No more biomass for biofuel, biogas, bioliquids or bioenergy from drained peatlands

Wetlands International recognises a potential role for biofuels in terms of emission reductions compared to fossil fuels. Produced sustainably, they can help meet the global objective of reducing greenhouse gas emissions. However, the production of raw materials for the production biofuels, biogas, bioliquids or bioenergy – including maize, rapeseed, soybean, sugarcane and palm oil, can result in greenhouse gas emissions higher than fossil fuel use. This can be exacerbated when coupled with indirect land-use change (ILUC). A lack of appropriate sustainability criteria in combination with policies to subsidise production of such biofuels is driving land conversion, including the conversion of high biodiversity and high carbon stock tropical forests and wetlands such as peatlands.

According to the EU **Sustainability criteria** set out in the Renewable Energy Directive, from Article 17(2) to 17(6):
*i) Biofuels shall not be made from raw material obtained from **land with high biodiversity value** (i.e. primary forest and other wooded land, nature protected area, highly biodiverse grassland).*
*(ii) Biofuels shall not be made from raw material obtained from **land with high carbon stock** (i.e. wetland, forested area, peatland).*

However, this excludes such limitations for production of biogas/bioliquids/bioenergy, hence the intensive use of drained peatlands in e.g. parts of Europe for the (often subsidised) production of raw materials for biogas/bioenergy. A key example of this is the production of biogas in Germany with maize grown on drained peat for the production of electricity and heating.

Despite the recognized importance of peatlands, they are subject to degradation worldwide. In tropical areas, peatlands are being converted and drained mainly for agriculture, predominantly **oil palm** plantations.

Biomass is the biggest source of renewable energy in the EU and it is expected to be further increased. According to a recent research study[1], the EU biofuels industry has increased its use of palm oil by 365% over 2006–2012, from 0.4 to 1.9 million tonnes

Oil palm replacing peat swamp forest, near Subang Jaya, Peninsular Malaysia. Photo by M.J. Silvius

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Table 1. World production of major oilcrops

	2014/15	2015/16 *estim.*	2016/17 *f'cast*	Change 2016/17 over 2015/16
		million tonnes		%
Soybeans	320.0	314.4	329.5	4.8
Rapeseed	71.4	69.9	67.4	-3.5
Cottonseed	45.4	38.2	40.3	5.4
Groundnuts (unshelled)	38.1	37.6	40.5	7.7
Sunflower seed	41.1	42.2	45.9	8.7
Palm kernels	15.4	14.7	15.8	7.5
Copra	5.8	5.4	5.8	8.2
Total	**537.0**	**522.5**	**545.3**	**4.4**

Note: The split years bring together northern hemisphere annual crops harvested in the latter part of the first year shown, with southern hemisphere annual crops harvested in the early part of the second year shown. For tree crops, which are produced throughout the year, calendar year production for the second year shown is used. Source: Food Outlook June 2016, FAO.

per year. The increase in palm oil consumption in the biofuels sector has amounted to 1.6 million tonnes, or 80 per cent of the total increase in palm oil consumption in Europe (1.9 million tonnes) over 2006 – 2012. At least 10 per cent of this increase was accounted for by increasing palm oil consumption in the electricity and heat generation sector, and another 10 per cent by growing consumption in other sectors, mainly food processing.

We demand that the new Renewable Energy Directive should assure that feedstock for the production of biofuels, bioliquids, biogas or bioenergy shall not be produced on drained peatland as the cultivation of feedstock on drained peatland would cause significant carbon stock loss. However, feedstock from peatlands for the production of biofuels, bioliquids and biogas should be explicitly allowed from rewetted peatlands, especially to encourage the rehabilitation of drained peatlands to such sustainable alternative wet peat land-use (paludiculture), thus incentivising the reduction of emissions from peatland drainage.

We also call on the EU to take into account the recent recommendations released by the European Court of Auditors[2] in the recent special report on **The EU system for the certification of sustainable biofuels**.

1. The EU Biofuel Policy and Palm Oil: Cutting subsidies or cutting rainforest?, Ivetta Gerasimchuk, Peng Yam Koh, Sept 2013 The International Institute for Sustainable Development.
2. The EU certification system for the sustainability of biofuels is not fully reliable. The Commission's recognition of voluntary schemes, limited to the RED mandatory verification requirements, does not ensure that the certified biofuels are sustainable.
3. http://www.rspo.org/news-and-events/news/rspo-launches-new-traceability-and-transparency-tools-at-milan-conference

KEY MESSAGES 1:

Halt any further expansion of oil palm cultivation on peatlands

Approximately 90% of world palm oil production takes place in **Indonesia and Malaysia**, with about **20%** of existing industrial oil palm plantations on peat which contribute massive GHG emissions and irreversible land degradation as a result of soil subsidence and related flooding.

According to last **FAO FOOD Outlook** (Oct 2016) *growth in global palm oil output is forecast to resume, as palms in Southeast Asia begin to recover from the effects of adverse weather in 2015/16. Next year's palm oil production is tentatively pegged at 35.1 million tonnes in Indonesia and 20.5 million tonnes in Malaysia.*

Given that around 50% of peatlands (7.8 Mha) in western Indonesia and Malaysia were covered by industrial plantations and smallholder land-use types in 2015, predominantly oil palm plantations, palm oil is likely to cause emissions of hundreds of million tonnes of CO_2 per year (9.8t CO_2 ha^{-1} per 10 cm drainage depth). Palm oil use for bioenergy will thus cause high emissions of up to 10 times the emissions from fossil fuels per energy unit.

Recent data released by RSPO[3] showed that the EU imported some 6,700,000 tonnes of palm oil in 2015, making it the **2nd largest import market after India**. From the palm oil imported by the EU over 60% is used as biofuel, whereas around **25-30% of all palm oil (industrial plantations + smallholders) is grown on drained tropical peatlands**. It has significantly contributed to deforestation as well as the huge continuous emissions of the peat carbon.

It is of utmost importance to **halt any further expansion of oil palm cultivation** on peatlands and high conservation value (HCV) land and to plan a responsible **phasing out of existing plantations on peat and rewetting of such peatlands**.

KEY MESSAGE 2:

Phase-out drainage-based land-use from peatlands and consider alternative economic land-use options

Peatlands are key areas for carbon storage, because they contain between 15 to 30 percent of the world's carbon stores. Drainage and/or degradation of peatlands has at least three important consequences with major social and economic effects.

1) When drained, the peat oxidizes and carbon is continuously released into the atmosphere as CO_2, contributing to climate change.

Two billion tonnes of CO_2 are emitted annually as a result of peatland drainage and reclamation, mainly for forestry and agriculture. This is equivalent to **5% of the global anthropogenic CO_2 emissions**, and represents almost 25% of the total carbon emissions from the land use, land use change and forestry (LULUCF) sector. Unlike deforestation, which causes one-off and almost immediate emissions, **the emissions from drained peatlands continue for decades and even centuries** as long as the land remains drained, causing the oxidation of the peat carbon store that has been accumulated over millenia.

In addition, fertilisers for agriculture on peatlands lead to high emissions of nitrous oxide, while drainage canals result in emissions of methane; both very potent GHG's.

Because of the high emissions associated with palm oil production, the carbon savings from the use of palm oil as biofuel or for energy are far outweighed by the losses.

2) Drained peatlands are **extremely fire prone**, and fires have repeatedly destroyed millions of hectares and without including the socio-economic impact of peatland fires on people.

Peatlands fires produce high levels of particulate matter contributing to haze plumes that have a direct impact on human health (respiratory problems, eye irritations, involving hundreds of thousands of outpatient treatments, thousands of hospitalisations and many deaths). Fires in Indonesia last year alone accounted for 1.62 billion tons of CO_2 of making Indonesia the 4th biggest emitter of GHG.[4]

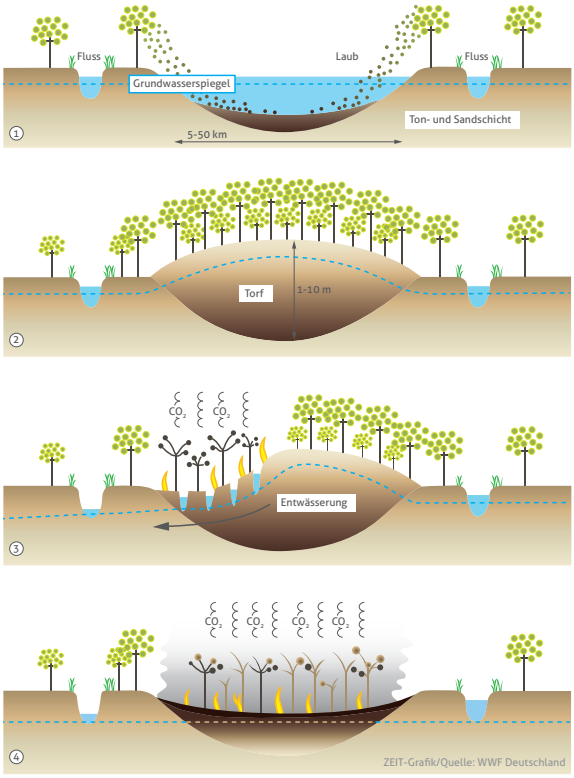
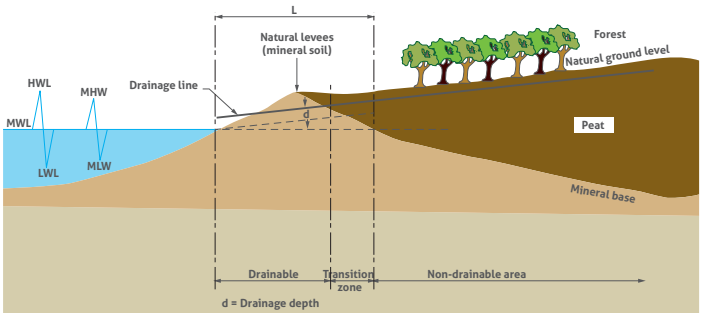


Figure 1. Peatland drainage, subsidence and flooding



4. Analysis by the Center for International Forestry Research (CIFOR) provides an example of the role of fire in the lucrative palm oil industry. CIFOR concluded that using fire for land acquisition and clearing generates a cashflow of at least USD 3,077 per hectare of oil palm in just three years. While the production process involves illegal means for land clearing, the resulting palm oil is processed at the same facilities as legally-produced palm fruit before both types are sold for consumption. If every hectare burned in 2015 were converted to oil palm, the value would be about USD 8 billion, highlighting the scope for high profit in a short period of time. Poor land management and governance allow this ecologically-destructive activity to continue. Peatlands are a target as they generally are uninhabited and relatively free of overlapping claims. (The Cost of Fire. An Economic Analysis of Indonesia's 2015 Fire Crisis, World Bank Group, Febr 2016 pag 3).

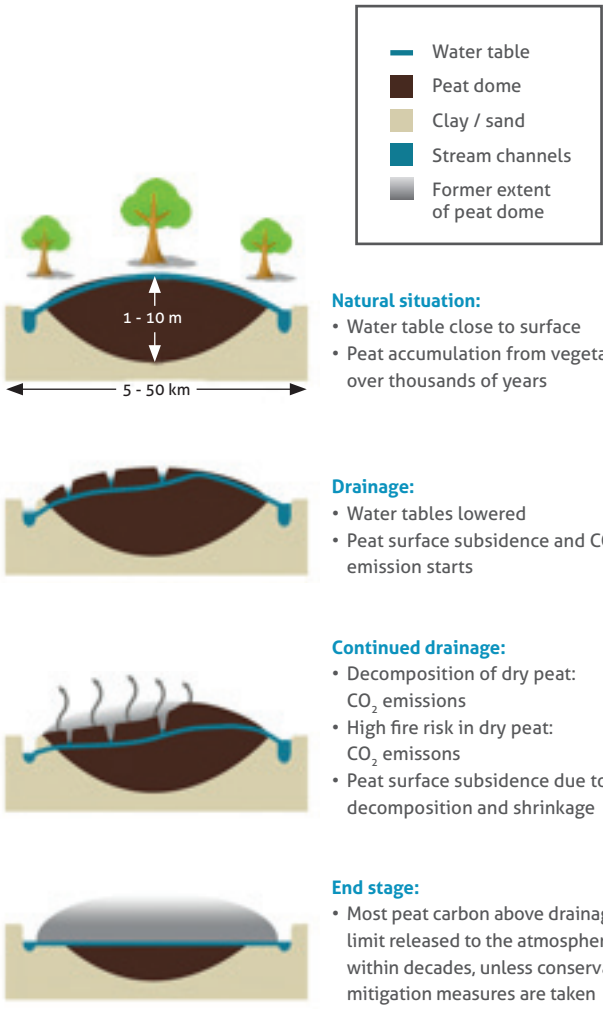


Figure 2. Cross-section of a peat dome in natural situation and after drainage (Hooijer *et al.* 2006/2010).

3) Lastly, the loss of peat due to oxidation results in **subsidence** of the peatland which brings the land surface down to sea or river level and eventually leads to frequent or even **permanent flooding and loss of productivity**.

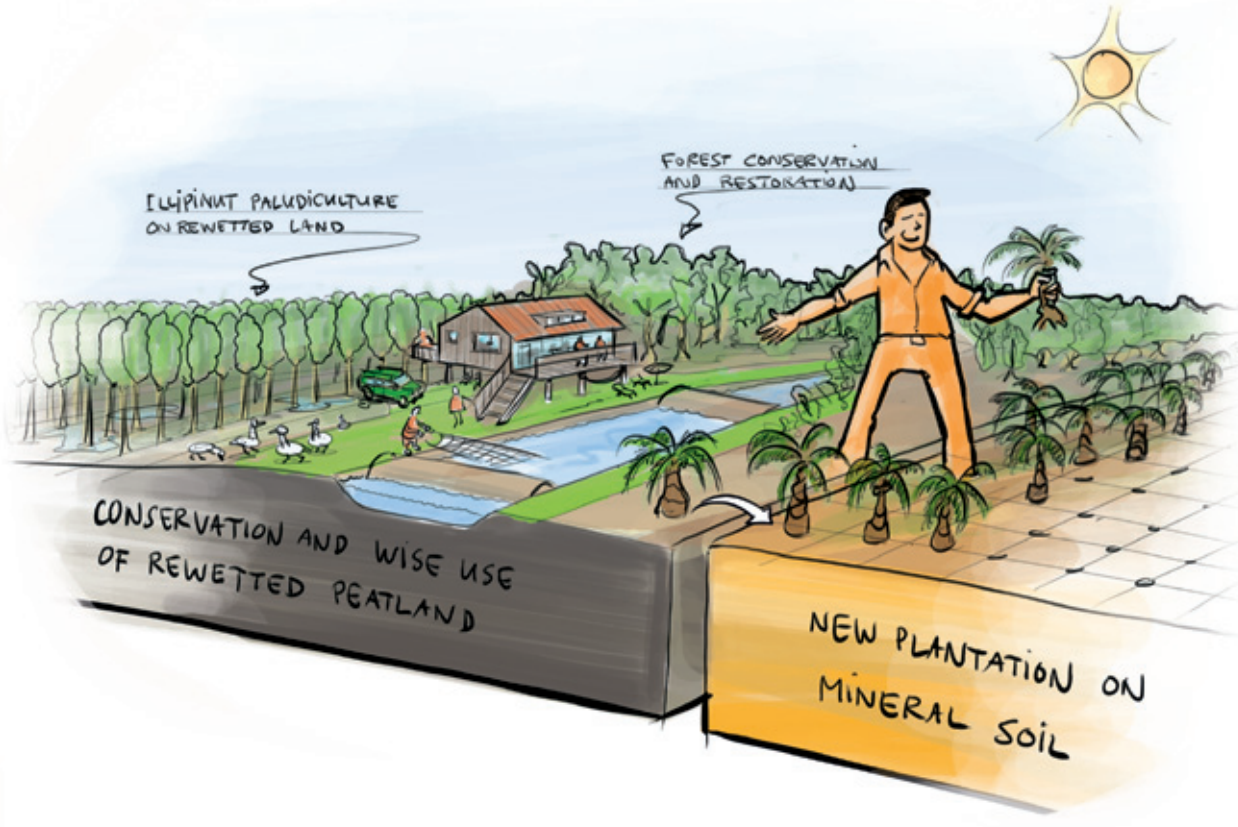
In the tropics the process of subsidence after drainage is very fast due to high temperatures. Flood risks are also more severe because of high precipitation. Continuous peatland subsidence will eventually result in increasing flooding and loss of productivity in agriculture and silviculture, as shown in studies both in South-east Asia and elswhere (Hooijer et al. 2012)[5].

It is important to phase-out drainage-based land-use from peatlands and consider alternative economic land-use options involving rewetting of peatland areas and planting of species adapted to such wet circumstances. This alternative development is called **paludiculture**.

Peatlands can be cultivated with crops adapted to the wet soil conditions. This can reduce or even stop greenhouse gas emissions from peatlands and simultaneously provide sustainable livelihoods from peatlands as a basis for local business and livelihoods. There are hundreds of commercially interesting peat swamp forest plant species that can be used for this.

KEY MESSAGE 3:

The EU should adopt certification schemes that will ensure full traceability of palm oil and compliance with the sustainability criteria in the Renewable Energy Directive and Fuel Quality Directive



5. Subsidence of peat soils.

A lack of strict sustainability criteria is driving the destruction of tropical forests and wetlands. Most of the EU RED certification/ audit systems do not distinguish between palm oil from peat or mineral soils. Hence, the EU cannot guarantee that its imported biofuel is climate neutral. Instead, given that 25-30% of palm oil is produced on peat, it is highly likely that the palm oil imported by the EU for use as biofuel has an overall carbon footprint that is several times bigger that fossil fuel, and that in this way the EU is promoting and sometimes even subsidising practices that are overall significantly enhancing climate change.

We ask that only **RSPO RED certified palm oil** (which guarantees zero deforestation and no planting on peat and provides the minimum safeguards for sustainable palm oil in relation to GHG emissions as well as other environmental and social standards) can be imported and used as biofuel in the EU, and that the other certification schemes should be adjusted to address this major emission source before they can be further used by industry.

We believe that the EU should ensure that the approved certification mechanisms should all provide the minimum requirements that are outlined in the RSPO RED certification mechanism.

KEY MESSAGE 4:

RSPO must accomplish full incorporation and implementation of RSPO Next and RSPO RED in its own membership and beyond

RSPO's vision is to reach 100% sustainable palm oil from the sector as a whole, not only within its membership. As long as this is not achieved, non-RSPO members can still continue with business as usual and could even purchase peat-based land holdings from RSPO members. RSPO's success thus depends on creating a level playing field for achieving 100% sustainable palm oil.

Wetlands International has been a critical member of the Roundtable on Sustainable Palm Oil (RSPO) since 2007. As a member of the RSPO, we initiated the establishment of a Peatland Working Group, including a special Emission Reduction Working Group (ERWG). The Peatland Working Group drafted Best Management Practice guidelines for existing plantations on peat and a scientific review for the sector's impacts on peatlands, including a scientific review led by Wetlands International on greenhouse gas emissions related to peatland drainage. In 2015 and 2016 Wetlands International and the Roundtable on Sustainable Palm Oil (RSPO) have co-organized workshops for palm oil growers on "How to implement RSPO's Principles and Criteria in relation to peat".

To conclude Wetlands International highlights the weakness of biofuel from palm oil and Calls for the EU Institutions to:

a. Take into account the impact of peatland drainage with regard to biofuels
b. Strictly prohibit and dis-incentivize production of any form of bioenergy that utilizes source materials derived from drained peatlands.
c. All palm oil produced on peatlands should be excluded from the EU biofuel trade chain
d. Close the loopholes in RED and ensure appropriate certification schemes which ensure full traceability and compliance with the sustainability criteria in the RED and FQD through stricter monitoring of the provenience of raw materials used for the production of biofuel, but also of biogas, bioliquids or bioenergy.
e. Make sure that biofuels, biogas, bioliquids or bioenergy which do not lead to emissions reductions of at least 50% compared to fossil fuels should not count towards emission reduction targets nor receive public financial aid. GHG accounting must be transparent and mandatory, and biofuels, including biogas and biomass must comply with the sustainability criteria included in the RED and FQD.
f. Accounting must be based on actual GHG emissions and savings, and not on any form of "creative accounting". Ascribing emissions savings to biofuels which have comparable or higher emissions than fossil fuels should be prohibited, in the same way that quadruple counting of savings from "advanced biofuels" should not be allowed.
g. Make sure that only RSPO RED certified palm oil can be imported and used as biofuel in the EU, or that the other certification schemes for RED should be adjusted to similarly exclude the possibility to import palm oil or other biofuels produced on peat and also provide safeguards for social issues.
h. Incentivize peatland rewetting, including for paludiculture of biomass for fuel (however, the cascading principle should also be applied). In South East Asia indigenous peatland species have global market potential and can provide opportunities for the local economy, including community-based development.
i. Support policy developments in relevant palm oil producing countries focused on stopping expansion of oil palm production on peatlands and the phasing out of existing oil palm plantations on peat, in view of the massive CO_2 emissions, soil subsidence, and ecological and social problems caused by the drainage of these carbon-rich organic soils.
j. Recognise the issue of soil subsidence of the lowland peatlands of SE Asia that are being drained for palm oil production. Peat soil subsidence is an inevitable effect of peatland drainage and will lead in the vast lowland areas of Southeast Asia (Sumatra and Borneo) that are under oil palm plantations to increased and prolonged flooding in the coming decades, leading eventually to massive loss of productive land.
k. Environmental and social safeguards must be implemented in peatland conservation, restoration and development.
l. Work on an EU Action Plan on deforestation and Forests degradation which takes into account the important role of peatlands.
m. Support the Global Peatlands Initiative http://www.globalpeatlands.org/.

About Wetlands International

Wetlands International is the only global not-for-profit organisation dedicated to the conservation and wise use of wetlands. Our vision is of a world where wetlands are treasured and nurtured for their beauty, the life they support and the resources they provide. Wetlands International is a leading expert on environmental matters related to the production of palm oil in Southeast Asia. We have a role as experts in the Peatland and Emission Reduction Working Groups of the Roundtable for Sustainable Palm Oil. We contribute to the external review of documentation and guidelines on emission factors for the Intergovernmental Panel on Climate Change. We provide expertise on sustainable peatland management and restoration and on the impacts of palm oil production in relation to peatland degradation through direct and indirect land use (change), and the related GHG emissions and other impacts (such as soil subsidence and loss of biodiversity).

KEY MESSAGE 5:

SAVE Peatlands as part of the major global frameworks

The impacts of peatland degradation go beyond emissions. They affect people, nature and climate. The EU can play a leading role in the climate change fight globally. We call on the EU institutions to support our asks to protect, restore and sustain peatlands worldwide by including them in all the key climate and energy policies.

The **Global Peatlands Initiative**, led by UN Environment with support from over a dozen partners among which Wetlands International, is the largest collaborative effort to save peatlands as the world's largest terrestrial organic carbon stock and to prevent it being emitted into the atmosphere.

Partners to the Initiative will work together within their respective areas of expertise to improve the conservation, restoration and sustainable management of peatlands. In this way the Initiative will contribute to several **Sustainable Development Goals**, including by reducing greenhouse gas emissions, maintaining ecosystem services and securing lives and livelihoods through improved adaptive capacity.

For more info

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Further reading

https://www.wetlands.org/news/denial-continues-over-long-term-impacts-of-peatland-drainage-in-southeast-asia/
https://www.wetlands.org/news/building-capacity-for-and-with-sustainable-palm-oil-growers/
https://www.wetlands.org/news/next-steps-for-peatlands-at-the-12th-roundtable-on-sustainable-palm-oil/
https://www.wetlands.org/publications/facts-figures-on-palm-oil/
https://www.wetlands.org/publications/factsheet-palm-oil-and-tropical-peatlands/
https://www.wetlands.org/publications/information-sheet-on-palm-oil-peatlands/
https://www.wetlands.org/publications/factsheet-tropical-peatlands-and-climate-change-2/

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