Habis Permudaan Alam</i>)
TJKL	Other Timber Plants (<i>Tanaman Jenis Kayu Lain</i>)
TN	National Park (<i>Taman Nasional</i>)
TNI	The Indonesian National Military (<i>Tentara Nasional Indonesia</i>)
TPK	Timber Hoarding Place (<i>Tempat Penimbunan Kayu</i>)

EXECUTIVE SUMMARY

Dalbergia latifolia as one of the high-quality timber species has been included in Appendix II of CITES since 2017. Since then, *D. latifolia* becomes more popular and highly demanded by buyers who trade wood in the international market. The main distribution areas of *D. latifolia* in Indonesia are in Java and West Nusa Tenggara, but the species is also found in Sumatra, Kalimantan, Sulawesi, and East Nusa Tenggara. The existence of the species outside of Java is mainly due to the past land rehabilitation programs from the 1970s to the late 1980s. The species has been intensively cultivated and is predominantly found in artificial plantations and community-owned lands.

Since its listing in CITES Appendix II, the harvest, trade, transport and export have to follow the regulations set by the Government of Indonesia, and the trade has to follow the rules regarding timber forest products and regulations relating to CITES commodities. The provisions for the transportation of *D. latifolia* products follow the provisions in the Regulation of the Minister of Forestry Number 8 of 2021 concerning Forest Management and Preparation of Forest Management Plans, as well as Forest Utilization in Protection Forests and Production Forests which distinguish the documents required based on the source of the wood. The standard of monitoring for timber and wood products transport, regardless of the species, is through the implementation of SVLK (Timber Legality Assurance System).

At present, the sources of *D. latifolia* wood for export in Indonesia are mainly from the plantations owned by a state-owned forestry company (Perhutani) and small-scale farms (community-owned land). The export from the community-owned land accounted for an estimated 80%, and the remaining are from Perhutani. There are no official records for wood harvested in the wild that entered the export distributional chain. The harvest regimes in the two sources of *D. latifolia* are different. The management practices of *D. latifolia* in Perhutani follow the national regulations where each plot of plantation forests must be included in the long-term and short-term plans, including the logging/harvest plan. The management practices of community-owned land in Java and the West Nusa Tenggara are still carried out traditionally with no specific harvesting plans and the harvest is based only on their needs with a few on market demand. The planting system practised in West Nusa Tenggara is different from that in Java. The most common practice of *D. latifolia* plantation in West Nusa Tenggara is monocultures and a few are mixed plantations with other tree crops, while in Java they are generally planted with other crops in mixed agroforestry.

There had been a decline in export demand in 2021 due to the COVID-19 pandemic which led to a decrease in purchasing power. The decline in the export is not likely to affect local harvests, particularly from the community-owned lands as *D. latifolia* is still being highly sought after. This has often led to illegal harvesting activities in some areas. The local media recorded that illegal logging of *D. latifolia* started in 2017, and from late 2020 to mid-2022,

most incidents of illegal logging occur in the island of Java with a few recorded in Sumatra and Nusa Tenggara.

On the other hand, the increasing popularity of *D. latifolia* has provided additional income that can improve the economic and social prosperity/welfare of the surrounding community, and the plantations of *D. latifolia* also provide environmental services.

D. latifolia is considered vulnerable to extinction at the global level due to habitat degradation and illegal logging. Nevertheless, *D. latifolia* in Indonesia is locally abundant and even is considered a weed species in some areas of Indonesia, particularly in Java. Hence, the conservation status of *D. latifolia* in Indonesia is assessed as Least Concern.

1. INTRODUCTION

1.1. Background

Dalbergia latifolia is a timber species considered a fancy wood that is commercially and highly valuable and can easily be found in Java and West Nusa Tenggara. The distribution of this species, outside of Java, was a result of the land rehabilitation programs from the 1970s to the late 1980s. At that time, *D. latifolia* and mahogany (*Swietenia macrophylla*) were the primary species planted in marginal areas. Although it has been known for a long time in Indonesia, only recently has its name become very popular. In the market, the price of the wood has soared to beat that of teak which is a popular luxurious wood.

The increasing popularity was driven by the high demand for *D. latifolia* in the international market. People have traded certain *D. latifolia* globally, mainly from the neotropics, in the decades before. Over the years, the sources were depleted, leading the business to substitute species from other regions, i.e., Africa and Asia. As the global demand continues to surge, there are concerns about the survival of the species. The demand for *D. latifolia* from Indonesia began to increase in 2012, and in 2014 Indonesia was the 2nd largest sawn timber supplier to China (Perhutani, 2022). Eventually, all the species of *Dalbergia* were listed in CITES Appendix II in 2017 to control its global trade and prevent the species from extinction. This listing drew high attention, thus inviting people to be involved in the marketing of the species which inevitably surged the wood prices.

At the global level, *D. latifolia* is considered vulnerable to extinction due to habitat degradation and illegal logging (Lakhey *et al.*, 2020). Nevertheless, this species in Indonesia is locally abundant and even is considered a weed in certain areas, particularly in Java (Personal observation, 2021). The trees were common in farmlands and nearby areas, especially teak plantations, with seedlings often covering the floor. However, it is understood that the abundance of this species will tend to decrease remarkably fast without proper management.

Indonesia has imposed regulations for timber and timber product administration that apply for certain species with the less rigorous application for non-CITES-listed species. Previously, *D. latifolia* was a non-CITES-listed species and was recorded as "mixed timber". Following the listing in CITES Appendix II, the timber administration is now accorded with additional administration under the CITES regime. This report outlined the current administration regulations and their implementation in managing and conserving the species.

1.2. Objectives

The objective of this report was to assess the management practices and conservation status of *D. latifolia* in Java and West Nusa Tenggara. The assessment included a review of harvest, trade, and monitoring. This information was required to support the process of preparing a

non-detriment findings (NDF) report on *D. latifolia* in Java and West Nusa Tenggara, Indonesia.

2. METHODS

2.1. Field survey

The field survey was carried out to collect data and information on the distribution and trade activities of the species from September 2020 to December 2021. The Project Team had visited 33 sites in Java and West Nusa Tenggara (**Table 1, Figure 1**).

Table 1. List of field surveys carried out by the Project Team

No.	Location	Latitude	Longitude
1	Cikepuh 1, West Java	7°14'28.7"S	106°25'03.6"E
2	Cikepuh 2, West Java	7°14'35.2"S	106°24'58.7"E
3	Jogomulyo Village, Buayan Sub-Regency, Kebumen Regency, Central Java	7°25'04.8"S	112°26'32.3"E
4	Purbowangi Village, Buayan Sub-Regency, Kebumen Regency, Central Java	7°37'31" S	109°27'41" E
5	Jetis Sub-Regency, Waru, Mojokerto Regency, East Java	7°23'40" S	112°25'46" E
6	Kemlagi Sub-Regency, Mojokerto Regency, East Java	7°22'36" S	112°25'36" E
7	Ngabar Village, Jetis Sub-Regency, Mojokerto Regency, East Java	7°25'06.5"S	112°26'31.4"E
8	Ngebruk Village, Sumberpucung Sub-Regency, Malang Regency, East Java	8°08'38" S	112°29'59" E
9	Ngadirejo Village, Kromengan Sub-Regency, Malang Regency, East Java	8°07'41.5"S	112°31'03.0"E
10	Karang Tengah Village, Kromengan Sub-Regency, Malang Regency, East Java	8°08'46.7"S	112°30'04.3"E
11	Doroampel Village, Sumbergempol Sub-Regency, Tulung Agung Regency, East Java	8°06'24.2"S	111°56'31.0"E
12	Jambalsari Village, Sumbergempol Sub-Regency, Tulung Agung Regency, East Java	8°05'02" S	111°57'23" E
13	Wates Village, Sumbergempol Sub-Regency, Tulung Agung Regency, East Java	8°08'7.4" S	111°57'228.5" E
14	Sumberdadi Village, Sumbergempol Sub-Regency, Tulung Agung Regency, East Java	8°04'44.6"S	111°56'29.0"E
16	Boak Village, Unter Iwes Sub-Regency, Sumbawa Regency, West Nusa Tenggara	8°32'39.0"S	117°28'19.0"E
17	Rimpi Village, Seteluk Sub-Regency, Sumbawa Barat Regency	8°38'13.6"S	116°52'11.6"E
18	Senggigi Village, Batu Layar Sub-Regency, Lombok Barat Regency	8°28'43.5"S	116°03'15.2"E

19	Perhutani's Research and Development Center, Cepu Sub-Regency, Bojonegoro Regency, Central Java	7°08'39.0"S	111°37'04.0"E
20	Cepu Forest Management Unit, Perhutani, Cepu Sub-regency, Blora Regency, Central Java	7°08'18.1"S	111°36'24.4"E
21	Mantingan Forest Management Unit, Perhutani, Rembang Regency, Central Java	6°42'15.3"S	111°20'24.8"E
23	West Jawa and Banten Regional Division Perhutani Office, Bandung City, West Java	6°56'14.1"S	107°42'05.0"E
24	Kuningan Forest Management Unit, Perhutani, Purwawinangun Sub-Regency, Kuningan Regency	6°58'17.3"S	108°29'15.5"E
25	Sukabumi Forest Management Unit, Cikole Sub-Regency, Sukabumi City, West Java	6°55'11.7"S	106°55'51.8"E
26	Perhutani's Logpond, Jatiseeng Kidul Village, Ciledug Sub-Regency, Cirebon Regency, West Java	6°54'49.4"S	108°44'12.8"E
27	Perhutani's Logpond, Cibungur Village, Bungursari Sub-Regency, Purwakarta Regency, West Java	6°28'23.0"S	107°28'49.6"E
28	Conservation for Natural Resources Regional Office of Yogyakarta, Tridadi Village, Sleman Regency, Yogyakarta	7°42'15.2"S	110°20'54.8"E
29	Semoyo Village, Patuk Sub-Regency, Gunung Kidul Regency, Yogyakarta	7°51'57.1"S	110°28'49.4"E
30	Area Conservation Resort of Kulon Progo, Sentolo, Sub-Regency, Kulon Progo Regency, Yogyakarta	7°50'19.8"S	110°13'12.7"E
31	Cempaga Village, Banjar Sub-Regency, Buleleng Regency, Bali	8°11'58.3"S	115°00'14.6"E
32	Liligundi Village, Banjar Sub-Regency, Buleleng Regency, Bali		
33	Melaya Village, Melaya Sub-Regency, Jembaran Regency, Bali	8°14'49.7"S	114°28'31.2"E



Figure 1. Discussions with various groups related to the harvesting and trading in *Dalbergia latifolia* of (a) *Dalbergia latifolia* farmers in Yogyakarta, (b) collector in Sumbawa, West Nusa Tenggara, (c) timber collection in Cirebon, West Java, and (d) *Dalbergia latifolia* processing industry in East Java

During the travel restriction due to the global Covid-19 pandemic, enumerators were hired from 2020–2021 to collect the data in Java and West Nusa Tenggara. The guideline for data collection was prepared by the national experts. Hence, the collected data would be the same as those generated through direct field surveys.

2.2. Review and meetings

The collection of information was obtained by conducting in-depth reviews on:

- (i) Regulations and related laws.
- (ii) Annual reports of Perhutani.
- (iii) Relevant CITES resolutions.

Virtual and physical meetings were also carried out with interested stakeholders through Focused Group Discussion (FGD) on 27 July 2020, 5 October 2020 and 29 March 2021 (**Figure 2**).

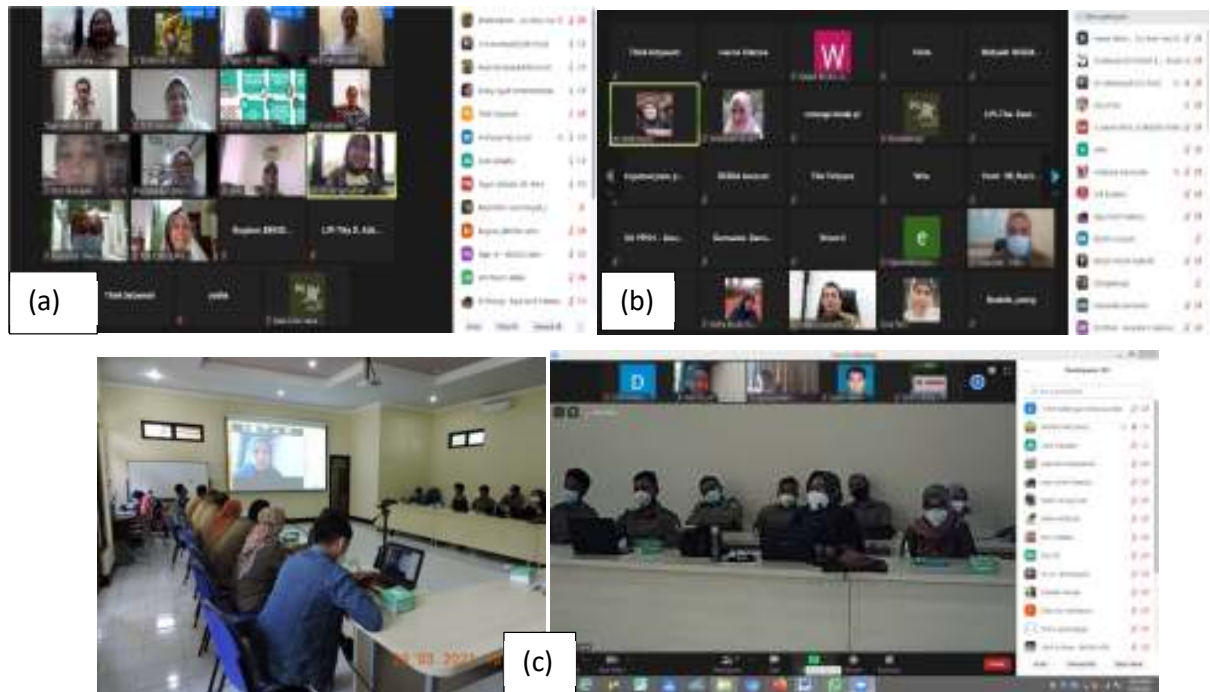


Figure 2. Virtual meeting of (a) on 27 July 2020, (b) on 5 October 2020, and (c) virtual and physical meeting on 29 March 2021

2.3. Assessment of current management practices, harvest, trade and conservation of *Dalbergia latifolia*

Several documents were reviewed and used as guidance to prepare the report, including:

- (i) The CITES Guidelines on preparing a science-based NDF for timber species (Wolf *et al.*, 2018).
- (ii) Guidance for CITES Scientific Authorities: Checklist to assist in making non-detriment findings for Appendix II exports (Rosser and Haywood, 2002).

3. CURRENT MANAGEMENT PRACTICES

In Indonesia, the sources of trade in *D. latifolia* come from two main regimes, namely, (i) forest plantation concession in state land where at the moment it is only operated in Java by a state-owned forestry company (Perhutani), and (ii) community-owned land. Each source has different management systems regarding production, harvest, and monitoring.

3.1. Objectives of the management plan

The objectives of the management plan are to develop and maximize stand potential (economic yield), ensure the availability of seeds by managing parent stands for replanting, conservation and reforestation needs, and maintain landscape functions and sustainable production.

Harvesting regimes and areas

The harvesting systems used in the two sources of *D. latifolia*, namely, the Perhutani concession areas and community-owned lands, are different because they are related to the area's scale, the number of stands and regulations.

State-owned forestry company (Perhutani)

The concession estate in Java operated by Perhutani consisted of three regional division units, i.e., Unit I in Central Java (Semarang), Unit II in East Java (Surabaya) and Unit III in West Java (Bandung). Each unit has its own management structure responsible for the production (*Forest Management Unit* or KPH) and product marketing (Independent Business Unit or KBM). The KPH is an operational unit of Perhutani and at present, there is 57 KPH with 14 units in West Java, 20 units in Central Java and 23 units in East Java.

In general, the management practices of *D. latifolia* are the same as those practised in other types of timber plantations, such as teak, *sengon* (*Paraserianthes falcataria*), mahogany, pine and acacia. As regulated in the national regulations, each plot of plantation forest must be included in the long-term and short-term plans, including the logging/harvest plan. Before harvesting, all the stands in the planned logging plot are inventoried to obtain an estimate of the timber volume and value of each species. The inventory results are reported to the Ministry through the SIPUHH system (Information Systems of Forest Product Administration/*Sistem Informasi Penatausahaan Hasil Hutan*), including plans for replanting or post-harvesting management. The harvesting in plantation forest concessions where each plot has a rotation time for harvest uses the Artificial Regeneration (THPB) or the Clear-Cutting Natural Regeneration (THPA) harvesting system, depending on tree species and availability of seedlings at the harvesting site. Most *D. latifolia* stands are in the same area as teak, and as such, they are more often harvested using the THPB system. The mature tree stands that are found in recent years are trees that have been planted about 50 years ago. After harvesting, replanting occurs at the same point as the felled tree stumps. In the case of *D. latifolia*, the remaining stumps will emerge a shoot like a pruned tree (coppice). The post-harvest replanting is expected to be harvested again within the next 20 years.

All the 57 Forest Management Units (KPH) have obtained controlled wood certificates from the FSC since 2014 so the wood produced from Perhutani's work areas has met the 5 CW-FSC prerequisites. The requirements include legal documents, do not violate civil and traditional rights, not damaging areas with High Conservation Values (HCV), not converting forests (both natural and secondary), and not using genetically modified plants. However, from the certified wood, *D. latifolia* is still included in the category of 'mixed timber'.

Community-owned land

The stands of *D. latifolia* in the harvest regime are widely distributed in Java and West Nusa Tenggara. Based on the results of the discussions held with the association of *D. latifolia*'s entrepreneurs in Java and the estimated calculations carried out by the Project Team, the

export volume of *D. latifolia* mostly comes from the people's plantations which accounted for an estimated 80% of the total export with most of the production from the Java Island. *D. latifolia* logging on community land tends to be less planned because it is based on their needs for timber for their own use, market demand, and/or the need for space over the land. *D. latifolia* stands are planted on the same land together with other tree species with minimal/no maintenance efforts until the stands reach the maturity phase. However, more knowledgeable farmers usually plant *D. latifolia* using an intercropping model and optimize their land use for various agriculture crops (*palawija*).

The Project Team's survey results using non-permanent plots found a total of 803 individuals of *D. latifolia* covering an area of 2.04 ha (**Table 2**). This value is equivalent to a standing volume of 341.45 m³. However, the value does not describe the entire population of *D. latifolia* in Java and West Nusa Tenggara.

Table 2. The potential standing stock of *D. latifolia* estimated from non-permanent plots in Java and West Nusa Tenggara

No.	Province/Location	Number of Non-permanent Plots	Area (ha)	<i>Dalbergia latifolia</i>	
				Individuals	Total Volume (m ³)
1	Banten	6	0.24	13.24	13.24
2	West Java	13	0.52	55.57	55.57
3	Central Java	4	0.16	31.95	31.95
4	East Java	15	0.6	167.70	167.70
5	West Nusa Tenggara	13	0.52	72.99	72.99
Total		51	2.04	803	341.45

Java

The management of community-owned land in Java is still carried out traditionally. The *D. latifolia* is not planted intentionally but grows in gardens with teak, *senon* and mahogany, which have been planted for a long time (**Figure 3**). Specific propagation for *D. latifolia* is carried out simply by maintaining leftover saplings and propagating vegetatively through the roots. The land owners do not have specific harvesting plans and harvest trees only based on their needs or the demand of the market. Based on the results of the interviews conducted with the respondents in West Java (Majalengka and Kuningan), Central Java (Banyumas, Purworejo, Cilacap, Kebumen, Cepu, and Gunung Kidul), and East Java (Pacitan, Blitar, Kediri, Sidoarjo, Malang, Pasuruan, and Trenggalek), *D. latifolia* is not considered the main wood commodity. The local people in Java prefer teak and mahogany because their wood is easier to work compared to that of *D. latifolia* which is a hard and heavy wood.



Figure 3. *Dalbergia latifolia* stand on a community's owned land in Central Java

The field survey conducted on 90 established plots showed that the area of community-owned land that had been planted with *D. latifolia* was 35.65 ha. This area does not represent the total distribution area of *D. latifolia* in Java, and hence more surveys are needed to estimate the total area accurately.

Box 1: *Dalbergia latifolia* management in community-owned land in Gunung Kidul, Central Java

Dalbergia latifolia in Central Java was initially not considered very valuable. But later, after its listing in CITES Appendix II, this wood was much sought after, and increasing livelihood income due to its soaring price. The Semoyo Village at Gunung Kidul Regency of Central Java has implemented sustainable management of *D. latifolia* at the community level. One of the Project Team respondents, an award-winner in the environmental field, Mr Suratimin (**Figure 4**), explained that in the past, *D. latifolia* was considered less valuable than teak and mahogany because its woodworking properties were more complex than the other species. But now, *D. latifolia* is classified as a valuable wood, and hence illegal harvest has also started to spread to community lands and forest areas. This was evident by the increasing price of *D. latifolia* which reached IDR 100 million (US\$ 6,666.68¹) for one tree with a diameter greater than 80 cm and over 100 years old. Seeing this increasing market trend, Mr Suratimin tried to cultivate *D. latifolia* in the Semoyo Village with the hope that the community could receive a sizable profit from this wood in the future. He built a nursery that used the root-cutting system. The system was considered quite reasonable and affordable. According to him, most likely, *D. latifolia* would not become extinct because of the availability and the abundance of

¹ US\$ 1.000 = IDR 15,000.00

growing saplings. The advantage of the *D. latifolia* management system practised in the Semoyo Village where the harvest of *D. latifolia* was that it was carried out by considering the availability of the stands and stock adequacy. The main problem that was found in the Semoyo village was the lack of skill in maintaining the tree stands, such as the technique to separate tillers from the roots and grow them to reach a mature size to be harvested, and disease control due to fungal attacks.



Figure 4. Mr Suratimin and his *D. latifolia* plantation in the Semoyo Village

Generally, the harvest that is carried out on community-owned land in Java is done without a direct census (inventory) of the tree stand. In some cases, the censuses/inventory are carried out by farmers who are members of cooperatives. Most of the harvests from private lands in Java are carried out without a formally recorded census. Censuses before the harvest that occurred on farmers' land are registered with non-governmental cooperatives, such as the one in Kebumen and Yogyakarta. Such cooperatives will assist in preparing transportation documentation required for the sale of *D. latifolia* logs.

The distribution of timber from community-owned land is mostly done directly by the farmers to the collectors who come to them. These collectors generally have a distribution permit and have a role in managing the administration from the cutting location to the processing site. In addition to direct sales, there is also a distribution model through cooperatives. This organization facilitates interested farmers through membership with stand census services, recording the standing stock, promotion and sales administration management.

In Java, there is already an association of *D. latifolia* entrepreneurs (Pesona) consisting of 20 companies that have Domestic Distribution Permits (IEDN) and Foreign (IELN). Pesona is an institution that coordinates the circulation of *D. latifolia* wood on the island of Java.

West Nusa Tenggara

The management of community-owned land in the West Nusa Tenggara is still carried out traditionally as in Java. Generally, the landowners do not have specific harvesting plans and harvest trees are only based on the needs of the landowners or market demand. The planting system practised in West Nusa Tenggara is slightly different from that practised in Java. The most common practice of *D. latifolia* plantation in West Nusa Tenggara is monocultures (**Figure 5a**), and a few are mixed plantations with other tree crops (**Figure 5b**). The people often plant *D. latifolia* in a large area in a huge landscape compared to smaller areas in Java. Based on the information collected from the local government, the most extensive stock of *D. latifolia* is in the Bima and Dompu Regency (Sumbawa island) which accounted for an estimated 70% of the total areas available for planting in West Nusa Tenggara.



Figure 5. *Dalbergia latifolia* stand in the community's owned land in West Nusa Tenggara of (a) monoculture, and (b) mixed plantation

The occurrence of *D. latifolia* populations in Sumbawa came from the land rehabilitation program in the 1970s to late 1980s. These lands were commonly planted with *D. latifolia*. Before 2017, the use and trade in *D. latifolia* were not very high, and even the price was relatively low compared to teak and mahogany. The people use their branches for firewood and occasionally cut down the trees to meet their own needs.

Most of the harvests that are carried out on community-owned land in the West Nusa Tenggara are done with a formally recorded census (direct census of tree stand) involving 3 units (TNI, Polri and BKPH). The harvest that occurred on farmers' land is registered with companies that already have IEDN. Such companies would assist in the harvesting and the preparation of transportation documents required for the sale of *D. latifolia* logs. The sale, purchase, and distribution of *D. latifolia* are officially carried out by the business unit holding the marketing permit, which is part of the *D. latifolia* association. The role of associations is beneficial, especially in collecting data on the potential stocking of *D. latifolia* in the field. The

association also assists the timber owners to map all the *D. latifolia* stands on their land if they wish the timber to be sold to its members.

Box 2: *Dalbergia latifolia* management in community-owned land in West Nusa Tenggara

Since 2020, the Government of West Nusa Tenggara has issued a regional regulation that states that builders must first go through verification by several agencies, namely, the West Nusa Tenggara Regional Government, KPH managers, and unit from the Indonesian National Military (*Tentara Nasional Indonesia*, TNI) and the Indonesian National Police (*Kepolisian Negara Republik Indonesia*, Polri). These parties would conduct an assessment, calculate and record the distribution and stocking of *D. latifolia* in the proposed area earmarked for harvesting. After the field verification is carried out, the Regional Government compiles an Investigation Report (*Berita Acara Pemeriksaan*). Only from these verified areas can the timber transport permits be processed and issued.

In 2021, a problem arose when stands on land that had been censused and had been paid by the buyers to the owner could not be cut and/or transported because of the moratorium on logging and timber distribution issued by the West Nusa Tenggara regional government through the Governor Instruction No. 188.4.5-75/Kum Year 2020 dated 18 December 2020. The community eventually sold their timber stands informally in the local market at a low price because they needed the funds.

Legal framework for trade and harvest

The management and utilization of forest resources are regulated through several laws, regulations and policies at the national level, as follows:

- (i) Act of the Republic of Indonesia Number 5 of 1990 concerning the conservation of biological natural resources and their ecosystems (State Gazette of the Republic of Indonesia of 1990 Number 49, Supplement to the State Gazette of the Republic of Indonesia Number 3419).
- (ii) Law Number 41 of 1999 concerning forestry.
- (iii) Law Number 11 of 2020 concerning job creation.
- (iv) Government Regulation Number 8 of 1999 concerning the utilization of wild plants and animals.
- (v) Government Regulation Number 23 of 2021 concerning forestry implementation.
- (vi) Decree of the Minister of Forestry Number 447/Kpts-II/2003 concerning the administration of collection or catching and distribution of wild plants and animals.
- (vii) Regulation of the Minister of Forestry Number 8 of 2021 concerning forest management and preparation of forest management plans, as well as forest utilization in protection forests and production forests.

- (viii) Regulation of the Minister of Environment and Forestry Number 20 of 2022 concerning the circulation of timber forest products listed in the Appendix of the Convention on International Trade in Endangered Species of Wild Fauna and Flora.
- (ix) Regulation of the Minister of Trade No. 18 of 2021 concerning goods prohibited from export and goods prohibited from importing logs, rough wood and wood with minimal workmanship, including goods prohibited for export.
- (x) Minister of Trade Regulation No. 19 of 2021 concerning export policies and arrangements which contain the licensing requirements and necessary documentation.

Trade regulation

The regulation of the *D. latifolia* trade follows the rules regarding timber forest products and regulations relating to CITES commodities. The domestic trade for cultivated timber is generally not limited to the requirement to include proof of product legality which can be checked at the time of transportation and the point of accumulation. The export provisions limit foreign trade according to the Regulation of the Minister of Trade No. 18 of 2021 concerning goods prohibited from export and goods prohibited from importing logs, rough wood and wood with minimal workmanship, including goods prohibited for export. In addition, the government policy requires that the export of wood products is only for goods that have been processed and have added value. As a CITES-type commodity, the export of *D. latifolia* products must follow the provisions of the Minister of Trade Regulation No. 19 of 2021 concerning export policies and arrangements which contain the licensing requirements and necessary documentation.

Transport regulation

The provisions for the transportation of *D. latifolia* products follow the provisions in the Regulation of the Minister of Forestry Number 8 of 2021 concerning forest management and preparation of forest management plans, as well as forest utilization in protection forests and production forests, which distinguish the documents required based on the source of the wood. For timber harvested from state land and managed by concession companies, all transportation documents are prepared by the designated technical personnel and carried out through the online SIPUHH system. Every company has an account in the system. Meanwhile, timber originating from community-owned land is transported using a certificate prepared by the timber owner, with a copy of the land legality document attached. In some areas, this provision is supplemented by a statement from the village officer confirming the authenticity of the information provided in the letter.

As a CITES-type commodity, transportation documents are also required as described in the Decree of the Minister of Forestry Number 447/Kpts-II/2003 concerning the administration of collection or catching and distribution of wild plants and animals. The document referred to is called the Plant and Animal Transport Letter (SATS), consisting of two types, namely, for domestic transportation (SATS-DN) and foreign or export transportation (SATS-LN or CITES permit). The Conservation of Natural Resources Regional Office (BKSDA) issues this document

to distribution permit holders registered in the area. As such, the processing of the domestic document is usually carried out by a third party acting as a licensed collector who delivers wood or wood products from the collection location to the processing facilities or industries. Meanwhile, the processing of foreign documents is carried out by exporters who will send their products abroad.

Verification system of wood legality

The standard of monitoring timber and wood products transport, regardless of the species, is through the implementation of SVLK (Timber Legality Assurance System, **Figure 6**) which contains mandatory requirements enacted by the Indonesian government to ensure that timber products are manufactured from raw materials harvested from areas that are legal and sustainably managed. It is a multi-stakeholder approach to combat illegally-sourced timber in Indonesia and to enhance sustainable forest management. Therefore, for monitoring, SVLK also engages an independent observer, the JPIK (Independent Forest Monitoring Network) which plays an important role to oversee the SVLK implementation. This Network comprises civil societies and local communities living in and around the forest area or close to the place where the wood source is obtained. The role of the independent observer is stipulated under the Ministry of Environment and Forestry P.30/MenLHK/Setjen/PHPL.3/3/2016. SVLK deals with the compliance of a forest business permit holder in undertaking its activities.

The results of the assessment through the SVLK are manifested in the form of S-PHL and S-Legality documents which are valid for a certain period depending on the category of the unit being assessed. The export business units that obtain these two documents can apply for the issuance of the V-legal documents or FLEGT licenses as required for exports to countries in the European Union. The series of records from assessment to the issuance of SVLK documents are facilitated through a web-based information system developed by the Ministry of Environment and Forestry under the name SILK. With SVLK, timber circulating in Indonesia is expected to comply with applicable regulations. However, implementing this certification system is not always easy. A study by Adam & Asycarya (2012) on the timber industry in Indonesia found several challenges, including the difficulty of small-scale industrial units in achieving the SVLK standards or a lack of understanding of the importance of standardizing timber legality.

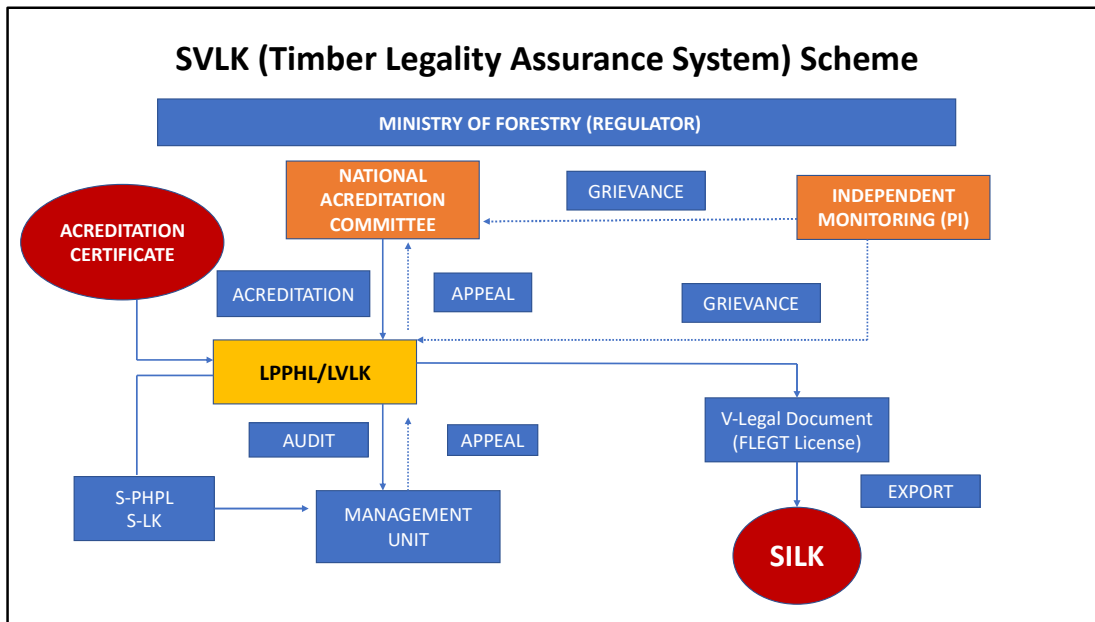


Figure 6. SVLK scheme based on the Ministry Environment and Forestry Regulation No 8 of 2021 (modified from Hargyono 2012)

Implementing agency

The implementing agencies related to the management of *D. latifolia* in Indonesia are as follows:

- (i) Directorate General of Natural Resources and Ecosystem Conservation, Ministry of Environment and Forestry through the Office of the Natural Resources Conservation Agency for administrative services at the regional level and the Directorate of Species and Genetic Biodiversity Conservation for services at the central level.
- (ii) Directorate General of Sustainable Production Forest Management, Ministry of Environment and Forestry through all the directorates under it, including the web-based SIPUHH and SVLK management.
- (iii) Directorate General of Environmental and Forestry Law Enforcement in terms of law enforcement.
- (iv) Level I (Provincial) Regional Government through the Office-in-Charge of Forestry.

Circulation chains

The trade in *D. latifolia* involved different nodes that start from the standing stocks in a property to the primary or secondary industries that shipped their products to end consumers (**Figure 7**). There are two types of property from where the timber stock is found, i.e., concessions of forest plantations and community-owned lands. The concessions at the moment are only found in Java in the form of extensive timber plantations that mostly grow teak among other various tree species, including *D. latifolia*. Such plantations have their own wood processing facility on a large scale. The community-owned lands that grow *D. latifolia* are predominantly owned by small-scale farmers. Some of these farmers have a small area

on their property for log processing, while others share wood processing facilities within their community.

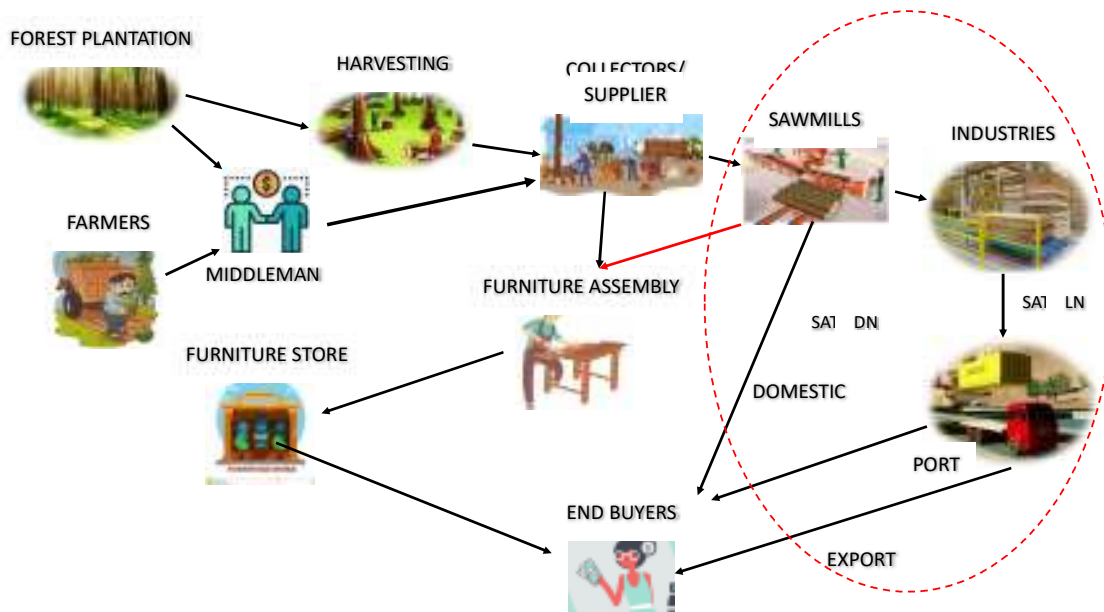


Figure 7. Flow chart of *D. latifolia* trade in Java and West Nusa Tenggara

The purchases of Perhutani's timber logs are made through four mechanisms, as follows:

- (i) *Contract*: Only for buyers with volume above 200 m³. The buyers submit a purchase contract plan to the Unit Head through the Head of the Marketing Bureau in each unit.
- (ii) *Direct Payment*: Only for buyers with volume under 200 m³. Buyers contact directly the General Manager of Timber Marketing (KBM). A total of six KBMs provide service for timber trade, namely, two in Central Java (Tegal and Cepu), three in east Java (Madiun, Bojonegoro and Probolinggo) and one in West Java (Bandung).
- (iii) *Conventional Auction*: Conventional auction is held twice a week (Monday and Thursday). There are six auction places located in Solo, Yogyakarta, Semarang, Malang, Surabaya, and Bandung. The auction schedules are posted in the local newspapers every month or the buyers can also be informed by contacting the nearby marketing office.
- (iv) *On-line Auction*: This online auction system is held at any time. Buyers can get access through the website: www.ipasar.co.id² and register as members (free of charge). To ensure data security and convenience of transactions, Perhutani also cooperates with PT Kliring Berjangka Indonesia (KBI).

² <http://www.ipasar.co.id>

The auction is conducted in a bundling system, meaning that for every purchase of 1 m³ of *D. latifolia*, the buyer is required to purchase 5 m³ of teak. This is in view that the main production of Perhutani is teak, and *D. latifolia* is usually grown in between blocks of the teak plantation. In order to maintain a balance between the volume harvested and the sustainable level of harvest, the company also applies this bundling strategy. The buyers could transport the logs from the Perhutani's wood yard whenever the negotiation and administrative documentation are completed.

As a company that hold a sustainable forest management certificate, Perhutani carries out all its production or marketing activities according to the directive from the Ministry of Environment and Forestry. All the aspects are recorded and reported in an online system that enables the authority to evaluate this company's performance and compliance.

The trade in timber or timber products sourced from trees grown on private or community land is carried out directly by the owner to the buyer who could be a middleman or collector who collects logs or sorted wood from different sources for delivery to the processing industries. This collector is the one who is responsible for preparing the transport documents, i.e., the SATS-DN letter and self-declaration for the legality of the log/woods (SKAU or now SAKR). These documents require evidence of the origin of the wood in the form of proof of land ownership, such as a land certificate with tax notes, or other equivalent documents possessed by the farmer. The collector also arranges the delivery of logs or woods to the designated wood processing facility such as secondary sawmills and subsequent industry. The value of *D. latifolia* is not just on the log with its hardwood, but also on the branches (**Figure 8**). The smaller pieces are useful for producing household goods or souvenirs which are usually transported together with the processed lumber. The price of the stands or logs at the farmer node is mostly determined by the first, secondary and subsequent buyers that act as a middleman. It also depends on the distance from the pick-up location to the next delivery site. The chain of buyers or middlemen can be more than one before reaching a collector who usually holds the distribution permit that enables the preparation of the transport document. Some collectors might exclusively supply to a certain industry while others might freely serve different clients.

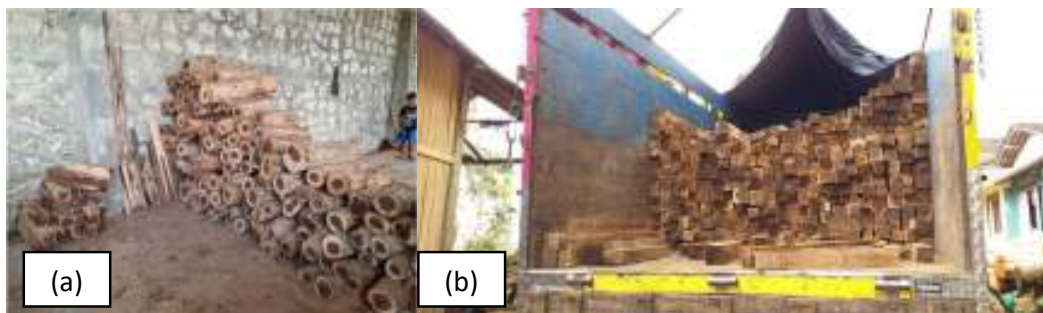


Figure 8. (a) Small-sized wood branches, and (b) wooden block pieces with dark heartwood ready to be delivered to the industry in Central Java

Trends in harvest and trade

Nowadays, *D. latifolia* is categorized as one of the most expensive woods which was previously undervalued as people used its barks and twigs for firewood and planted them for fencing the farm that also served as fodder. Currently, the highest price recorded in December 2017 was IDR 475 million (US\$ 33,666.67) for a single log with a 1.5 m diameter and 10 m in length. Since then, trees have been sold to the middleman for hundreds of millions of rupiah. According to the farmers, the prices will depend very much on the width of the heartwood which is very dark. The collectors distinguish the quality of the wood from the features of the bark, width, and colouration of the heartwood. They also found that high-quality *D. latifolia* was mostly sourced from Imogiri (Yogyakarta), Pacitan, Trenggalek, and Ponorogo (East Java). Some also mentioned that logs from Perhutani concessions in Central and East Java were often preferred because of the heartwood properties.

The sales of *D. latifolia* timber from Perhutani are divided into three categories, namely, A1 (diameter < 20 cm), A2 (20-30 cm), and A3 (diameter > 30 cm). The sales of *D. latifolia* for the period from 2017 to 2021 showed a decline in the A2 category, A3 was stable, and A1 showed an increase. Recently, the sale was dominated by small-diameter timber (under 20 cm) (Figure 9).

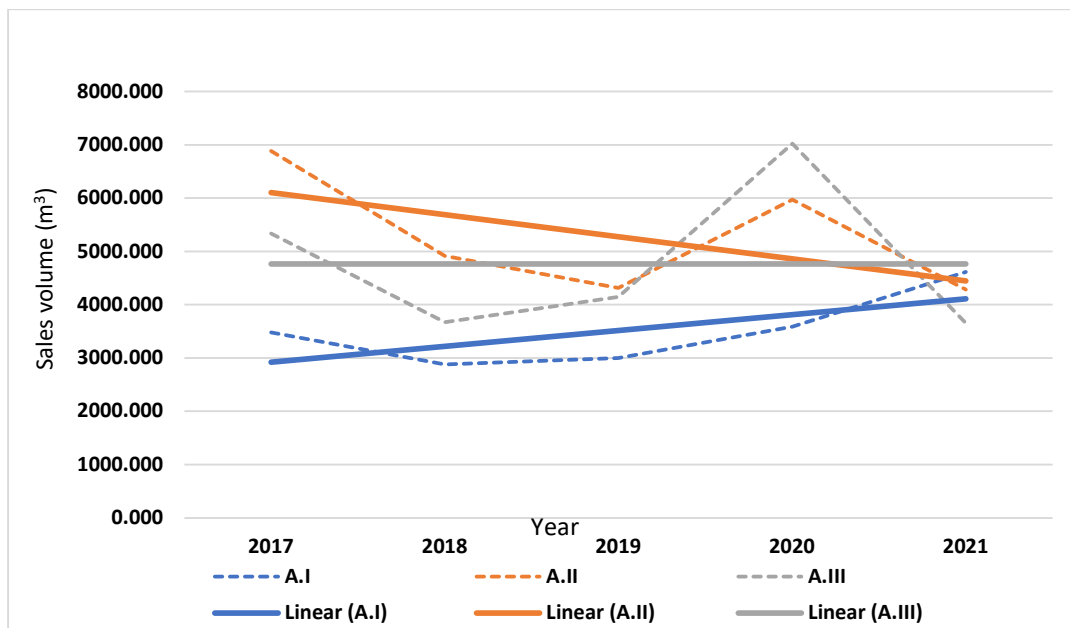


Figure 9. Sales volume of *D. latifolia* from Perhutani (Mardi, 2022)

The average annual production of *D. latifolia* by Perhutani for the period from 2017 to 2021 was 14,993 m³ while the average annual domestic sales of *D. latifolia* in the same period was 13,549 m³ (Perhutani, 2022). The annual *D. latifolia* export recorded by Indonesia was 84,200 m³ (Figure 10).

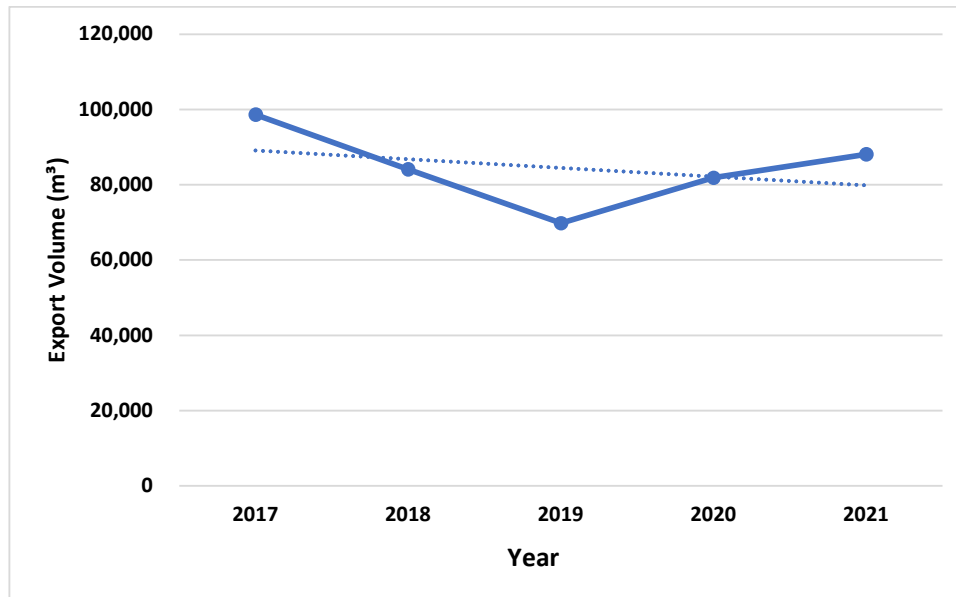


Figure 10. Recorded export of *Dalbergia latifolia* by Indonesia from 2017 to 2021

Recently, there has been a decline in export demand, especially from China, due to the COVID-19 pandemic. This is due to economic factors in the country that have led to a decrease in purchasing power, including in the industrial sector (Pers. Comm. Purwanto on 1 August 2022). 95% of the Indonesian *D. latifolia* export are to China, 2% to Japan, and 3% to other countries (Perhutani, 2022). Therefore, China's economic conditions significantly affect the performance of *D. latifolia* exports. Previously, the demand for this wood reached 300,000 m³ per year (Perhutani, 2022). The collectors now have stockpiles of wood that could not be sold which were previously purchased from the farmers at a high price. The wood export of *D. latifolia* from Indonesia in 2017 and 2018 was dominated by sawn timber, whereas in 2019 and 2020 it was dominated by modified wood (Figure 11).

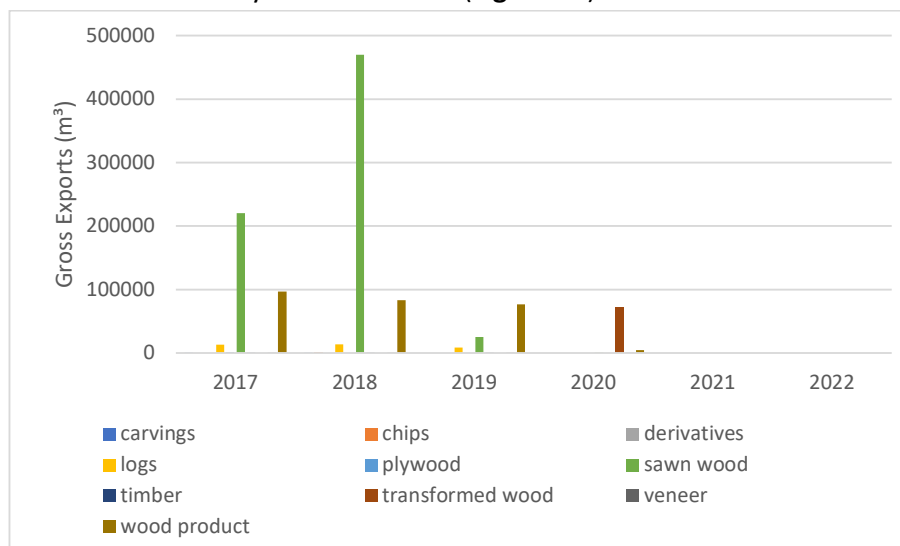


Figure 11. Gross export products of *Dalbergia latifolia* from Indonesia (CITES Trade database, 2022)

Illegal harvest and trade

In Indonesia, *D. latifolia* is found in production forests or community-owned lands. Illegal logging activities have been reported on many occasions, especially in the production forests of Perhutani that are easily accessible to the public. Enforcement usually begins with reports from residents regarding the existence of timber transportation activities suspected of not having complete documents. In such incidents, the legality of the wood loaded in the vehicle still has to be ascertained. This is because trees sourced from proprietary land do not require a cutting permit. Nevertheless, their transportation must be accompanied by documents in the form of independent forest product declarations and proof of land ownership. In some areas, a certificate from the local village head is also required to confirm the ownership declaration. These letters are often not prepared by the party carrying out the transportation. However, illegal harvest is reported in small quantities compared to legal ones.

Illegal harvests include harvesting wood from conservation and protected areas and those that are transported without any official transport documents. *D. latifolia* in Indonesia is located in production forest areas or community-owned lands. The information on illegal trade was obtained from the national annual reports on the implementation of CITES Indonesia and several media. The media began to publish news about the illegal logging of *D. latifolia* in 2017. Based on the 2019 annual report, it was evident that 2,934 *D. latifolia* logs did not have a CITES permit. The results of gathering information from the news in the media showed there was increasing illegal logging from 2020 to 2022 (**Figure 12**), mostly occurring in Java, and in particular, in East Java (**Figure 12**). Illegal logging from the Perhutani production areas reached a total of 118 logs of various sizes^{3,4,5,6,7,8,9}.

³ <https://jateng.inews.id/berita/gerebek-pencurian-kayu-sonokeling-di-hutan-rembang-1-pelaku-ditangkap-3-kabur/2>

⁴ <https://regional.kompas.com/read/2021/06/08/155841778/polisi-ringkus-3-pencuri-kayu-gelondongan-bawa-29-kayu-sonokeling-diduga>

⁵ <https://news.detik.com/berita-jawa-timur/d-5664919/polisi-amankan-14-potong-kayu-sonokeling-hasil-pembalakan-liar-di-pasuruan>

⁶ <https://radarbanyuwangi.jawapos.com/berita-daerah/situbondo/21/02/2022/polisi-ciduk-tiga-warga-pencuri-kayu-sonokeling/>

⁷ <https://solo.suaramerdeka.com/solo-roya/pr-052908182/pencuri-kayu-hutan-wonogiri-ditangkap-polisi-nyaris-gondol-17-batang-kayu-sonokeling?page=2>

⁸ <https://faktualnews.co/2022/04/24/polhutmob-kph-bondowoso-gagalkan-pencurian-21-gelondong-sonokeling-ilegal-di-situbondo/314354/>

⁹ <https://suaraIndonesia.co.id/news/peristiwa-daerah/627a1eea3b7ee/Tim-Hantu-Rimba-Berhasil-Gagalkan-Pencurian-Kayu-Sonokeling-di-Bondowoso>

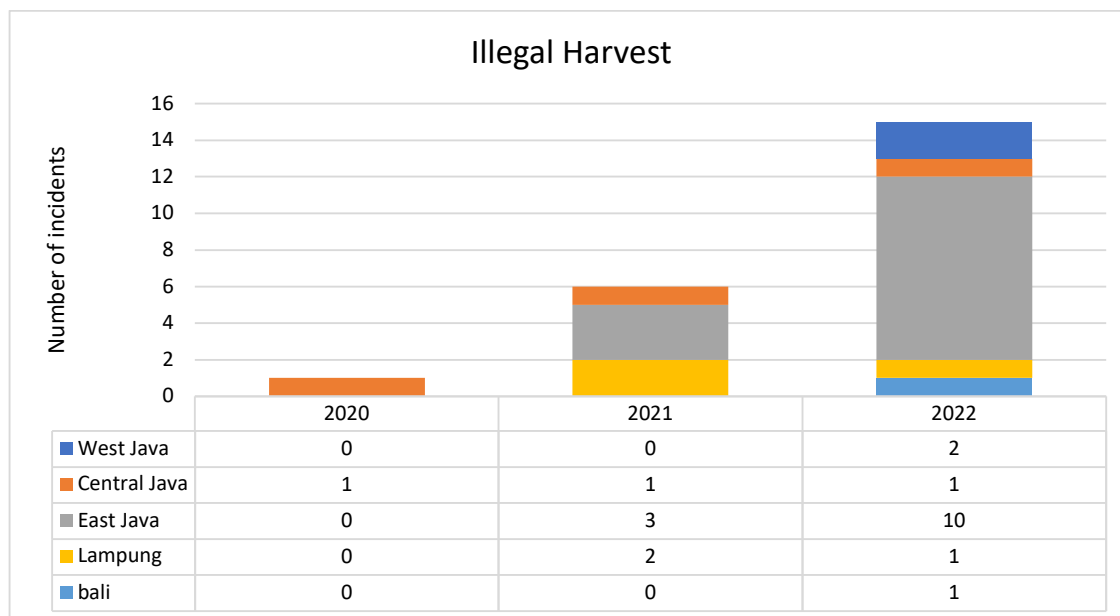


Figure 12. Illegal harvest of *D. latifolia* from news media during 2020-2022

The illegal logging that occurred in the protected areas such as Perhutani, national parks, nature reserves, wildlife reserves, and protected forests reached a total of 208 logs of various sizes^{10,11,12,13,14,15,16}. Meanwhile, from outside of Java, only one case had been recorded from Bali involving 24 *D. latifolia* logs from the West Bali National Park area. Another illegal logging was recorded from Lampung involving 173 *D. latifolia* logs and one case of illegal logging in a protected forest with a logging volume of 40.78 m³¹⁷. As for illegal harvesting originating from conservation areas, 18 logs were seized from the Mount Ciremai National Park, 4 stands (18 logs) from West Java in 2017¹⁸, 44 logs of *D. latifolia* from the Alas Purwo National Park and Forest Management Unit or KPH South Banyuwangi, East Java in June 2021¹⁹, 28.78m³ from the Waywaya Protected Forest Area, Lampung in 2021²⁰, and 98 logs from the Cikepuh Wildlife Reserve, West Java in 2022²¹.

¹⁰ <https://malang.hallo.id/malang-raya/pr-544057987/2-pelaku-pencurian-kayu-sonokeling-di-ngantang-malang-ditangkap-di-kediri>

¹¹ <https://mediaindonesia.com/humaniora/484656/sidang-pembalak-kayu-sonokeling-dari-tn-alas-purwo-dan-kph-banyuwangi-selatan-segera-digelar>

¹² <https://www.solopos.com/8-batang-kayu-sonokeling-rp650-juta-dicuri-dari-hutan-bulu-sukoharjo-1212318>

¹³ <https://infakta.com/polisi-amankan-seorang-terduga-pelaku-pencurian-kayu-sonokeling/>

¹⁴ <https://betahita.id/news/detail/7348/penebang-sonokeling-ca-gunung-jagat-diancam-5-tahun-penjara.html.html>

¹⁵ <https://www.balipost.com/news/2022/04/20/263834/Diamankan,Pelaku-dan-Puluhan-Kayu...html>

¹⁶ <https://www.ngopibareng.id/read/komplotan-pencuri-kayu-sonokeling-di-jember-dibekuk>

¹⁷ https://www.menlhk.go.id/site/single_post/4253/pelaku-kasus-kayu-sonokeling-illegal-di-lampung-siap-disidangkan

¹⁸ <https://merahputih.com/post/read/kayu-sonokeling-di-taman-nasional-gunung-ciremai-dicuri>

¹⁹ https://www.menlhk.go.id/site/single_post/4749/ditindak-gakkum-klhk-tersempa-kasus-kayu-ilegal-sonokeling-dari-taman-nasional-alas-purwo-dan-kph-banyuwangi-selatan-segera-disidangkan

²⁰ <https://mediaindonesia.com/humaniora/421987/tersempa-kasus-kayu-sonokeling-illegal-siap-disidangkan>

²¹ <https://regional.kompas.com/read/2022/04/08/202918778/polisi-tangkap-pencuri-pohon-sonokeling-di-suaka-margasatwa-cikepuh>

3.2. Control and monitoring

Harvest regime and its control

Perhutani

Perhutani manages production forests and protection forests. Based on the January 2021 data, *D. latifolia* planted in the production forests occupied an area of 4,068.73 ha, while those in protected forests covered an area of 917.34 ha. The largest production forest areas are in the Gundiuh and Pati Regency in Central Java, while in East Java they are in the Kediri and Saradan Regency. The largest protected forest area is in Surakarta, covering an area of 859.84 ha or 17 per cent of the total area of the *D. latifolia* in Perhutani. The *D. latifolia* which has been planted in the Perhutani area is mainly used as an intercrop and is harvested as a secondary crop.

The control of harvest is carried out through a series of licensing applications, reporting and evaluation by Perhutani to the ministry. Every harvest is planned and required government approval in the previous year (RKT logging). The harvest plan would include location, areas, number of logs per species, and the estimated volume. All the logs are tagged and distributed according to timber class with proper documentation. The harvest area would be re-planted with the same species. The production blocks are maintained for optimum production. In addition, certain areas within the company concession areas are earmarked for conservation.

The documentation that accompanies the transportation of wood from state forests is the Certificate of Legal Timber Products (SKSHHK), as prescribed in the Minister of Environment and Forestry Regulation No. 8 of 2021 concerning forest governance and the preparation of forest management plans, as well as forest utilization in protected forests, and production forests that replaced the Regulation of the Minister of Environment and Forestry P.67/MENLHK/SETJEN/KUM.1/10/2019 Administration of Timber Forest Products Derived from Plantation Forests in Production Forests that was previously enforced. This SKSHHK is valid for one transportation and one destination so a new letter will be issued each time the wood is moved. The issuer of this letter is the technical personnel competent in measuring and inspecting timber (GANISPH) who works in Perhutani and whose name is registered in the system established by the Ministry of Environment and Forestry. Completeness of transportation documentation reporting includes those assessed in the evaluation of forest concession permits. With this condition, every transportation of harvested products from the Perhutani area will be monitored.

Community-owned land

In community-owned land, quantitative control of harvest could not be carried out because there is no legal basis to allow the state to regulate the production of timber from proprietary land.

Currently, the national regulations relating to harvesting from proprietary land are also contained in the Minister of Environment and Forestry Regulation Number 8 of 2021 concerning forest governance and the preparation of forest management plans, as well as forest use in protected forests and production forests, replacing P.85/MENLHK/SETJEN/KUM.1/11/2016 and as amended by P.48/MENLHK/SETJEN/KUM.1/8/2017 concerning the transportation of cultivated timber from private forests. The regulation states that forest stands from private forest/community-owned land do not require a logging permit, and the transportation of forest products, both timber and non-timber, uses an independent declaration in the form of a People's Timber Transport Letter or SAKR. The letter is valid for one transportation and one destination, containing the name of the species along with the number of logs and their volume, origin of transport and destination, and attached with proof of timber ownership in the form of a land certificate or other evidence of control from the place of origin of the stand. In West Nusa Tenggara, the ownership of *D. latifolia* stands must also be verified by three agencies, namely, the BKPH, TNI and POLRI. The verification results are in the form of an investigation report (BAP) of the harvest potential, which is then compiled by the Forestry Service. In addition, domestic transportation of wood from the CITES-listed species in Appendix II must be accompanied by a SATS-DN document issued by the local BKSDA office, as regulated in SK 447/Kpts-II/2003 concerning the administration of collection or catching and distribution of wild plants and animals. The BKSDA officer will verify the condition of the goods to be transported and includes it in the investigation report (BAP) before the SATS-DN is issued. The owner of the timber to be transported must also show an explanation letter from the Village Head confirming land ownership. This CITES transport letter is only issued to distribution permit holders registered with the BKSDA. With these transport conditions, harvesting of *D. latifolia* is more complicated compared to other species of wood. As a result, wood-owning farmers usually hand over the licensing arrangements to the buyers who will transport timber from their land. Some communities collectively organize tree registration for these smallholders and aid them to sell their logs, including permits and licensing.

Method to monitor harvest

Ideally, the method used to monitor harvest uses quantitative parameters so that the percentage ratio between production and export can be obtained. However, this cannot be fully applied to *D. latifolia* in Indonesia because no area can be devoted just to cultivating a particular species except to state-owned forestry companies, such as Perhutani. The harvesting from community-owned land is carried out based on needs that cannot be limited or regulated because they are in the private domain. As such, more qualitative monitoring is carried out through tracking circulation documents (chain-of-custody). Thus, quantitative data would be inferred by the projection of the total percentage of exports and also from circulation documents.

State-owned forestry company (Perhutani)

Perhutani operates in concession lands and all the harvests are subject to government approval on the submission of the long-term (ten years) and annual management plans. Both plans consist of harvest areas, an estimated number of trees and their log volume that could be harvested for a given period, and post-harvest replanting activities. The stand census is carried out at the stage of preparation for harvesting in the area/block that will be harvested in the current year. *D. latifolia* is not included in the felling target because it is not the main crop. However, every logging activity for the main and other crops will be included in the census and reported.

The harvest monitoring in the Perhutani area is carried out by inferring the value of exports, production, and the standing stock on the existing land. Total Indonesia's export from 2017–2021 was as high as 422,468 m³ (**Figure 13**).

The estimated annual allowable cut (AAC) of Perhutani was inferred from its export data of *D. latifolia*. Currently, Perhutani manages the forest area on Java Island covering an area of 2,433,024.72 ha of which 73.61% are production forest areas²². Perhutani also manages 6,545.04 ha of *D. latifolia* (Perhutani, unpublished data). The data from the field survey on the island of Java showed that the volume of *D. latifolia* was around 128.59 m³/ha and this value was used as a multiplying factor to calculate the potential standing stock. The potential standing stock of *D. latifolia* in the Perhutani areas is estimated at 841,629.12 m³ and the AAC for a 20-year harvesting cycle is 42,081.46 m³. Meanwhile, the total export of *D. latifolia* wood from Indonesia in 2021 was 88,100.04 m³. The estimated percentage of export from Perhutani is 20% (per communication during the meeting with PESONA in 2022) of the total export, and hence the estimated export from Perhutani was 17,620.01 m³. The remaining 70,480.03 m³ was estimated from community-owned land. As such, it is considered that the export of *D. latifolia* wood from Indonesia is non-detrimental to the species in the wild.

²² <https://www.perhutani.co.id/hutan-di-jawa-dan-tranformasi-perhutani/>

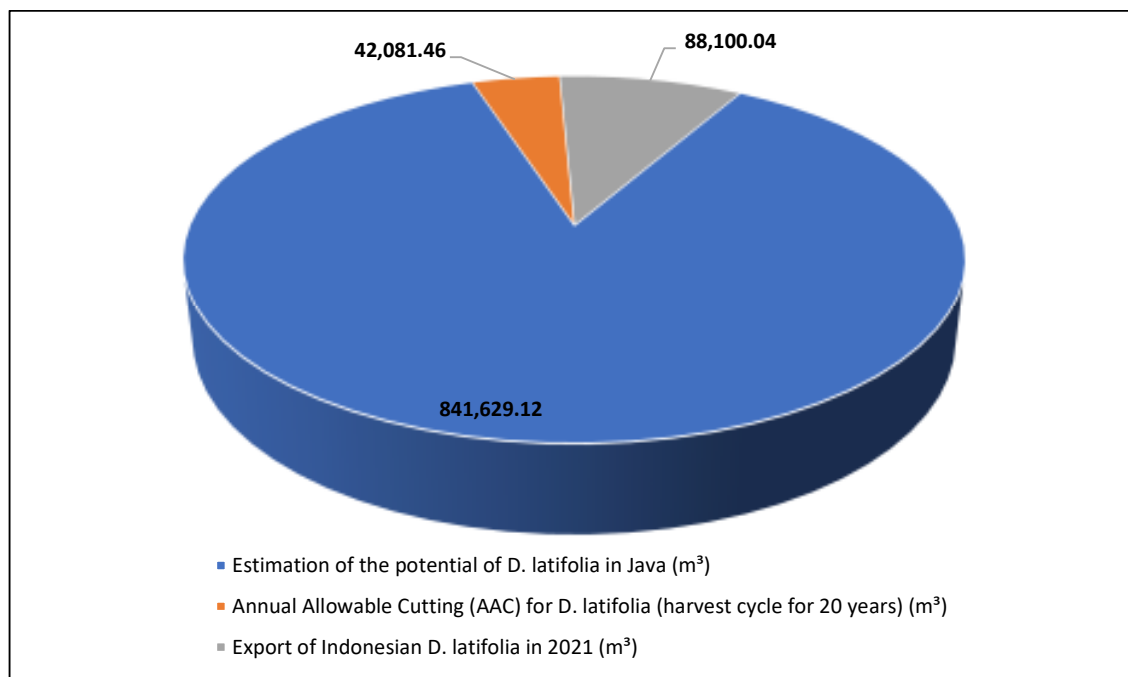


Figure 13. Pie chart of the estimated value of potential stock and annual allowable cut from Java and export of *D. latifolia* in Indonesia

Community-owned land

In community-owned land, harvest control is carried out through existing circulation documents. At several locations in West Nusa Tenggara and Java, a census was conducted before harvest. Most harvest from private lands in Java is carried out without a formally recorded census, except for registered farmers' land with non-governmental cooperatives, such as in Kebumen and Yogyakarta. Such cooperatives apply the registration of *D. latifolia*'s standing stock before harvesting and assist in preparing transportation documentation required to sell the *D. latifolia* logs. Thus, monitoring of timber originating from this area is carried out at the transportation stage, which must be accompanied by verified documents.

Timber originating from community-owned land uses the People's Timber Transport Letter (SAKR) as a transportation document. This independent declaration certifies the validity of logs being transported accompanied by proof of ownership and verification from the village officer. Afterwards, the logs are transported to the processing locations using the new SAKR that is based on the previous SAKR. The new SAKR is accompanied by a Company Memorandum (Figure 14). These documents must be accompanied by a SATS-DN and other related documents required to obtain the S-Legality for export products that used wood from community-owned lands as raw materials. The record of the volume of timber entering an industry which is derived from the transport documents can show the volume of harvest from an area that could be traced back to ensure its legality.



Figure 14. Wood production records from community-owned land based on the Ministry Decree of the Ministry of Environment and Forestry No 8 of 2021

4. ASSESSMENT OF CURRENT MANAGEMENT PRACTICES

4.1. Impact of the current management practices on the *D. latifolia* population

The increasing popularity of *D. latifolia* threatens the population of *D. latifolia* on community-owned land and land owned by Perhutani, as well as in protected areas. The *D. latifolia* that presently occurred in protected areas (Figure 15), were planted in the 1970s to late 1980s as part of the government's reforestation and enrichment programs. Along with the increasing price of *D. latifolia* currently, the potential for illegal logging in conservation areas has also increased.

In addition to the conservation areas, *D. latifolia* is also found in protected areas belonging to Perhutani which is also vulnerable to illegal logging activities. This protected area is an area that was previously managed for production but was then managed and used as a protected area to allow *D. latifolia* to grow in the wild.

Until now, there has been no official record of the number of *D. latifolia* population in the conservation areas and protected areas belonging to Perhutani. However, because the area tends to be smaller than production areas and community-owned lands, the population in these areas are likely to be small. The Indonesian government regulations have prohibited commercial timber harvesting from conservation and protected areas.

The threat of illegal logging of *D. latifolia* wood has also become a concern for the community, along with the rising prices of the commodities. The current increase in the economic value of *D. latifolia* wood also indirectly affects the condition of stands in the production forest areas and community-owned lands. With the increasing awareness of this species' economic

value, people are getting more engaged in safeguarding the nearby protected areas and surveillance for any suspicious activity related to woodwork.



Figure 15. The condition of *D. latifolia* stands in the Seteluk KPH area in Moyohilir, West Sumbawa

4.2. Impact of the current management practices on livelihoods

The *D. latifolia* planted in the community-owned land provides social-economic impacts. Since listed in CITES Appendix II, the price of *D. latifolia* has increased significantly. *D. latifolia* wood with a diameter of more than 80 cm was offered for IDR 100 million (USD 6,666.67) as compared to before its listing in the CITES Appendix II where the price of *D. latifolia* was only IDR 2,000,000 (USD133.33)/truck (one truck equal to 7.5 m³). This showed that *D. latifolia* had provided additional income that could improve the economic and social prosperity/welfare of the surrounding community.

4.3. Impact of the current management practices on the ecosystem

The *D. latifolia* planted both in Perhutani and community-owned land provides environmental services, mainly in mitigating floods and preventing soil erosion. Based on the results of interviews with the community in the Dompu Regency, Sumbawa island, West Nusa Tenggara, it was evident that since *D. latifolia* was planted, water supply is always available throughout the year because the root and canopy architecture system allows soil conditions to be maintained as a water source. The Dompu Regency becomes the largest source of *D. latifolia* in West Nusa Tenggara. Therefore, unplanned harvesting will have a significant effect on water sources. In a similar case in Java, the community of the Kedungsigit RPH, Karangany KPH, and Perhutani (Trenggalek Regency) also take part in protecting the forest with *D. latifolia* growing within. The protected area was previously barren and prone to landslides and had caused a major disaster. The residents are apprehensive that if the illegal logging of *D. latifolia*

is left unchecked, the area would again become a source of disaster. Thus, the community believes that the *D. latifolia* stands have contributed to the current good environmental condition.

4.4. Review of the current management practices on sustainable production

The increasing demand for *D. latifolia* has impacted the stand structure and sustainable production. Currently, the demand can still be met by trees with a large diameter (>20 cm). However, if the production continues to increase, then the stands of *D. latifolia* with small-diameter trees will also be harvested. Harvesting these small-diameter trees will significantly affect the sustainability of production and the quality of the wood may not be as good as if the stands were harvested. Information gathered showed that some owners of *D. latifolia* stand who owned small-diameter trees have been contacted by certain buyers who make a bargain for the woods at certain prices. The efforts made by these buyers are quite disturbing as they would affect the sustainability of the *D. latifolia* stands. The lengthy supply chain was claimed to be the major factor in setting the price. Therefore, stands owners are often in a lower position compared to the wood trader in a price negotiation.

4.5. Impact of the current management practices on the market

The increasing popularity of *D. latifolia*, which directly increases the selling price has resulted in woodworkers charging higher processing fees for all types of wood. The increase in the *D. latifolia* trade has resulted in (i) high production costs, (ii) searching for *D. latifolia* to harvest, (iii) disparity in price differences in the community, and (iv) length of the supply chain.

The high production costs cause the small *D. latifolia* woodworking plants to be inefficient. This condition has resulted in *D. latifolia* wood being abandoned more often although in small quantities. These abandoned woods became prey for wood hunters. The price differences in the market become variables that affect *D. latifolia* trade. This price difference is also due to the long supply chain.

5. CONSERVATION

5.1. Nasional conservation status

Currently, the global conservation status for *D. latifolia* is VUA1cd ver 3.1 (Lakhey *et al.*, 2020). They considered the country of occurrence which are India, Nepal, Bangladesh, and Indonesia, with an estimated Extent of Occurrence (EOO) of 9,313,133 km².

The population of *D. latifolia* in Indonesia is estimated to experience significant immigration of propagules (particularly when the *D. latifolia* was first introduced) and is likely to reproduce in Indonesia. However, this immigration is unlikely to decrease. In this regard, *D. latifolia* in Indonesia is easily reproduced vegetatively using roots, thus locally abundant in their main distributions. Hence, the conservation status is assessed as Least Concern (LC).

5.2. Threats

The distribution of *D. latifolia* is not only on community lands and state-owned land but also in protected forest areas spread across Java, Bali, East Nusa Tenggara, West Nusa Tenggara, Sumatra, Kalimantan and Sulawesi. The biggest threat to the sustainability of *D. latifolia* is the illegal logging of tree stands, especially those located in protected areas, either in concession areas of business license holders such as Perhutani or other protected areas. The application of transport documentation has become more stringent since the species is listed in CITES Appendix II. Those looking for high profits often target stands in areas considered less controlled, while illegal logging tends to increase in protected forests with *D. latifolia* stands (Mantovani, 2021; Rizki, 2019), and roadside stands of *D. latifolia* that were planted as shade trees (Sujarwoko, 2022). The protected areas can have stands with a fairly large diameter because the area was designed as a reserve for genetic resources to allow the trees to grow naturally. In recent years, arrests by officers have become increasingly widespread due to the people reporting from various regions. Generally, the community recognizes unusual logging, illegal wood processing activities, or disguised transport of other goods. When the officer followed up on the report, the reported parties could not show the appropriate documents, so action was taken.

Another threat is fungal attacks that have not been studied widely. Once the stem is infected with a fungus, the tree will not survive. This condition is made worse because *D. latifolia* reproduces through the roots. As such, whether this fungal infection can spread through the root system and attack individual clonal plants is uncertain.

6. RECOMMENDATIONS

- (i) The government must strictly uphold law enforcement to control illegal logging.
- (ii) To develop appropriate silviculture guidelines and cultivation techniques for *D. latifolia*, including determining its growth increments as the basis for determining the annual allowable cut (AAC), which is the basis for the sustainability of *D. latifolia* production.
- (iii) To develop a sustainable *D. latifolia* management model based on the type/status of land ownership and land management patterns.

7. CONCLUSIONS

The current population of *D. latifolia* present outside Java is mainly from the replanting programs undertaken in the 1970s to late 1980s that have been carried out in several batches at various *D. latifolia* densities. The export of *D. latifolia* in Indonesia comes from two source codes, namely, artificial cultivation (A) and assisted production (Y). Both sources are found in the state-owned forestry company (Perhutani) and community owned-land. Under the CITES regulation, the export of wood from source code Y needs an NDF assessment. The current management practices in the state-owned forestry company (Perhutani) include an annual work plan (RKT) covering planting, maintenance, felling and replanting, while the community-

owned land is generally unplanned and is managed based mostly on the landowner's needs. The control and monitoring of harvest in the state-owned forestry company (Perhutani) are carried out through RKT, annual production and sales data, while on community-owned land they are through tracking the circulation documents.

The trade in *D. latifolia* is aided by two systems, i.e., the Forest Product Administrative System (SIPUHH) and Timber Legality Assurance System (SVLK). The company must submit reports and documents through SIPUHH for all wood transportation activities. The transport document, named SKSHHK, can only be prepared through the system by an authorized person. The company's performance in following the SIPUHH is one of the assessed aspects among other provisions in SVLK. The company that passed the assessment will be awarded the certificate S-Legal and can apply for further licensing. Following the listing of all the *Dalbergia* species in the CITES Appendix II, different regulations are applied which require additional documentation for transporting wood or wood products. This transport document, named SATS, is issued by BKSDA residing in the provincial capital and granted only to the registered permit holder. Officer will inspect a consignment before the issuance of the letter. This letter must also be reported in SVLK.

The increasing economic value of *D. latifolia* affects the harvesting system, including the farmer's welfare, sustainable production, and water management. The national conservation status of *D. latifolia* in Indonesia is assessed as Least Concern (LC). The major threats to *D. latifolia* are illegal logging, timber theft, and fungal attacks.

REFERENCES

- Adams, M., & Asycarya, D. 2012. Timber industry stakeholders' mapping. Laporan Proyek EUROPEAID/127054/C/SV/ Multi-Framework Contract Beneficiaries Lot no. 10 Trade, Standards and Private Sector. Rotterdam: Ecorys.
- Hargyono. 2012. Kebijakan Sistem Verifikasi dan Legalitas Kayu. Dipresentasikan pada FDG Analisis Keunggulan Produk Kehutanan, 12-13 Nopember 2012. Bogor.
- Lakhey, P., Pathak, J. & Adhikari, B. 2020. *Dalbergia latifolia*. The IUCN Red List of Threatened Species 2020: e.T32098A67777757. <https://dx.doi.org/10.2305/IUCN.UK.2020-3.RLTS.T32098A67777757.en>
- Mardi, P. (2022). Pasar Kayu Sonokeling Perum Perhutani. Webinar Pengembangan Sonokeling Perum Perhutani 16 Juni 2022. <https://www.youtube.com/watch?v=JT5p1yO6Uwk>
- Mantovani, C. 2021. Eight *D. latifolia* logs Rp. 650 million were stolen from the Bulu Sukoharjo forest. (<https://www.solopos.com/8-batang-kayu-D.-latifolia-rp650-juta-dicuri-dari-hutan-bulu-sukoharjo-1212318>)
- Perhutani. 2022. Bahan paparan FGD Perhutani. Pasar Kayu *D. latifolia* Perum Perhutani.
- Rizki, P. 2019. Dozens of *D. latifolia* Trees in Tulungagung Chopped Without Permission, Perpetrators Still a Mystery. (<https://www.mongabay.co.id/2019/04/07/puluhan-pohon-D.-latifolia-di-tulungagung-ditebang-tanpa-izin-pelaku-masih-misteri/>)
- Rosser, A.R. and Haywood, M.J. (Compilers). 2002. Guidance for CITES Scientific Authorities: Checklist to assist in making non-detriment findings for Appendix II exports. IUCN, Gland, Switzerland and Cambridge, UK
- Sujarwoko, D.H. 2022. Domestic circulation of *D. latifolia* wood is required to use the SATS-DN document, while for export, it is necessary to use the CITES Permit document. (<https://jatim.antaranews.com/berita/290035/memburu-kawanan-maling-D.-latifolia-spesialis-jalur-hijau>)
- Wolf, D., Oldfield, T.E.E., and McGough, N. 2018. CITES Non-detriment Findings for Timber: A nine-step process to support CITES Scientific Authorities making science-based non-detriment findings (NDFs) for timber/tree species listed in CITES Appendix II (Version 3.0), Bundesamt für Naturschutz (BfN) Federal Agency for Nature Conservation Konstantinstrasse, Germany.