

Social and economic issues of tropical peatlands

By

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Tropical peat swamp forest



Primary peat swamp forest
Belait area, Brunei

Peat swamp typical for atlantic forest of Brazil and countries of the Guyana shield



Rio Preto, Sao Paulo, Brazil

Peat swamp forest in Maputa land Southern Africa



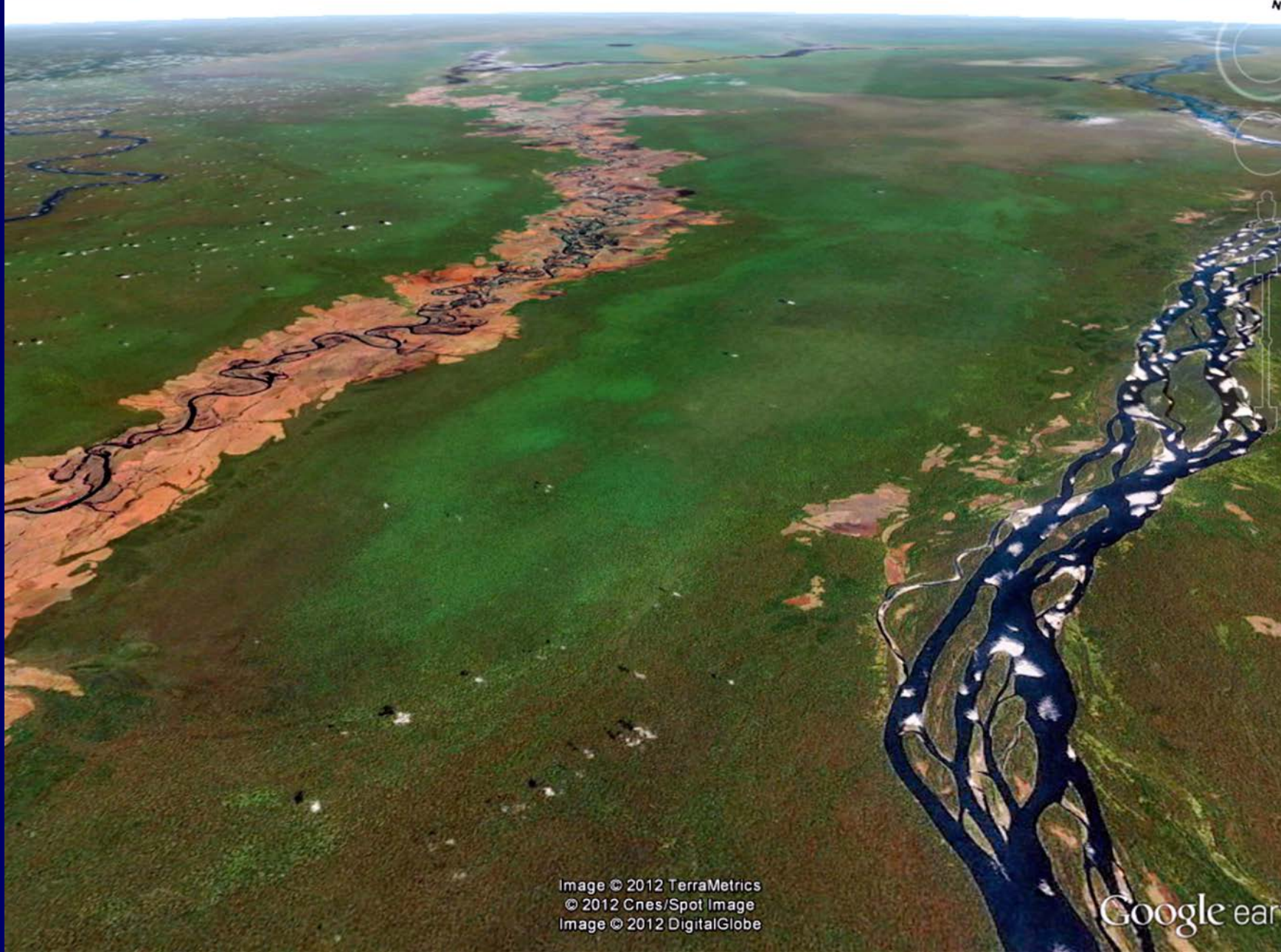
Peat swamp forest,
St Lucia National Park,
South Africa



Sub-saharan Africa:

Peat CO₂ = 25% of all its fossil
fuel CO₂

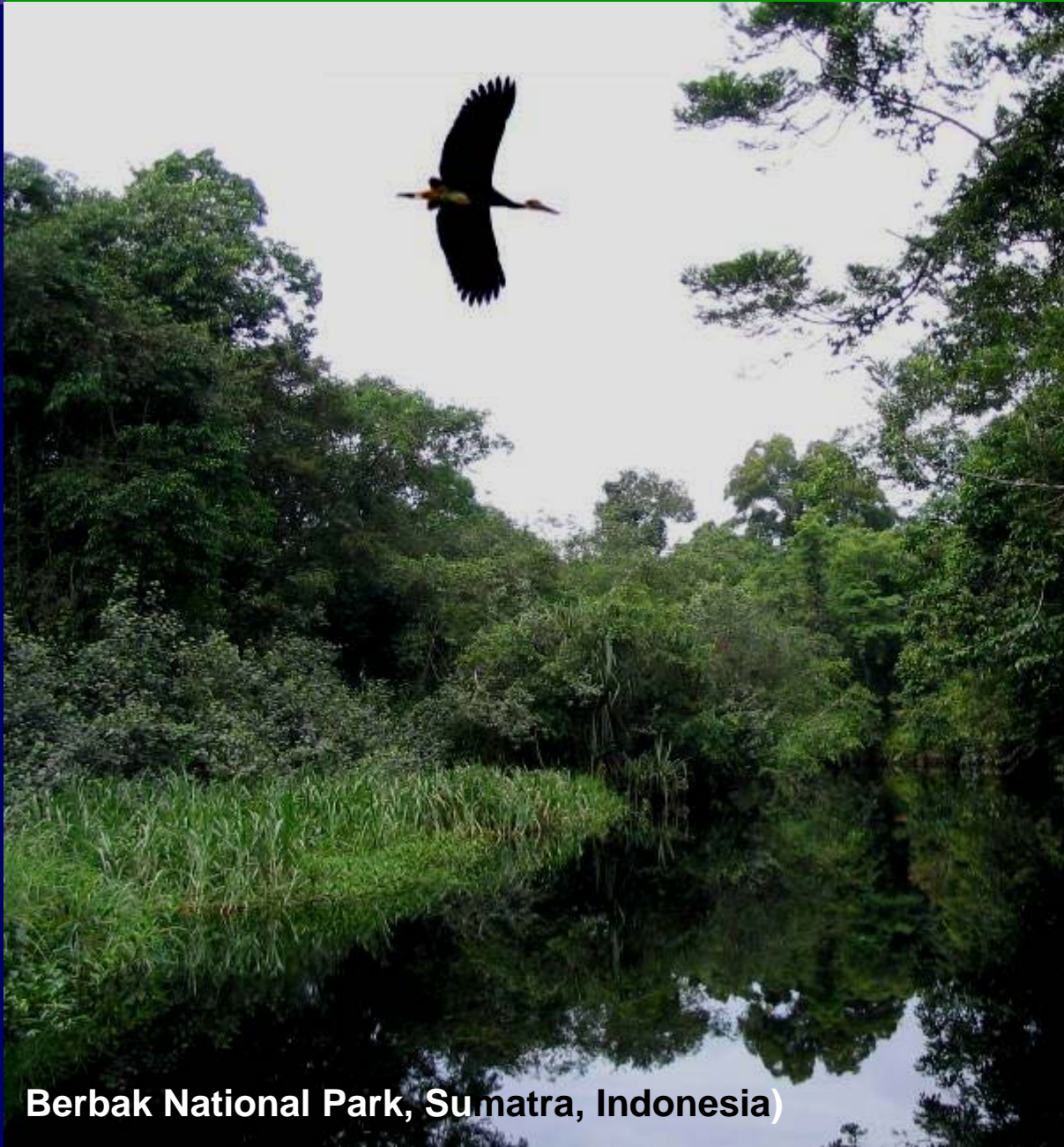
Congo basin



Key role in the water cycle

- Globally 10% of all freshwater
- Source areas of many rivers
- Important for water storage and supply
- Crucial for mitigation of droughts and floods

High biodiversity



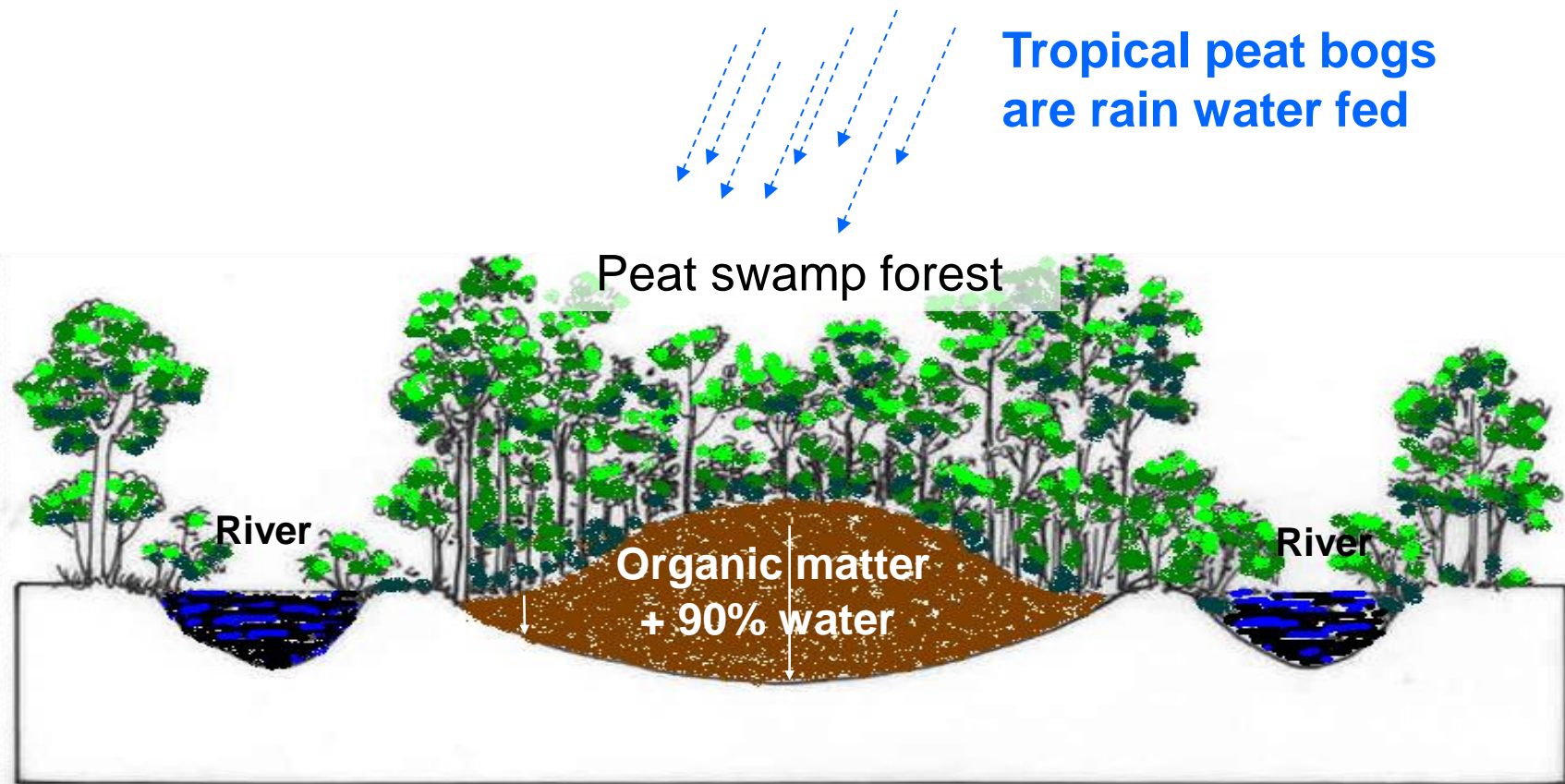
Sebangau, Indonesia

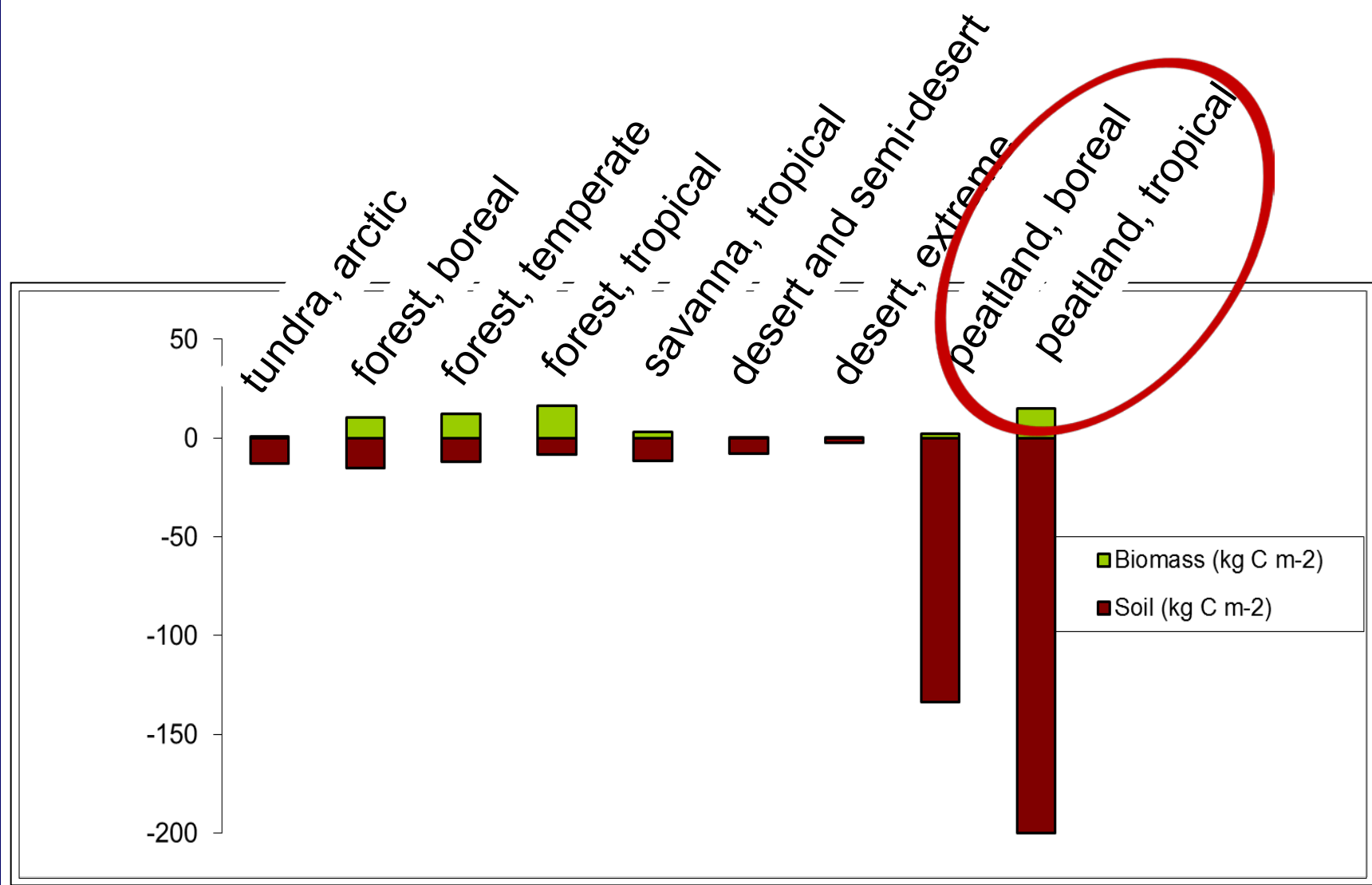


Berbak National Park, Sumatra, Indonesia)

What makes peatlands so special?

Peat: organic matter accumulated over thousands of years storing carbon in thick layers





Drivers of peatland degradation in SE Asia

- **Poverty**
 - Limited development options
- **Weak governance**
 - Lack of awareness
 - Competing sectors
 - Lack of coherent policies
 - Short-term profits versus long-term sustainability
 - Corruption
- **Deforestation**
 - Legal & illegal logging
- **Drainage**
 - Grazing
 - Agriculture
 - Plantations (palm oil & pulp wood)



Drainage causes main problems

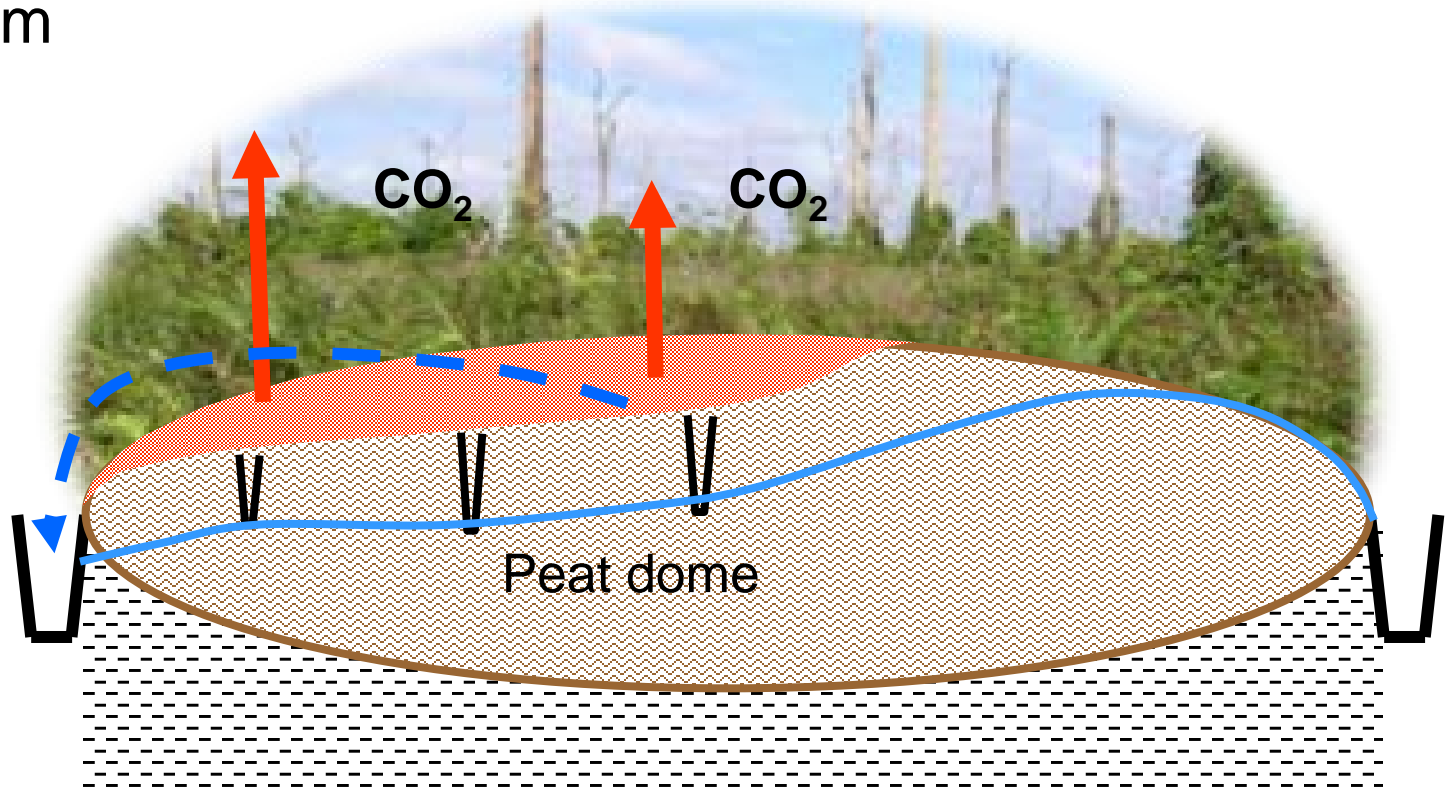


Uganda

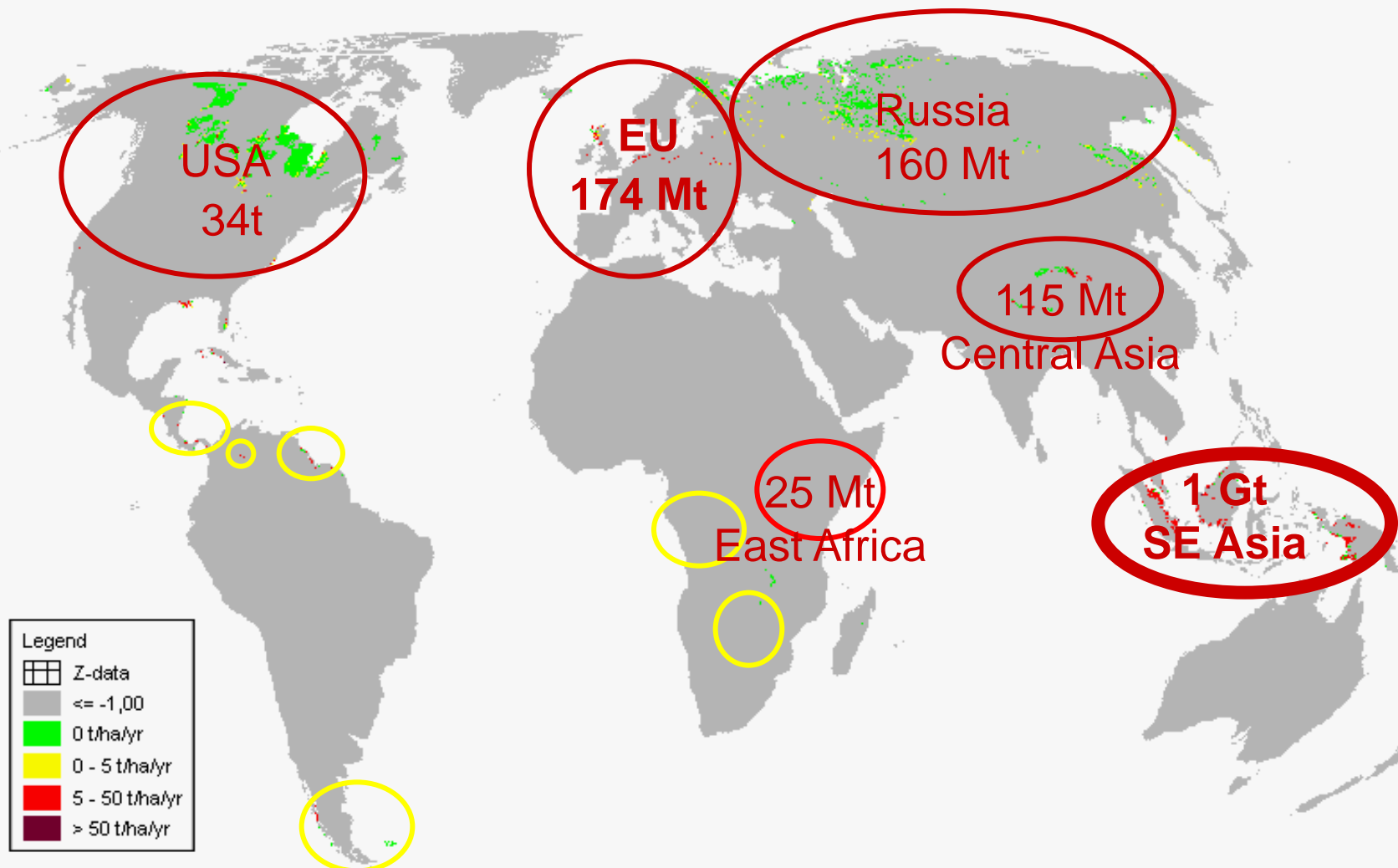
Peat drainage \longrightarrow CO₂ emissions

In tropical conditions:

- 9,1 t CO₂ ha⁻¹ yr⁻¹ per each 10 cm drainage depth
- 86 t CO₂-eq ha⁻¹ yr⁻¹ for drainage depths of 60 – 85 cm

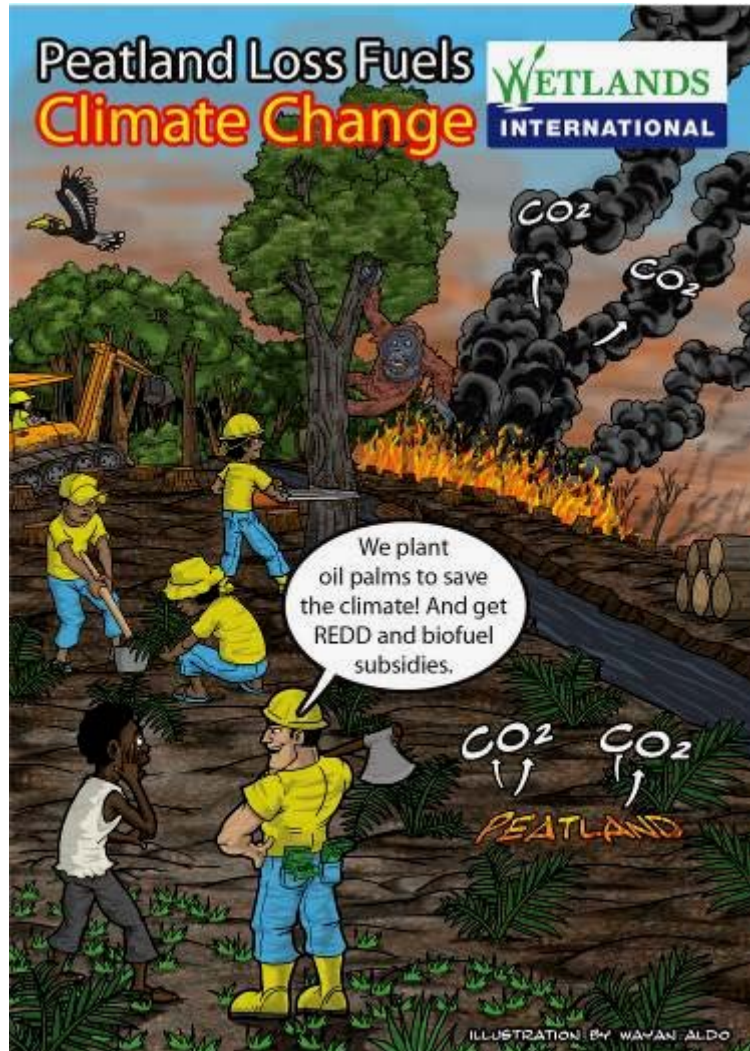


Globally degrading peatlands are hotspots of CO₂ emissions



International demand for palm oil: powerful international driver of peat degradation

Crop	Emission tCO ₂ /TJ	Fuel	Emission tCO ₂ /TJ
Palm oil	600	Fuel oil	73



Socio-economic impact of peatland fires on people

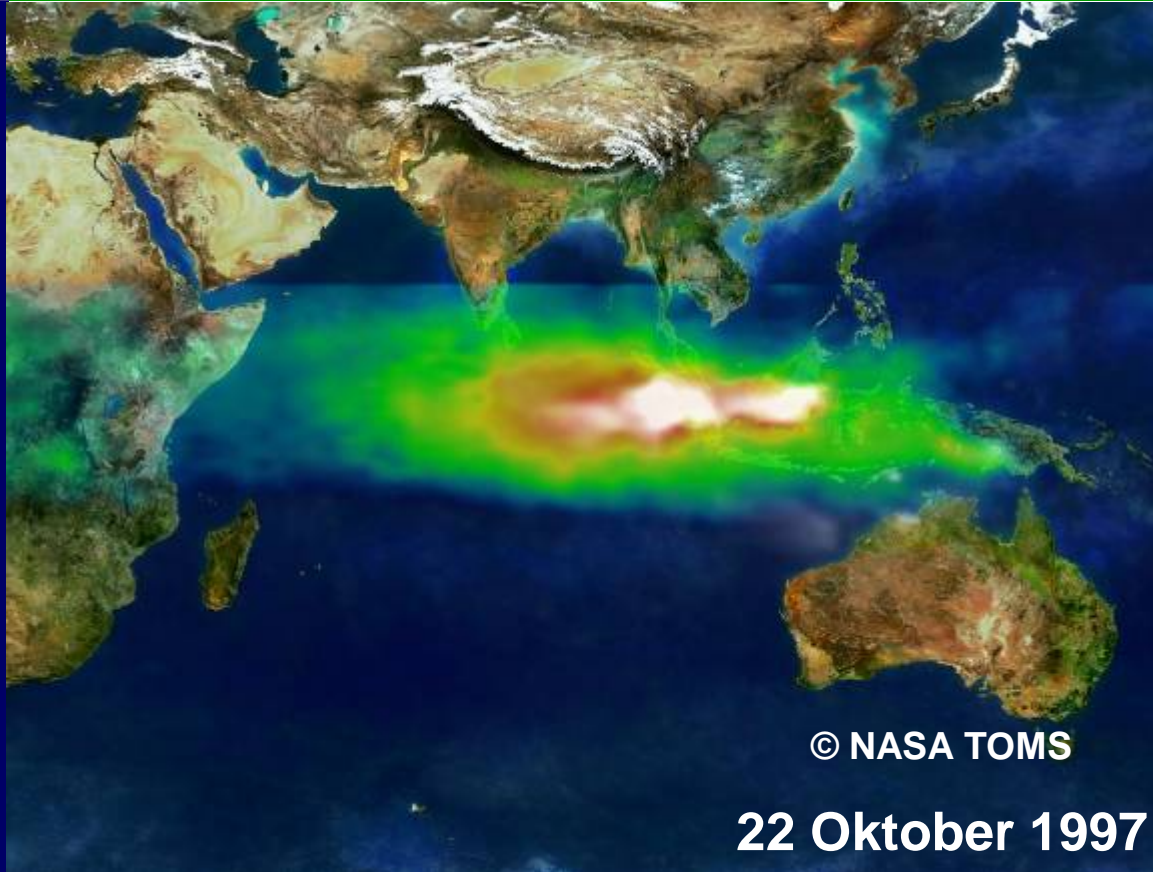


Economics of 1997/98 peat fires in Indonesia

- 1,5 – 2,2 million ha peat swamp forest burned
- 1108 flights cancelled in Indonesia, Singapore & Malaysia
- Economic damage by smoke: > 1.4 billion US\$
- Economic losses (tourism & timber) > 7 billion US\$
- ***Large fires occur every year***



International tensions / political impacts



**Smog and smoke
over SE-Asia**

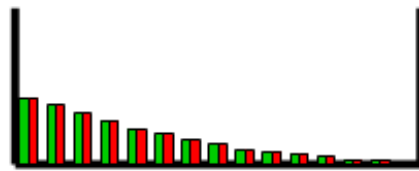


Indonesian peat smoke in Malaysia



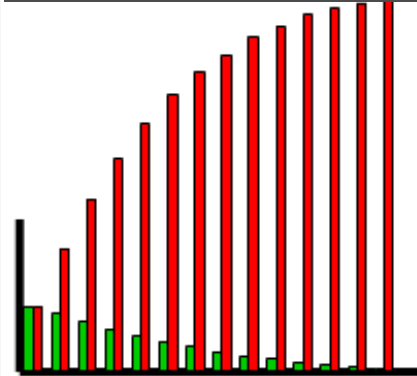
How to reduce peat emissions?

Forest Biomass



A **decreasing** rate of deforestation and forest degradation **decreases** annual GHG emissions.

Peatland soil



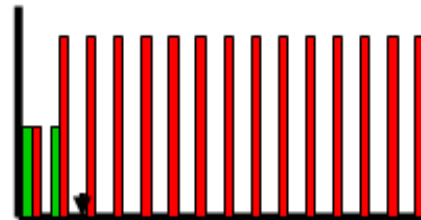
A **decreasing** rate of peatland conversion and drainage **increases** annual GHG emissions because the emissions from newly drained peatland add to those of already drained peatland.

Forest Biomass



Stopping deforestation and forest degradation **stops** GHG emissions.

Peatland soil

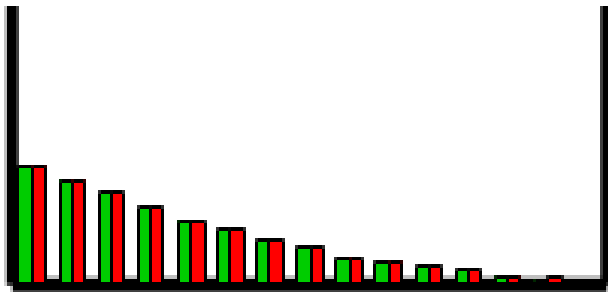


Stopping peatland conversion and drainage expansion does not decrease GHG emissions because existing drained peatlands will **continue** emissions at the same level.

Only through rehabilitation!

Forest Biomass

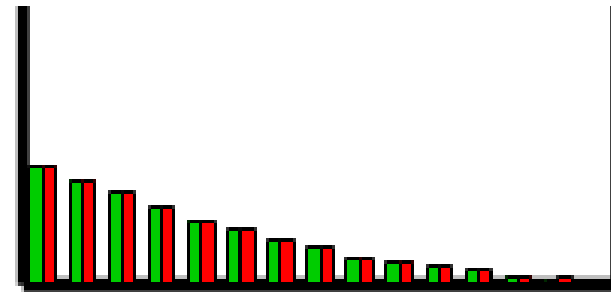
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Decreasing the **rate of deforestation** is indeed Reducing Emissions from Deforestation and forest Degradation.

Peatland soil

6

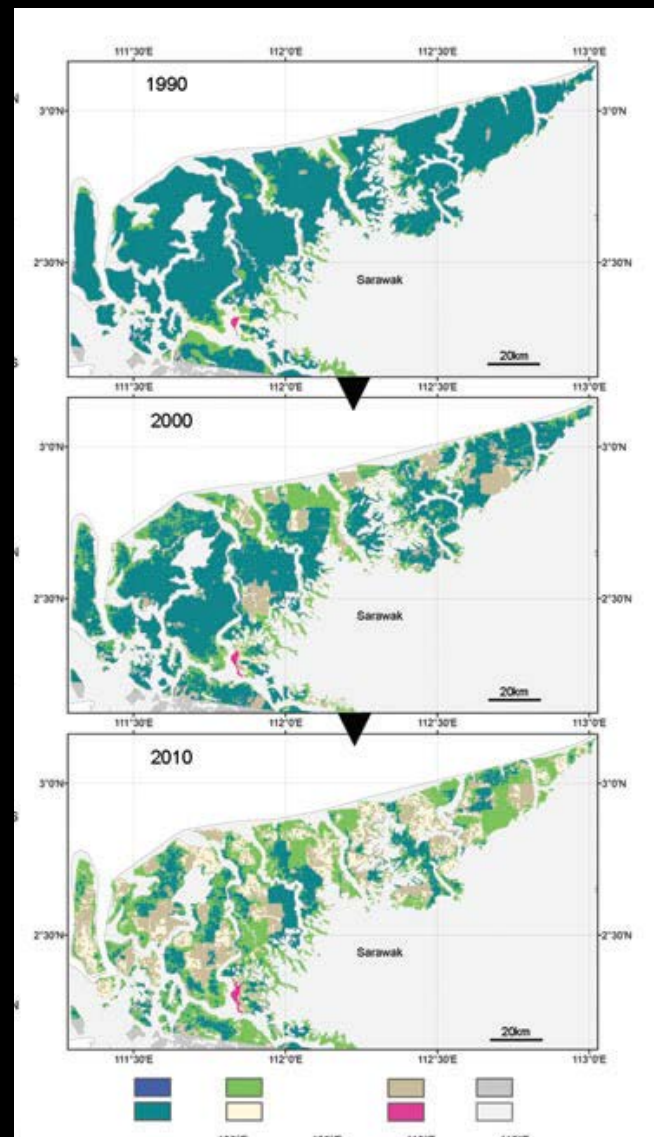
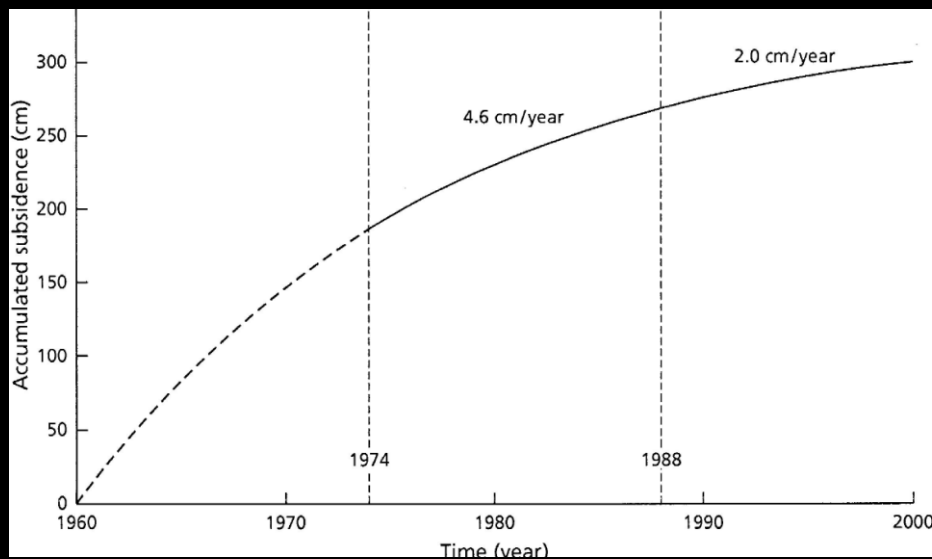


But only **decreasing the absolute area** of drained peatland is Reducing Emissions from Deforestation and Degradation.



Rewetting of peatlands is essential

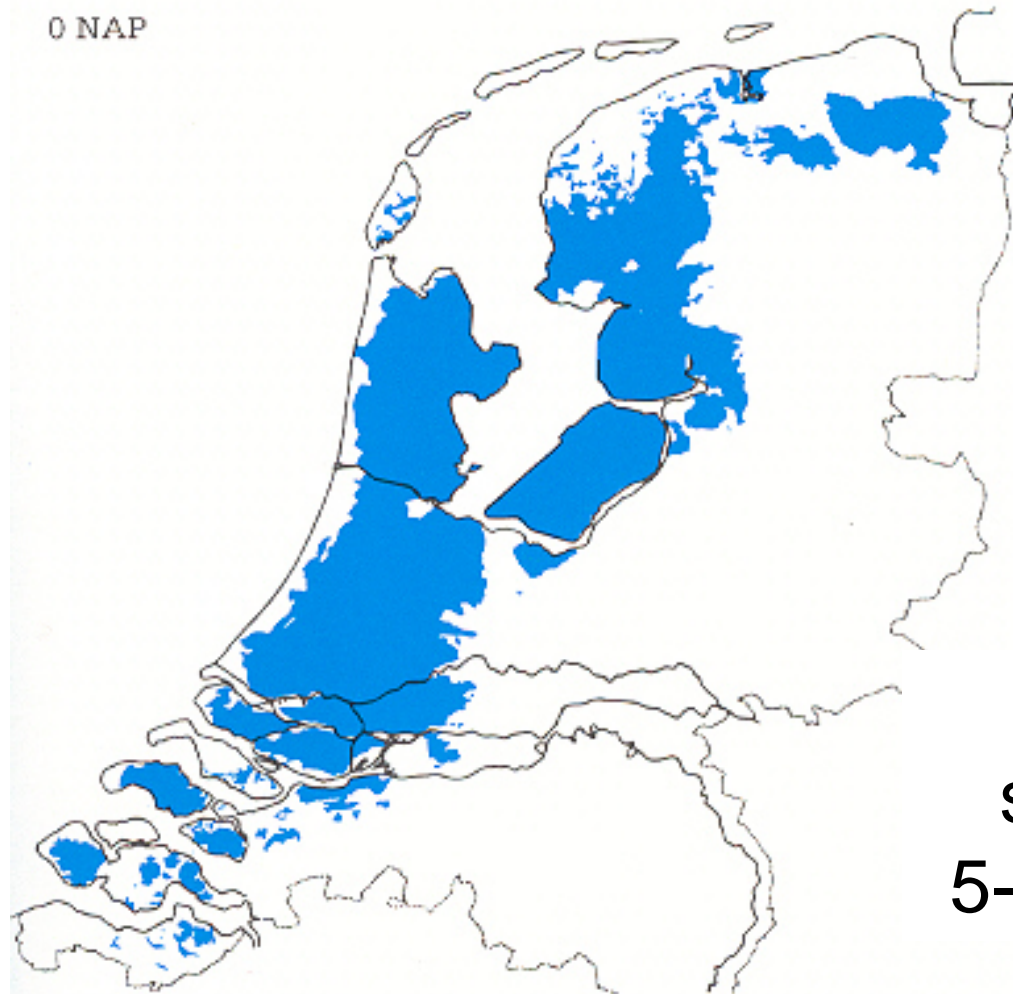
Another long-term impact: Soil Subsidence



Land conversion Sarawak
From Miettinen et al 2011

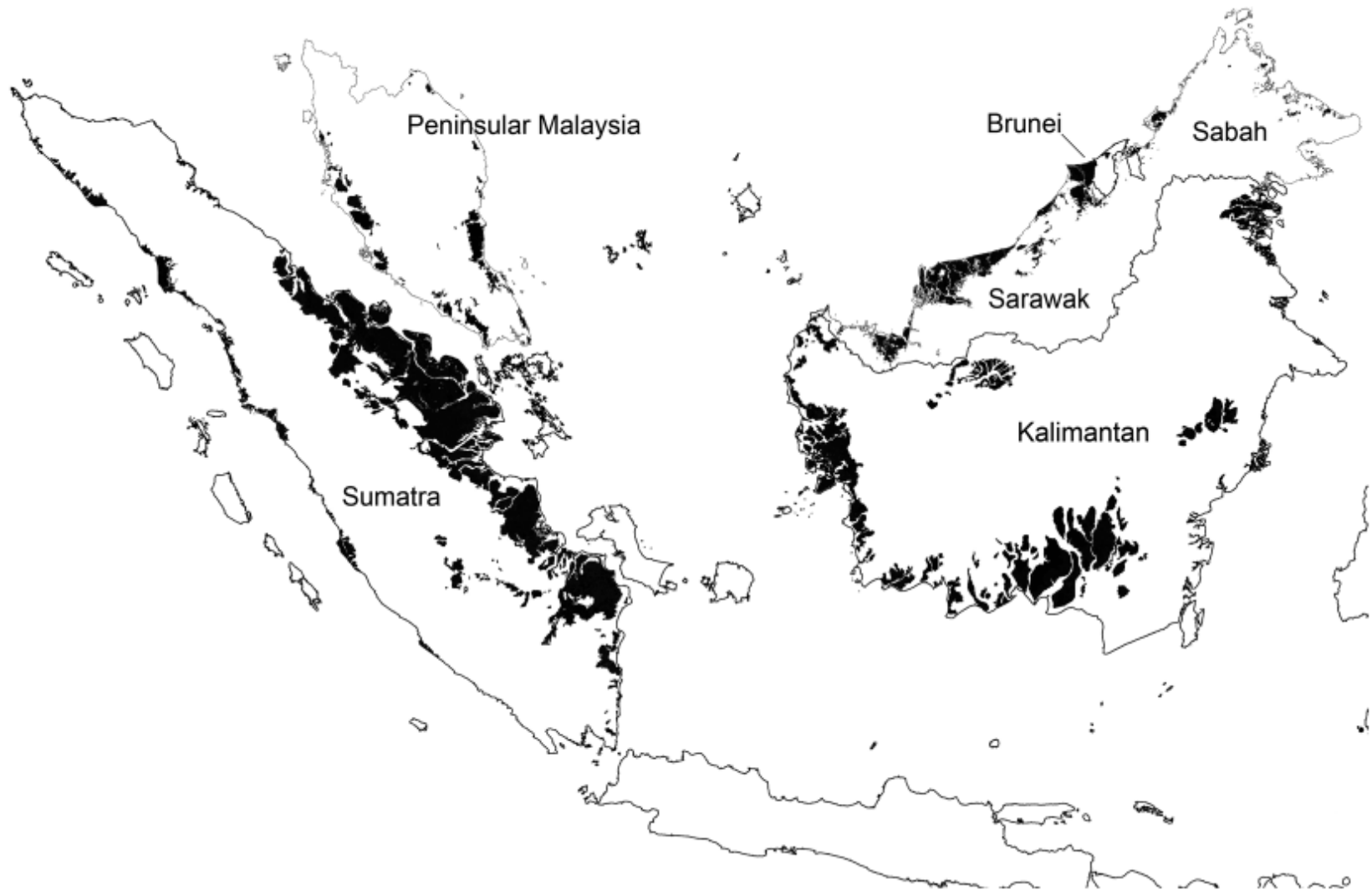
Long-term soil subsidence

Nether-lands: 300 years of peatland drainage:
now half the country deep under sea level



In the tropics
subsidence goes
5-10 times faster!....

South-east Asia



Many peatlands are coastal and 70% will under continued drainage become undrainable ...

Towards solutions



Priorities for achieving reduction targets

1. Conservation:

- No more conversion: undisturbed peatlands
- Supply chains must exclude products from drained peatlands

2. Stop unsustainable land-use

- Remove existing plantations - shift to mineral soil areas
- Climate smart land use for severely degraded soils

3. Rewetting

- Restore peat soils and vegetation where possible



Peatland Ecosystem Restoration

- Rewetting & reforestation
- Fire prevention & control
- Local economic development
- Sustainable finance
 - ✓ Carbon markets
 - ✓ Private sector
- Policy embedding
 - ✓ Ecosystem Restoration legislation
 - ✓ REDD+
- Conserve remaining peatswamps



Moratorium on conversion of peatlands



Wetlands International dam building in major drainage channels. New improved techniques have been developed by KFCP



Paludiculture: Rewetting + regreening + productive use of degraded peatlands



Fire prevention & fighting



May reduce up to 50% of emissions

Public and private investment in Carbon sequestration & emission reduction

Possibilities evolve rapidly

VCS: Verified Carbon Standard

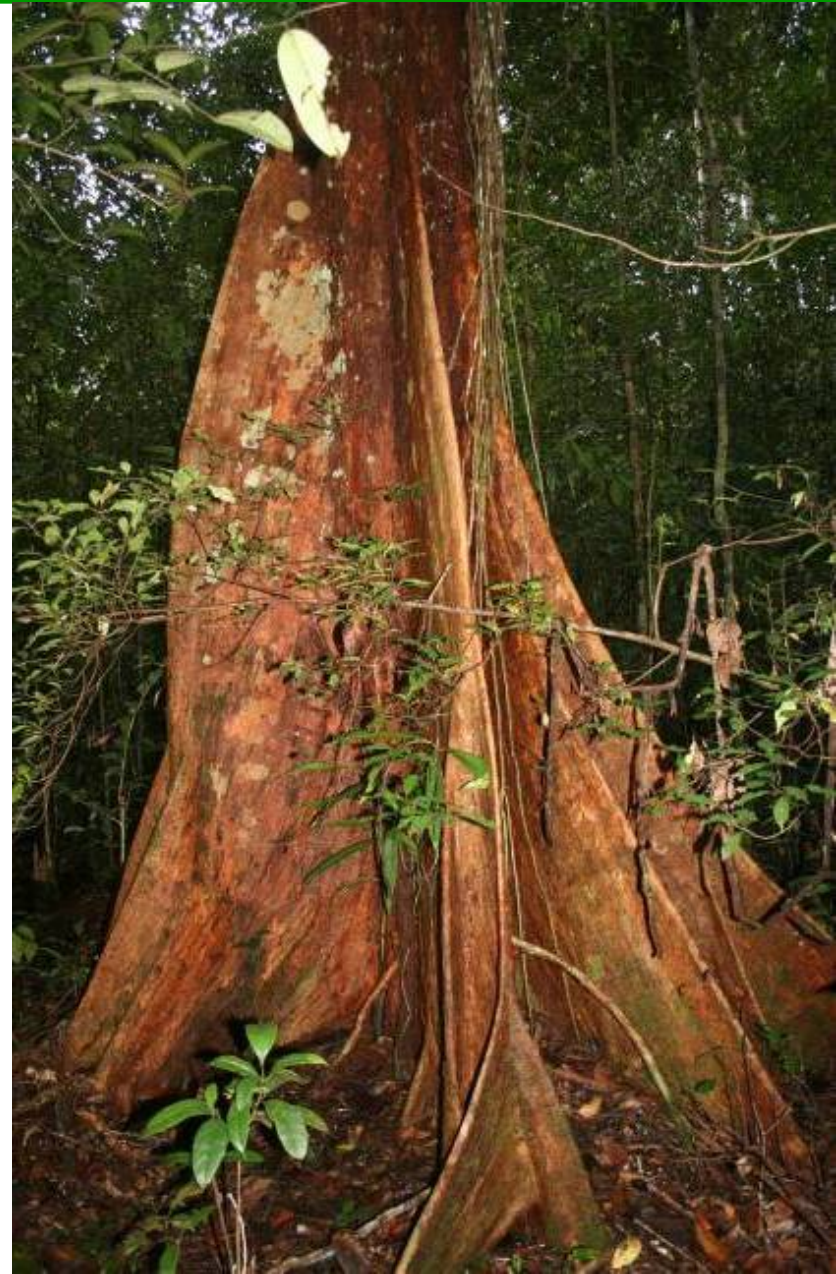
- **PRC**: recognizes peat rewetting & conservation
- **WI** methodology development

CCBA: Climate, Community & Biodiversity standard

- **Legislation**

- **Indonesia:**

- **Moratorium**
- **Ecosystem restoration concessions**
- **Carbon management**



Community-based implementation

Local stakeholders can & must benefit

- Employment
- Profit sharing
- Micro-credits (**Bio-rights** www.wetlands.org/bio-rights)
- Sustainable development in bufferzones
- Build capacity of local NGOs and science institutes
- Healthy environment



Challenges

- **Competing interests between sectors**
- **Intense competition for land + corruption**
- **Secure hydrologically viable areas**
- **Lack of a compliance carbon market**
- **Immature legislation**
- **Uncertain finance flows**
- **From science to policy**



Key priorities

- **Prioritise conservation**
 - conservation of remaining natural peat swamp
 - no expansion of drainage land-uses on peat
- **Facilitate climate smart investment**
 - develop coherent policy and legislation
 - facilitate public and private investment in rehabilitation of degraded peatlands
 - ensure **safeguards** : CCBA and VCS criteria.
- **Remove unsustainable land-uses**
 - establish cut-off point for unsustainable practices
 - require time-bound plans
 - **act** before the carbon store is gone
 - **act** before the drainage limit is reached

ACT NOW !

More information on

www.wetlands.org

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Thank
you

We need to start a paradigm shift
from unsustainable practices to
conservation and rehabilitation