

### DISTRIBUTION AND UTILIZATION OF GLOBAL PEATLAND

By  
Research Team PASPI

#### RESUME

*Utilization of peatland for oil palm cultivation has received criticism from anti-palm NGOs. The NGO considers that developing oil palm on peatland as high carbon stock (HCS) land will increase greenhouse gas emissions. An extraordinary spotlight from anti-palm NGOs to Indonesia, as if Indonesia has the most extensive peatland in the world so that its HCS must be maintained as a global carbon stock and only Indonesia as the only country that is expanding and utilizing peatland for the agricultural sector (including oil palm plantations) expansively to the point of causing damage.*

*Based on data of Wetland International in 2008, the global peat land areas around 381.4 million hectares, and the most global peatland distributed among Europe and Russia (44.08 percent) and Americas (40.5 percent). Based on the countries has a largest peatland are Russia (137.5 million hectares), Canada (113.4 million hectares) and Indonesia (26.5 million hectares) respectively. Not only Wetland data, the area of Indonesia's peatland also varied are: 14.9 million hectares (Ritung et al., 2011); 18.3 million hectares (Ministry of Agriculture); 21 million hectares (Agus and Subiksa, 2016) and 26.4 million hectares (Ministry of Environment and Forestry). Although Indonesia's peatland area data is quite varied, based on these data it can be concluded that Indonesia is not a country that has the world's largest peatland.*

*The utilization of peatland for agriculture occurred in almost all countries/regions that have peatland. Total global peatland utilization used for agricultural activities reached 296.3 million hectares and most of them spread on Asia (44 percent), America (39 percent) and Europe (11 percent). Data by country, Russia is the country that used the most greater peatland for the agricultural sector, which has reached 130 million hectares. Followed by United States has agriculture on peatland about 12.4 million hectares. Meanwhile, data of peatland in Indonesia that are used for the agricultural based on Agency for Agricultural Research and Development was 6.05 million hectares. The data showed that the utilization of peatland for agriculture in other countries greater than occurred in Indonesia.*

*Actually, utilization of peatland in Indonesia which are used for the agricultural sector (include oil palm plantation), does not break the law because there is regulation related to them (Government Regulation No. 57 of 2016). Utilization of peatland for oil palm cultivation is carried out in peat ecosystems with cultivation functions and carried out with sustainable cultivation techniques while still being able to maintain the condition of the peat ecosystem so as not to experience damage. Empirical evidence of the development of sustainable oil palm plantations on the peatland in Negeri Lama which has been running for 4 generations of the economic age of oil palm plants and have been able to meet the needs and improve the welfare of previous generations and without endangering current and future generations.*

## INTRODUCTION

Oil palm cultivation in Indonesia has historically taken place long before Indonesia's independence. Although oil palm is not Indonesian native plant, Indonesia's natural conditions that suitable for oil palm cultivation cause its production to be much better compared to its native region in Africa. Oil palm plantations have been commercially developed since 1911 on Raja Island (Asahan) and Liput River (Aceh). The development of Indonesian oil palm plantation area that fairly revolutionary has occurred since the 1980s along with the success of various partnership programs. And until now, the area of oil palm plantations has grown to 16.38 million hectares spread across 26 provinces of Indonesia.

Oil palm cultivation is increasingly widespread in Indonesia and of course required space for the development of oil palm plantations. Not only on mineral land, some oil palm plantations are also built on peatland. The use of peatland for oil palm cultivation and other agricultural sectors is in accordance with Government Regulation No. 57 of 2016 concerning Protection and Management of Peat Ecosystems. The Government Regulation (PP) intends to guarantee the existence of peat ecosystems in Indonesia to be maintained and utilized sustainably.

However, the use of peatland for oil palm cultivation has received criticism from anti-palm NGOs. The NGO considers that developing oil palm on peatland as high carbon stock (HCS) land will increase greenhouse gas emissions. An extraordinary spotlight from anti-palm NGOs to Indonesia, as if Indonesia has the most extensive peatland in the world so that its HCS must be maintained as a global carbon stock and only Indonesia as the only country that is expanding and utilizing peatland for the agricultural sector (including oil palm plantations) expansively to the point of causing damage.

This paper aims to discuss the distribution and use of peatland both in Indonesia and other countries. This empirical fact will answer the accusation of anti-palm NGOs which consider the

destruction of peatland in Indonesia greater than other countries as a result of the conversion of peatland for oil palm cultivation.

## GLOBAL PEATLAND DISTRIBUTION

The term gambut was first used as synonym of peat by Prof. Dr. Ir. Tejoyuwono Notohadiprawiro around 1967. Peatland was formed sedentarily accumulated organic material (biomass) decomposed under water-saturated condition, which rate of biomass production from adapted vegetation is greater than the rate of decomposition. Soils are classified as peat soils when they reach an internationally accepted threshold for the depth of the peat layer and the percentage of organic material composition. Some classifications adopt a minimum organic material percentage of 35 percent in a minimum accumulated organic later of 30 cm, other classification in specify an organic content of 65 percnet while some require an accumulation of at least 40 or even 50 cm to qualify (RSPO, 2018).

The characteristics of peatland make its a special natural resource. This is because peatland have a unique biodiversity, a hydrological function so they are able to store very large amounts of ground water and high carbon stock due to the large content of organic components in the land.

Peatland are spread in various countries of the world both in countries with tropical climates and sub-tropical/temperate climates, but there are differences in peat soil types in the two climates. The sources of organic material which is a component in tropical peat comes from wood fibers. Page *et al.*, (2011) estimation tropical peatland about 60 million hectare and most of them occurred in Southeast Asia (40 percent), followed by Africa (33 percent) and South America (18 percent). Meanwhile, peatland in the temperate and sub-Artic such as in Europe are formed from Sphagnum mosses or grasses.

Based on data of Wetland International in 2008 (Figure 1), global peat land areas total 381.4 million hectares, which are divided among Europe and Russia (44.08 percent), the Americas (40.5 percent), Africa (3.41 percent), Indonesia (6.95 percent), others Asia (2.74 percent), Australia and

Pacific (1.91 percent) and Antarctica (0.41 percent). Meanwhile based on the countries has a largest peatland are Russia (137.5

million hectares), Canada (113.4 million hectares) and Indonesia (26.5 million hectares) respectively.

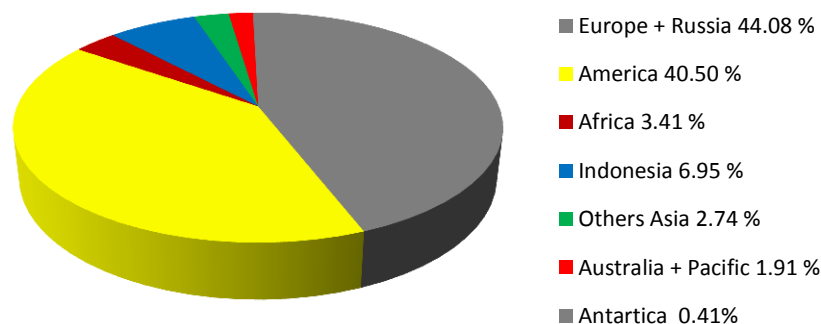


Figure 1. Global Distribution Peatland 1990-2008 (Source: Joosten, 2009)

Data related to peatland in Indonesia is relatively varied in the range of 15-26.5 million hectares. This variation illustrates the high level of data uncertainty, due to the limited survey data of land, especially for Papua (Wahyunto et al., 2016).

According to Wetland International data, the area of Indonesia's peatland reached 26.5 million hectares. Meanwhile according to data from the Ministry of Agriculture, the area of peatland in Indonesia is around 18.3 million hectares (PASPI, 2016). And if other provinces' data are included (Aceh, North Sumatra, Bengkulu and East Kalimantan), then the area of Indonesia's peatland reached around 21 million hectares (Agus and Subiksa, 2016). Meanwhile, based on the map of Peat Hydrology Units (KHG) released by the Ministry of Environment and Forestry, there are 673 KHG in all regions of Indonesia with a total area of 26.4 million hectares of peatland (PASPI, 2018).

Indonesian Center for Agricultural Land Resources (BBDSLDP) in the study of Ritung et al. (2011) by utilizing digital and remote sensing/satellite imagery technology, soil mapping data from the BBSDLP survey up to 2011 and legacy soil data, obtained data on the area of Indonesian peatland (Sumatra, Kalimantan, and Papua) about 14.9 million hectares. Until now, the data of Indonesian peatland based Ritung et al. (2011) is the most credible and trusted, and the data also used to support the implementation of Presidential Instruction 10/2011 and

Presidential Instruction 6/2013 (Wahyunto et al., 2016). Although Indonesia's peatland area data is quite varied, based on these data it can be concluded that Indonesia is not a country that has the world's largest peatland.

## UTILIZATION OF GLOBAL PEATLAND

Utilization of global peatland for various purposes has long occurred even as long as global agricultural civilization. Increasing population and development and increasing limited mineral land, causing people in various countries to use peatland for agriculture even though the land is classified as second class land.

During the period 1990-2008, the conversion area of global peatland reached 3.83 million hectares (Joosten, 2009). About 37 percent of the area of peatland that has been converted occurs in Russia and 33 percent occurs in the European peatland area. Peatland conversion also occurred in Indonesia, which is 13 percent in the same period (Figure 2a). The data shows a fact that breaks the accusation of anti-palm NGOs that the most extensive conversion and peat deforestation in the 1990-2008 period occurred in Indonesia. On the contrary, the largest conversion of peatland occurred in Russia and Europe.

Based on Wetland International data in 2008, the majority of the global peatland utilization was used for agricultural

activities with share reached 80 percent or around 296.3 million hectares, and the rest (20 percent) for peat forests. The countries that utilized the most of their peatland for agriculture are Asia (44 percent), followed

by America (39 percent), Europe (11 percent), Africa (3 percent), Australia and the Pacific (2 percent) and Antarctica (1 percent) (Figure 2b).

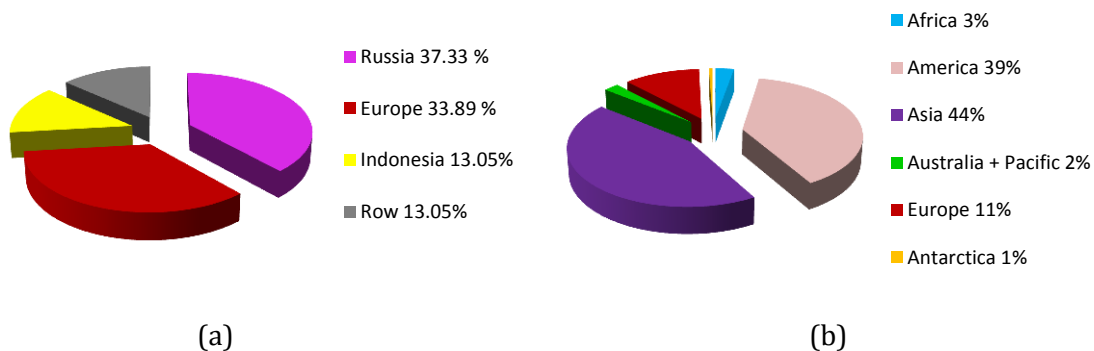


Figure 2. The Global Peatland Conversion Konversi Lahan Gambut Global (a) in Region; (b) Global Peatland Distribution for the Agriculture Sector (Source: Joosten, 2009)

Data by country, Russia is the country that used the most greater peatland for the agricultural sector. Russia's has peatland area reached 137 million hectares and around 94 percent or 130 million hectares of Russian peatland are used for agriculture. The United States also used about 55 percent of its 22 million hectares of peatland or around 12.4 million hectares for agriculture sector.

Meanwhile, data of peatland in Indonesia that are used for the agricultural sector are also relatively varied given the various area of Indonesia's peatland. According to Wetland International data, the area of Indonesia's peatland which is secondary peatland or degraded peat land 12.5 million hectares, which is that has been damaged either due to conversion for agriculture sector or fired (Joosten, 2009). The Indonesian Agency for Agricultural Research and Development in 2008 stated that the area of Indonesian peatland used and suitable for the agricultural sector was 6.05 million hectares (PASPI, 2016). In line with these data, Ritung and Sukarman (2016), stated that the potential for agricultural development in Indonesia's peatland is around 5.58 million hectares.

The data showed that the utilization of peatland for agriculture occurred in almost all countries/regions that have peatland. Even other countries which used of peatland for agriculture is greater than the use of peatland in Indonesia.

Utilization of peatland in Indonesia which are used for the agricultural sector (include oil palm plantation), does not break the law or regulations of Indonesian Government. Government Regulation No. 57 of 2016 concerning Protection and Management of Peat Ecosystems, as a change to Government Regulation No. 71 of 2014 showed that the peat ecosystem in Indonesia is divided into two functions, namely the protection function and the cultivation function.

This Government Regulation also showed that oil palm cultivation included in the agriculture sector on peatland is not prohibited. Utilization of peatland for oil palm cultivation is carried out in peat ecosystems with cultivation functions and carried out with sustainable cultivation techniques while still being able to maintain the condition of the peat ecosystem so as not to experience damage. Empirical evidence of the development of sustainable oil palm plantations on the peatland in Negeri Lama which has been running for 4 generations of the economic age of oil palm plants or has lasted for 100 years (PASPI, 2018). Oil palm plantations in the Negeri Lama have been able to meet the needs and improve the welfare of previous generations and without endangering current and future generations. In line with these empirical fact, Radjagukguk (2001) stated that sustainable management of peatland is related to how they should use resources and not to not use these resources at all.

## CONCLUSION

Utilization of peatland for oil palm cultivation has received criticism from anti-palm NGOs. The NGO considers that developing oil palm on peatland as high carbon stock (HCS) land will increase greenhouse gas emissions. An extraordinary spotlight from anti-palm NGOs to Indonesia, as if Indonesia has the most extensive peatland in the world and only Indonesia who has utilized peatland for the agricultural sector (including oil palm plantations) expansively.

Based on data of Wetland International in 2008, the global peat land areas around 381.4 million hectares, and the most global peatland distributed among Europe and Russia (44.08 percent) and Americas (40.5 percent). Based on the countries has a largest peatland are Russia (137.5 million hectares), Canada (113.4 million hectares) and Indonesia (26.5 million hectares) respectively. Not only Wetland data, the area of Indonesia's peatland also varied are: 14.9 million hectares (Ritung et al., 2011); 18.3 million hectares (Ministry of Agriculture); 21 million hectares (Agus and Subiksa, 2016) and 26.4 million hectares (Ministry of Environment and Forestry). Although Indonesia's peatland area data is quite varied, based on these data it can be concluded that Indonesia is not a country that has the world's largest peatland.

The utilization of peatland for agriculture occurred in almost all countries/regions that have peatland. Total global peatland utilization used for agricultural activities reached 296.3 million hectares and most of them spread on Asia (44 percent), America (39 percent) and Europe (11 percent). Data by country, Russia is the country that used the most greater peatland for the agricultural sector, which has reached 130 million hectares. Followed by United States has agriculture on peatland about 12.4 million hectares. Meanwhile, data of peatland in Indonesia that are used for the agricultural based on Agency for Agricultural Research and Development was 6.05 million hectares. The data showed that the utilization of peatland for agriculture in other countries greater than occurred in Indonesia.

## REFERENCES

- Agus F, Subiksa IGM. 2016. *Lahan Gambut: Potensi untuk Pertanian dan Aspek lingkungan*. Balai Penelitian Tanah. Badan Penelitian dan Pengembangan Pertanian. Bogor.
- Joosten, H. 2009. *The Global Peat Land CO2 Picture: Peat Land Status and Emission in all Countries of The World*. Wet Land International, ede. (prepared for presentation in UNFCCC, Bangkok Sep/Okt 2009).
- Page SE, Morrison R, Malins C, Hooi Jer A, Reiley JO, Jauhiainen J. 2011. *Review of Surface Greenhouse Gas Emissions from Oil Palm Plantations in Southeast Asia (ICCT White Paper 15)*. Washington: International Council on Clean transportation.
- [PASPI] Palm Oil Agribusiness Strategic Policy Institute. 2016. Perkebunan Sawit Bagian dari Kebijakan Restorasi. *Jurnal Monitor*. 2(5): 305-312
- [PASPI] Palm Oil Agribusiness Strategic Policy Institute. 2018. Pengelolaan dan Pemanfaatan Fungsi Budidaya Ekosistem Gambut untuk Kelapa Sawit. *Jurnal Monitor*. 4(45): 1341-1348
- Radjagukguk B. 2001. Perspektif Permasalahan dan Konsepsi Pengelolaan Lahan Gambut Tropika untuk Pertanian Berkelanjutan. *Pidato Pengukuhan Jabatan Guru Besar UGM*.
- Ritung S, Wahyunto K, Nugroho, Sukarman, Hikmatullah, Suparto, dan C. Tafakresnanto. 2011. Peta Lahan Gambut Indonesia Skala 1:250.000. Balai Besar Litbang Sumberdaya Lahan Pertanian. Bogor, Indonesia.
- Ritung S, Sukarman. 2016. *Kesesuaian Lahan Gambut untuk Pertanian*. Balai Penelitian Tanah. Badan Penelitian dan Pengembangan Pertanian. Bogor.
- RSPO [Roundtable Sustainable Palm Oil]. 2018. *RSPO Manual on Best Management Practices (BMPs) for Existing Oil Palm Cultivation on Peat* [internet]. Available on: [https://www.rspo.org/file/BMP\\_manual\\_2\\_update\\_24\\_april\\_2013\\_small.pdf](https://www.rspo.org/file/BMP_manual_2_update_24_april_2013_small.pdf)

Wahyunto, Nugroho K, Agus F. 2016.  
*Perkembangan Pemetaan dan Distribusi  
Lahan Gambut di Indonesia*. Balai  
Penelitian Tanah. Badan Penelitian dan  
Pengembangan Pertanian. Bogor.