

Tropical peatlands, current issues and possible solutions

By

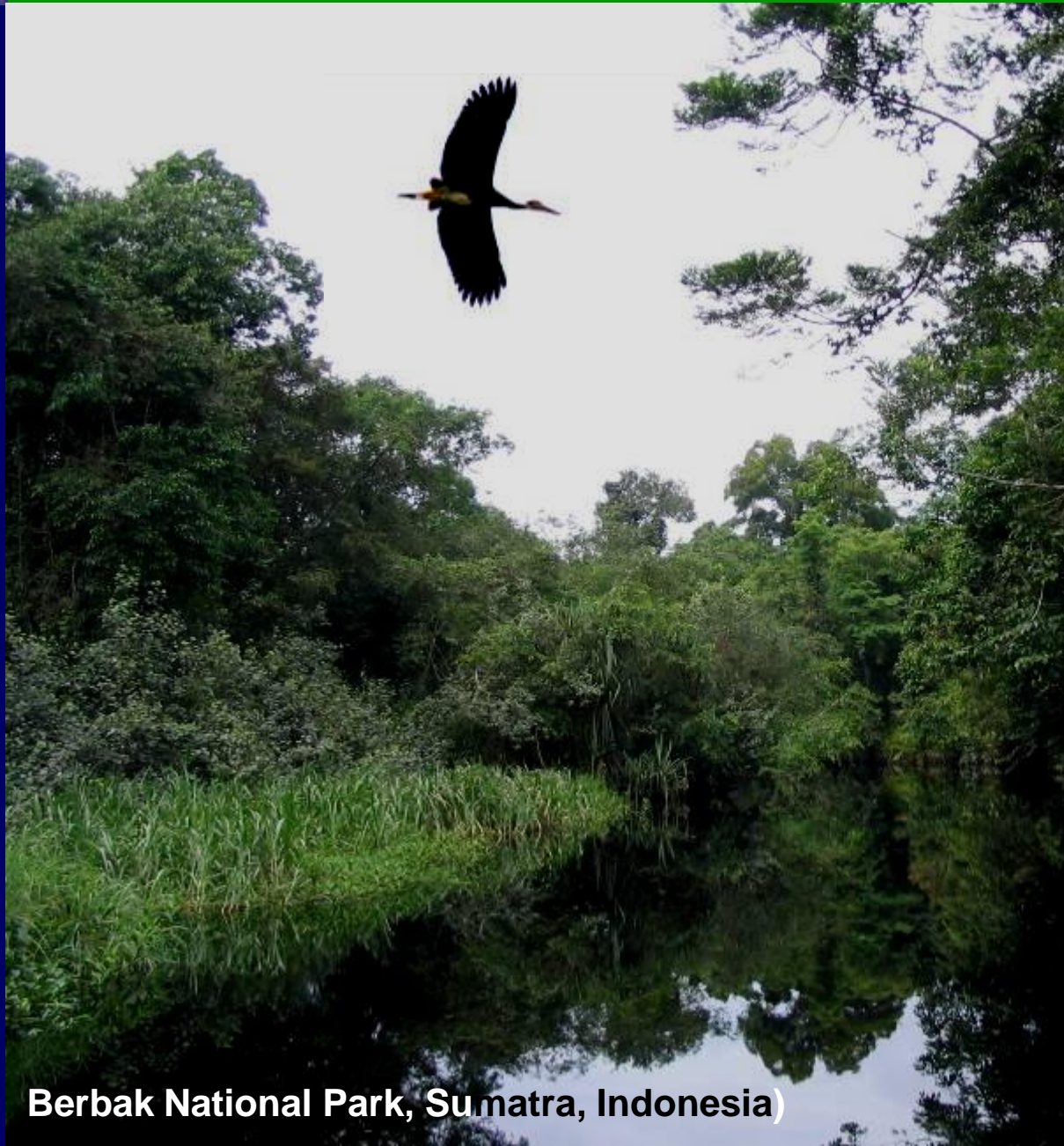
Marcel Silvius

Bonn

17 May 2012



Tropical peat swamp forest



Berbak National Park, Sumatra, Indonesia)



Sebangau, Indonesia





Inside primary peat swamp forest
(Belait peat swamp forest, 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



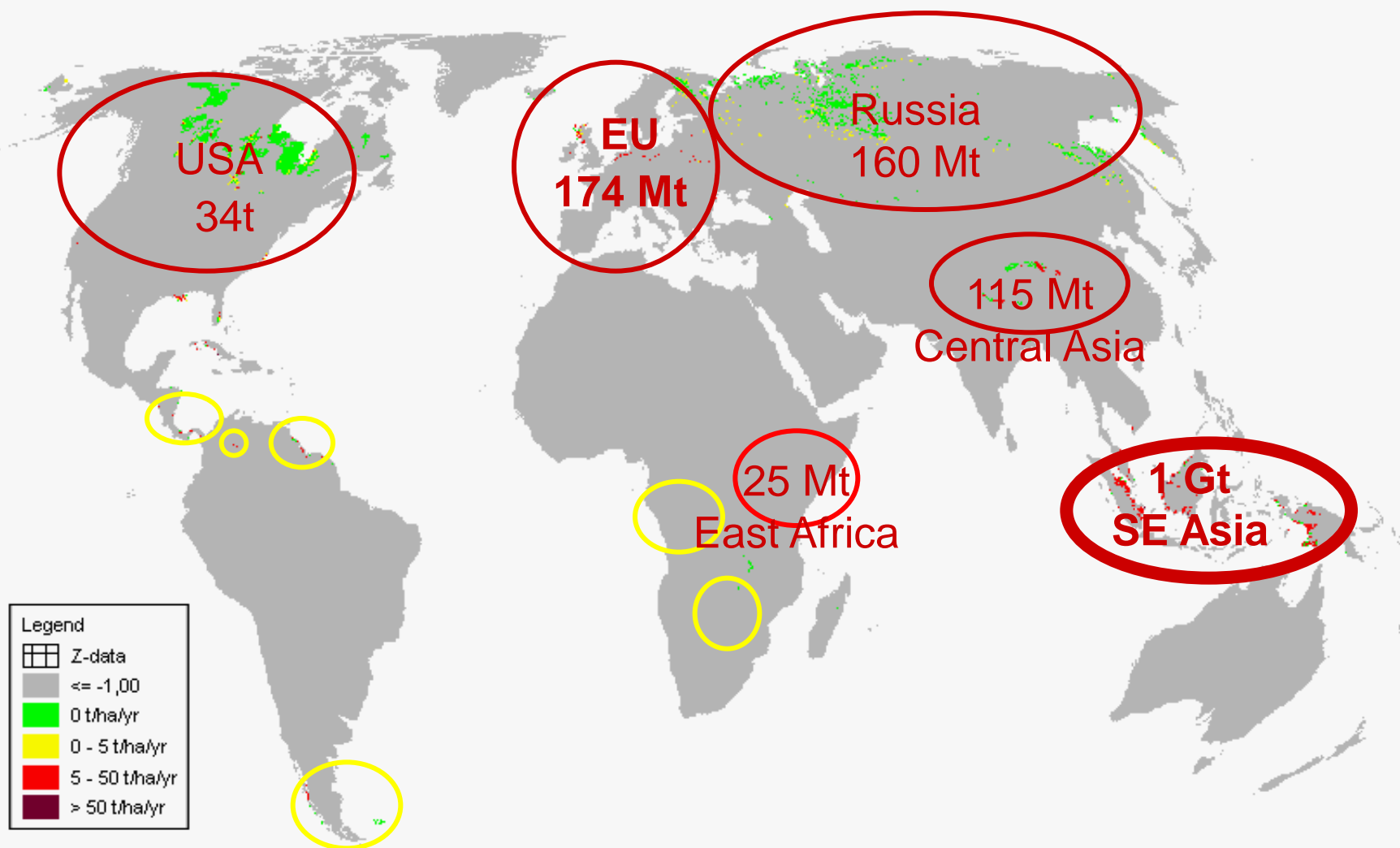
Sub-saharan Africa:

Peat CO₂ = 25% of all its fossil
fuel CO₂

Congo basin



Globally degrading peatlands are hotspots of CO₂ emissions



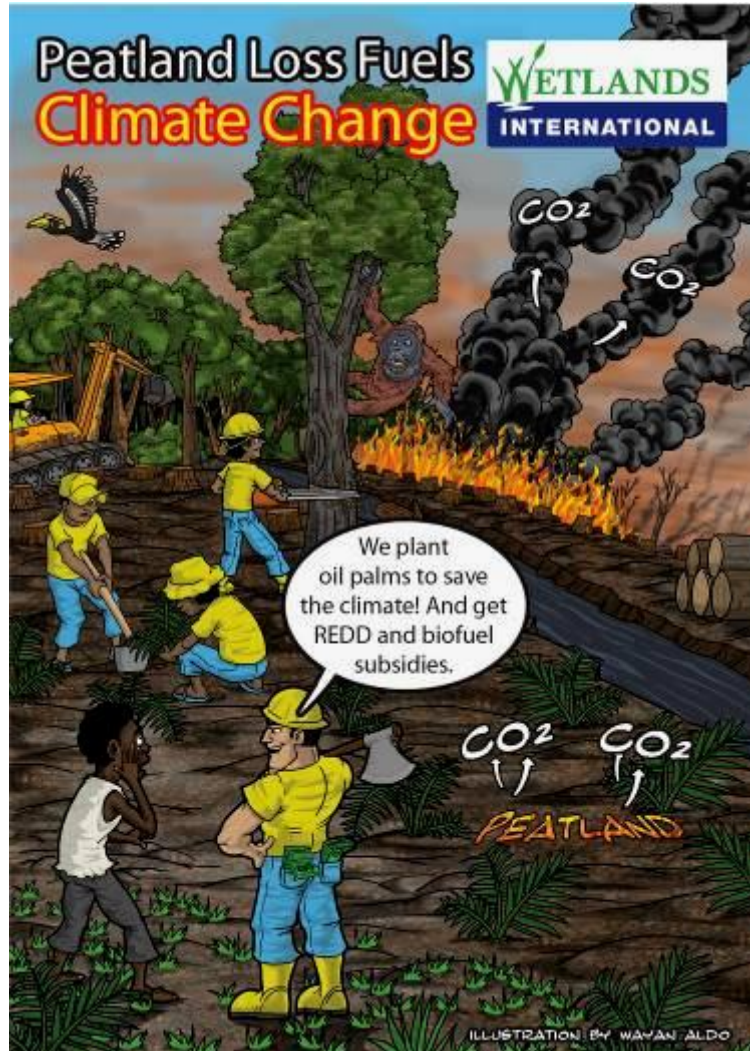
Drivers of peatland degradation in SE Asia

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



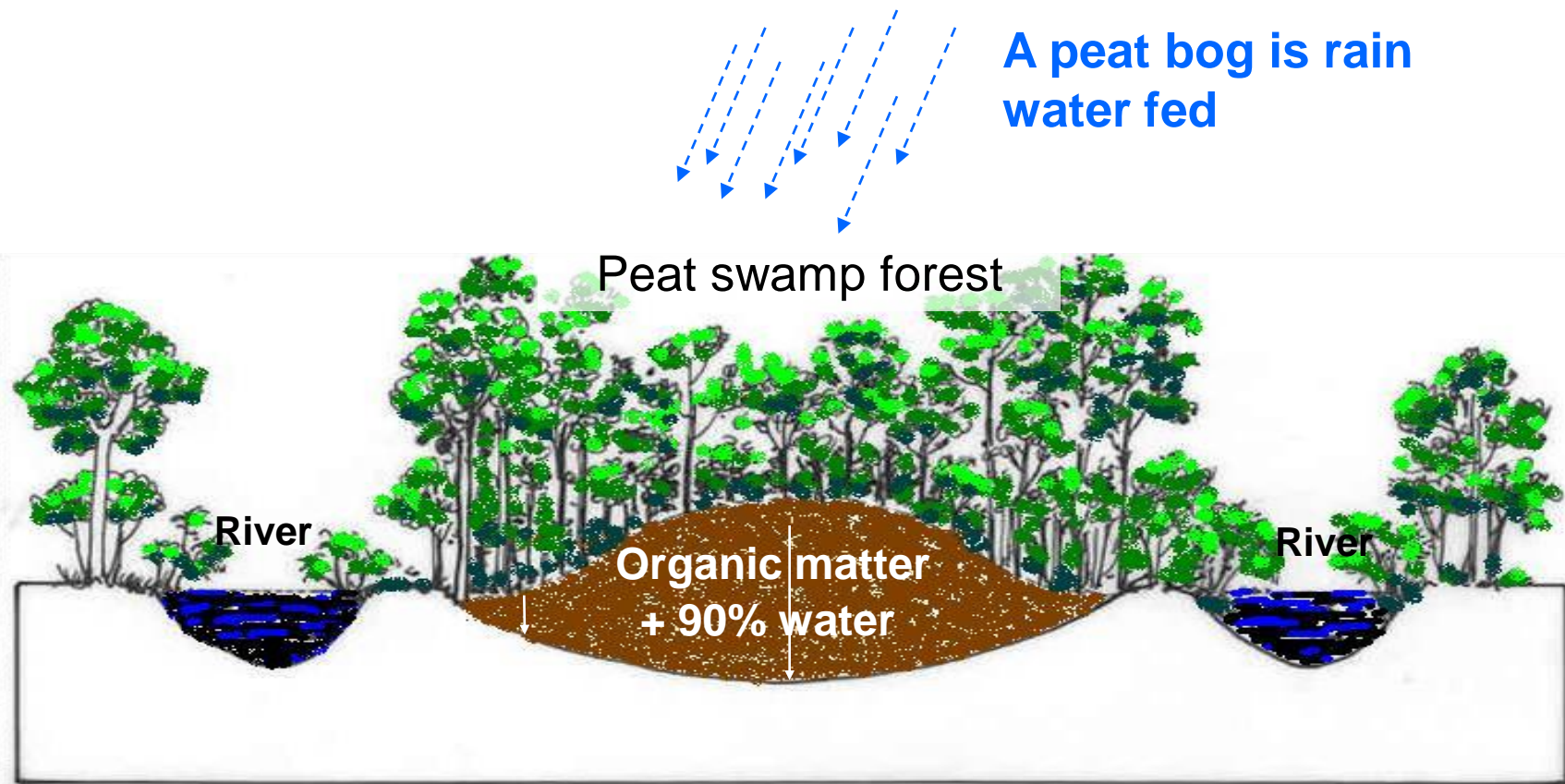
International demand for palm oil: **powerful** international driver of peat degradation

Crop	Emission tCO2/TJ	Fuel	Emission tCO2/TJ
Palm oil	600	Fuel oil	73



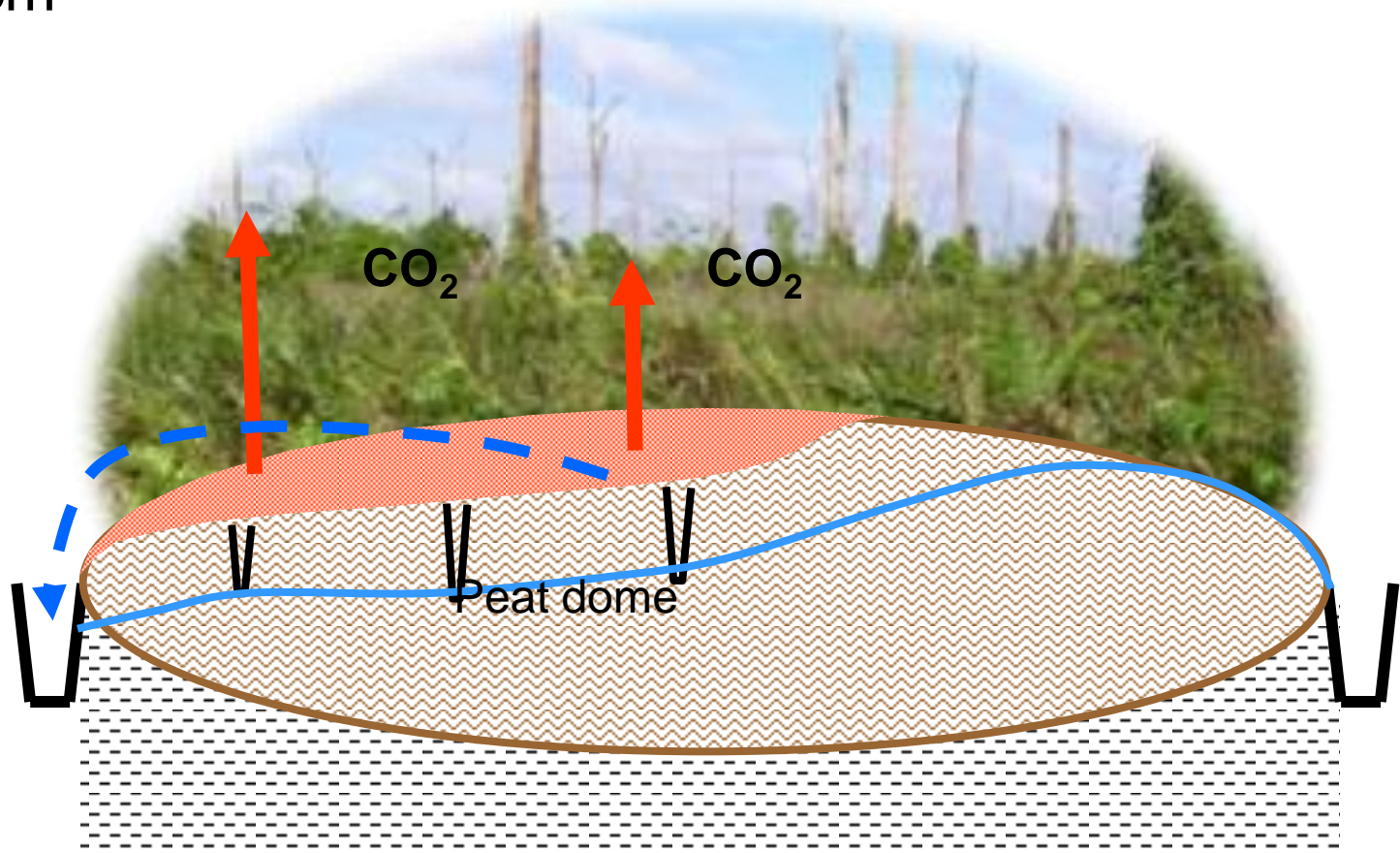
What makes peatlands so special?

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

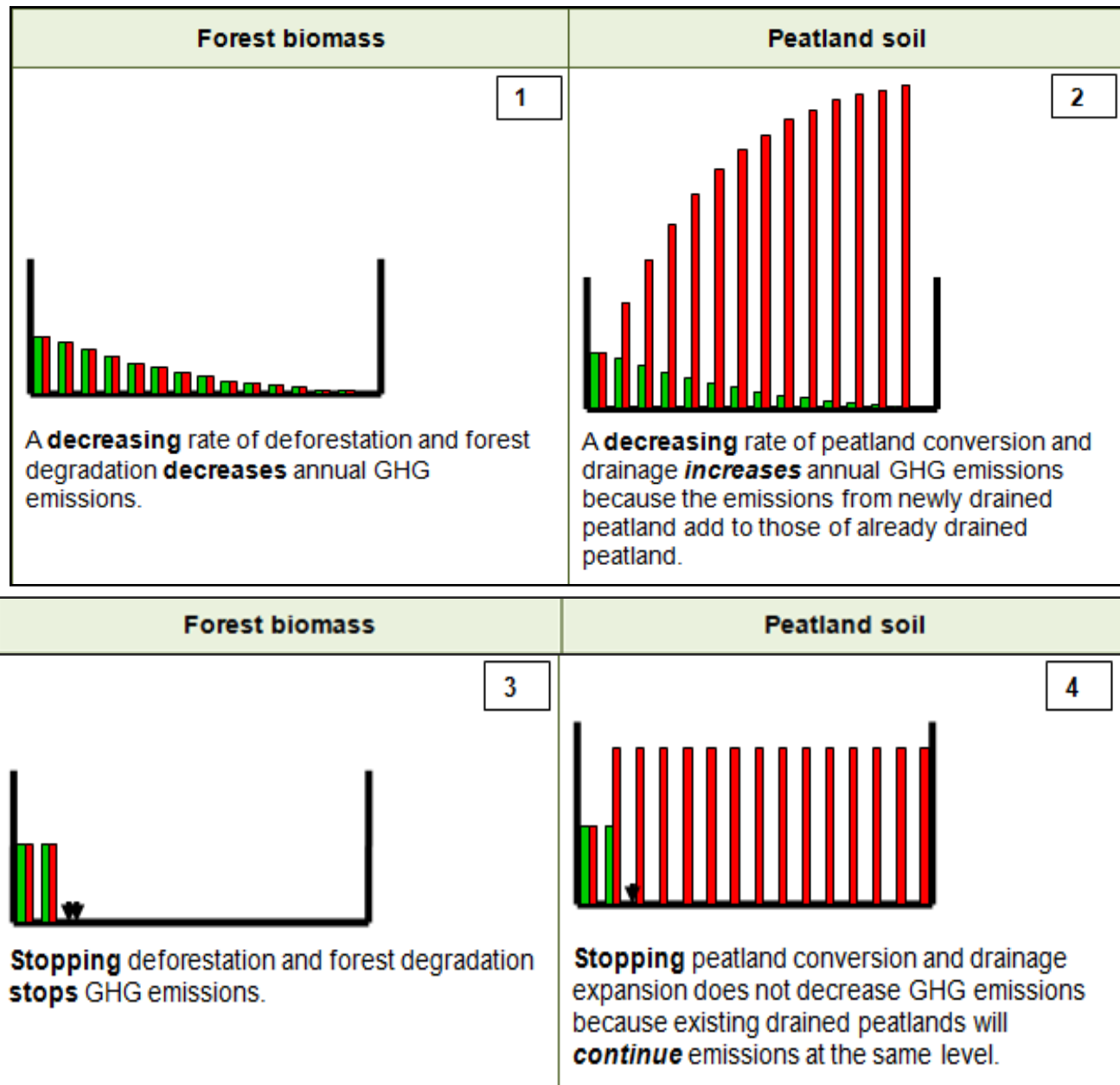


Peat drainage → CO₂ emissions

- 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



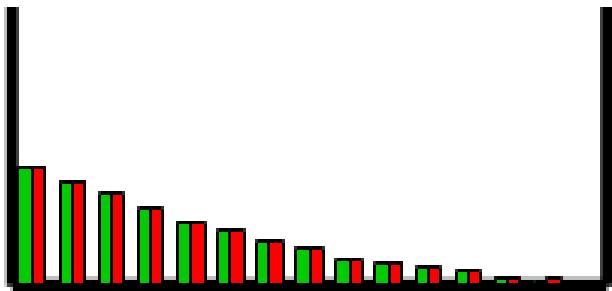
How to reduce peat emissions?



Only through rehabilitation!

Forest biomass

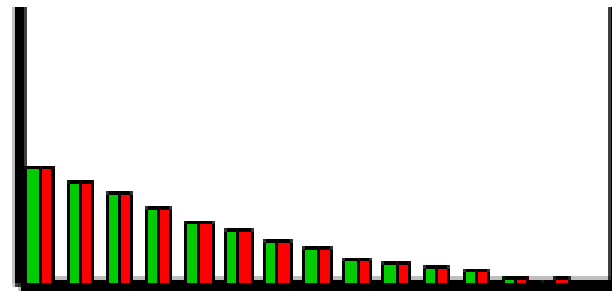
5



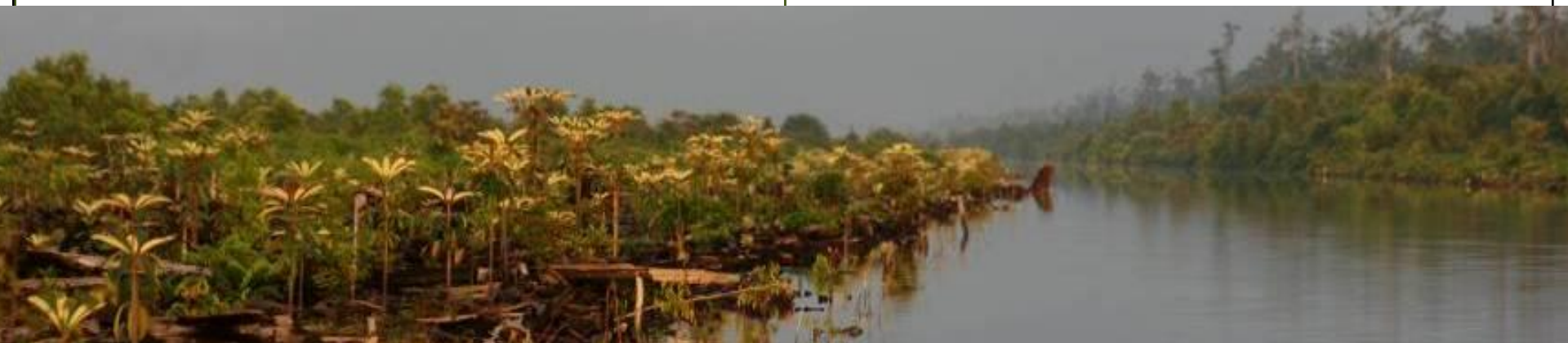
Decreasing the **rate of deforestation** is indeed Reducing Emissions from Deforestation and forest Degradation.

Peatland soil

6



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



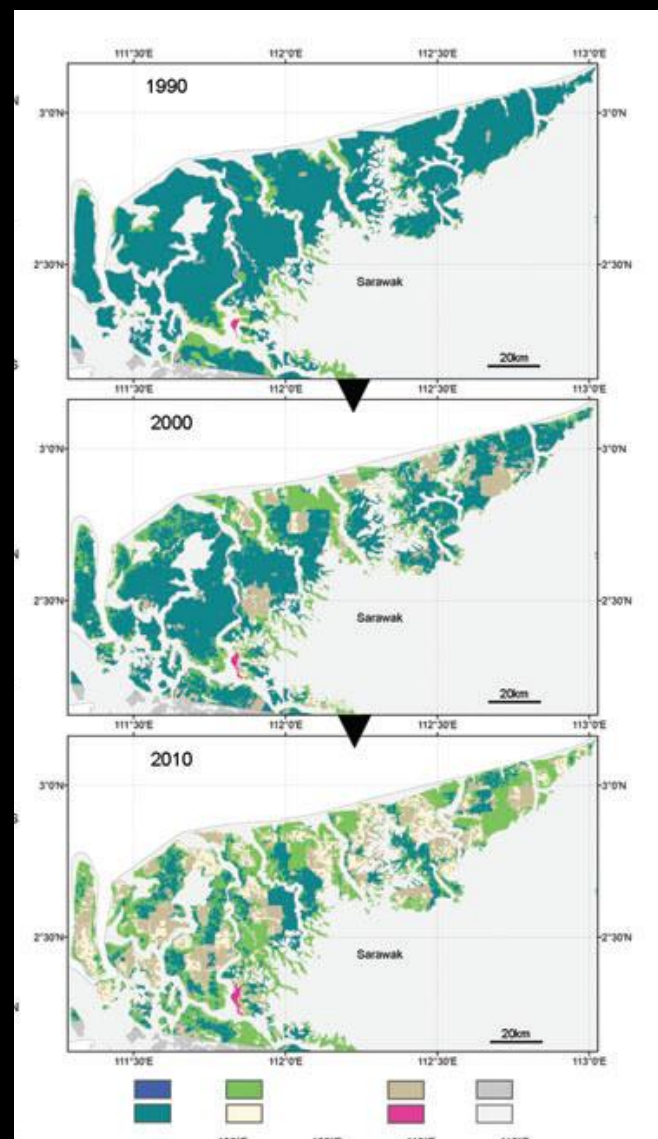
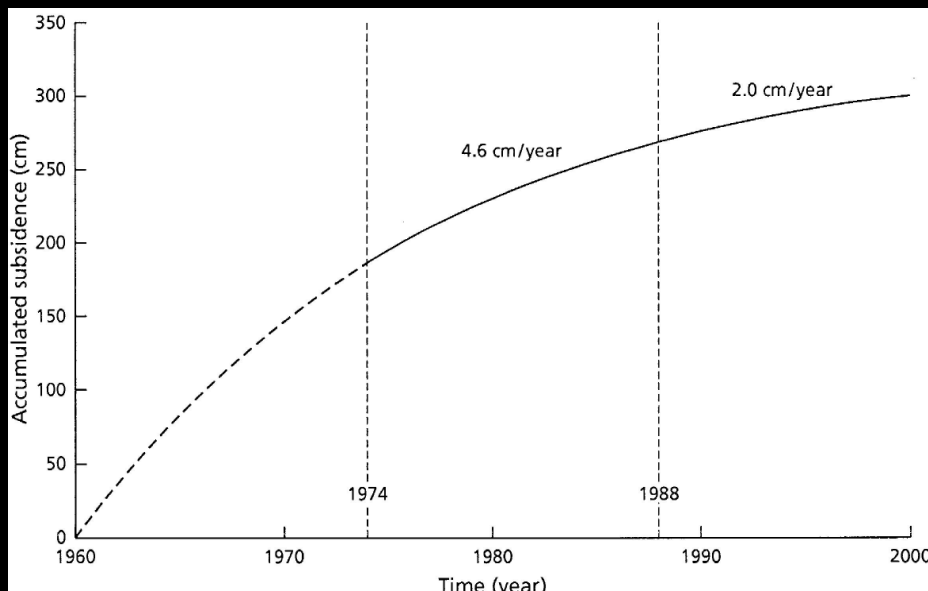
Rewetting of peatlands is essential

Another long-term impact: Soil Subsidence

Stage 1: Initial rate 20-60 cm per year, mainly compaction

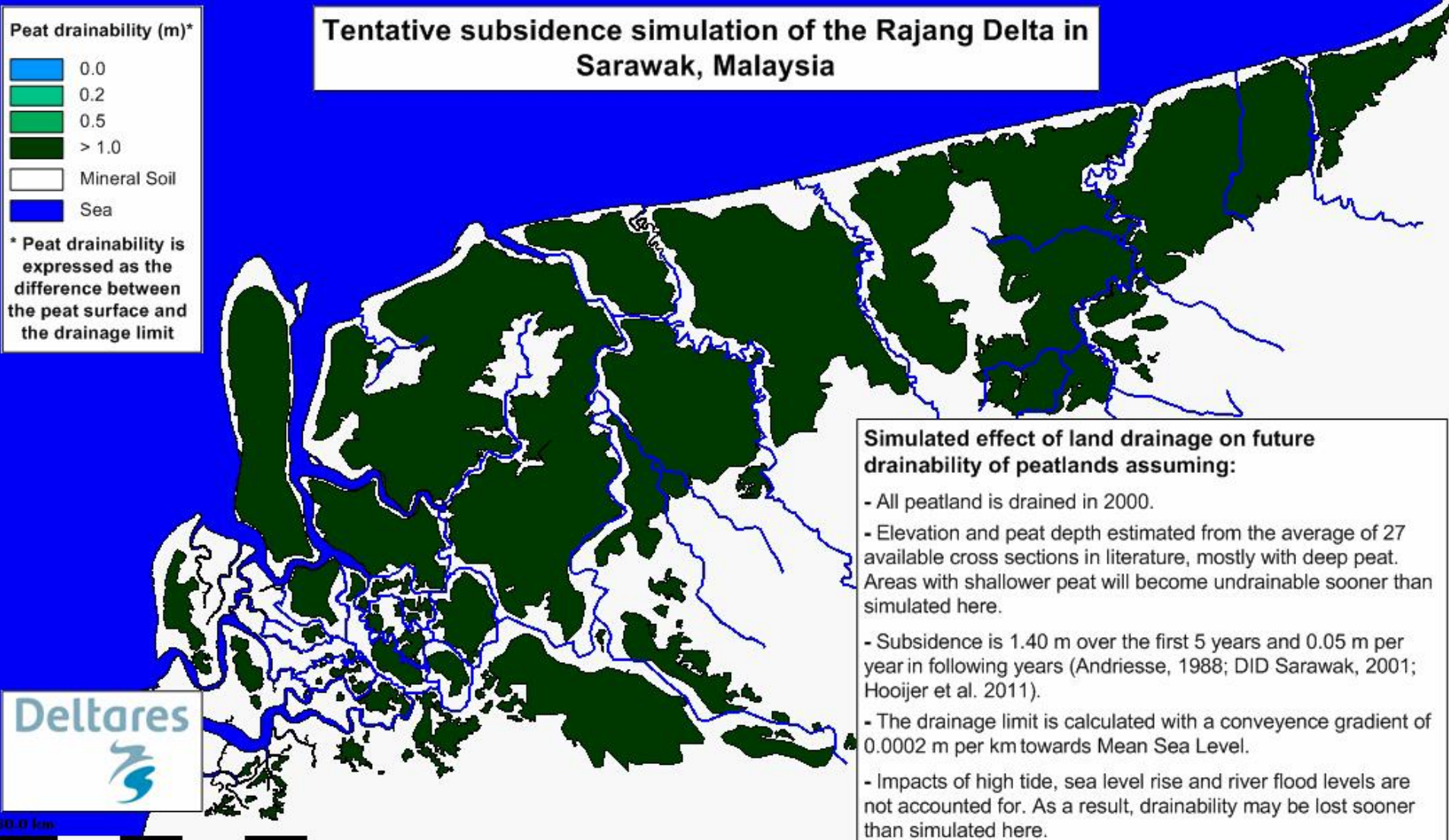
Stage 2: Subsidence rate 4.6 cm per year, shrinkage/compaction + oxidation

Stage 3: Final rate 2 cm per year, mainly oxidation: 92% of cumulative subsidence is caused by peat oxidation



Land conversion Sarawak
From Miettinen et al 2011

70% of all drained peatlands of Sumatra, Kalimantan and Sarawak plantations will subside to un-drainable levels, causing severe flooding and land loss



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 peatsw



Moratorium on conversion of peatlands



Wetlands International dam building in major drainage channels



Re-greening degraded peatlands



Fire prevention & fighting



May reduce up to 50% of emissions

Public and private investment options in Carbon sequestration & emission reduction

Possibilities evolve rapidly

VCS: Verified Carbon Standard

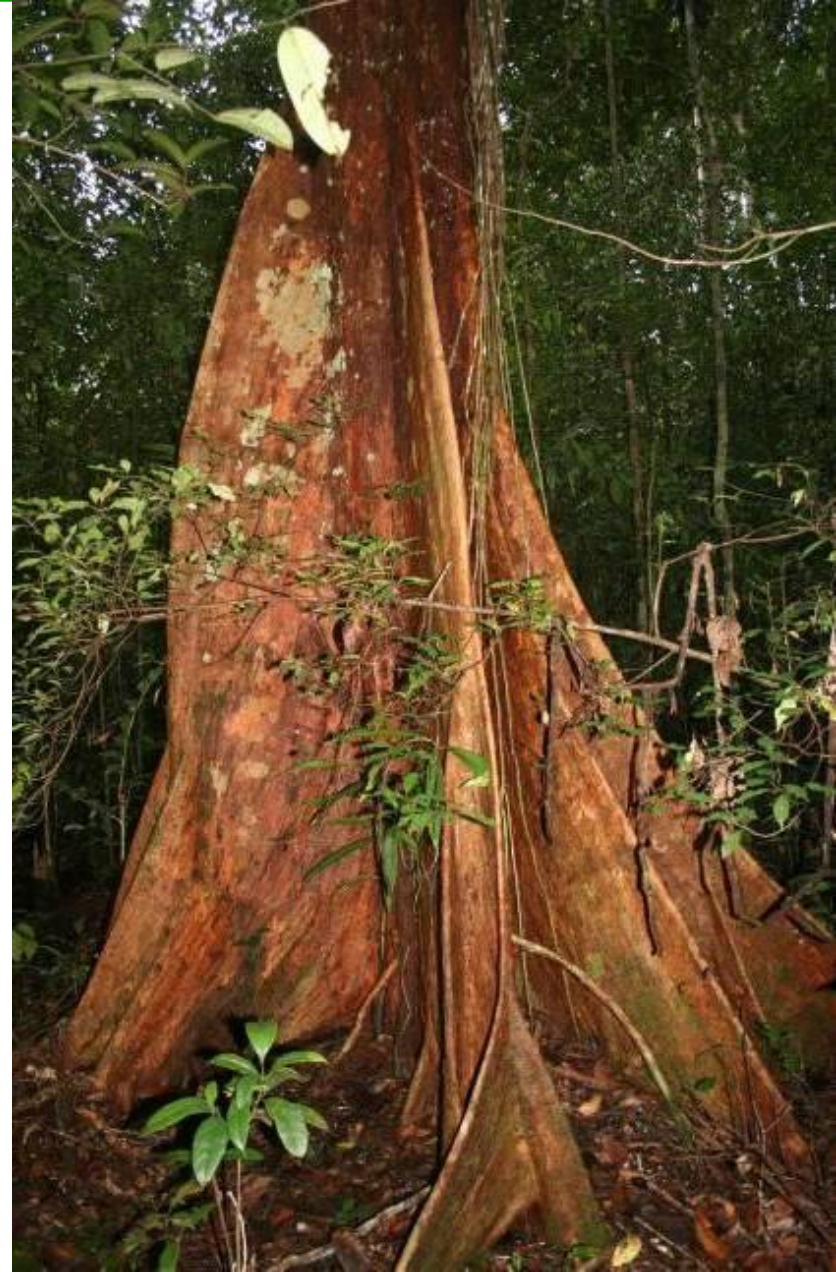
- **PRC:** recognizes peat rewetting & conservation
- **WI** methodology development

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 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

marcel.silvius@wetlands.org

**Thank
you**

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