Ministry of Environment and Forestry
Republic of Indonesia

THE STATE OF INDONESIA'S FORESTS 2024

TOWARDS SUSTAINABILITY OF FOREST ECOSYSTEMS IN INDONESIA

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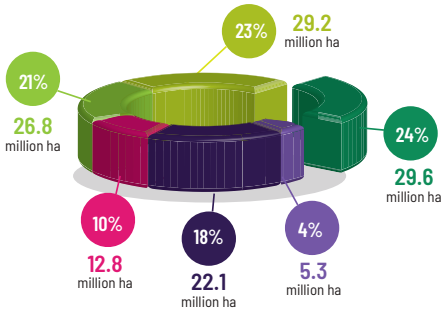
CHAPTER 2

Indonesia's Forest Landscape and Biodiversity

2.1 Current State of the Indonesia's Forests

Indonesia is the 14th largest country in the world, with land area of 191.4 million hectares. In Indonesia, there are 17,504 islands, the largest archipelago country in the world. Sixty-three percent of its total land area, or about 120.4 million hectares, is forest area. The remaining land is a non-forest area, known as other use area (APL) (Figure 2.1).

Figure 2.1
Indonesia's Forests by Use Designation



KSA *Kawasan Suaka Alam* (Sanctuary Reserve Area)
KPA *Kawasan Pelestarian Alam* (Nature Conservation Area)
HL *Hutan Lindung* (Protection Forest)
HP *Hutan Produksi Tetap* (Permanent Production Forest)
HPT *Hutan Produksi Terbatas* (Limited Production Forest)
HPK *Hutan Produksi yang Dapat Dikonversi* (Convertible Production Forest)

SOURCE: KLHK, 2017a, Data up to December 2017

View of Plawangan Senaru of Mount Rinjani

LOCATION
Rinjani National Park, West Nusa Tenggara

PHOTO BY
Zulfayandi (2023)

Forest and marine conservation zones are established in accordance with the Ministerial Decree of Environment and Forestry on the Forest and Marine Conservation Areas in Indonesia. Indonesia's forest and marine conservation areas are approximately 125.7 million hectares. Indonesia's forest area is classified into production forest (HP) of 68.8 million hectares, conservation forest (HK) of 22.1 million hectares (including an additional 5.3 million hectares of water/marine conservation areas), and protection forest (HL) of 29.5 million hectares based on their functions.

Conservation forests are classified into sanctuary reserve areas (KSA) and nature conservation areas (KPA). Sanctuary reserve areas (KSA) consist of strict nature reserves (CA) and wildlife sanctuaries (SM), while nature conservation areas (KPA) consist of national parks (TN), nature tourism parks (TWA), and grand forest parks (Tahura). Both sanctuary reserve areas and nature conservation areas encompass land-based and aquatic regions collectively, these KSA/KPA cover a land area of approximately 22.1 million hectares, while their aquatic regions cover an area of around 5.3 million hectares.

One of the famous conservation areas in Indonesia is Komodo National Park, which is home to the Komodo dragon (*Varanus komodoensis*), a rare and unique species, and a UNESCO World Heritage Site. Among Indonesia's famous marine conservation areas are Bunaken Marine National Park, Wakatobi Marine National Park, and Raja Ampat Marine Conservation Area.

Of the total 125.7 million hectares of forest area, approximately 106 million hectares have been designated as Forest Area. The Ministry of Environment and Forestry plans to complete the designation of the remaining 20 million hectares to reach 100 percent forest area, as mandated by the law[22].

The Indonesian Government has been working through the Agrarian Reform Program to resolve forestry conflicts and increase public participation in forest management. The target resource provision of Lands for Agrarian Reform (TORA) in the Forest Area is 4.1 million hectares, with progress and realization currently reaching 2.9 million hectares.

Production forests consist of 29.2 million hectares of Permanent Production Forests (HP), 26.8 million hectares of Limited Production Forests (HPT), and 11.1 million hectares of Convertible Production Forests (HPK). Indonesia's forest monitoring data for 2022 show that the forested land area of the entire Indonesian landmass is 96 million hectares or 51.2 percent of the total land area, of which 92 percent or 88.4 million hectares is within the forest estate. More information on Indonesia's area covers in 2023 can be seen in Table 2.1.

Analysis of forest cover change from 1990 to 2023 shows that while deforestation rates in Indonesia have been highly dynamic, they have been steadily declining in recent periods. This promising trend reflects significant progress in reducing net deforestation rates over the decades. A more detailed explanation of deforestation is discussed in Chapter 3.

2.2 Biodiversity of Indonesia's Forests

Biodiversity is defined as life forms at all levels of an ecosystem, from molecules to species (DeLong, 1996). This includes the diversity of taxonomy, function, genetics, kinship of living things (phylogenetics), and the chemistry of types of living things. The Convention on Biological Diversity defines biodiversity as the different levels of organization and interaction of organisms. Each species has diverse functions contributing to a delicate ecological balance (Dasgupta, 2021).

Nash (2022) used the Global Biodiversity Index to assess and rank the richness of biodiversity in 201 countries worldwide. According to the publication, Indonesia ranks second as the most biodiverse country. Based on data compiled from various sources, Indonesia has 1,723 bird species, 383 amphibians, 4,813 species of fish, 729 mammals, 773 reptile species, and 19,232 vascular plant species.

Table 2.1
Indonesia's Forests Cover in 2023

No.	Land Cover	Forest Area (thousand hectares)							Non-Forest Area	TOTAL	%
		Permanent Forest					HPK	TOTAL			
		HK	HL	HPT	HP	TOTAL					
I	**Forested**	17,581	24,043.7	21,868.0	19,171.9	82,664.6	5,694.9	88,359.5	7,871.8	96,231.4	51.2
	A. Primary forest	11,715.7	15,501.7	9,401.1	4,640.3	41,258.8	2,212.7	43,471.5	1,683.1	45,154.6	24.0
	B. Secondary forest	5,759.5	8,290.6	12,059.9	10,361.8	36,471.8	3,448.3	39,920.1	39,920.1	45,527.9	24.2
	C. Plantation forest	105.9	251.3	407.1	4,169.8	4,934.1	33.9	4,968.0	580.9	5,548.9	3.0
II	**Non-Forested**	4,263.4	5,252.2	4,918.6	10,006.5	24,440.9	5,392.8	29,833.7	61,873.6	91,707.3	48.8
	TOTAL	**21,844.5**	**29,295.9**	**26,786.6**	**29,178.5**	**107,105.5**	**11,087.7**	**118,193.2**	**69,745.5**	**187,938.7**	**100.0**

[22] Law Number 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law Number 2 of 2022 on Job Creation into Law

BOX 2.1 | Moyo Satonda National Park, a Pristine Gem Nestled in Indonesia's Natural Treasures

Embark on an adventure through the captivating landscapes of Moyo Satonda National Park, located within the SAMOTA Biosphere Reserve encompassing Moyo Island in Sumbawa District, West Nusa Tenggara Province, Indonesia, under purview of the Ministry of Environment and Forestry. Spanning over 31,200.15 hectares, this natural wonderland serves as a sanctuary for many life forms. Moyo Island is a haven for 30 bird species, nine of which are classified as protected species.

Enter the park's interior to experience its rich biodiversity and see exotic animals roaming freely among the lush vegetation. Encounter majestic Timor deer, elusive wild boars, and agile gray monkeys while above; the skies come alive with the graceful flight of Bondol and Hawk Eagles.

The mesmerizing Mata Jitu Waterfall, a cascading masterpiece that graces the land with its ethereal beauty, is enchanting you. Its waters, said to fall precisely into seven pristine pools below, have attracted visitors from far and wide, including the esteemed Princess Diana, who bestowed the title of 'Queen's Waterfall.'

Dive deeper into the park's mysteries to discover the tranquil waters of Satonda Island's Crater Lake. Amidst the verdant splendor, this take lies a living testament to ancient microbial life, silently documenting the passage of millennia.

Delve into the secrets of Satonda's Crater Lake, where ancient stromatolites whisper tales of a bygone era. Witness the gradual formation of these remarkable structures, crafted over millennia through the delicate dance of coccoid cyanobacteria.

Explore the lake's intriguing metamorphosis as it undergoes a transformation marked by increasing alkalinity and dwindling calcium content. Unravel the intricate web of geological and biological interactions that shape its unique ecosystem, offering a window into the primordial seas of ancient times.

As you stand in awe before the still waters of Satonda's Crater Lake, contemplate the mysteries of nature and the timeless rhythm of existence. Let the echoes of ancient life guide you on a journey of discovery, where every ripple tells a story of creation and evolution. [Contributed by the MoEF/UNDP-GEF CONSERVE Project]

The biogeographical position and tropical climate of Indonesia contribute to its extensive species diversity. Indonesia is located in the Malesiana, a floristic region with the highest number of flowering plants in the world (Whitmore, 1984). This region is rich in animal species, including Oriental (mainland Asian) animals of the Sunda Shelf, Australian animals of the Sahul Shelf, and animals of the Wallacea Sub-region (Raes & van Welzen, 2009).

As a country with high levels of biodiversity, Indonesia supports and is committed to preventing the extinction of various types of flora and fauna. Through the Act on Conservation of Biological Natural Resources and Their Ecosystems[23], the Government of Indonesia seeks to ensure the preservation of ecological processes that reinforce life support systems for sustainable development and human welfare, to ensure the preservation of the diversity of genetic resources and ecosystem types, and to control the use of biological natural resources while ensuring sustainability.

The Indonesian government determines the protection status of species diversity for the protected species. Species protection is determined based on the Ministerial

[23] Act Number 5 of 1990 on Conservation of Biological Natural Resources and Their Ecosystems

BOX 2.2 | Protecting Wildlife: Concrete Steps for Species Conservation

New identifications of wild plants and animals' species are refreshing news in the world of biodiversity conservation. Three exciting new species have been announced: *Hanguana sitinurbayai*, *Myzomela irianawidodoae*, and *Bulbophyllum wiratnoi*.

In another significant advancement, a baby Sumatran rhino *(Dicerorhinus sumatrensis)* was born, marking an important milestone in wildlife conservation efforts. The female calf was born to a mother named Ratu at the Sumatran Rhino Sanctuary in Way Kambas National Park (SRS TNWK) on Saturday, 30 September 2023. This brings the total number of successfully breeding Sumatran rhinos in SRS TNWK to four, including Andatu (2012), Delilah (2016), Sedah Mirah (2022), and Ratu's third calf, Andalas (2023).

The Ministry of Environment and Forestry through the East Kalimantan Natural Resources Conservation Centre (East Kalimantan BKSDA) is committed to conserving Sumatran rhinos in Kalimantan, using the latest Assisted Reproductive Technology (ART). The process of retrieving eggs (oocytes) from a female rhino named Pahu, based in the Kalimantan Rhino Sanctuary in Kelian Kutai Barat, East Kalimantan, was carried out on Tuesday, 31 October 2023, with the next step being delivery to the IPB University Laboratory in Bogor, West Java.

Regulation of Environment and Forestry Regulation[24], which lists 904 species of wild plants and animals as protected species.

The protection of plants and wildlife habitats is carried out by establishing conservation areas. Currently, there are 568 conservation areas covering an area of around 27 million hectares, which is the last bastion of biodiversity protection. Various conservation efforts outside natural habitats (ex-situ conservation) are carried out, such as captive breeding of wild plants and animals, the establishment of wildlife rescue institutions, and ongoing efforts to maintain wildlife pathways (animal corridors) outside conservation areas, especially in an area with forest utilization permits (PBPH). The Indonesian government is also pursuing semi-natural conservation management for some critically endangered species, such as the Sumatran Rhino. This effort is implemented in natural areas, i.e., the Sumatran Rhino Sanctuary facility in Way Kambas National Park.

Indonesia continues to develop conservation efforts through scientific research and increase the identification of new species through exploration and expeditions in blank spots. Further exploration and expeditions are needed to identify and catalogue the potential of biodiversity in Indonesia.

[24] Minister of Environment and Forestry Regulation Number 106 of 2018 on the Second Revision of Ministerial Regulation of Environment and Forestry Regulation Number P.20/MENLHK/SETJEN/KUM.1/6/2018 on Types of Protected Species of Plants and Animals

A new species of *Hanguana sitinurbayai*

Identified by Agusti Randi, Wiwied Widodo, and Sadtata Noor in 2023, the species was named after the Minister of Environment and Forestry of the Republic of Indonesia, Siti Nurbaya.

LOCATION
Gunung Nyiut Strict Nature Reserve, West Kalimantan

PHOTO BY
BKSDA West Kalimantan (2023)

More than 90 new species of wild plants and animals were identified between 2021 and 2023 through a collaboration between the Ministry of Environment and Forestry (MoEF) and the National Research and Innovation Agency (BRIN). The identification of several new species, including *Hanguana sitinurbayai* from Gunung Nyiut Nature Reserve, West Kalimantan, specifically named after the Indonesian Minister of Environment and Forestry, Siti Nurbaya, has been published in the international journal Phytotaxa. This gives hope to the species conservation amid the threat of deforestation to the existence of plants and animals.

Biodiversity Management and Environmental Protection

Indonesia's high biodiversity is found in its various ecosystems, including terrestrial, marine, and aquatic ecosystems, which display complex ecological diversity, including diversity within species, between species, and its ecosystems. However, conservation challenges are increasingly pressing. Therefore, strong efforts are needed to manage biological resources mantaining effectively, their existence while also caring for and improving the quality of their diversity and values. The goal of the conservation of biological resources and ecosystems is to realize the sustainability of these natural resources and maintain the balance of the ecosystem, which later will support the improvement of community welfare and the quality of human life.

In order to safeguard the ecological functions and diversity of wild plant and animal species, conservation efforts within protected areas should consider carrying capacity and long-term sustainability.

The forest utilization permits (PBPH) mechanism allocates a portion of the area for protection, which accounts for approximately 20 percent of Indonesia's total PBPH area. The arrangement of PBPH working areas cover cultivation or production areas, including

protected areas. According to government regulation[25], protected areas are designated with the main function of protecting natural resources and related infrastructure.

Protected areas include various types of areas designed to protect the environment, including protected forest areas, peat land, water catchment, coastal borders, rivers, lakes, and reservoirs. They also include wildlife and marine reserves, and nature reserves, mangrove forests, national and marine parks, botanical forest parks, and nature and marine tourism parks. Cultural and scientific reserves, geological reserves, groundwater recharge areas, and germplasm protection areas are also included. In addition, there are also animal refuge areas, coral reefs, as well as coastal conservation areas, small islands, maritime, waters, and corridors for protected species of animals or marine biota. The total protected area allocated by PBPH is 5.3 million hectares, equivalent to about 20 percent of PBPH working area in Indonesia of 33.6 million hectares.

To ensure the status and sustainability of forests, PBPH holders are subject to administrative sanctions for violations, following the provisions of relevant laws and regulations, including written warnings, administrative fines, suspension of license, and revocation of license. These provisions are stipulated under the law[26] and its derivative regulation, the Ministerial Regulation of Environment and Forestry[27].

Figure 2.2
Proboscys monkey or Bekantan (*Nasalis larvatus*)

LOCATION
Rantau Buta, Pasir District - East Kalimantan

PHOTO BY
Fandy Muhammad (2022)

2.3 Challenges in Biological Diversity Conservation in Indonesia

Conservation efforts are observed through protection, preservation, and utilization activities, covering almost all aspects, efforts, and activities of biodiversity conservation. Protection of life-support systems is carried out through the establishment and management of conservation areas, biosphere reserves, and other forms of ecosystem protection. Biodiversity preservation efforts are carried out based on species diversity and genetic diversity. Sustainable utilization is carried out on the existing biodiversity potential, and by promoting the SSU (save, study, use) approach. Utilization efforts are carried out with great care, given the irreversible existence of biological resources. Species utilization and genetic policy are defined jointly with the scientific authorities in Indonesia.

Conservation area designation in certain areas is an implementation of the protection, preservation, and utilization strategy. Conservation areas are divided into Sanctuary Reserve Areas (KSA) and Nature Conservation Areas (KPA). The difference in both areas can be seen in their functions. KSA covers protection and preservation functions, while KPA covers all three functions, including utilization. Therefore, KPA is a conservation area that can be utilized for economic purposes. The protection aspect of the life-support system can be applied by

[25] Government Regulation Number 22 of 2021 on the Implementation of Environmental Protection and Management

[26] Law Number 41 of 1999 on Forestry and Law Number 18 of 2013 on Prevention and Eradication of Forest Destruction, as amended by Law Number 6 of 2023 on the Stipulation of Government Regulation in Lieu of Law Number 2 of 2022 on Job Creation into Law

[27] Minister of Environment and Forestry Regulation Number 8 of 2021 on Forest Administration, Formulation of Forest Management Plan, and Forest Utilization in Protection and Production Forests

adopting the biosphere reserve system, where the conservation area is the core and the surrounding cultivation area is a buffer area that is interrelated with the core area.

In terms of human life, biodiversity is a provider of essential ecosystem services, such as energy, water, air, food, aesthetics, culture, and economic interests. Optimizing conservation efforts is expected to have a positive impact on the preservation of nature, as well as improving the welfare and quality of human life. Conservation efforts also greatly impact microclimate stability, and climate change mitigation generally. In terms of biodiversity, conservation efforts have an impact on reducing the rate of extinction and destruction of nature.

Inadequate economic circumstances may render potential conservation area resources susceptible to exploitation, particularly if accessibility is high. The success of conservation efforts is highly dependent on the community' economic welfare, which is reflected in their level of economy and education. In addition, equitable regional development, especially infrastructure, is also an important supporting factor in conservation. A concrete problem that is still faced on-site is the illegal utilization of natural resources, such as poaching, illegal logging, and illegal land use.

In general, anthropogenic factors-particularly the human population, economic conditions, educational attainment, and culture-have a significant impact on the challenges of biodiversity protection in Indonesia. Tenure conflicts, human-wildlife interactions, lack of landscape-based management, and lack of infrastructure at the site level are some of the challenges that must be overcome. In 2023, there were 749 documented cases of wildlife conflict management, with a focus on five specific species: Sumatran elephants (273 cases), estuary crocodiles (127 cases), Sumatran tigers (75 cases), sun bears (65 cases), and long-tailed monkeys (57 cases). The overlap of animal habitats with human-occupied areas and habitat degradation as a result of resource extraction were the main causes of conflicts.

In conservation area management, various conservation partnerships and community empowerment efforts involve local communities as management partners. Academic institutions, non-governmental organizations, and individuals who actively participate in supporting these initiatives all support conservation knowledge development efforts. Citizen science is also growing in Indonesia, especially in campaigning, awareness-raising, and biodiversity mapping. In the meantime, the community makes extensive use of biological natural resources for commercial purposes through licensing and cooperation programs.

A penta-helix strategy that involves the government, academics, communities, businesses, and the media also strengthens conservation efforts. This approach is necessary given the complexity of conservation aspects. Conservation efforts must be directed through collective

Sugar Cane Orchid (*Grammatophyllum speciosum*)

LOCATION
Rantau Buta, Pasir District - East Kalimantan

PHOTO BY
Fandy Muhammad (2022)

awareness and collective action. An increased level of concern for nature conservation will ease the cost burden on the government in conservation efforts with minimal costs. Some successes in conservation efforts have been achieved through the penta-helix approach, such as the management of the Bukit Tiga Puluh Ecosystem in Jambi and efforts to address the impacts of economic development on biodiversity in Riau Province. Across Java, the level of community awareness of conservation has improved considerably.

Now and in the future, biodiversity conservation priorities will soon be aligned with the goals and targets of the Kunming-Montreal Global Biodiversity Framework (KM-GBF), as the strategic plan of the UN Convention on Biological Diversity (UN-CBD). This scheme has bound the Indonesian government to achieve it until 2030. There are four goals and 23 targets that CBD-ratifying countries must fulfill by 2030. Simultaneously, the Indonesian government is finalizing the formulation of the Indonesian Biodiversity Plan and Action Plan (IBSAP), the national guidance for implementing KM-GBF. The Indonesian government will soon officially publish the post-2020 IBSAP. One of the main indicators of the success of the Indonesian government's conservation efforts is the expansion of conservation areas to cover 30 percent of the total administrative area, as well as an increase in scores on the Red List Index. The hope for the future of Indonesia's biodiversity conservation is to preserve Indonesia's nature for future generations.

BOX 2.3 | Legacy of Giants: Elephant Conservation in Aceh

In Aceh, the northernmost province of Sumatra, there is an inspiring story of elephant conservation in its fertile landscape. Aceh is home to around 600 of the surviving 924 to 1,359 surviving Sumatran elephants, providing protection for this Sumatran elephant population. With an area of 3.5 million hectares, Aceh's forests are an essential habitat for wildlife, including tigers, rhinos, and orangutans.

The Ulu Masen and Leuser Ecosystem is home to the famous Leuser National Park, an important landscape in Aceh's conservation efforts. These areas are global centers of biodiversity, demonstrating the importance of Aceh's role in preserving wildlife. However, the analysis shows an urgent need to address human-elephant conflict, with around 63 percent of elephant habitats showing the potential for conflict.

Despite facing many challenges, Aceh remains steadfast in its conservation commitment. The 17-year moratorium on deforestation shows substantial effort to protecting elephant habitat. Presidential Instruction Number 1 of 2023 marks a historical milestone in conserving Indonesia's biodiversity, particularly by benefiting efforts to conserve Aceh's elephants.

In Aceh, 1,700 forest rangers and 18 community forest guard organizations lead conservation efforts alongside the Aceh BKSDA to mitigate human-elephant conflicts and protect wildlife. Despite facing challenges, Aceh adapts strategies, including crop cultivation and advanced technology. The Ministry of Environment and Forestry (MoEF) manages the CONSERVE project, promoting landscape management and engaging stakeholders across sectors.

As for the long-term solution, Aceh also established an elephant sanctuary in a controlled in-situ habitat, and landscape-based conservation strategies offering hope for the future. This initiative aims to foster harmony between humans and elephants while preserving natural heritage. Amid adversity, Aceh shines as a glimmer of hope, where conservation and community welfare unite for a brighter future. [Contributed by the MoEF/UNDP-GEF CONSERVE Project]

2.4 Social and Economic Contributions of Forest Resources

Forest resources management through social forestry programs, particularly community forests (HKm), has affected positively on the social and economic conditions of communities around the forest. The program has contributed to increased production, income, labor absorption, and knowledge of surrounding communities. Through HKm, the production of forest products and environmental services increases, which in turn helps forest farmers escape poverty and increases labor absorption. Research by Kuncoro et al. (2018) highlights the positive economic effects of social forestry practices in Lampung and Yogyakarta, such as increased production, income, and labor absorption, and decreased levels of farmer poverty. In social terms, social forestry programs have also improved community knowledge about community forests and encouraged the development of local institutions, especially cooperative institutions, while also promoting positive behaviors within the community.

The distribution of legal access to social forestry has a significant economic impact by involving thousands of groups and hundreds of thousands of households. Socially, it helps reduce conflicts and gives farmers legitimacy in utilizing forests legally, thus increasing comfort in doing business, and providing hope for sustainable economic benefits.

Social forestry programs aim to improve access to forests, which were previously dominated by private companies and state-owned enterprises. Prior to 2015, private businesses and state-owned enterprises controlled the majority of forest access while communities only had access to four percent. The social forestry program has set a goal of increasing the amount of community-managed forest to 12.7 million hectares, which would represent 30 percent of Indonesia's total forest area. The success of the social forestry program is largely determined by factors such as the legalization of access to forest management by communities, support and facilitation from the government; partnerships between the government, communities, and the private sector; and the adoption of sustainable management models.

The objective of the social forestry program is to enhance community welfare through empowerment based on forest sustainability. Social forestry, in principle, is a means of poverty eradication for forest communities, with a model that creates harmony between welfare improvement and environmental conservation. To support this, the government grants legal access to communities, allowing them to utilize forest resources for a period of 35 years.

This is in line with the government's program to increase village capacity in the Village Development Index (IDM). The role of Social Forestry Business Group (KUPS) contributes to increasing the IDM value. For example, Wanagiri village in Buleleng improved from the developing category to advanced, and Kalirejo village in Kulonprogo improved from advanced to independent. The factor causing the increase in IDM scores in these two villages is the role of KUPS in advancing the economy.

Despite its positive impacts, the program faces challenges such as limited access to raw materials, tenurial conflicts, and technological limitations. In order to overcome these challenges, it is necessary to implement measures to improve access to capital and technical facilities, resolve tenurial conflicts, and adopt more efficient technologies. As part of the effort to accelerate social forestry management, the government has issued a policy innovation by issuing a Presidential Regulation[28].

Social forestry aims to preserve forest sustainability, with over 10,964 KUPS actively managing this effort. MoEF has not only streamlined the licensing process but also enhanced the efficiency of environmental monitoring. It is achieved by shifting the burden from entrepreneurs to the government and incorporating standardization into the Online Single Submission Risk Approach system. The government has also implemented an environmental approval system that uses standard forms to simplify documentation and ensure compliance with environmental standards.

[28] Presidential Regulation Number 28 of 2023 on Integrated Planning for the Acceleration of Social Forestry Management

MoEF facilitates licensing for low- and medium-risk activities, enabling completion of the automated process in less than two hours. By 2023, 848,802 such permits had been issued. Monitoring 1,247 business entities across various regions has resulted in recommendations for improvements and initiatives to enhance compliance. MoEF, through the Agency for Standardization of Environment and Forestry Instruments, also classifies environmental management standards in social forestry as low or medium-low risk.

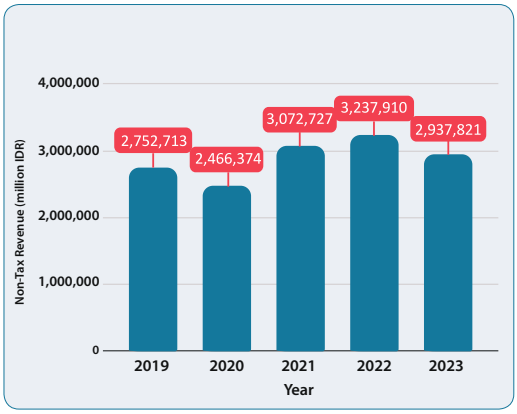
2.5 Revenue from Forest Sectors

Non-Tax State Revenue and Sustainability and Legality Assurance System in Forestry

The Ministry of Environment and Forestry plays a pivotal role in contributing to State revenue, which in turn supports national development. This is achieved, among other ways, through Non-tax State Revenue (PNBP). In accordance with the law[29], the PNBP from MoEF, among others, is derived from the Forest Resources Provision (PSDH) and Reforestation Fund (DR). This fund is the consequence of the utilization of timber forest products, non-timber forest products, and environmental services derived from forests. The Business actors, such as permit holders for forest utilization (PBPH), timber-product utilization from non-forestry activities (PKKNK), and social forestry, are responsible for paying this state revenue.

The Non-Tax State Revenue (PNBP) received from the utilization of forest resources (PSDH and DR) in the last five years (2019 to 2023) amounted to IDR 14,467.55 billion. This indicates the significant role of forest resources in Indonesia's development, especially in the forestry sector (see Figure 2.3).

Figure 2.3
Non-Tax State Revenue from PSDH and DR



One source of PNBP from forest utilization for environmental services is through carbon trading imposed on carbon sequestration and storage activities in forest areas. The value of PNBP is regulated by the government regulation[30] at 10 percent of the carbon transaction value. This PNBP is deposited through the Non-Tax State Revenue Information System (SIPNBP). The management and organization of the carbon levy from the forestry sector are effective and allow for reuse for Indonesia's forestry development. The flow diagram of PNBP from carbon trading in the forestry sector is shown in Figure 2.4.

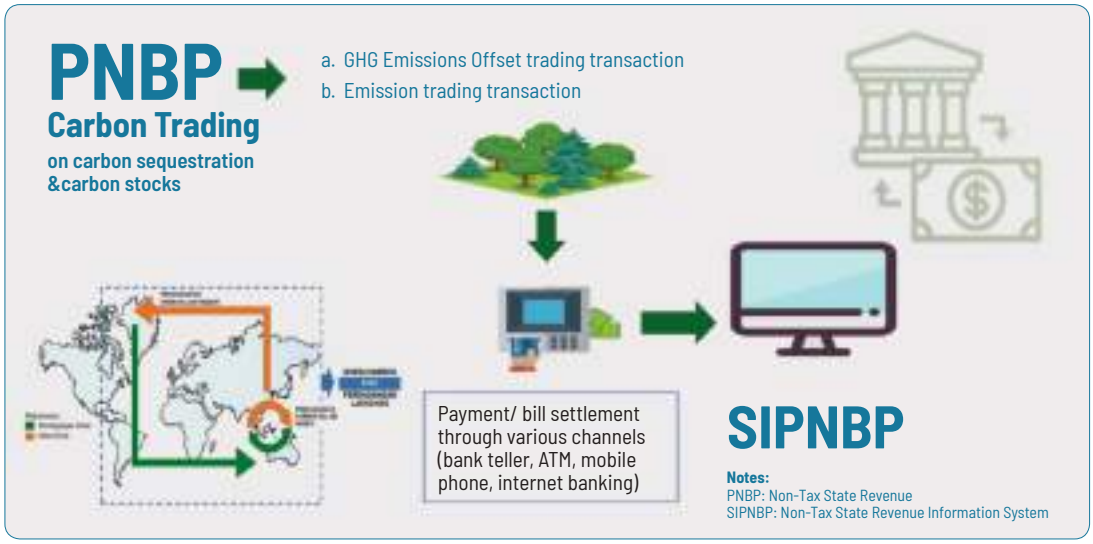
Carbon trading transactions involve two main types of trading–emissions offset and emissions trading. Carbon trading can be conducted by parties having business licenses for forest utilization. Each trading transaction must be reported and is liable to pay PNBP based on the government regulation.

Payment of forest utilization PNBP is online based through self-assessment using Non- Tax State Revenue Information System (SIPNBP), and the payment amount is based on a reference price regulated under government

[29] Law Number 9 of 2018 on Non-Tax State Revenue and Law Number 11 of 2021 on Job Creation, as later amended by Law Number 6 of 2023

[30] Government Regulation Number 12 of 2014 on Types and Tariffs of Non-Tax State Revenue Applicable to the Ministry of Forestry

Figure 2.4
The Flow Diagram of Non-Tax State Revenue from Carbon Trading



regulation and Minister of Environment and Forestry Regulation[31].

PNBP payments from carbon trading transactions are made through the SIPNBP application with billing issuance. Parties with forest utilization business permits can make payments through various methods, including bank tellers, ATMs, mobile phones, or internet banking. In the future, these transactions will be included in the PNBP of Forest Resources Revenue (PSDH and DR), which can later be shared between the producing local government and the central government and eventually used for forestry sector development.

A significant challenge has been the unsatisfactory forest product reference prices since 2017 due to the lack of reliable and continuous data on market prices. Therefore, it is necessary to develop a web-based payment system using the latest market price data to improve efficiency and transparency. The Presidential Regulation[32] mandates the use of a web-based pricing reference (si-PATOK) as a means of providing a sense of justice for business actors and the government, thereby enabling an equitable optimization of PNBP.

The Ministry of Environment and Forestry is responsible for optimizing PNBP and monitoring economic activities in the forestry sector. This includes determining Forest Resources Provision and Stumpage Compensation, creating norms, standards, procedures, and criteria tools for reference prices used to evaluate forest utilization PNBP, developing a user-friendly pricing reference information system, mapping out how PNBP goals will be spread out by region or province, and making predictions on how much forest utilization PNBP will be achieved through the si-PATOK. Changes to the market intelligence-based pricing reference information system were carried out in stages: short-term (three months), medium-term (up to 12 months), and long-term (more than one year), with optimal results achieved in the long-term stage. The use of si-PATOK

[31] Ministerial Regulation of Environment and Forestry Number P.64/MENLHK/SETJEN/KUM.1/12/2017 on Establishment of Forest Product Pricing Reference for the Calculation of Forest Resource Provisions and Stumpage Compensation

[32] Presidential Regulation Number 95 of 2018 on Electronic-based Government System (SPBE)

enables the Ministry of Environment and Forestry to monitor economic activities in the forestry sector with greater efficiency and accuracy, thereby facilitating the optimization of PNBP collection in accordance with the predetermined price reference.

The development of sustainability and legality assurance system (SVLK) is founded upon three main principles: good governance, representativeness, and credibility. The government assumes the role of regulator, with a multitude of stakeholders engaged in the assessment and verification procedures, including the National Accreditation Committee (KAN), business entities and their representative organizations, and independent observers, including non-governmental organizations and academic institutions. SVLK comprises two distinct certifications: the Certification of Sustainable Forest Management (S-PHL) and the Certification of Forest Product Legality (SLHH). Those who have obtained a PBPH for natural forest timber utilization activities have been awarded the S-PHL certification for sustainable forest management. The objective of the timber legality certificate (SLK) is to ensure that timber products are legally sourced, from the point of extraction through to the point of sale. This encompasses the timber industry, log yards/TPT-KB, handicraft, and household industries, as well as exporters.

SVLK implementation has improved forestry governance in Indonesia, including increasing transparency and availability of public information, deregulating permits in local government, increasing management practices, and achieving better compliance. As of December 2023, 3,756 enterprises have obtained certificates of the legality of forest products.

Since its inception in 2013, SVLK has significanly contributed to Indonesia's forestry sector, reaching its highest export value of USD 14.21 billion in 2022, then USD 13.17 billion in 2023. Micro, Small, and Medium Enterprises (MSMEs) have been required to follow the SVLK since 2013. To increase their participation, MSMEs have been assisted by donor agencies, NGOs, and community associations. Indonesia remains the first and still the only country to implement a legality verification system and is fully compliant with the European Union-Forest Law Enforcement, Governance and Trade (EU-FLEGT).

The development of SVLK is inseparable from the role of local governments in encouraging SVLK implementation. Several districts have issued district-level regulations related to the implementation of the system, including Jepara, Jombang, Klaten, and Buleleng. China, Laos, Myanmar, Malaysia, Thailand, Cambodia, Vietnam, Ghana, and Japan are just a few of the nations that have acknowledged the system's efficacy. SVLK, which initially focused on timber legality verification, has evolved into the Forest Legality and Sustainability Verification System, reflecting Indonesia's commitment to sustainability. This significant enhancement, launched at UNFCCC COP 26 in 2021, serves to illustrate the government's commitment to ensuring the long-term sustainability of the forestry sector. The implementation of SVLK not only supports PNBP revenue fairly and sustainably, but also increases exports of processed forest products. SVLK implementation contributes to increasing demand for certified forest products, encourages responsible and sustainable business practices, and strengthens regulatory compliance.

Economic Growth and PNBP Contribution from the Conservation Forest

The export value of forest products from TSL and Bioprospecting in 2023 reached IDR 9.9 trillion, with an upward trend in export value averaging IDR 8.8 trillion (about USD 571.4 million) per year over the previous decade. Figure 2.5 presents the export value of TSL utilization over the past ten years.

In addition to exports, the conservation forest also contributes to the economy through the generation of PNBP from environmental services and TSL. The total PNBP in 2023 reached IDR 185.7 billion (about USD 12 million), comprising IDR 157.4 billion (about USD 10.2 million) from the utilization of environmental services in conservation areas and IDR 28.3 billion (about USD 1.8 million) from the utilization of TSL. Revenue

from the utilization of environmental services is derived from seven sources, namely: (1) entrance fees for natural tourism objects, (2) business license fees for the provision of natural tourism facilities, (3) business fees for the provision of natural tourism facilities, (4) business fees for water utilization, (5) business fees for water energy utilization, (6) business fees for the provision of natural tourism services, and (7) business revenue fees for the provision of natural tourism services. In contrast, the PNBP from the utilization of TSL is derived from domestic utilization and foreign utilization revenues. The value of PNBP derived from environmental services and TSL utilization over the past decade is presented in Figure 2.6. It can be observed that the PNBP revenue has decreased during the COVID-19 pandemic, with a notable decline in revenue from the utilization of natural tourism services. In 2023, the value of PNBP has not yet reached the level observed in 2019 (prior to the onset of the COVID-19 pandemic).

Figure 2.5
Export Value from TSL Utilization

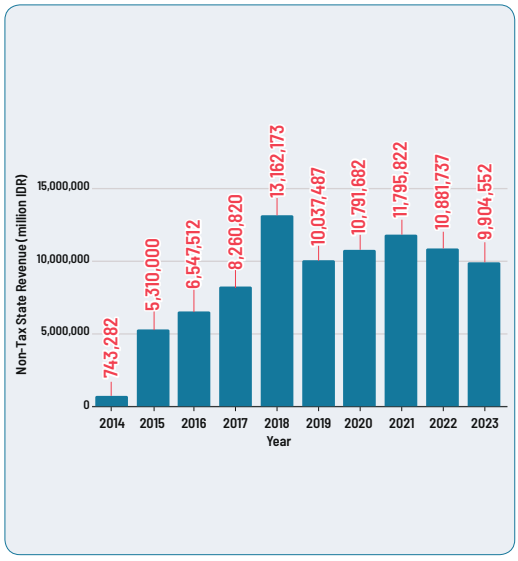


Figure 2.6
PNBP from Environmental Services and TSL Utilization