INDONESIA'S CHRONIC FOREST FIRES 2023

GREENPEACE

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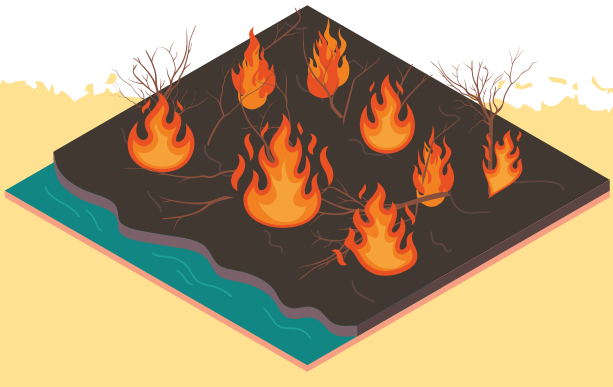
Contents

Cover: The continued forests and peatland fires in Palem Raya village, North Indralaya Ogan Ilir in South Sumatra, Indonesia. 07/09/2023. © Muhammad Tohir / Greenpeace

The Minister of Environment and Forestry, Siti Nurbaya, claimed to have 'successfully' reduced the severity of Indonesia's fires in 2023 amidst that year's strong El Niño climate phenomenon.

Introduction



The Minister of Environment and Forestry, Siti Nurbaya, claimed to have 'successfully' reduced the severity of Indonesia's fires in 2023[1] amidst that year's strong El Niño climate phenomenon. During the year, the indicative area of land and forest fires, according to the Ministry of Environment and Forestry (MoEF), was 1.16 million hectares (ha), an area equivalent to nearly 18 times the city of Jakarta.

- MoEF also recorded a significant reduction in peatland fires, which totalled 182,789 ha in 2023.[2] The 2023 Performance Report of the PKHL Directorate[3] also mentioned a decrease in carbon emissions from forest and land fires in 2023 (183 million tons of CO_2e), 29% that of 2019 (624 million tons of CO_2e). In general, the government claimed to have successfully reduced land fires in 2023 compared to the massive forest and land fires in 2019, which covered an area of 1.65 million hectares.

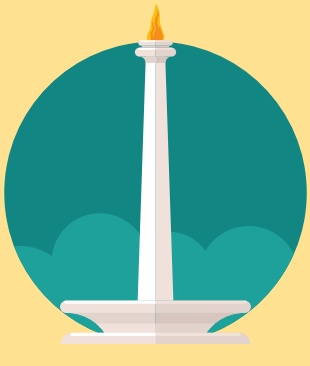
1.16 million ha

the indicative area of land and forest fires according to the MoEF

=

18x

the city of Jakarta



1 Ministry of Environment and Forestry (2024). Minister of Environment and Forestry: Success in Controlling Forest and Land Fires During the 2023 El Niño, Our Shared Lesson Learned.
2 Ministry of Environment and Forestry (2024). Controlling Deforestation and Forest and Land Fires in Indonesia.
3 Directorate of Forest and Land Fire Control, Ministry of Environment and Forestry (2024). Report of the Directorate of Forest and Land Fire Control.

Minister Nurbaya's claims, along with the reports of a decrease in the number of hotspots and the extent of burned areas, need to be questioned. The number of hotspots cannot itself be meaningfully compared across different places and times. The government needs to fully disclose data to substantiate its claims of successfully handling the 2023 fires.[4]

Greenpeace Indonesia's latest analysis, however, shows that the indicative area of forest and land fires in 2023 reached at least 2.13 million hectares. This figure is almost twice the size of the government's data. This analysis, based on satellite data processing by Greenpeace and TheTreeMap and combining results with data from MoEF, found that around 1.3 million hectares of the total burned area in 2023 had previously burned between 2015 and 2022. The remaining 830,000 hectares were recorded as new incidents. This means that approximately 60% of the burned areas in 2023 are cases of recurrence.

A burnt scar after a fire in the peatland area which belongs to villagers of Lebung Itam village, Tulung Selapan subdistrict, Ogan Komering Ilir Regency, South Sumatra. 3°6'15.16"S, 105°19'48.9"E. 27/10/2023.

4 Directorate of Forest and Land Fire Control (2023). 2023 Performance Report.

The 2023 fires also strongly indicate that the peatland restoration policy initiated by President Joko Widodo is still far from effective. Around 28%, or approximately 599,000 hectares, of the indicative burned area in 2023 occurred in 211 Peat Hydrological Units (a PHU is a peat ecosystem bordered by rivers and/or the sea) across seven provinces prioritised for restoration. The majority of these PHUs with burned areas are classified as highly and moderately critical. Greenpeace determined the critical classification based on ten criteria, including land use function, damage status, forest cover, palm oil concession cover, industrial timber plantation (HTI) cover, and others. The methodology used for this categorisation is explained in Greenpeace Indonesia's 2021 report *Restoration Up in Smoke: Losing the Battle to Protect Peatlands*.[5]

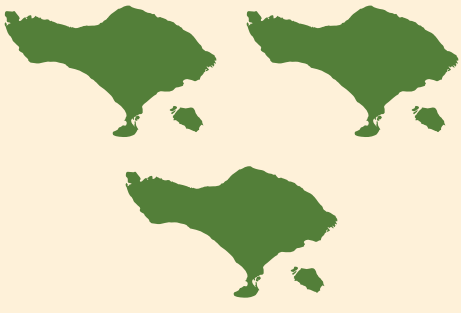
This report highlights forest and land fires in general and extensively discusses fires in PHUs. The health impacts and carbon emissions from burning peatlands are significant, warranting serious attention.[6] The fires on 599,000 hectares of peatland in 2023 released an estimated 553 million tons of CO_2e into the atmosphere[7]. Moreover, recurrent fires in peat landscapes not only make their conditions increasingly critical but have also reached chronic status.

The continued forests and peatland fires in Palem Raya village, North Indralaya Ogan Ilir in South Sumatra, Indonesia. 07/09/2023.

5 Greenpeace Indonesia (2021). Restoration Up in Smoke: Losing the Battle to Protect Peatlands.
6 See Greenpeace Indonesia report (2020). Burning Up: Health Impact of Indonesia's Forest Fires.
7 Calculation of Global Biomass Emissions (BG) is based on an Emission Factor of 923.1 Tons CO_2e/ha.

Key Findings

1. The indicative area burned by forest and land fires in 2023, according to Greenpeace Indonesia's analysis, was 2.13 million hectares, or three times the size of Bali. This figure is nearly twice the size of the burned area acknowledged by the government of Indonesia. About 1.3 million hectares or more than 60 percent of the fires occurred in areas previously burned between 2015 and 2022, while the newly burned area reached 830,000 hectares.



2.13 million ha = **3x**

the indicative area burned by forest and land fires in 2023

the size of Bali

CHRONIC FOREST FIRES 2023

Greenpeace
Jul–Oct
676.3 thousand ha

TheTreeMap
Jan–Nov
1.7 million ha

MoEF
Jan–Oct
1.16 million ha

1.3 million ha
previously burned between 2015 and 2022

830 thousand ha
newly burned area

2. Fires occurred in 298 palm oil concessions, with a burned area totalling 319,000 hectares. Of these, 144 concessions covering 174,000 hectares (55%) were areas that had burned before between 2015 and 2022.

3. Fires occurred in 90 pulpwood concessions with a burned area totalling 119,000 hectares. Of these, 44 concessions, or 53,000 hectares (45%), had previously burned between 2015 and 2022.

4. The 2023 forest and land fires also affected conservation areas such as national parks, wildlife reserves, and nature reserves. Fires occurred in 68 conservation areas, with a burned area totalling 258,000 hectares. Of these, 40 conservation areas covering 159,000 hectares (62%) had previously burned between 2015 and 2022.

5. Of the total indicative burned area in 2023, approximately 28%, or 599,000 hectares, occurred in Peat Hydrological Units (PHUs). Around 66%, or 414,000 hectares, were fires in PHUs that had previously burned between 2015 and 2022.

6. Throughout 2023, fires occurred in 211 PHUs with a total affected area of 599,000 hectares. Fires with burned areas exceeding 1,000 hectares occurred in 24 highly critical PHUs, 25 moderately critical PHUs, and 14 low-critical PHUs.

7. The most extensive fires in highly critical PHUs occurred in the Kahayan River-Sebangau River PHU in Central Kalimantan, with an area of 59,600 hectares burned. In 2019, this PHU also experienced fires covering 72,800 hectares.

8. The most extensive fires in low-critical PHUs occurred in the Buru Mappi River–Buru Oba River PHU in Papua, with 10,600 hectares burned.

9. MoEF's claim that it has successfully restored 5.5 million hectares of peatland over the past 10 years is difficult to believe due to the lack of data to verify this claim against the repeated occurrences of fires in these landscapes.

10. Of the 25 companies sued by MoEF for forest fires and damage from 2015 to 2023, 18 lawsuits have reached enforceable final judgements (*inkracht van gewijsde*). However, of those 18 final decisions, only four companies have paid their fines[8].

11. The implementation of Ministry of Agrarian Affairs and Spatial Planning/National Land Agency Regulation No. 15 of 2016 concerning the Procedures for Releasing and Cancelling Land Use Rights (HGU) and Land Ownership Rights on burned land has not been effectively implemented.[9]

8 Antara (2024). MoEF in the Process of Executing Compensation for Forest and Land Fires Amounting to IDR 6.1 Trillion.
9 Greenpeace documentation (2019). Surat Permohonan Informasi.

The continued forests and peatland fires in Palem Raya village, North Indralaya Ogan Ilir in South Sumatra, Indonesia. 07/09/2023.

Limited Data on Forest and Land Fires

Discrepancy in Government Data on Forest and Land Fires

Greenpeace calculated the indicative area of fires in 2023 using three data sources: maps of burned peatland areas collected by Greenpeace, burned area maps from expert consultant firm TheTreeMap, and MoEF's data on burned areas. Using these three databases, Greenpeace conducted an analysis by combining the existing data and maps of burned areas.

The indicative mapping of burned areas (*Estimation of Burned Area*)[10] by Greenpeace was carried out in near real-time from July to October 2023 in Peat Hydrological Units. Meanwhile, the mapping data of burned areas for 2023 from TheTreeMap was conducted using machine learning methodolog.[11] The indicative map of burned areas in 2023 created by MoEF can be viewed on MoEF's SIGAP interactive map.[12]

The three data sources have similarities and differences in their methods of collecting data. For example, all three calculate the indicative area of fires based on fire hotspots. However, the satellite imagery used varies. MoEF only uses Landsat satellites with a 30m resolution, while Greenpeace uses MODIS/VIIRS satellite imagery (1km resolution), Landsat 8 (30m resolution), Sentinel (10m resolution), and PlanetScope (3m resolution). TheTreeMap exclusively uses Sentinel satellite imagery (20m resolution)/Sentinel-2 20m.

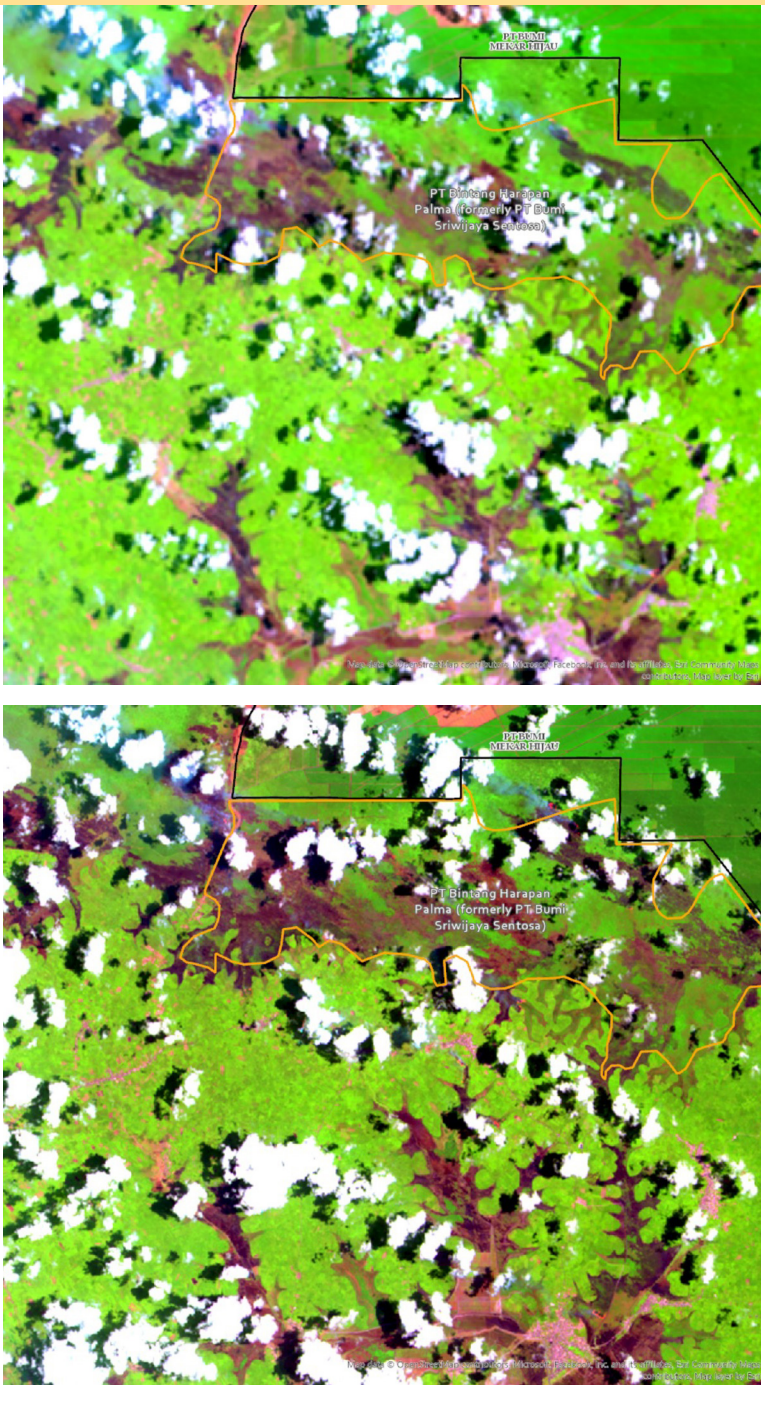
The characteristics of the indicative maps of burned areas produced by MoEF,[13] Greenpeace, and TheTreeMap can be seen in the table below:

INDICATIVE BURNED AREA	MoEF	Greenpeace	TheTreeMap
Fire Hot Spot	🔥	🔥	🔥
MODIS/VIIRS 1km Satellite Imagery		🔥	
Landsat Satellite Imagery 30m	🔥	🔥	
Sentinel Satellite Imagery 10m*		🔥	🔥
Planetscope Satellite Imagery 3m		🔥	
Visual Digitization Indicative	🔥	🔥	
Algorithm Automation Indicative			🔥
Periodic Indicative Output		🔥	
National Indicative Coverage	🔥		🔥

**TheTreeMap use Sentinel-2 20m*

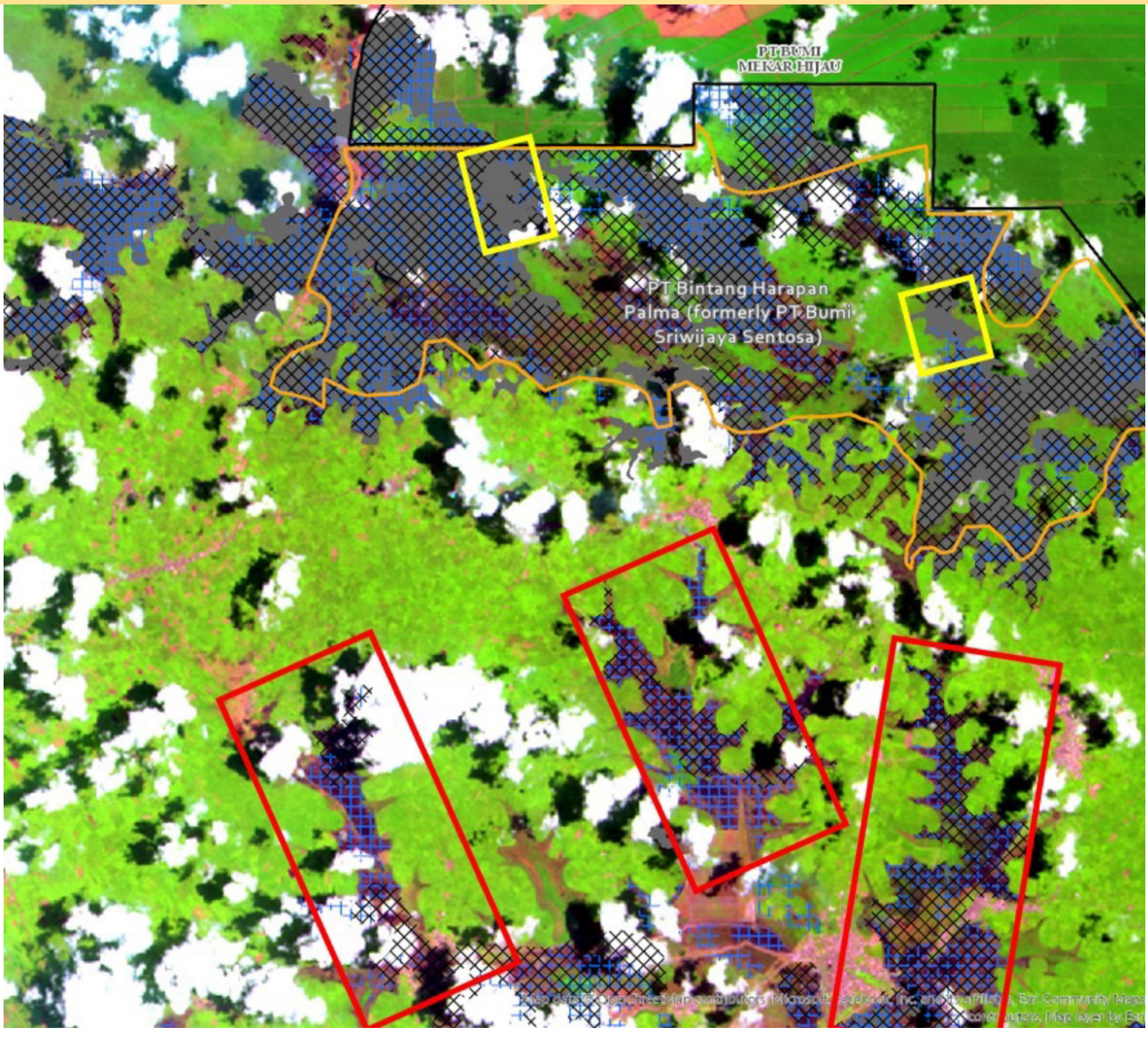
Although there are differences in data sources, these differences do not significantly impact the results. For instance, differences in the periods and satellite imaging used do not result in markedly different image captures, as shown in the images below:

10 Greenpeace Indonesia (2024). available as ArcGis map
11 Gaveau, D. L. A., Descals, A., Salim, M. A., Sheil, D., and Sloan, S (2021) Refined burned-area mapping protocol using Sentinel-2 data increases estimate of 2019 Indonesian burning
12 Ministry of Environment and Forestry (2023). Areal Kebakaran Hutan dan Lahan 2023.
13 Directorate General of Climate Change (2018). Directorate General of Climate Change Regulation.



Top: Landsat 9 Satellite Image (30m resolution, same as Landsat 8) from September 28, 2023; Bottom: Sentinel 2B Satellite Image (10m resolution) from September 29, 2023. There is almost no difference in the burned area except for the resolution and cloud cover.

The integration of the indicative burned area maps produces improved information from the similarities and differences in data collection methods across the three sources. **The differences in the results of the indicative burned area mapping by MoEF, TheTreeMap, and Greenpeace are largely due to differences in identification methods**. For example, as seen in the image below, when referring to Landsat or Sentinel satellite imagery, many burned areas are not mapped by MoEF **(red boxes)** but are mapped by Greenpeace and TheTreeMap. Conversely, some burned areas are mapped by MoEF **(yellow boxes)** but not by Greenpeace and TheTreeMap.



Burned Area 2023 according to three Sources: Diagonal black shading = Greenpeace, Vertical blue shading = TheTreeMap, and Grey colour = MoEF.

Greenpeace's subsequent analysis refers to the combined **indicative burned area map for 2023** from the above-mentioned three sources.

In addition to the difference in the total indicative area of forest and land fires in 2023, variations in burned areas are also observed at the provincial level. Greenpeace's analysis shows that the province with the most extensive burned area is Central Kalimantan, with a total of 354,500 hectares. This figure exceeds the burned area in 2019 in that province, which reached 317,000 hectares based on SIPONGI data—the forest and land fire monitoring system of MoEF. However, according to SIPONGI, the burned area in Central Kalimantan in 2023 was only 165,800 hectares.[14]

14 Sipongi (2023). Indicative Burned Area.

Table of Burned Area in 2023 from the Combination of 3 Maps in 11 Provinces

PROVINCE	INDICATIVE BURNED AREA 2023 (ha)
CENTRAL KALIMANTAN	354,505.2
SOUTH PAPUA	287,806.4
SOUTH SUMATERA	257,749.6
SOUTH KALIMANTAN	253,089.5
EAST NUSA TENGGARA	235,030.2
EAST JAVA	136,215.3
WEST KALIMANTAN	128,074.2
WEST NUSA TENGGARA	89,998.7
LAMPUNG	65,992.7
MALUKU	57,158.2
EAST KALIMANTAN	51,885.1

From the total indicative burned area in 2023, around 80% or 1.92 million hectares was contributed by 11 provinces that are regularly affected by fires. Central Kalimantan, South Papua, South Sumatra, and South Kalimantan are the top 5 provinces with the largest burned areas, which also have extensive peatlands. However, what is surprising is the extent of forest and land fires in the newly established province of South Papua, established by the government in 2022[15], exceeds that of South Sumatra or South Kalimantan. Some of the burned areas are part of the Merauke Food Estate project (discussed below), but the underlying causes of this incident still require further investigation.

Forest Fire Prevention (FFP) volunteers extinguish the burnt peat soil in Bunga Baru Hamlet, Madusari Village, Sungai Raya District, Kubu Raya Regency, West Kalimantan. 17/08/2023.

© Kiky / Greenpeace

15 Greenpeace (2022). Special Autonomy and the Curse of Natural Resources in Papua.

Forest and Land Fires in Palm Oil Concessions

In 2023, according to Greenpeace's analysis, forest and land fires (over 100 hectares) occurred in 298 palm oil concessions, covering a total of 319,000 hectares. Of this amount, approximately 144 concessions covering 174,000 hectares had previously burned between 2015 and 2022[16]. Many companies whose concessions were affected by fires during the 2019 forest and land fires experienced fires again in 2023.

One concession that burned again belongs to PT Samora Usaha Jaya, with an area of 15,000 hectares burned. Previously, PT Samora Usaha Jaya's concession had burned between 2015 and 2019, covering 26,000 hectares, and in 2019 alone, 17,000 hectares burned (the company denied Greenpeace's analysis of the burned area on their land in 2019).[17] Despite recurring fires in PT Samora Usaha Jaya's concession from 2015 to 2023, the company has never faced significant sanctions, except for symbolic "sealing" in 2019 and 2023.

Concessions owned by two companies from the Best Agro Plantation group, PT Bangun Cipta Perkasa and PT Karya Luhur Sejati, also burned again, with the burned areas reaching 8,929 hectares and 4,379 hectares, respectively. These two companies are among the top 10 palm oil plantations with the most extensive burned areas between 2015 and 2019.

16 Greenpeace Indonesia (2020). Forest and Land Fire in the Past Five Years.
17 Tunas Baru Lampung (2019). Response to Greenpeace, September 2019, Photo of the Firefighting Team.
Greenpeace Indonesia (2020). Forest and Land Fire in the Past Five Years.

Table of Burned Area in Palm Oil Concessions in 2023 from Greenpeace Analysis

PALM OIL CONCESSION NAME	PALM OIL GROUP	INDICATIVE BURNED AREA 2023 (ha)
PT Sukses Pratama Andalan		15,931.8
PT Subur Maju Makmur	Rachmat/Amara	15,069.0
PT Pelangi Prima Indonesia	**KPN**	15,046.4
PT Samora Usaha Jaya	Sungai Budi/Tunas Baru Lampung	15,036.6
PT Bumi Sriwijaya Sentosa		10,543.3
PT Bangun Cipta Mitra Perkasa	Best Agro Plantation	8,929.6
PT Waringin Agro Jaya	Cempaka Mas Abadi	8,539.4
PT Monrad Intan Barakat	Bakrie	6,065.3
PT Globalindo Agung Lestari	Genting	5,836.2
PT Kharisma Agri Pratama	Modern Internasional	5,291.6
PT Bumi Agung Lestari		5,044.2
PT Citraputra Kebunasri	Sinar Alam	4,816.9
PT Karya Luhur Sejati	Best Agro Plantation	4,379.7
PT Belantara Abadi Utama		4,232.7
PT Russelindo Putra Prima	Mugan	4,149.6
PT Anugerah Palm Indonesia	Barito Pacific	4,100.0
PT Plantindo Agro Subur	Rachmat/Amara	4,023.6
PT Kintap Jaya Wattindo	Jaya Agra Wattie	4,008.8
PT Borneo Indo Tani		4,007.2
PT Surya Langgeng Sejahtera	Rachmat/Triputra	3,857.7
PT Semangat Usaha Agro	Soechi	3,623.5
PT Perwita Citra Nusantara		3,591.8
PT Wira Usahatama Lestari		3,419.4
PT Biogene Plantation	Sang Hiang Seri	3,278.2
PT Tania Binatama	Sampoerna Agro	2,996.8
PT Banyu Kahuripan Indonesia	Dhanistha Surya Nusantara (DSN)	2,985.6
PT Mekar Karya Kahuripan	Makin	2,820.2
PT PP London Sumatra Indonesia	Salim/IndoAgri	2,778.6
PT Katingan Mujur Sejahtera	LIPPO/Agro Inti Semesta	2,751.2
PT Anugerah Rejeki Nusantara	Wilmar	2,506.8
PT Subur Alam Pratama Indonesia		2,091.4
PT Rambang Agro Jaya		2,090.7
PT Agri Surya Agung	Modern Internasional	2,086.7
PT Sebukit Inter Nusa		2,079.8
PT Sinar Karya Mandiri	Palma Agro Lestari	2,041.8
PT Kharisma Alam Persada	Rachmat/Amara	1,989.3

PALM OIL CONCESSION NAME	PALM OIL GROUP	INDICATIVE BURNED AREA 2023 (ha)
PT Sinergi Tani Nusantara		1,986.4
PT Cendrawasih Jaya Mandiri	Rajawali	1,970.2
PT Energi Mitra Merauke	Medco	1,900.0
PT Pratama Nusantara Sakti	Djarum. Wings. AND Central Proteina	1,877.2
PT Sampoerna Agro	Sampoerna Agro	1,850.6
PT Rimba Sawit Utama Planindo	Rimba Central Management (RCM)	1,841.3
PT Sinar Fajar Dua Ribu Lestari		1,773.6
PT Banua Lima Sejurus	Balimas	1,753.3
PT Selatan Jaya Permai	Sampoerna Agro	1,674.2
PT Rezeki Alam Semesta Rava	Soechi	1,569.1
PT Kalimantan Lestari Mandiri	Tianjin Julong	1,533.7
PT Usaha Agro Indonesia	Sampoerna Agro	1,429.1
PT China Gate Agriculture Dev,		1,421.3
PT Indo Lampung Delta Permai		1,403.6
PT United Agro Indonesia	Genting	1,400.6
PT Sumber Rejeki Alam Subur		1,385.8
PT Usaha Handalan Perkasa	Soechi	1,334.4
PT Valensia Indo Makmur		1,292.1
PT Barong Baragas Energy	Mayapada	1,280.6
PT Jalin Vaneo	Pasifik Agro Sentosa	1,276.2
PT Sepalar Yasa Kartika		1,249.8
PT Karyabumi Papua	Rajawali	1,224.1
PT Bina Agro Berkembang Lestari		1,211.0
PT Purna Karsa Wibawa		1,206.0
PT Sumatera Unggul Makmur II	**KPN**	1,178.3
PT Barito Putera Plantation		1,162.9
PT Berkah Alam Fajarmas	Best Agro Plantation	1,148.3
PT Sumatera Unggul Makmur	**KPN**	1,136.3
PT Agrojaya Tirta Kencana	Kencana Agri	1,124.4
PT Sawit Menang Lestari	GPI AND Campang Tiga - JV	1,106.7
PT Kahayan Agro Lestari	Fri-El	1,073.2
PT Proteksindo Utama Mulia	Cempaka Mas Abadi	1,054.1
PT Agri East Borneo		1,034.2

The concession of PT Waringin Agro Jaya also burned again, covering 8,500 hectares in 2023. This company had previously been fined IDR 466 billion due to fires covering 1,626 hectares in peatland in 2014.[18] Although the court's decision is an enforceable final judgement (*inkracht van gewijsde*), the company has yet to pay the fine.[19]

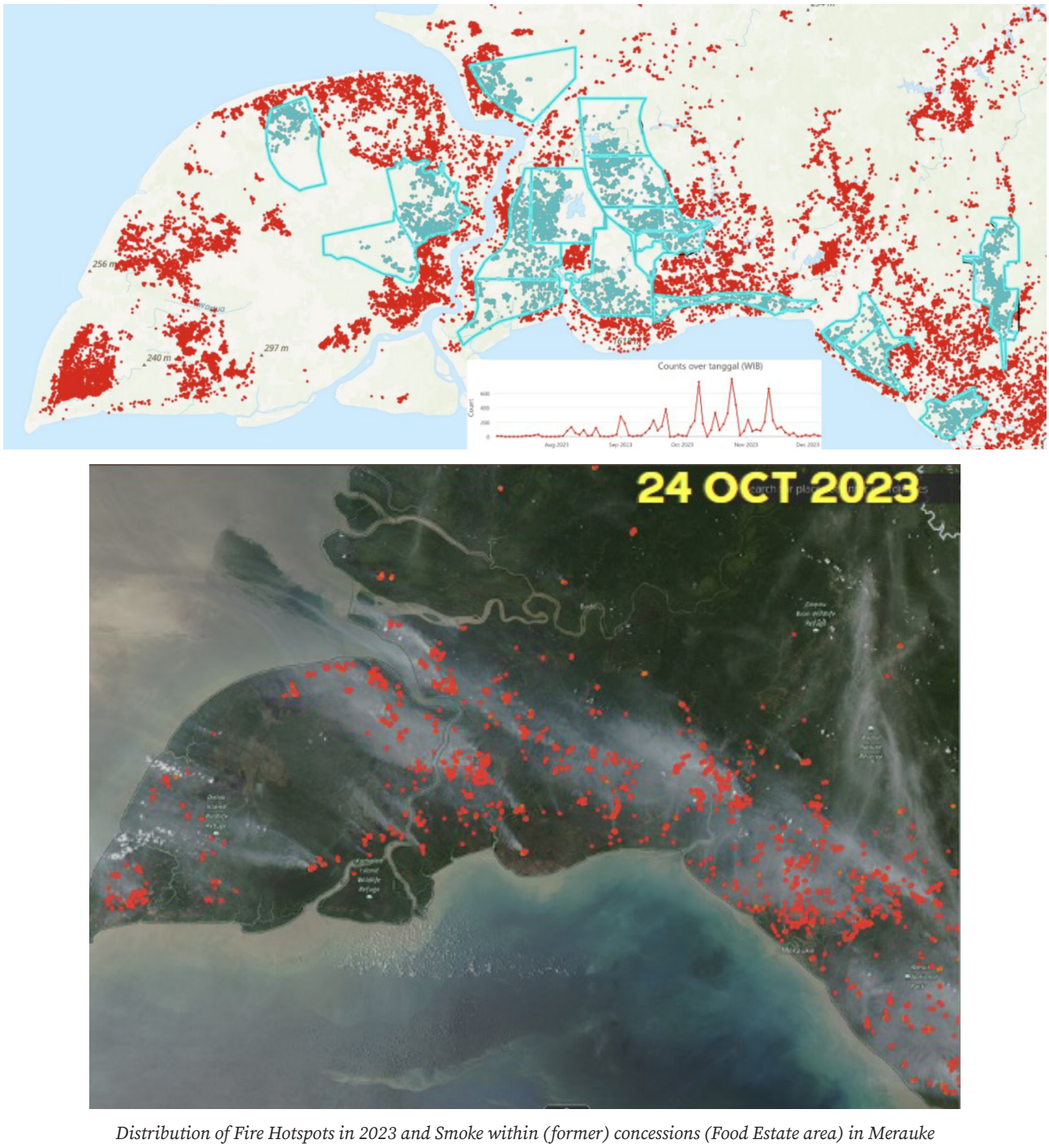
A number of prospective palm oil concessions in Papua, particularly in South Papua, have had their permits revoked. However, recently, this area has become part of the Merauke Food Estate project, and some parts have also burned, such as the concessions of PT Sukses Pratama Andalan (inactive)[20] and PT Pelangi Prima Indonesia (inactive)[21] on Dolok Island, which burned in 2023, covering 31,000 hectares.

Table of Burned Area in Palm Oil Concessions in Papua in 2023

(*some of which have had their permits revoked but are within the planned Food Estate area***)** *from Greenpeace Analysis*

PALM OIL/SUGARCANE CONCESSION	PALM OIL/SUGARCANE GROUP	BURNED AREA 2023 (ha)
PT Sukses Pratama Andalan		15,931.8
PT Pelangi Prima Indonesia	KPN	15,046.4
PT Kharisma Agri Pratama	Modern Internasional	5,291.6
PT Bumi Agung Lestari		5,044.2
PT Belantara Abadi Utama		4,232.7
PT Perwita Citra Nusantara		3,591.8
PT Biogene Plantation	Sang Hiang Seri	3,278.2
PT Anugerah Rejeki Nusantara	Wilmar	2,506.8
PT Subur Alam Pratama Indonesia		2,091.4
PT Agri Surya Agung	Modern Internasional	2,086.7
PT Sinergi Tani Nusantara		1,986.4
PT Cendrawasih Jaya Mandiri	Rajawali	1,970.2
PT Energi Mitra Merauke	Medco	1,900.0
PT China Gate Agriculture Dev.		1,421.3
PT Valensia Indo Makmur		1,292.1
PT Karyabumi Papua	Rajawali	1,224.1
PT Purna Karsa Wibawa		1,206.0

18 Alinea.id (2019). Land Fires: PT Waringin Agro Jaya Ordered to Pay IDR 466 Billion in Damages.
19 Ministry of Environment and Forestry (2024). Sued by MoEF for Forest and Land Fires, PT NSP Pays Environmental Compensation of IDR 160 Billion.
20 Granted a permit based on the Regent of Merauke's Decree No. 231 of 2010, dated July 7, 2010; Area size of 40,946.50 hectares in Tabonji District. The forest area status remains classified as Convertible Production Forest (HPK) according to MoEF's forest area data.
21 Granted a permit based on the Regent of Merauke's Decree No. 233 of 2010, dated July 7, 2010; Area size of 40,000 hectares in Tabonji and Kimaam Districts. The forest area status remains classified as Convertible Production Forest (HPK) according to MoEF's forest area data.



Distribution of Fire Hotspots in 2023 and Smoke within (former) concessions (Food Estate area) in Merauke

Forest and Land Fires in Timber Plantation Concessions

Greenpeace's analysis shows that in 2023, 90 timber (pulpwood) plantation concessions burned, covering a total of 119,000 hectares. Of this amount, 46 concessions—with a total area of 53,000 hectares—had previously burned between 2019 and 2022. Four companies with the largest burned areas are those whose concessions have consistently burned between 2015 and 2022[22].

Table of Burned Area in Pulpwood Concessions in 2023 from Greenpeace Analysis

PULPWOOD CONCESSION NAME	PULPWOOD GROUP	INDICATIVE BURNED AREA 2023 (ha)	NOTES
PT BUMI MEKAR HIJAU	**SINARMAS APP (Supplier)**	26,411.4	**South Sumatera**
PT SELARAS INTI SEMESTA	Medco	10,395.6	South Papua
PT PARAMITRA MULIA LANGGENG	Sungai Budi	6,926.5	South Sumatera
PT SBA WOOD INDUSTRIES	**SINARMAS APP (Supplier)**	6,744.8	**South Sumatera**
PT RIMBUN SERUYAN		6,686.0	
PT PLASMA NUFTAH MARIND PAPUA	Moorim	4,488.4	South Papua
PT USAHATANI LESTARI-CARBON POSITIVE		3,896.4	
PT INHUTANI III PELAIHARI	BUMN	2,682.1	
PT BUMI ANDALAS PERMAI	**SINARMAS APP (Supplier)**	2,179.4	**South Sumatera**
PT INHUTANI III NANGAPINAH	BUMN	2,161.7	

22 Greenpeace Indonesia (2020). Forest and Land Fire in the Past Five Years.

PULPWOOD CONCESSION NAME	PULPWOOD GROUP	INDICATIVE BURNED AREA 2023 (ha)
PT WONO INHUTANI NIAGA		1,957.4
PT WAHANA SAMUDERA SENTOSA		1,941.5
PT USAHA TANI LESTARI (NTT)		1,922.1
PT FINNANTARA INTIGA	SINARMAS APP (Supplier)	1,789.1
PT MAYANGKARA TANAMAN INDUSTRI (SK 227)	Sumitomo	1,741.4
PT HUTAN LESTARI RAYA	Erik and Akie Setiawan	1,439.1
PT SENTOSA BAHAGIA BERSAMA	(blank)	1,335.9
PT INHUTANI III (EKS PTINHUTANI III RIAM KIWA)	BUMN	1,225.7
PT HUTAN RINDANG BANUA	SINARMAS APP (Dian Swastatika Sentosa)	1,218.4
PT WANAMULIA SUKSES SEJATI UNIT I & II		1,211.1
PT HUTAN KETAPANG IND (DH. KERTAS BASUKI R)		1,208.2
PT INHUTANI II TANAH GROGOT	BUMN	1,164.2
PT MEDCOPAPUA ALAM LESTARI	Medco	1,121.6
PT SILVA INHUTANI LAMPUNG	Sungai Budi	1,064.4
PT MAYAWANA PERSADA	Tanoto family/Alas Kusuma	1,030.9

PT Bumi Mekar Hijau was recorded as the company with the largest burned area in 2023, reaching 26,400 hectares. This company, affiliated with the Sinarmas Group[23] was fined IDR 78 billion in 2016 due to recurring land fires covering 20,000 hectares in 2014–2015.[24] Additionally, from 2015 to 2018, at least two civil sanctions were imposed on the company. Despite these sanctions, fires continued to occur on the company's land, with 87.6 hectares burning between 2015 and 2019 and 40,400 hectares burning in 2019.

In addition to PT Bumi Mekar Hijau, other pulpwood concessions affiliated with the Sinarmas Group, such as PT Sebangun Bumi Andalas Wood Industri and PT Bumi Andalas Permai[25], also burned, covering 6,744 hectares and 2,179 hectares, respectively. Both companies had previously burned between 2015 and 2019 and had been sanctioned.

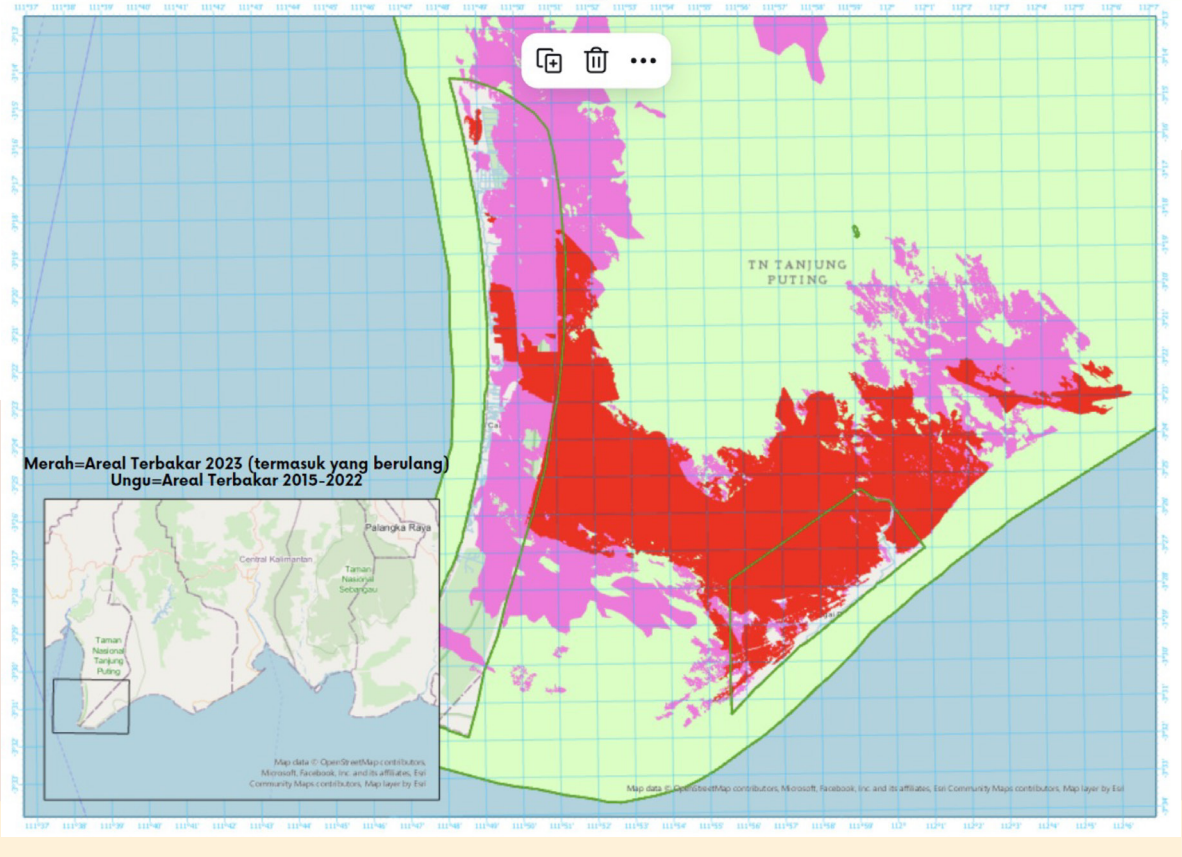
23 Sustainability APP (undated). South Sumatra - Supplier Management.
24 Samdysara S (2016). PT BMH Only Fined IDR 78 Billion, MoEF Advised to Still Pursue an Appeal.
25 Sustainability APP (undated). South Sumatra - Supplier Management.

Forest and Land Fires in Conservation Areas

Despite their conservation status, fires still occur in national parks, nature reserves, community forests, and wildlife reserves. In 2023, Greenpeace's analysis found that fires occurred in 68 conservation areas, affecting 258,000 hectares. The largest burned conservation area was the Dolok Island Wildlife Reserve in Papua, with an affected area of 58,000 hectares.

Of the 68 burned conservation areas in 2023—covering 159,000 hectares—48 had previously burned between 2015 and 2022.

One conservation area that has experienced recurring fires is Tanjung Puting National Park in Central Kalimantan, with a total burned area reaching 17,000 hectares. A foreman from the palm oil company PT Kumai Sentosa,[26] which directly borders the western part of the national park, died while attempting to extinguish the fire that spread into the park.[27] The fire hotspots appeared in September 2023 and continued for over a month.



Burned Area in 2023 in Tanjung Puting National Park, Central Kalimantan

26 Directorate General of Law Enforcement (GAKKUM) MoEF (2023). Reconsideration Request Granted, the Supreme Court Orders PT Kumai Sentosa to Pay IDR 175 Billion in Compensation.
27 Budi Baskoro (2023). Tanjung Puting National Park Fire: One Firefighter Dies, Fire Still Not Extinguished.

The fires that have affected conservation areas highlight the failures in the system to prevent and detect forest and land fires. These areas should have a shallow risk of fires because they are protected and fall under the government's responsibility for management and oversight.

The fires that have affected conservation areas highlight the failures in the system to prevent and detect forest and land fires. These areas should have a shallow risk of fires because they are protected and fall under the government's responsibility for management and oversight.

Table of Burned Areas in Conservation Zones

CONSERVATION AREA	STATUS	PROVINCE	BURNED AREA 2023 (ha)
Pulau Dolok Wildlife Reserve	Wildlife Reserve	Papua	58,130.8
Padang Sugihan Wildlife Reserve	Wildlife Reserve	South Sumatera	32,311.3
Gunung Tambora National Park	National Park	West Nusa Tenggara	25,206.0
Wasur National Park	National Park	Papua	17,579.2
Tanjung Puting National Park	National Park	Central Kalimantan	17,241.7
Way Kambas National Park	National Park	Lampung	13,403.2
Rawa Aopa Watumohai National Park	National Park	Southeast Sulawesi	12,053.3
Sei Sebangau Nature & Conservation Reserves	Nature & Conservation Reserves	Central Kalimantan	10,858.0
Muara Kendawangan Nature Reserve	Nature Reserve	West Kalimantan	8,612.5
Manupeu Tanah Daru National Park	National Park	East Nusa Tenggara	4,241.0
Danau Bian Wildlife Reserve	Wildlife Reserve	Papua	4,107.4
Baluran National Park	National Park	East Java	3,668.1
Muara Kaman Sedulang Nature Reserve	Nature Reserve	East Kalimantan	3,549.3
R. Soeryo Great Forest Park	Great Forest Park	East Java	2,834.0
Sultan Adam Great Forest Park	Great Forest Park	South Kalimantan	2,826.7
Sebangau National Park	National Park	Central Kalimantan	2,532.5
Bromo Tengger Semeru National Park	National Park	East Java	2,271.2
Teluk Adang Nature Reserve	Nature Reserve	East Kalimantan	2,210.9
Laiwangi Wanggameti National Park	National Park	East Nusa Tenggara	1,699.7
Dataran Tinggi Yang Wildlife Reserve	Wildlife Reserve	East Java	1,557.2
Sungai Kapuas Nature & Conservation Reserves	Nature & Conservation Reserves	Central Kalimantan	1,475.5
Morowali Nature Reserve	Nature Reserve	Central Sulawesi	1,465.4
Pulau Rusa (RTK. 8) Nature Tourism Park	Nature Tourism Park	East Nusa Tenggara	1,067.4
Sungai Barito Nature & Conservation Reserves	Nature & Conservation Reserves	Central Kalimantan	1,020.0

However, in reports on forest and land fires,[28] the government has never detailed fires in conservation areas. The handling and evaluation of fires in conservation areas have never been publicly disclosed, even though conservation areas are the government's responsibility. Fires in conservation areas will inevitably threaten the survival of endemic animal and plant species.

28 Sipongi MoEF (undated). Indicative Burned Area.

A general view of the peatland fire in Ogan Ilir, South Sumatra, Indonesia. Due to the fires, in the last few days the air quality in Palembang has reached unhealthy levels. 06/09/2023.

The Chronic Disease of Peatland Fires

Why Peatlands?

Peatlands contain a type of organic soil created from leaves, moss, and other plant matter that have not fully decomposed, resulting in layers of accumulated peat. Peatland ecosystems play a crucial role in preserving biodiversity, regulating water systems across landscapes, and reducing flood risk.[29]

29 International Union for Conservation of Nature (undated). Peatlands and Climate Change.

The Musi river and its surrounding are covered by the haze from the forest and peatland fires in Palembang city, South Sumatra. 04/09/2023.

Protecting peatlands is vital because these ecosystems are naturally wet, acting as a barrier against fire threats in surrounding areas. Unfortunately, large-scale land-use changes have occurred in peatlands due to plantations and other activities, affecting an area of 11.5 million hectares[30] in Sumatra and Kalimantan. This has caused peatlands to degrade and dry out, making them highly susceptible to ignition. Peat fires release large amounts of carbon dioxide[31] contributing to global warming.[32] Globally, around three percent of all anthropogenic greenhouse gas emissions come from drained peatlands.[33]

To illustrate, Greenpeace's analysis based on MoEF data shows that deforestation covering 10 million hectares between 2000 and 2020 resulted in 4.5 gigatons of carbon emissions. Meanwhile, carbon emissions from the burning of 6.1 million hectares of peatland during the same period reached 5.6 gigatons. This indicates that the emissions generated by peatland fires are highly significant.

The high organic content in peatlands causes fires to last for days and spread widely. This is because the fire not only burns surface materials but also penetrates deeper into the peat, reaching depths of 50 to 300 cm below the surface[34]. Fires also release fine particles, including those as small as 2.5 microns ($PM_{2.5}$), which spread to surrounding areas and negatively impact the health of humans[35,36] and other species.[37]

30 Miettinen, J., Shi, C. & Liew, S. C. (2016) Land cover distribution in the peatlands of Peninsular Malaysia, Sumatra and Borneo in 2015 with changes since 1990. Global Ecology and Conservation, Volume 6, 2016, Pages 67-78.
31 Peat Monitoring (undated). Climate Change Mitigation.
32 Peat Monitoring (undated). Climate Change Mitigation.
33 Evans, C. D., M. Peacock, A. J. Baird, R. R. E. Artz, A. Burden, N. Callaghan, P. J. Chapman, et al. (2021) 'Overriding Water Table Control on Managed Peatland Greenhouse Gas Emissions'. Nature 593, no. 7860 (May 2021): 548–52.
34 Peat Monitoring (undated). Peat Depth.
35 Greenpeace Indonesia report (2020). Burning Up: Health Impact of Indonesia's Forest Fires.
36 Hein, L., Spadaro, J.V., Ostro, B. *et al.* The health impacts of Indonesian peatland fires. *Environ Health* 21, 62 (2022).
37 Erb, Wendy. Wildfire smoke linked to vocal changes in wild Bornean orangutans - ScienceDirect.

Fire Prevention (FFP) volunteers display a banner on a burnt peatland in Bunga Baru Hamlet, Madusari Village, Sungai Raya District, Kubu Raya Regency, West Kalimantan. 17/08/2023.

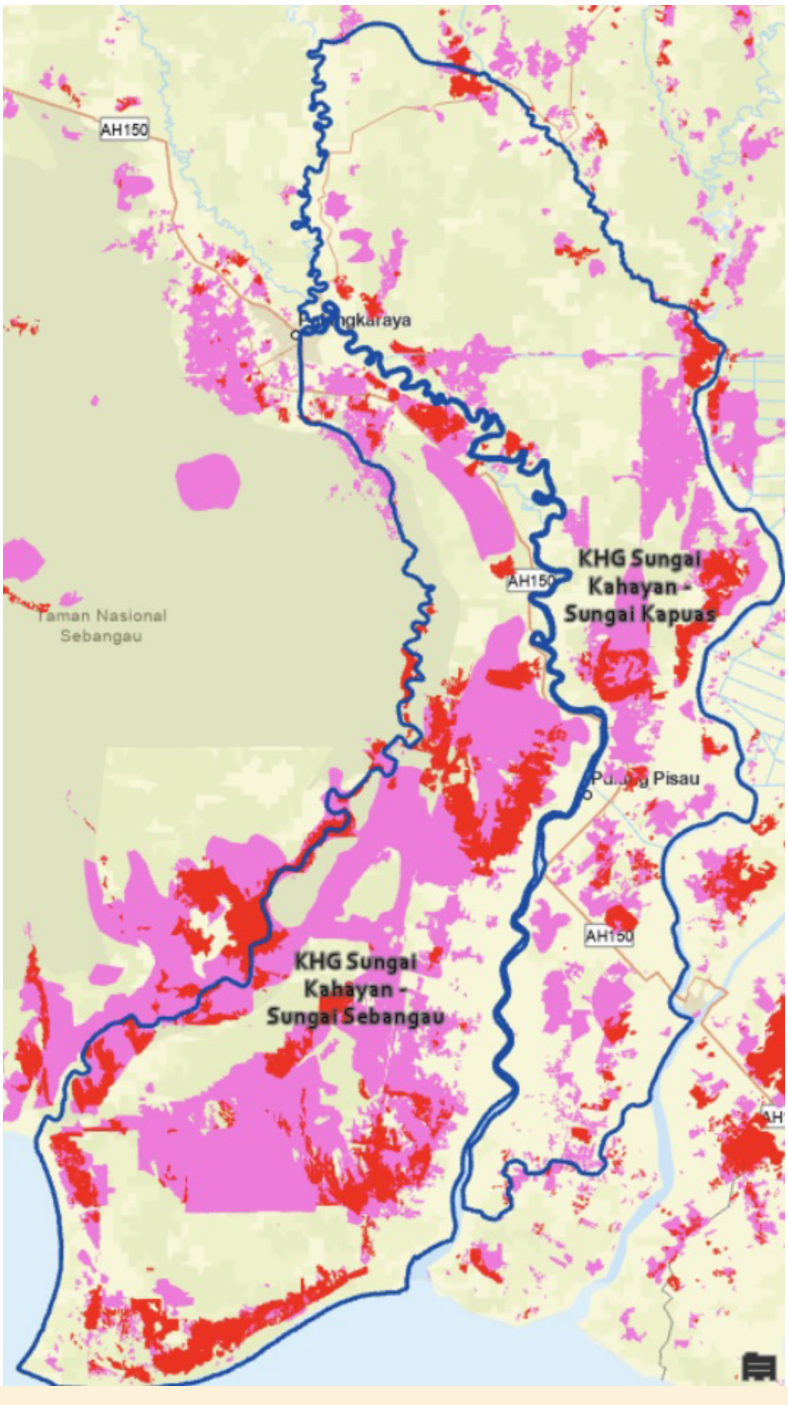
Recurrent Fires in Peatlands

Greenpeace's analysis found that 28%, or approximately 599,000 hectares, of the indicative burned area in 2023 occurred in Peat Hydrological Units (PHUs). Of these 599,000 hectares, around 69% (414,000 hectares) were recurrent incidents. Some of these peatland areas have burned up to five times between 2015 and 2022.[38] The 2023 fires affected all categories of critical PHUs—Highly Critical, Moderately Critical, and Somewhat Critical[39]—which are prioritised for restoration by the government.

In 2023, 24 Highly Critical PHUs burned, affecting a total area of 332,000 hectares. Highly Critical status indicates that the PHUs are heavily covered by concessions, have extensive canal systems, and experience large-scale fires.[40]

The most extensive fires in Highly Critical PHUs occurred in the Kahayan River–Sebangau River PHU in Central Kalimantan, with a burned area of 59,600 hectares. In 2019, this PHU also experienced fires covering 72,800 hectares. Ironically, more than 5,000 rewetting civil works, such as canal blocks from restoration programs, have been built in this PHU to reduce the fire risk in the peatlands.

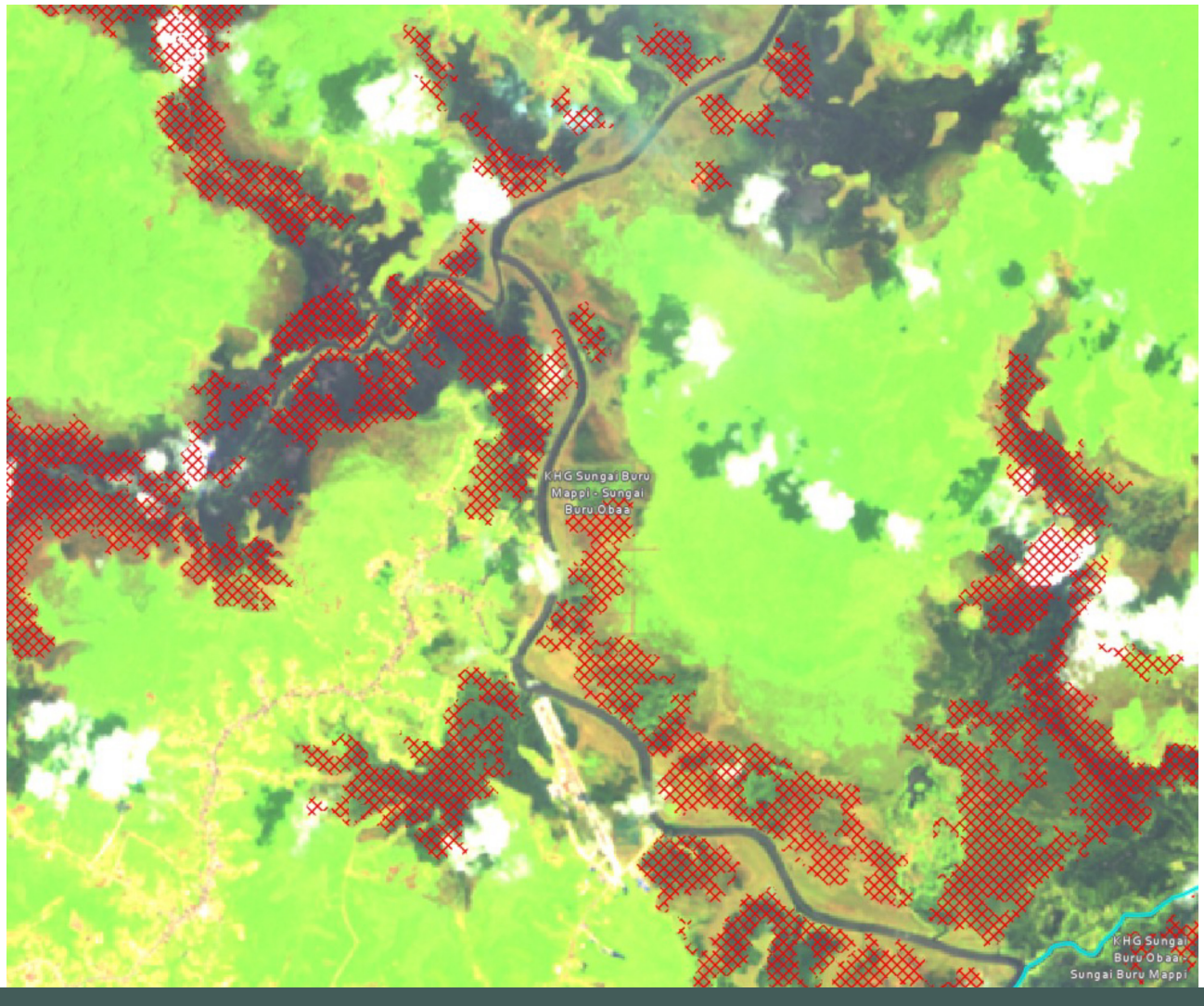
38 Greenpeace Indonesia (2021). Burning Up: Health Impact of Indonesia's Forest Fires.
39 *ibid.*
40 *ibid.*



Burned Area in 2023 in the Kahayan River–Sebangau River PHU near Palangkaraya

Fires also occurred in 25 Moderately Critical PHUs, with a total burned area reaching 200,000 hectares. Moderately Critical PHUs are characterised by the presence of concessions, fewer canals, and smaller burned areas. The most extensive fires in a Moderately Critical PHU occurred in the Sibumbung River–Talang Rimba River PHU in Jambi.

Somewhat Critical PHUs were also not spared from fires. Somewhat Critical status indicates that the area has few canals, extensive moratorium status coverage, and small burned areas. A total of 14 Somewhat Critical PHUs burned, with a combined area of 44,000 hectares. The largest burned area in a Somewhat Critical PHU was in the Buru Mappi River–Buru Oba River PHU in Papua, covering 10,658 hectares.



Burned Area in 2023 in the Buru Mappi River–Buru Oba River PHU near Kepi City

Causes of Recurrent Fires

Most of the fires occur in PHUs that contain concessions that have been developed, as indicated by the presence of water management canals that tend to dry out the peatlands to make them suitable for cultivation. Of the 520 PHUs analysed by Greenpeace,[41] 220 are impacted by concessions and peat drainage canals.

Plantation concession-bearing PHUs represent almost all PHUs that suffered fires. For instance, in 2019, of the total 706,000 hectares of burned PHUs in the seven priority peat restoration provinces, 99% or 697,000 hectares occurred in concession-bearing PHUs.[42]

41 Greenpeace Indonesia (2021). Burning Up: Health Impact of Indonesia's Forest Fires.
42 *ibid.*

The widespread occurrence of recurrent fires is due to the government's continued approval for companies to operate with peat drainage canal systems within PHUs. The government divides the functions of peatland ecosystems into two categories: protection and cultivation.[43] The designation of these functions is regulated under Article 9 paragraph (2) of the Minister of Environment and Forestry Regulation No. 14 of 2017. In each PHU, the government designates a minimum of 30% of the PHU's area as protected. Beyond this 30%, protection status can be designated based on certain criteria, such as peat soil depth of three metres or more, peatland with genetic resources or endemic species, peatland containing species protected by law, and peat in protected areas.

Peat in PHUs that does not meet these criteria is designated for cultivation, allowing it to be used for plantations. Of the total 24 million hectares[44] of PHUs in Indonesia, 12 million hectares have been designated as cultivation areas and have already been converted into plantations. The extensive operation of companies in the cultivation zone makes the restoration of peatland ecosystems in the protected zone increasingly difficult. This is because the conditions in both zones are interrelated, being part of the same hydrological unit. Land clearing and drainage in the cultivation zone will directly impact the protected zone within the same PHU.

Firefighters extinguish fires on peatland area in Ogan Ilir in South Sumatra, Indonesia. 06/09/2023.

43 Ministry of Environment and Forestry (undated). Peatland Ecosystem Functions Determination.
44 Greenpeace Indonesia (2021). Restoration Up in Smoke: Losing the Battle to Protect Peatlands.

Peatland restoration efforts will not be effective if, within the same PHU, companies continue to build canals to drain peatlands. This situation makes the government's peatland restoration efforts akin to patching one side of a leaking bucket while leaving the other side holed, allowing the water to drain away and the peat to dry out.

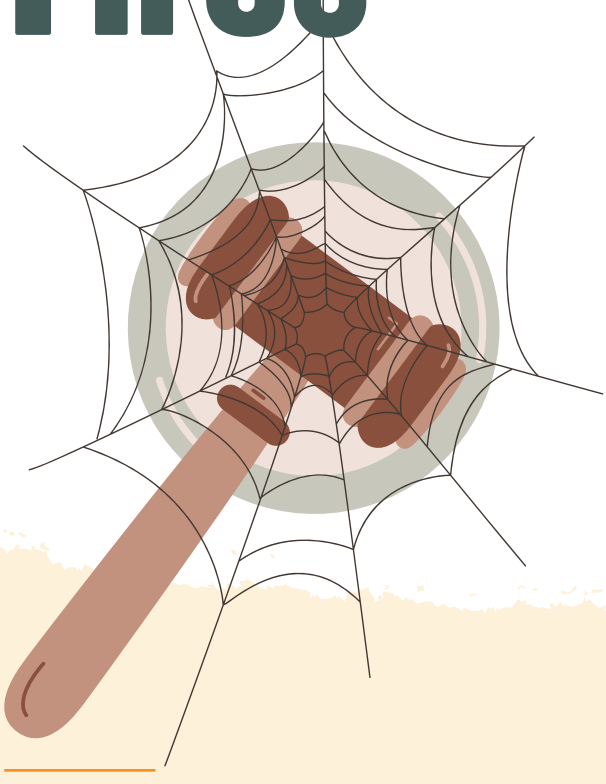
Unfortunately, the government has yet to view PHUs as interconnected ecosystems that influence each other. Peatland restoration efforts will not be effective if, within the same PHU, companies continue to build canals to drain peatlands. This situation makes the government's peatland restoration efforts akin to patching one side of a leaking bucket while leaving the other side holed, allowing the water to drain away and the peat to dry out.

The ineffectiveness of peatland restoration efforts is compounded by the lack of government transparency. The public cannot access concession data for the cultivation of PHUs. There is also no detailed information about the restoration quality in concessions, the sample data used for validation, or the criteria for restoration success. As a result, civil society cannot participate in monitoring peatland restoration in corporate concession areas.

Recently, MoEF claimed to have successfully restored 5.5 million hectares of peatland over the past ten years.[45] However, this claim is difficult to believe as recurrent fires continue to occur in PHUs. Moreover, the relevant information needed to verify this claim is not available.

45 Faqihah Muharroroh Itsnaini, Hilda B Alexander (2024). Debunking the Myth: Peatland Restoration in Indonesia Reaches 5.5 Million Hectares.

Ineffective Law Enforcement on Forest and Land Fires



Weak Sanctions Against Forest and Land Fire Perpetrators

In 2023, the government sealed off 38 companies related to forest and land fires in West Kalimantan, Central Kalimantan, South Sumatra, South Kalimantan, and Riau.[46] However, the follow-up actions after the sealing are unclear.[47]

46 Directorate General of Law Enforcement (GAKKUM) (2023). MoEF 2023 Reflection: Consistency and Intensity in Environmental and Forestry Law Enforcement.

47 Ministry of Environment and Forestry (2023). Director General of Law Enforcement (GAKKUM) MoEF Directly Seals Off Forest and Land Fires at PT. SA, a Singaporean Company.

Firefighter extinguishes fires on peatland area in Ogan Ilir in South Sumatra, Indonesia. 06/09/2023.

It is important to note that the symbolic sealing of concessions is not a meaningful legal action against forest and land fire perpetrators if there is no follow-up. Sealing, to be effective, must be accompanied by additional administrative measures, such as licence evaluations, licence revocations, civil lawsuits, and criminal legal action.

In 2023, Greenpeace reported the perpetrators of forest and peatland fires to MoEF's Law Enforcement Directorate General (GAKKUM) through the available official mechanisms.[48] However, as of the publication of this report, there has been no further information on the case developments or a response from MoEF.

Palm Oil Concessions with Fires in 2023 Reported to GAKKUM MoEF by Greenpeace in 2023 Due to Forest and Land Fires

PO NAME	PO GROUP	INDICATIVE BURNED AREA 2023 (ha)	NOTES
PT Sumatera Unggul Makmur II	KPN	1,178.3	Report to MoEF
PT Putra Lirik Domas II	GAMA	254.7	Report to MoEF
PT Bumi Subur Lestari		134.6	Report to MoEF

48 See Greenpeace Indonesia Complaints and GAKKUM MoEF Responses.

Enforceable Final Judgements Remaining Unpaid

The issue is about more than legal actions; the government often fails to enforce court rulings related to forest and land fires even when they are enforceable final judgements. This highlights that the government is not serious and seems powerless to enforce laws regarding forest and land fires.

The issue is about more than legal actions; the government often fails to enforce court rulings related to forest and land fires even when they are enforceable final judgements (*inkracht van gewijsde* – no longer subject to appeal). This highlights that the government is not serious and seems powerless to enforce laws regarding forest and land fires. Between 2015 and 2023, MoEF filed civil lawsuits against 25 companies related to forest and land fires.[49] Of these, 18 cases are enforceable final judgements with a total ruling value of IDR 6.1 trillion.

The government claims that out of the 18 cases with enforceable final judgements, ten companies are in the process of execution, and 8 other companies are in the preparation stage for execution. According to news reports and MoEF's statements, as of 2024, only two companies have fully paid their fines: PT Kalista Alam[50] and PT Bumi Mekar Hijau.[51] Meanwhile, two other companies are paying their fines in instalments: PT National Sago Prima has paid IDR 160 billion out of the total IDR 319 billion in damages,[52] and PT Surya Panen Subur has paid IDR 68 billion[53] out of the total IDR 439.01 billion in damages. The remaining 14 companies' processes remain unclear, even though some of these cases have been finalised beyond appeal since 2019.

49 Ministry of Environment and Forestry (2024). Sued by MoEF for Forest and Land Fires, PT NSP Pays Environmental Compensation of IDR 160 Billion.
50 Rahmat Fajri (2023). Paid Off: PT Kalista Alam Deposits Another IDR 57 Billion in Land Fire Fines.
51 Directorate General of Law Enforcement (GAKKUM) (2019). Directorate General of Law Enforcement (GAKKUM) Annual Report of 2019.
52 Directorate General of Law Enforcement (GAKKUM) (2024). Sued by MoEF, PT National Sago Prima Pays IDR 160 Billion in Environmental Compensation for Forest and Land Fires.
53 Antara (2024). MoEF in the Process of Executing Compensation Related to Forest and Land Fires Amounting to IDR 6.1 Trillion.

In 2019, Greenpeace released a report on companies that defaulted on payments after being sued by the government in cases of forest fires and forest damage (illegal logging).[54] The total unpaid amount reached IDR 18.9 trillion, calculated based on court rulings not subject to further appeal against 11 companies found responsible for severe fires and forest damage within their concessions.

The lawsuit against PT Waringin Agro Jaya due to a 1,626-hectare land fire in 2015 is one of the cases with an enforceable final judgement.[55] The court ordered PT Waringin Agro Jaya to pay a total fine of IDR 466 billion, consisting of IDR 173 billion in damages and IDR 293 billion for environmental restoration costs. However, to date, the execution of the ruling against PT Waringin Agro Jaya remains unclear, even though the government stated that PT Waringin Agro Jaya has been in the process of execution since 2023.[56]

The compensation and fines imposed by the court on companies also face several challenges when it comes to being used for environmental restoration. The use of fine monies that ought to be earmarked for restoration is hindered because the fines are classified as Non-Tax State Revenue and are deposited into the general state treasury. This becomes an issue because the use of fines that go into the state treasury is unclear.

Additionally, there is no legal basis governing the allocation of fines for environmental restoration. For example, Presidential Regulation Number 77 of 2018 on Environmental Funds Management does not regulate the allocation of funds for pollution and/or environmental damage mitigation and restoration from fines paid by convicted parties.

Therefore, regulations and transparency in the use of funds from fines paid by companies to the state are needed.

The development of environmental law in Indonesia allows companies responsible for environmental destruction to be fined up to billions of rupiah without placing the burden of proof on the plaintiff. This concept is known as strict liability. Several significant environmental case rulings[57] have applied this concept to hold companies accountable. The 2017 ruling by the South Jakarta District Court[58] against PT Waringin Agro Jaya is one such case[59] where strict liability was applied. This concept is regulated under Article 88 of Law No. 32 of 2009 concerning Environmental Protection and Management.

This concept faced attempts to be weakened through Law No. 11 of 2020 concerning Job Creation, by changing the clause from "*...absolutely responsible for the losses incurred without the need for proof of fault*" to "*...absolutely responsible for the losses incurred from business and/or activities.*"

54 Greenpeace (2019). Compensation of IDR 18.9 Trillion Related to Forest Fires and Damage Cases Fails to Be Paid by Several Companies, Government Must Take Firm Action.
55 Alinea.id (2019). Land Fires: PT Waringin Agro Jaya Ordered to Pay IDR 466 Billion in Damages.
56 Sugiharto Purnama (2023). MoEF Sues 22 Companies Responsible for Forest and Land Fires.
57 ICEL (2022). Ringkasan putusan terpilih perkara lingkungan hidup.
58 ICEL (undated). Minister of Environment and Forestry vs. PT Waringin Agro Jaya.
59 Normand E E (2018). Strict Liability: An Effective Environmental Law Strategy to Hold Corporations Accountable Without Proving Fault.

Greenpeace Forest Fire Prevention team and villagers check the condition of a dried out river bank, in a burned area covered by a thick smog haze from peatland and forest fires in Lebung Itam village, Tulung Selapan subdistrict, Ogan Komering Ilir Regency, South Sumatra. 28/10/2023.

Large-scale protests from academics and civil society at the time successfully thwarted the attempt to weaken this principle through amendments bundled into the 'Omnibus' Job Creation Law. However, the weakening of strict liability was instead carried out through a Job Creation Law implementing regulation, namely Article 501 paragraph (1) of Government Regulation No. 22 of 2021 on the Administration of Environmental Protection and Management.[60] The shift in the meaning of strict liability to fault-based liability is evident in this regulation.[61]

In that article, the burden of proof for strict liability becomes part of civil law if environmental supervisory officials conclude that a business actor is non-compliant with environmental regulations. As a result, strict liability can only be applied when supervisors determine non-compliance, which requires proof of fault. This clearly deviates from the essence of strict liability.[62]

Attempts to weaken strict liability were made even before the Omnibus Law on Job Creation. In 2017, GAPKI, through its legal representative Refly Harun, filed a Judicial Review request with the Constitutional Court[63] challenging the principle of strict liability for losses without the need for proof of fault as stipulated in Article 88 of Law No. 32 of 2009 on Environmental Protection and Management. The petitioners argued that they were unfairly held responsible and subjected to strict liability for forest and land fires. They believed that the phrase "negligence" in Article 99 paragraph (1) was too broad and did not reflect the legal principle of certainty and the criminal law principle of "no crime without fault." The petitioners felt that their constitutional rights had been violated. However, GAPKI eventually withdrew the request[64] after receiving backlash from various civil society groups and academics.[65]

60 Pambudhi, H. D., & Ramadayanti, E. (2021). Reevaluating the Legal Policy of Environmental Protection in the Omnibus Law on Job Creation to Support Ecological Sustainability. *Jurnal Hukum Lingkungan Indonesia*, 7(2), 297–322.
61 Wibisana, Andri G (2021). Omnibus Law and Strict Liability.
62 Wibisana, Andri G. 'The Many Faces of Strict Liability in Indonesia's Wildfire Litigation'. Review of European, Comparative & International Environmental Law 28, no. 2 (July 2019): 185–96.
63 Hukum Online (2017). Examining the Debate on the Judicial Review of the Law on Environmental Protection and Management.
64 Hukum Online (2017). GAPKI Withdraws Judicial Review of the Law on Environmental Protection and Management.
65 Lusia Arumingtyas (2017). Business Association Attempts to Challenge the Environmental Law, Walhi-ICEL Files an Intervention Lawsuit.

Smoke comes out from the burnt peatland in the concessions owned by PT. Bintang Harapan Palma (BHP) near Lebung Itam village, Tulung Selapan subdistrict, Ogan Komering Ilir Regency, South Sumatra. 3°5'33.12"S, 105°15'42.59"E. 27/10/2023.

Demands

The widespread forest and peatland fires in 2023 further reinforce the evidence that these incidents are like a chronic disease that remains untreated. Indonesia must take serious measures to prevent and address forest and land fires, given the risks of global warming and the anticipated increasing frequency of El Niño events due to the climate crisis.

Based on these findings and analysis, Greenpeace demands that the government, companies, and relevant stakeholders take the following concrete steps:

1. The government and companies must restore ecosystems and peatlands to prevent fires. Prevention measures include rewetting peatlands, prohibiting the drainage of peatlands through canals, and closing existing canals.

2. The government must treat each Peat Hydrological Unit as a single ecosystem (a PHU is a peat area bordered by rivers and/or the sea), ensuring that restoration efforts are not limited to specific areas.[66]

3. The government must strengthen fire prevention efforts in conservation areas by increasing personnel and fire-fighting infrastructure.

4. Palm oil and pulpwood companies must stop using fire in land management.

5. The government must recognize and protect the rights of local communities to manage customary lands and forests.

6. The government must enhance law enforcement efforts by improving coordination among law enforcement institutions and imposing the heaviest possible sanctions on companies to prevent repeated fires in their concessions.

7. The government and companies must be transparent in implementing and reporting on law enforcement processes so that civil society can participate in addressing forest and land fire issues.

8. The government must repeal problematic articles in the Omnibus Law on Job Creation and its derivatives that weaken law enforcement against forest and land fire perpetrators.

9. The government must provide real-time information on forest and land fires or report incidents to the public as close to the actual time as possible. Data collection on hotspots and burned areas should be conducted through field officer reports and the use of more detailed and accurate satellite technology.

66 See Greenpeace Indonesia (2021). Restoration Up in Smoke: Losing the Battle to Protect Peatlands.

Forest Fire Prevention (FFP) volunteers form a #78 to send a message that, after 78th year of freedom, the people in Kalimatan are still not free from the smoke brought by the forest fires, in time for Indonesia's 78th day of Independence at the burnt peatland in Bunga Baru Hamlet, Madusari Village, Sungai Raya District, Kubu Raya Regency, West Kalimantan. 0°6'22.03"S, 109°27'31.93"E. 17/08/2023.

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Greenpeace Indonesia
Jl. HOS. Cokroaminoto No. 19
RT 1/RW 1 Gondangdia, Menteng,
Central Jakarta 10350
t: 021 314 8521
e: info.id@greenpeace.org
w: www.greenpeace.or.id