



PEATLAND RESTORATION AT THE CROSSROADS: ANALYSIS AND FIELD FINDINGS OF KARHUTLA 2018 IN RESTORATION AREAS

A. Overview

More forest and land fires occurred in a number of areas in Indonesia at the peak of the dry season in August 2018. Although they did not lead to a haze crisis similar to that of 2015, many of this year's hotspots and forest and land fires were found in peatland restoration priority areas and in areas covered by the moratorium map.

The result of the spatial analysis by Pantau Gambut shows that 57% of the hotspots detected during the period between August 1, 2018 and August 31, 2018 are inside restoration priority and/or moratorium areas. Meanwhile, the other 43% of the hotspots detected are outside the priority or moratorium areas.

Other than the hotspots in the restoration priority and moratorium areas, Pantau Gambut also found a number of hotspots with a high probability of fire in the concession areas of some plantation and forestry companies. The study of the Network Nodes of Pantau Gambut shows that a number of hotspots in the concession areas are the same as in 2015.

Direct monitoring by the Network Nodes of Pantau Gambut in seven restoration priority provinces found a number of cases where, as part of the peatland restoration program, peat rewetting facilities are not functioning properly. The ineffectiveness of these facilities is one of the causes for the rising number of forest and land fires in 2018.

Pantau Gambut also notes the growing commitment of law enforcement authorities and related ministries to the efforts that have been made to take action against the perpetrators of forest and land fires. Until today, there has been much debate and finger-pointing regarding the root cause of forest and land fires, whether by traditional community practices or companies clearing land using fire.

Based on its findings, Pantau Gambut recommends the following:

1. Periodic monitoring and evaluation of the impact and state of the peatland restoration infrastructure, including prevention and relief of forest and land fires.
2. Transparent enforcement of the laws and regulations in the management of forest and land fires in the companies' concession areas.
3. Improved coordination between the ministries and other governing bodies as well as between the central and regional government for more effective and efficient implementation.

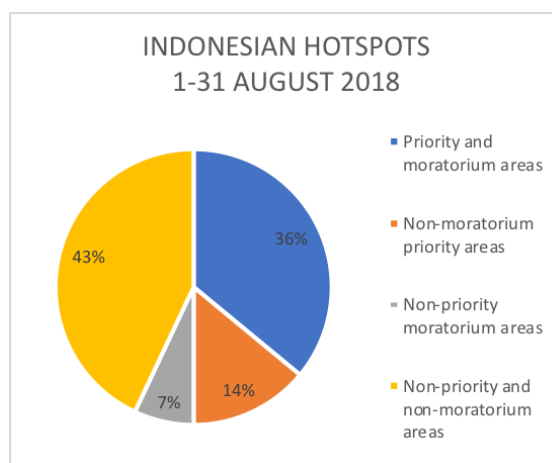
Discussion and explanation for these findings and recommendations can be found in the following chapter.

B. Hotspots and Forest and Land Fires: Spatial Statistics as of August 2018

Pantau Gambut has reviewed the spatial data on the hotspots detected by NASA's VIIRS sensors during the period between 1 and 31 August 2018. The data was also analyzed based on data from the peatland restoration priority areas collected by the Peatland Restoration Agency (BRG) in seven priority provinces and from the 12th Revision of Indicative Map of Pending Permit Regranting (PIPPIB).

In analyzing the detected hotspots, Pantau Gambut focused on the composition of the emerging hotspots in the priority and non-priority areas and in the moratorium and non-moratorium areas. The analysis shows that out of the hotspots detected across the seven provinces in August:

- a. 36% were found in priority and moratorium areas
- b. 14% were found in non-moratorium priority areas
- c. 7% were found in non-priority moratorium areas
- d. 43% were found in non-priority and non-moratorium areas

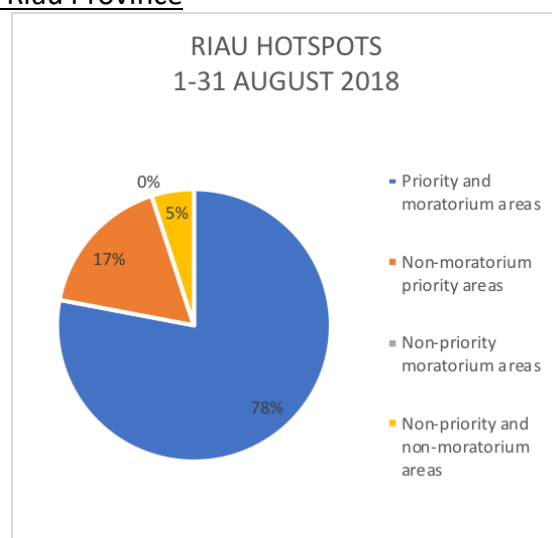


According to this data, we can conclude that at 57%, most of the hotspots are found in priority and/or moratorium areas. Meanwhile, the hotspots detected in non-priority and non-moratorium areas make up 43% of the findings. The details of the hotspot findings based on the spatial analysis of each province will be outlined in subsequent points.

1. Hotspots and Forest and Land Fire Statistics in Riau Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in Riau Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 78% were found in priority and moratorium areas
- b. 17% were found in non-moratorium priority areas
- c. 0% was found in non-priority moratorium areas



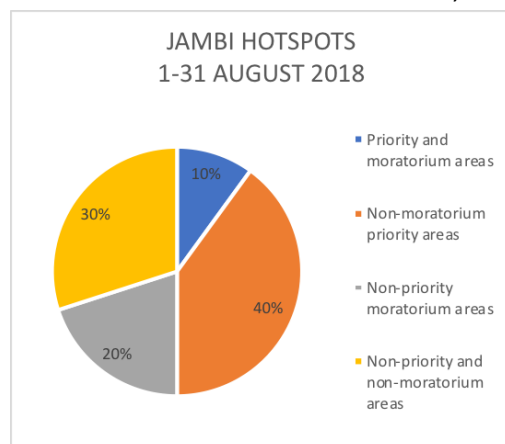
d. 5% were found in non-priority and non-moratorium areas

This data shows that most of the hotspots in Riau Province are inside peatland restoration priority areas and/or in moratorium areas. This shows that further evaluation is necessary to understand the effectiveness and impact of the ongoing program. Considering that Riau is a province with the largest peatland restoration target area from 2017-2020, the dispersion of these hotspots needs to be studied. According to BRG's indicative map of restoration activities, the target area in Riau equals 836,410 hectares, or around 34% of the total target of 2.49 million hectares.

2. Forest and Land Fire Statistics in Jambi Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in Jambi Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 10% were found in priority and moratorium areas
- b. 40% were found in non-moratorium priority areas
- c. 20% were found in non-priority moratorium areas
- d. 30% were found in non-priority and non-moratorium areas

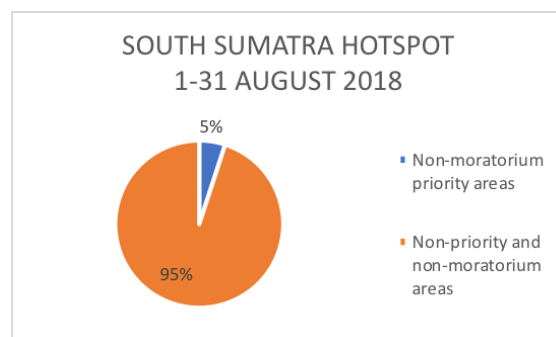


Based on this data, we can conclude that, at 57%, most of the hotspots were found in priority and/or moratorium areas. Meanwhile, the hotspots detected in non-priority and non-moratorium areas make up 30% of the findings.

3. Forest and Land Fire Statistics in South Sumatra Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in South Sumatra Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 5% were found in non-moratorium priority areas
- b. 95% were found in non-priority and non-moratorium areas



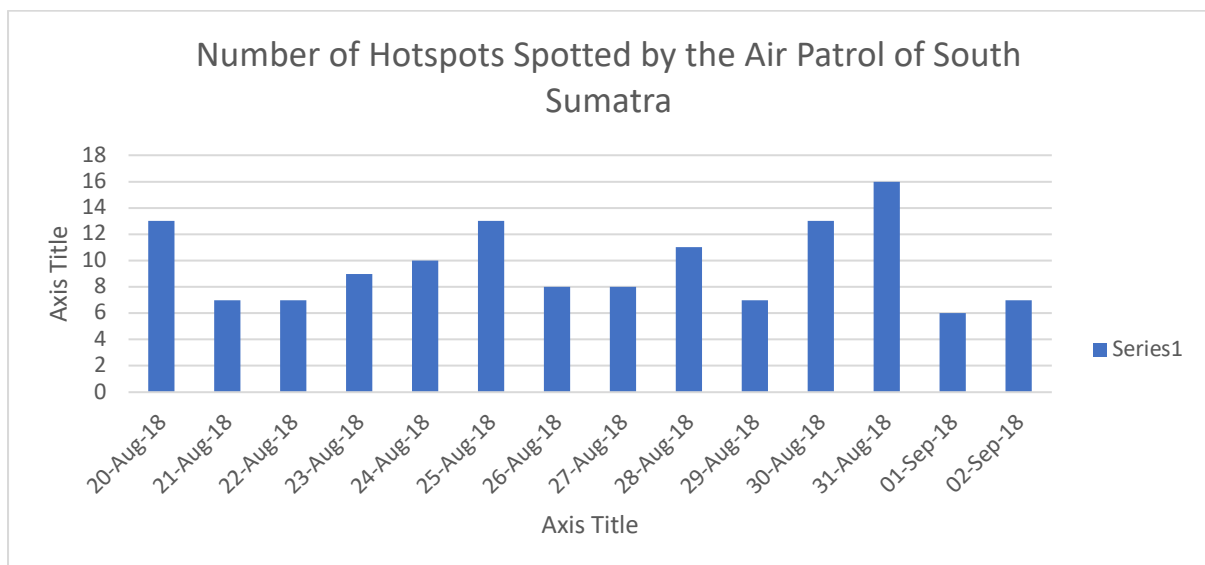
According to satellite detection, most of the hotspots in South Sumatra were found in non-priority peatland restoration areas or moratorium areas. It must also be noted that fewer hotspots in South Sumatra were

detected by the sensor in August than those in other provinces. One of the key factors resulting in the lower number of hotspots in this area can be attributed to the government's enhancement of the anti-forest and land fires operation in South Sumatra as part of the effort to ensure the success of the Asian Games 2018.

Specifically, Pantau Gambut monitored the forest and land across South Sumatra for a period of two weeks during the Asian Games. According to the daily data of the South Sumatran BPDB, in the period between 20 August 2018 and September 02, 2018 during the Asian Games, forest and land fires were found in these seven areas: Ogan Komering Ilir (OKI), Banyuasin, Ogan Ilir, Muara Enim, Musi Banyuasin, Palembang, and East Ogan Komering Ulu. Meanwhile, according to the South Sumatran BPD's data, the land task force found several hotspots located in peatland in the following regions:

- a. Senda Mukti, Rimau Island, Banyuasin Regency
- b. Timbangan Sub-district, North Indralaya District, Ogan Ilir Regency
- c. Independent Village II of Sungai Rambutan Village, North Indralaya District, Ogan Ilir Regency

The daily occurrence of forest and land fires during the two-week period of the Asian Games is shown in the following chart:



A number of forest and land fires that occurred in South Sumatra were resolved with cross-institution land and air operations, which were mainly conducted with the help of the National Disaster Relief Agency (BNPB) helicopters. In addition to patrolling the areas, these helicopters carried out a series of water bombings to extinguish the spreading fires.

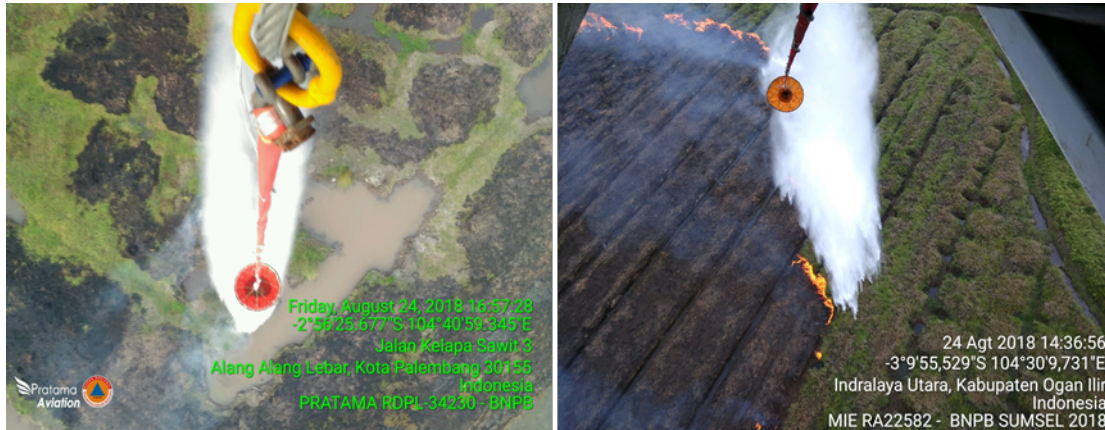
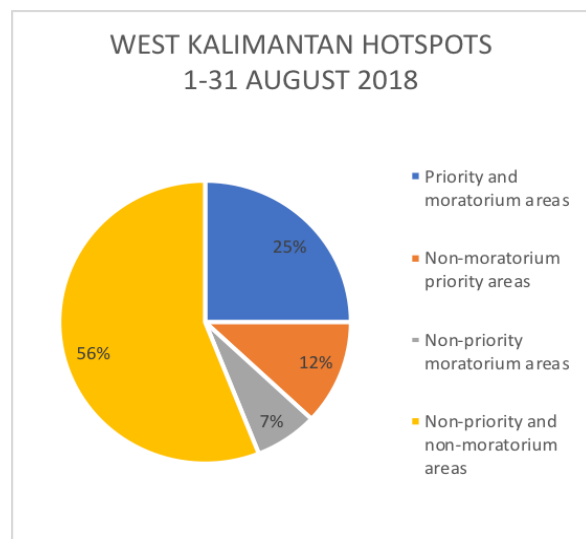


Image 1. Extinguishing forest and land fires in a peatland with water bombing, South Sumatera.
(Source: BNPB of South Sumatera)

4. Forest and Land Fire Statistics in West Kalimantan Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in West Kalimantan Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 25% were found in priority and moratorium areas
- b. 12% were found in non-moratorium priority areas
- c. 7% were found in non-priority moratorium areas
- d. 56% were found in non-priority and non-moratorium areas



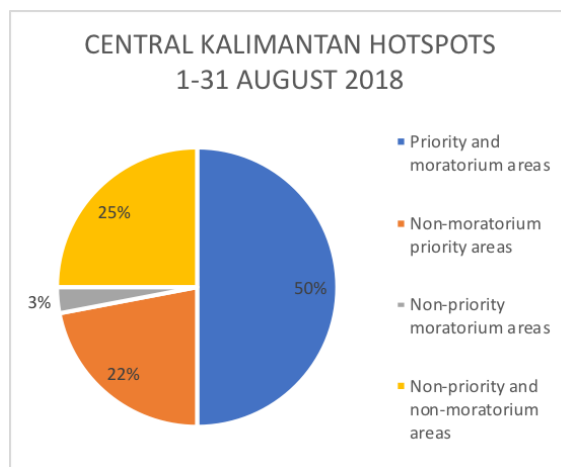
Contrary to the national trend, most of the hotspots emerging in West Kalimantan during the period between 1 and 31 August were found in non-priority restoration and non-moratorium areas.

5. Forest and Land Fire Statistics in Central Kalimantan Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in Central Kalimantan Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 50% were found in priority and moratorium areas
- b. 22% were found in non-moratorium priority areas
- c. 3% were found in non-priority moratorium areas
- d. 25% were found in non-priority and non-moratorium areas

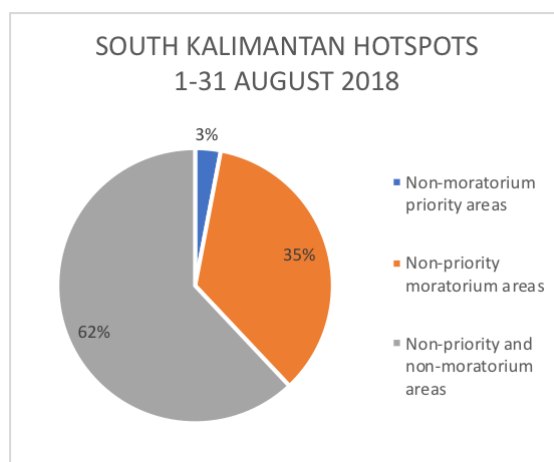
Based on the data, it is clear that 75% of the existing hotspots in Central Kalimantan were located in peatland restoration priority areas and/or moratorium areas. Similar to the findings from Riau, and considering that the province has the second largest peatland restoration target area in 2017-2020, the dispersion of hotspots in Central Kalimantan needs to be studied. According to BRG's indicative map of restoration activities, the target area in Central Kalimantan reaches 713,076 hectares or about 29% of the total target of 2.49 million hectares.



6. Forest and Land Fire Statistics in South Kalimantan Province

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in South Kalimantan Province, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- a. 3% were found non-moratorium priority areas
- b. 35% were found in non-priority moratorium areas
- c. 62% were found in non-priority and non-moratorium areas



According to the data, most of the hotspots detected in South Kalimantan are not located inside the 2.49 million hectares of restoration priority area by 2020, nor are they located within a moratorium area. However, it must be noted that the determination of the restoration priority area is itself an issue in South Kalimantan. There are a number of peatlands that often catch fire during the dry season, even though they are not designated as a Peat Hydrological Unit (KHG), which is one of the restoration priority areas of BRG. An example of such area is Banjarbaru Regency, South Kalimantan. Banjarbaru and specifically the Syamsudin Noor and Guntung Payung Districts, which are in close proximity to the airport, recently suffered a fire, which led to haze and disrupted flight routes. No BRG restoration program was implemented in the area as it is not classified as a priority area. As a result, fires continue to occur. While a rewetting facility has been built, it has not been properly utilized because the area is not covered under the 2.49 million hectare restoration priority area. Pantau Gambut's notes on the

restoration priority issue in Banjarbaru will be explained further in the analysis section of this paper.



Image 2. Peatland Fire in Banjarbaru, South Kalimantan on 27 August 2019.
(Source: Walhi of South Kalimantan)

7. Forest and Land Fire Statistics in Papua and West Papua Provinces

The spatial analysis of the hotspots detected by NASA's VIIRS sensors in Papua and West Papua Provinces, the data on peatland restoration priority areas and the 12th Revision of PIPPIB show that during the period between 1 and 31 August 2018:

- Hotspots in Papua were mostly found in moratorium areas that are non-priority peatland restoration areas.
- An equal number of hotspots in West Papua were found in non-priority moratorium areas and non-priority non-moratorium areas. It must be noted that West Papua does not have a Peat Hydrological Unit (KHG) that was made a restoration priority area for 2017-2020.



Although the hotspots in Papua and West Papua are mostly found in non-priority and non-moratorium areas, both provinces need more attention because a large portion of the peat ecosystem in these provinces is damaged. According to data from the Ministry of

Environment and Forestry (KLHK) in 2017, the total damaged peatland in Papua reaches 6.43 million hectares, while the total area that is in good condition only reaches 93,730 hectares.¹ The level of damage ranges from light to severe damage.

Furthermore, the investigation of the Network Nodes of Pantau Gambut Papua shows that the moratorium policy of land clearing and peat land exploitation has not been implemented properly in the region. One reason for this lack of implementation is issues with the method used to determine an area as a peatland. For example, as one of the Network Nodes of Pantau Gambut Papua, Panah Papua found that PT Rimbun Sawit Papua, as one of the concession holders in Fakfak, Papua, might have made an error in conducting the soil test. As a result, its working area was removed from the coverage of the peatland clearing and exploitation moratorium area even though the soil test conducted by Panah Papua showed that a major part of the company's concession area was peatland.

C. Forest and Land Fires in Permit/Concession Areas

The Network Nodes of Pantau Gambut further studied the hotspots detected by the satellite and compared the information to the map of the areas covered by the company's business permit. The analysis of several locations shows that many of the hotspots are found in the area covered by the business permit. Historically, some of the locations are known to be prone to fire and repeated fire incidents have occurred during the dry season. Findings on the hotspots as well as on the forest and land fires in concession areas receive further elaboration in the following explanation.

Riau

Through spatial analysis, the Network Nodes of Pantau Gambut detected 76 hotspots in the area owned by nine companies holding an industrial forest permit (HTI) and 50 hotspots in the area owned by 13 holders of the Right to Cultivate between 1 and 21 August 2018. The companies are listed here:

	Industrial Forest (HTI)		Right to Cultivate (HGU)
1.	PT Arara Abadi	1	PT Agroraya Gematrans
2.	PT Balai Kayang Mandiri	2.	PT Banyu Bening Utama
3.	PT Bina Daya Bentala	3.	PT Bumi Palma Lestari Persada
4.	PT Bina Daya Bintara	4.	PT Darmali Jaya Lestari
5.	PT Riau Andalan Pulp & Paper	5.	Gerbang Sawit Indah
6.	PT Ruas Utama Jaya	6.	PT Guntung Idaman Nusa
7.	PT Satria Perkasa Agung	7.	PT Gunung Mas Raya
8.	PT Sumatera Riang Lestari	8.	PT Jatim jaya Perkasa
9.	PT Suntara Gajapati	9.	PT Multi Gambut Industri
		10.	PT Perdana Inti Sawit Perkasa

¹ Papua refers to the Papua Island, based on the data of the Ministry of Environment and Forestry (KLHK) in the State of Indonesia's Forest 2018.

		11.	PT Sendrora Seraya
		12.	PT Tumpuan
		13.	PT Tunggal Mitra Plantation

Data source: Kaliptra Andalas

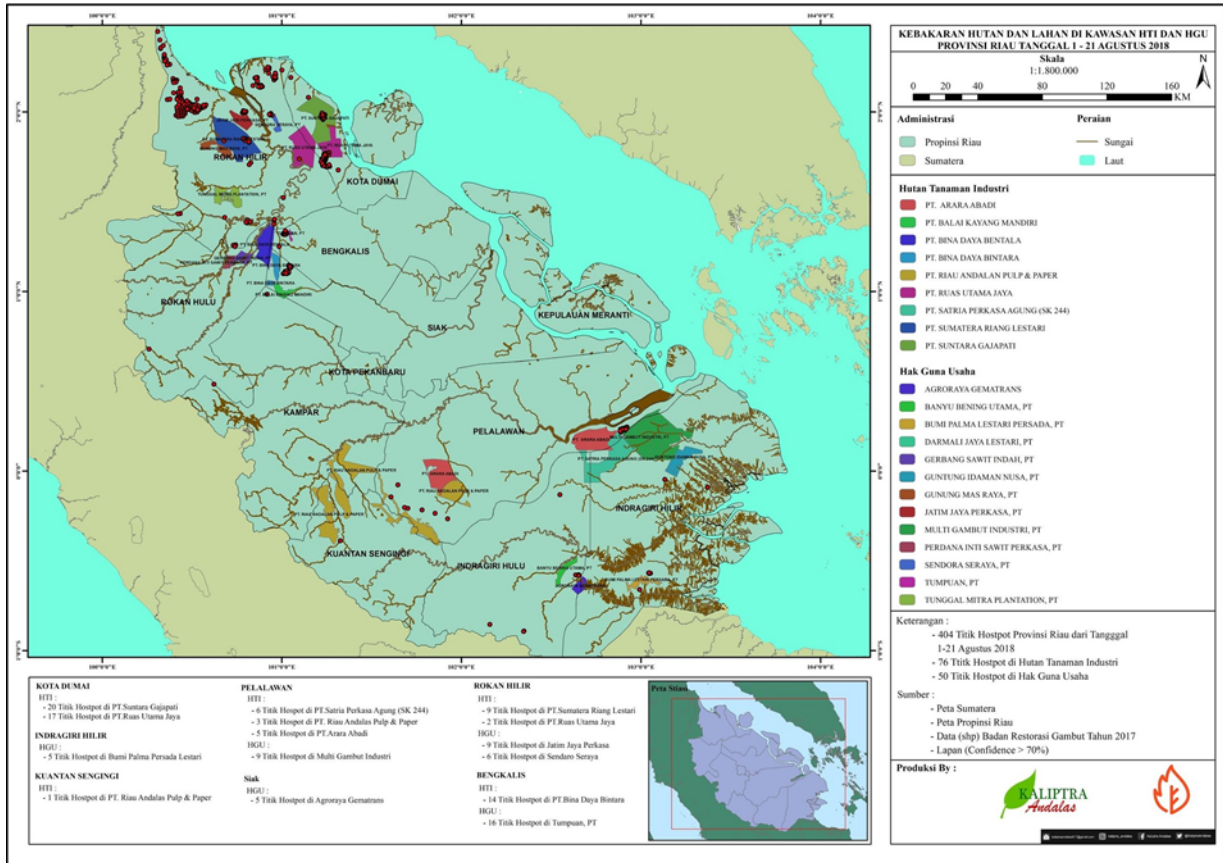


Image 3. Overlay of hotspot spatial data and the business permit map in Riau.

South Sumatra

Through spatial analysis, the Network Nodes of Pantau Gambut detected 48 hotspots in the area owned by 16 companies during the period between 1 and 31 August 2018. The detected areas are also categorized as peatland. The companies are listed here:

No.	Industrial Forest	No.	Right of Cultivation
1.	PT Rimba Hutani Mas	1	PT Banyu Kahuripan Indonesia
2.	PT Persada Sawit Mas	2.	PT Buana Sriwijaya Sejahtera
		3.	PT Golden Blossom Sumatera
		4.	PT Kelantan Sakti
		5.	PT Laras Karya Kahuripan
		6.	PT Persada Sawit mas
		7.	PT PP Lonsum Indonesia Tbk
		8.	PT Raja Palma
		9.	PT Selatan Agro Makmur
		10.	PT Sumatera Candi Kencana

		11.	PT Wahana Lestari Makmur Sukses
		12.	PT Bumi Pratama Usaha Jaya
		13.	PT Sumber Alam Makmur Utama
		14.	PT Pinangwitmas Sejati

Data source: Walhi of South Sumatra

The South Sumatran Network Node of Pantau Gambut noted that some of the foregoing companies, including Rimba Hutani Mas, Musi Hutan Persada, Golden Blossom Sumatera, PP London Sumatera, Kelantan Sakti, Persada Sawit Mas, Raja Palm, and Buana Sriwijaya Sejahtera, also experienced widespread fires in 2015.

[picture]

Image 4. Overlay of hotspot spatial data and the map of the peat land restoration priority area in South Sumatra.

South Kalimantan

Through spatial analysis, the Network Nodes of Pantau Gambut detected 31 hotspots in the area owned by six concessionaires between January and August 2018. Nine of these hotspots were detected in August. According to the data from the Indonesian Environmental Forum (Walhi) in South Kalimantan, the companies are listed here:

1. PT Mili Rejeki Abadi
This company is located in the Lampihong District, Balangan Regency. The analysis found 19 hotspots within the company's business permit area from January to April 2018.
2. PT Banjarmasin Agrojaya Mandiri
This company is located in the West Daha District, Hulu Sungai Selatan Regency. The analysis detected three hotspots within the company's business permit area in July 2018.
3. PT Citra Putra Kebun Asri
This company is located in the Kuripan District, Barito Kuala Regency. The analysis detected one hotspot within the company's business permit area in August 2018.
4. PT Hasnur Sawit Putra
This company is located in the Central Tapin District, Tapin Regency. The analysis detected one hotspot within the company's business permit area in August 2018.
5. PT Subur Agro Makmur
This company is located in the Daha Barat District, Hulu Sungai Selatan Regency. The analysis detected one hotspot within the company's business permit area in August 2018.
6. PT Citra Putra Kebun Asri
This company is located in the Kuripan District, Barito Kuala Regency. The analysis detected six hotspots within the company's business permit area in August 2018.

West Kalimantan

Several hotspots and forest and land fires occurred in this administrative province in August 2018. Through spatial analysis, the West Kalimantan Network Nodes of Pantau

Gambut detected 201 hotspots within various business permit areas in this province during the period between 1 and 14 August 2018. A majority of the hotspots occurred in plantation business permit areas (102 spots) and industrial forest business permit areas (69 spots).

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Image 5. Overlay of hotspot spatial data and the business permit area map in West Kalimantan.

D. Forest and Land Fires Analysis and Field Findings

2018 is predicted to be one of the hottest years in history, increasing the chance of forest and land fires in vulnerable spots. However, without dismissing natural factors, Pantau Gambut found that human intervention also plays a vital role in the repeated forest and land fires in Indonesia. Therefore, through the Regional Network Nodes in seven peatland restoration priority provinces, Pantau Gambut carried out direct observation and investigation in several spots where hotspots were detected by spatial analysis in August 2018 and fires were likely to occur. The objects observed by the Regional Network Nodes included areas where fire was occurring or had occurred, peatlands where fire was occurring or had occurred, coordination of extinguishing efforts at the local level, the availability of facilities established by the restoration programs, and the perception of the public around the fire areas.

Based on direct observation, Pantau Gambut classified the cause of the ongoing fires into two major categories: the effectiveness of the peatland restoration program and weak law enforcement on the perpetrators. Further elaboration of those variables is explained in the following section.

1. Restoration implementation

The president's program for the restoration of 2.49 million hectares of peatland has been implemented for over 2.5 years. As mandated by Presidential Decree No. 1 of 2016, the government's peatland restoration was carried out across 1 million hectares in seven priority provinces as of the end of 2017. In January 2018, BRG claimed that restoration had been carried out across 1.2 hectares as of the end of 2017, including peat rewetting, replanting, and community empowerment or revitalization. However, the fact that forest and land fires have continued to occur over the past few months raises questions about the effectiveness of the restoration in preventing forest and land fires as well as improving society's standard of living.

In this analysis, Pantau Gambut identified several challenges in the implementation of restoration, including:

- a. Restoration implementation mechanisms in cultivation areas are not yet drastic or transparent enough.

At 1.4 hectares, cultivation areas make up for a large portion of the BRG's peatland restoration plan. Government Regulation No. 57 of 2016 facilitates the peatland restoration mechanism in burned concession areas for which the company is

responsible. The Government Regulation stipulates that the relevant company is required to carry out restoration efforts within 30 days of the discovery of the fire and that the government will temporarily take over the land. In practice, the company is required to submit the revision of their Work Plan, which covers the peatland restoration strategies in their concession, to the Ministry of Environment and Forestry for verification.

The KLHK stated that, as of August 2018, 127 HTI and HGU companies had submitted peat ecosystem restoration documents. However, no further information was available, such as the company name or details of the restoration plan. Moreover, there was no clear and transparent follow up to the documents, even though restoration must be carried out immediately in consideration of the fact that burned peatlands are continuously emitting carbon, not to mention the negative effect on the ecosystem in the Peatland Hydrological Unit.

Even upon the verification of the Work Plan, there was still no confirmation that the peatland restoration had been implemented by the companies. Without transparent information on the companies and the Work Plan amendment approved by the KLHK, the public has no basis for monitoring the restoration in the cultivation areas. Therefore, weak law enforcement and information transparency are responsible for the repeated occurrence of forest and land fires.

- b. The monitoring function is still not optimal for ensuring the quality of the restoration infrastructure and handling forest and land fires.

The infrastructure for preventing and handling forest and land fires, especially rewetting infrastructure such as artesian wells, retention basins and canal blocking, are key to reducing peatland vulnerability to fire. The BRG stated that, as of the end of 2017, it had carried out rewetting over a 200,000 hectare area. The effectiveness of the restoration infrastructure in solving problems on site must be continuously monitored.

The following table shows some of the findings gathered by the Pantau Gambut team from the field as lessons learned about the restoration infrastructure and the handling of forest and land fires:

Province	Location Details	Findings
Jambi	Pematang Bulung Village, Betara Sub-District	Inadequate extinguishing equipment, including the inadequate capacity of the one water pump (donated by PT WKS)
	Muntialo Village, Betara Sub-District	Inadequate extinguishing equipment, including a water suction hose that is too large and too short

South Kalimantan	Banjar Baru	Artesian well in the extinguishing location is not functioning properly. The retention basin is used for fire extinguishing by water bombing
Riau	Lubuk District, Sungai Sembilan-Dumai Sub-District	<ul style="list-style-type: none"> - In BRG's 2017 contingency plan, 29 units of canal blocking and three units of artesian wells would be built in this sub-district. But these are still not implemented. - Hotspots are located within a 20-kilometer distance from public residences, making it difficult to detect fires and keep them from spreading.

c. Cross-institution coordination in peatland restoration planning and implementation remains lacking.

Pantau Gambut notes two important findings in Kalimantan with regard to the issue of the lack of cross-institution coordination. The first issue concerns assistance duties, while the second issue concerns the utilization of rewetting facilities in non-priority areas.

Assistance Duties

In 2018, peatland restoration activities saw greater involvement by the government and other relevant institutions as a part of their assistance duties. The regional governments were instructed to carry out such assistance duties by the central government as a part of the governmental affairs under the jurisdiction of the central government; in this matter, the peatland restoration program. These assistance duties are pursuant to the Decree of the Minister of Environment and Forestry No. P61/MENLHK/SETJEN/KUM.November 01, 2017 on the Delegation of Peatland Restoration Activities as a Part of the Governmental Affairs in the Field of Environment and Forestry in the Fiscal Year 2018 for the Riau Governor, Jambi Governor, South Sumatran Governor, West Kalimantan Governor, Central Kalimantan Governor, South Kalimantan Governor and Papua Governor.

Pursuant to the Ministerial Decree, a part of the restoration activities in 2018 were

delegated to the provincial governments to be implemented through the Regional Peatland Restoration Team (TRGD), which was established under a governor decision. However, in its implementation, the Network Nodes of Pantau Gambut found that the TRGD did not perform effectively, such as in the restoration in Central Kalimantan.

The Network Nodes of Pantau Gambut in Central Kalimantan found several issues that prevented this province's TRGD team from commencing work, including:

- a. Time restriction in the implementation of the 2018 budget
The budget allocated for restoration activities in Central Kalimantan was not cashed out until mid-May 2018. Central Kalimantan's TRGD had to execute a one-year work program within seven months following the cashing out of the budget by the central government.
- b. Misalignment between the TRGD's restoration plan and the BRG's restoration plan
The Pantau Gambut team observed that Central Kalimantan's TRGD work plan differed from the programs stipulated in the Annual Action Plan (RTT) for Central Kalimantan.
- c. An incomplete third party bidding process prevented data verification
Several bids and procurements for parts of the restoration activities were delayed, such as the Survey Identification Design and the Detail Engineering Design. Meanwhile, it was vital for the TRGD's data verification process that these be completed prior to the performance of the activities. The activities in 2018 were planned based on the analysis of spatial data in 2016 and 2017. The spatial data analysis needed to be verified to gain information on the appropriate physical field conditions for activities implementation and verification that the work plan did not cover business permit or concession areas where the concessionaire is responsible for the restoration.
- d. Regional authority transition
According to Pantau Gambut's data compilation, seven regencies/cities in Central Kalimantan where areas classified as Peatland Hydrological Units are located held Regional Elections last June. Out of those seven districts/cities, only one pair of candidates (from the Katingan district) actually presented specific forest and land fire programs in their campaign. This means that the TRGD and the relevant governing bodies related to peatland restoration in Central Kalimantan need to disseminate information about the significance of peatland conservation, especially for fire prevention, to the new leaders of those regencies and cities. The active involvement of regional leaders is important to ensure the effectiveness of the restoration and the continuing efforts to solve the existing problems in Central Kalimantan.

Utilization of rewetting facilities in non-priority areas

The restoration of 2.49 million hectares of peatland is being carried out using the Peat Hydrological Unit (KHG) approach in cultivation and conservation areas. Restoration priorities are also classified as post-2015-fire restoration priority, canal peat dome restoration priority (conservation zone), canal peatland restoration priority (cultivation

zone) and non-canal peat dome restoration priority. The classification of these priorities is designed to improve the effectiveness and efficiency of the restoration. However, findings in the Banjarbaru Regency, South Kalimantan, indicate the need for better coordination in forest and land fire management and its implementation in non-priority areas where fires frequently occur.

After the 2015 fire, 50 new artesian wells were constructed in Banjarbaru in 2016 by BRG in cooperation with the South Kalimantan TRDG and LPPM Universitas Lambung Mangkurat. The artesian wells are located in two sub-districts; namely, Syamsudin Noor and Guntung Payung, which are in close proximity to the Syamsudin Noor Airport. However, the wells have been abandoned due to lack of clarity on the authority over their utilization. Although the wells were constructed by the BRG under a cooperation scheme, they were not located within the four KHGs where peatland restoration is prioritized in South Kalimantan, across eight regencies². The South Kalimantan Network Node of Pantau Gambut believes that this lack of clarity led to:

1. Ineffective fire prevention efforts in Banjarbaru within the period from August to September. The resulting haze actually disrupted activities at the airport for a period of time.
2. The facilities were not only abandoned but also were affected by other development programs. During the monitoring, the South Kalimantan Network Node of Pantau Gambut found that some of the artesian wells were disrupted by road construction and airport expansion.

[picture]

Image 6. Location of the artesian wells and hotspots near the Syamsuddin Noor Airport.

2. Law enforcement

Law enforcement concerning cases of forest and land fires is governed by the laws and their derivative regulations, including:

- a. Law No. 32 of 2009 on Environmental Protection and Management
- b. Law No. 41 of 1999 on Forestry as amended by Government Regulation in lieu of a Law No. 1 of 2014, which has been promulgated as Law No. 19 of 2004
- c. Government Regulation No. 71 of 2014 on Peat Ecosystem Protection and Management as amended by Government Regulation No. 57 of 2016 on Amendment to Government Regulation No. 71 of 2014 on Peat Ecosystem Protection and Management
- d. Regulation of the Minister of Environment and Forestry No. P.32/MenLHK/Setjen/Kum.1/3/2016 on Forest and Land Fires Management

² The four priority KHGs are Barito River-Alalak River, Utar River-Serapat River, Balangan River-Batangalai River and Barito River-Tapin River. Those KHGs are spread across eight regencies, namely Balangan, Banjar, Barito Kuala, Hulu Sungai Tengah, Hulu Sungai Selatan, Hulu Sungai Utara, Tabalong and Tapin.

- e. Regulation of the Minister of Environment and Forestry No. P.77/MenLHK-II/2015 on Procedures of Burned Areas Handling within Forest Product Utilization Business Permit in Production Forests

Based on the data of the Ministry of Environment and Forestry, law enforcement for forest and land fires within the period between 2015 and 2018³ included:

Milestone	2015	2016	2017	2018 (15 August)	Total
Complaint handling	5	7	2	2	16
Monitoring	170 permits 53 companies	74 permits 29 companies	34 permits 12 companies	50 permits 14 companies	328 permits 108 companies
Administrative sanction	<ul style="list-style-type: none"> • 3 revocations • 16 suspensions • 8 coercions 	<ul style="list-style-type: none"> • 15 coercions • 8 warning letters 	<ul style="list-style-type: none"> • 6 coercions 	-	<ul style="list-style-type: none"> • 3 revocations • 16 suspensions • 29 government coercions • 115 warning letters

The Ministry of Environment and Forestry also mentioned that during the 2015–2017 period, the court issued a ruling with permanent legal force (*inkracht*) stipulating that the perpetrator must pay an indemnity in an amount equal to Rp17.82 trillion⁴ to restore the damaged environment.

However, law enforcement still needs to be improved, especially due to the large number of hotspots monitored and the forest and land fires that continue to occur in peatland restoration priority areas. Pantau Gambut uses several recent cases of forest and land fires in the company's concession area as an example.

³ Based on the presentation titled *Forest and Land Fires Management and Peat Ecosystem Restoration Efforts* by the Director General of Pollution and Environmental Damage Control, the Ministry of Environment and Forestry, August 15, 2018, during the public discussion on "Updates on Peat Swamp Ecosystem and Environmental Law Enforcement".

⁴ Media Indonesia, *PN Harus Segera Eksekusi Putusan Kasus Karhutla*, September 12, 2018 [picture 6.] Police line was placed in a burnt peatland on the concession of PT Artha Mulia Mandiri, Jambi (Source: Perkumpulan Hijau)

On 6 August 2018, during its direct monitoring, Perkumpulan Hijau, a Network Node of Pantau Gambut Network in Jambi, found the occurrence of fire in a peatland in the Muntialo Village, Betara District, Tanjung Jabung Barat Regency. It was subsequently discovered that the burned areas were part of the PT Artha Mulia Mandiri concession area. Several days after the occurrence of the fire, on 13 August 2018, the police installed a police line. However, there is no information today on whether further action was ever taken by the authorities and whether sanctions were imposed on the negligent company.

[picture]

Image 6. Police lines are installed on the burned peatland in the concession of PT Artha Mulia Mandiri, Jambi. (Source: Perkumpulan Hijau).

The South Sumatran Network Node of Pantau Gambut found that eight of the 16 companies whose concession areas were found to contain hotspots throughout August 2018 (see the table on concession permits in South Sumatra) are companies that experienced fire in their respective areas in 2015. Until today, it is unclear whether any legal action was taken against these companies.

Moreover, Pantau Gambut noted that based on the information from the BPBD in South Sumatra, law enforcers reported five forest and land fire cases during the Asian Games, from 18 August to 2 September 2018. Out of those cases, four involved an individual and one involved a corporation. Pantau Gambut also noted that law enforcers conducted raids to prevent perpetrators of forest and land fires from acting. However, according to the available reports, this effort only covered individual cases and still excluded negligent companies who have experienced fires in their concession areas.

The South Kalimantan Network Node of Pantau Gambut, the South Kalimantan Walhi has submitted a complaint against PT Subur Agro Makmur to the Ministry of Environment and Forestry. In August 2018, hotspots were detected in the area of the company, which are mostly peat swamps.

Comprehensive and indiscriminate law enforcement measures are one way to ensure that companies stop taking advantage of the dry season to clear land by burning. Law enforcement in concession areas and the commitment by companies is crucial considering that out of the total 2.49 million hectares covered in the restoration plan of the Peatland Restoration Agency (BRG) for 2017-2020, 1.4 million hectares are located within various companies' concession areas.

E. Recommendation

Based on the existing issues, Pantau Gambut recommends the following solutions:

1. Regular monitoring and evaluation of the impact and progress of the peatland restoration infrastructure as well as of forest and land fire prevention and handling

Peatland restoration is a long process that requires a synergy between the peat ecosystem, the latest knowledge and technology, and a community empowerment

strategy to restore the peat ecosystem to its original function. Simply performing an intervention does not necessarily mean that a peatland restoration is successful; the process must be monitored until the impact of the intervention can be seen after a certain period of time.

The intensifying peatland restoration practices following the major fire incident in 2015 still require consistent improvements based on the lessons learned. Therefore, as the implementer of the peatland restoration mandate, and in cooperation with the Ministry of Environment and Forestry, the Peatland Restoration Agency must establish a reliable and transparent monitoring system with the involvement of regional parties such as the Regional Peatland Restoration Team (TRGD), other relevant agencies, and the public.

Parties that are not necessarily experts in peat or environmental issues but rather in good governance may become involved in the monitoring and evaluation process to ensure that peatland restoration is carried out under good governance. Prior to the completion of this report, Pantau Gambut organized an official meeting with the Corruption Eradication Commission (KPK) and gained knowledge on various matters related to the effort to promote good governance and transparency. At the meeting, Pantau Gambut discovered that KPK also carries out activities focused on natural resources and environmental issues through the National Movement for the Rescue of Natural Resources (GNPSDA). The Deputy Chairman of KPK, Laode Muhammad Syarif, also mentioned that peat was a concern of this commission, as it must be protected for the benefit of the environment. Furthermore, the focus of KPK in environmental and peatland conservation is the one map policy pursuant to Law No. 4 of 2011 regarding Geospatial Information, which mandates the provision of spatial information with legal certainty and in an integrated, transparent, and modern manner, so that it can be used to support various facets of people's lives.

2. Transparent law and regulation enforcement in the handling of forest and land fires in company concession areas

Fires continue to occur following the major fire in 2015. It is time for the government to be firm in taking action against companies that burn peatlands in their concession areas pursuant to established policies and regulations that require companies to take responsibility for the fires within their concession areas. The public can act as a partner of the government to enforce the law and to help accelerate and expand its coverage in handling these issues.

Therefore, is important for the government to ensure that law enforcement is carried out transparently using regular publications of new data and information. For example, the Ministry of Environment and Forestry needs to disclose the data on companies' efforts to restore the peat ecosystem, as well as information about government verification of same.

3. Coordination between ministries and governing bodies and central and regional governments needs to be improved for a more effective and efficient implementation

The prepared planning in the Contingency Plan, Peat Ecosystem Restoration Plan, and the Annual Action Plan is not enough to ensure the success of the peatland restoration intervention. Careful planning requires close coordination within the central government (especially between the BRG and KLHK), between the regional governments (Regional Government, TRGD and related agencies) and an agreement between the central and regional governments.

Therefore, BRG and KLHK must be able to ensure that the regional implementing bodies properly understand the plans. Conversely, especially with the allocation of the Assistance Duty budget for the regional government in 2018, the Regional Government and TRGD must be able to ensure the effectiveness of the distribution and utilization of the funds in accordance with the restoration plan that has been made with the central government. In addition, better communication is needed on the development and utilization of forest and land fire prevention facilities or peat rewetting infrastructures that have been constructed by various agencies and restoration implementers.