1 December 2012, Crown Plaza Hotel, Doha

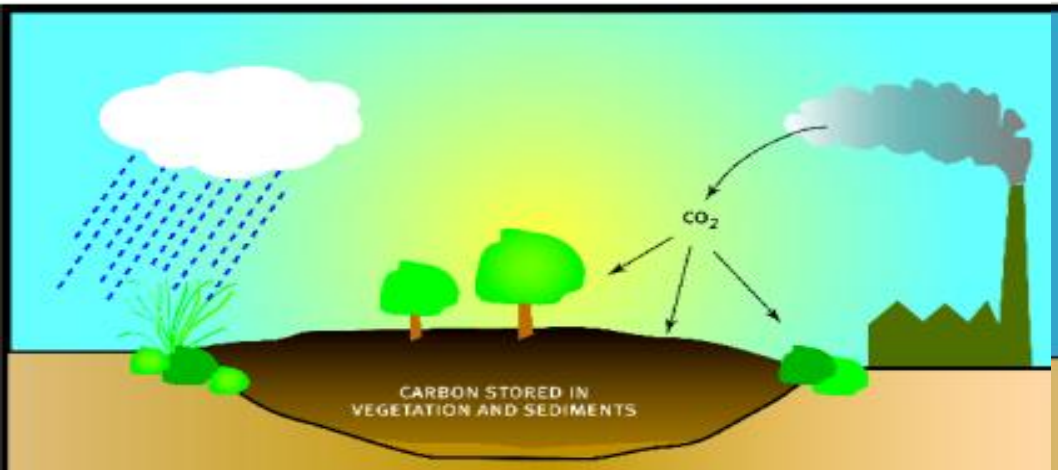
Marcel Silvius, Wetlands International

Marja-Liisa Tapio-Biström, FAO

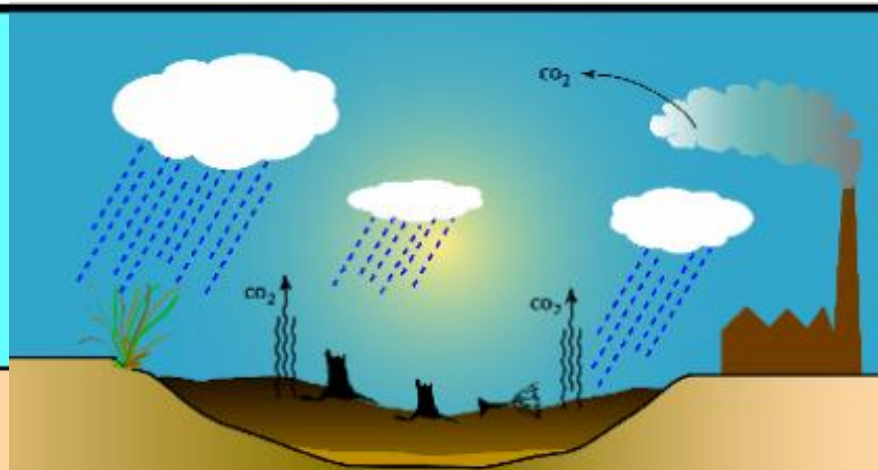
Peatlands and Organic Soils Mitigation Initiative

Peatlands: Major carbon stores & sources

- Globally peatlands store 30% of terrestrial carbon (550 Giga ton (Gt) C)
  - twice the carbon stored in forests
- drained & degrading: 15 % (50 million ha) of peatlands
- emissions: 2 Gt CO_2 per year
- 6 % of global emissions / 25 % of land use emissions



Peatlands store large amounts of carbon

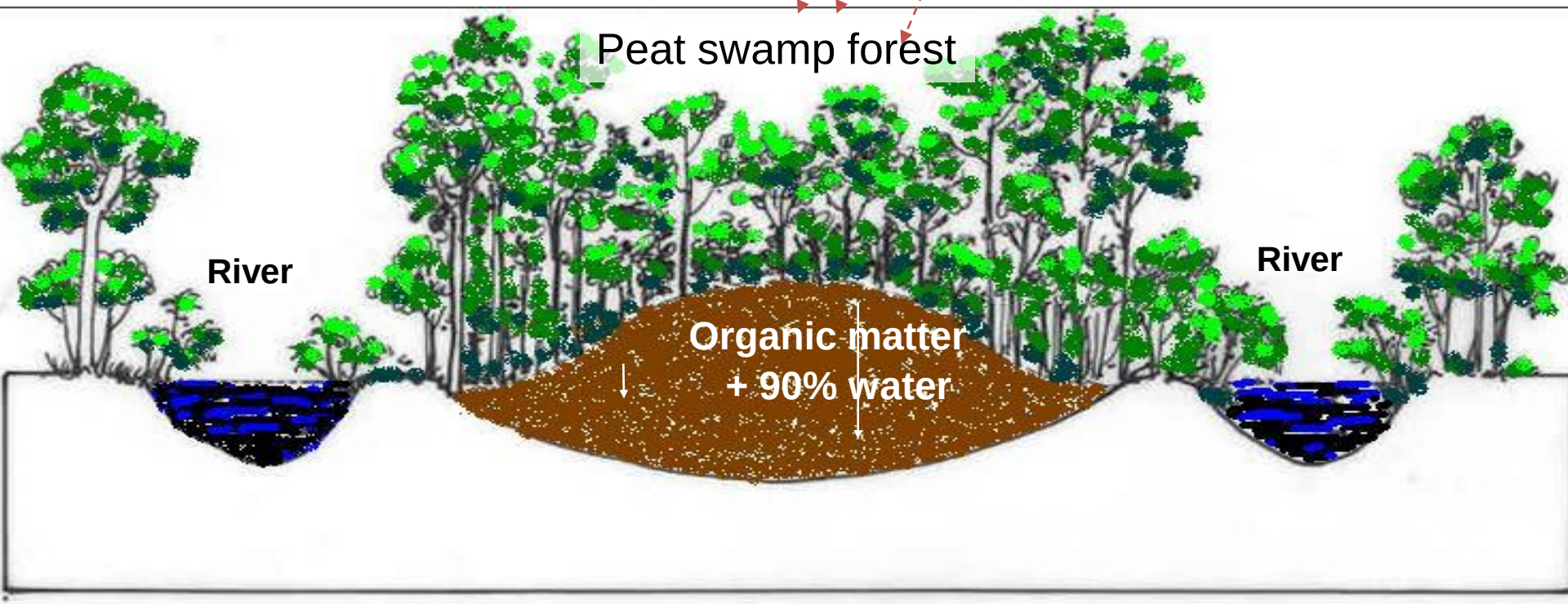


Peatland degradation leads to CO_2 emissions which contribute to global warming

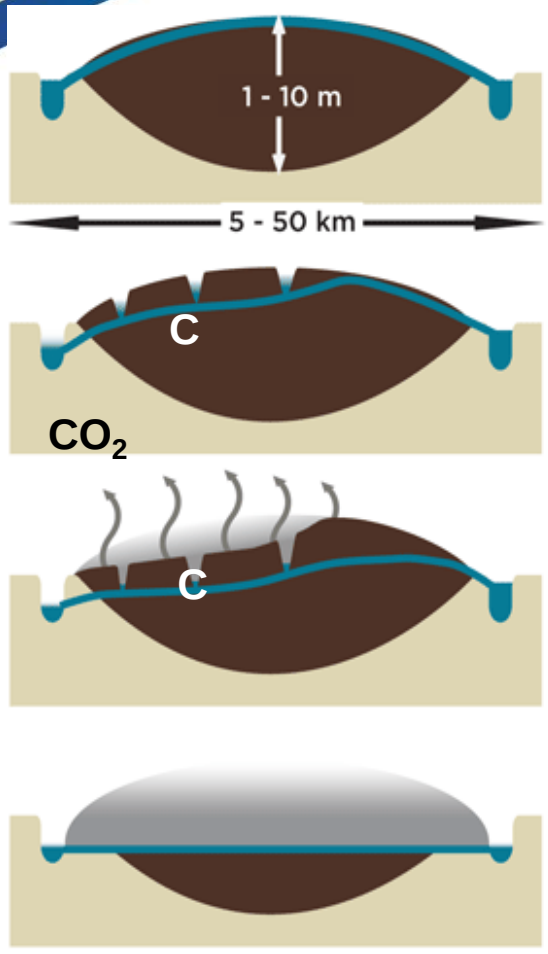
What is so special about peatlands?

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

A peat bog is rain water fed



Drainage leads to emissions and subsidence



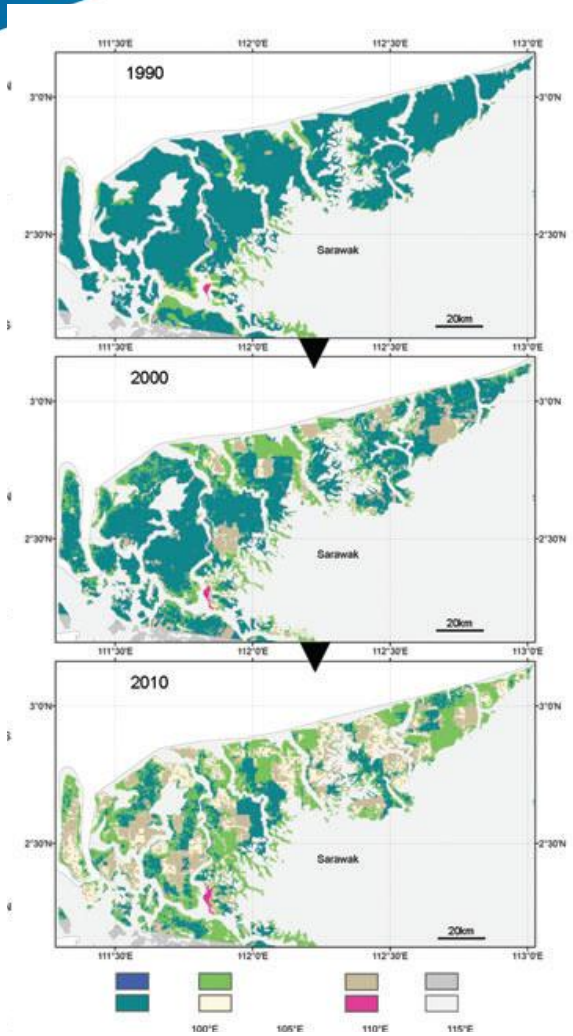
Natural situation:
- Water table close to surface
- Peat accumulation from vegetation over thousands of years

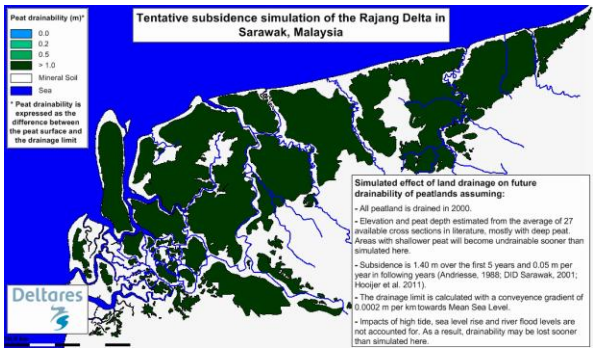
Drainage:
- Water tables lowered
- Peat surface subsidence and CO_2 emission starts

Continued drainage:
- Decomposition of dry peat: CO_2 emission
- High fire risk in dry peat: CO_2 emission
- Peat surface subsidence due to decomposition and shrinkage

End stage:
- Most peat carbon above drainage limit released to the atmosphere within decades,
- unless conservation / mitigation measures are taken

Water table
Peat dome
Clay / sand
Stream channels
former extent of peat dome


1990
2000
2010
Sarawak
20km
111°30'E
112°0'E
112°30'E
113°0'E
3°0'N
2°30'N
100°E
105°E
110°E
115°E


Tentative subsidence simulation of the Rajang Delta in Sarawak, Malaysia
Peat drainability (m)*
0.0
0.2
0.5
> 1.0
Mineral Soil
Sea
* Peat drainability is expressed as the difference between the peat surface and the drainage limit
Simulated effect of land drainage on future drainability of peatlands assuming:
- All peatland is drained in 2000.
- Elevation and peat depth estimated from the average of 27 available cross sections in literature, mostly with deep peat. Areas with shallower peat will become undrainable sooner than simulated here.
- Subsidence is 1.40 m over the first 5 years and 0.05 m per year in following years (Andriesse, 1988; DID Sarawak, 2001; Hooijer et al. 2011).
- The drainage limit is calculated with a conveyence gradient of 0.0002 m per km towards Mean Sea Level.
- Impacts of high tide, sea level rise and river flood levels are not accounted for. As a result, drainability may be lost sooner than simulated here.
Deltares

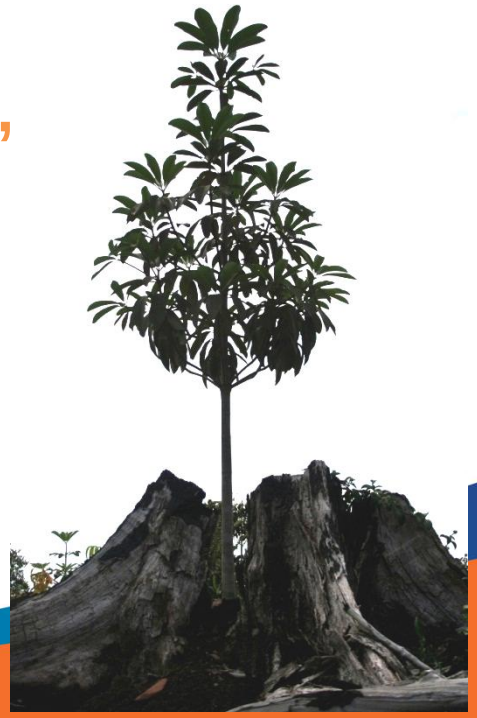
Drivers of peatland degradation - SE Asia

- **Deforestation**
  - **Legal & illegal logging**
- **Fires**
- **Drainage**
  - **Forest plantations**
  - **Infrastructure**
  - **Agriculture**
  - **Palm oil plantations**

REDD+

Peat carbon pool mandatory under REDD+

- Inclusion of **soil carbon in reference level**. Methodological guidance by 2013
- **Incentive to prevent or reverse drainage, and revegetate drained peat forests**
- **Multilateral and bilateral funding**
  - for capacity building and technical assistance
  - Long term finance is still under negotiation
- **Private sector interest** in REDD+



Tropical peat land rehabilitation options

- Major mitigation potential under REDD+:
  - Indonesia, Malaysia, Brazil, Uganda, PNG, Vietnam, Zambia
- Through rewetting & re-vegetation
- Paludiculture:
  - **Climate-smart land-use**
  - **Perennial crops**
  - **No drainage, no soil exposure**
- Need for safeguards
  - ➢ **Policy coherence**
  - ➢ **Transparency**
  - ➢ **Respect rights local people**
  - ➢ **Full stakeholder participation**
  - ➢ **Ecosystem approach**
  - ➢ **safeguard biodiversity**
  - ➢ **Address risk of reversal**
  - ➢ **Reduce displacement of emissions**

Wetlands International: dam building in major channels

Reforestation of tropical peat swamp forests

2001

2005

2000

2012

Fire prevention & fire fighting

May reduce up to 50 % of emissions

Global 'Organic soils and peatlands climate change mitigation initiative'

- Informal network started in Durban, 2011 by FAO & Wetlands International together with partners
- Aims: reduce emissions from peatlands & safeguard the other vital ecosystem services peatlands provide.

CIFOR
CENTER FOR INTERNATIONAL FORESTRY RESEARCH

MICHAEL SUCCOW FOUNDATION
for the Protection of Nature

Global Environment Centre

ERNST MORITZ ARNDT
UNIVERSITÄT GREIFSWALD
Wissen lockt. Seit 1456

UNIVERSITY OF HELSINKI

WETLANDS INTERNATIONAL

VITRI

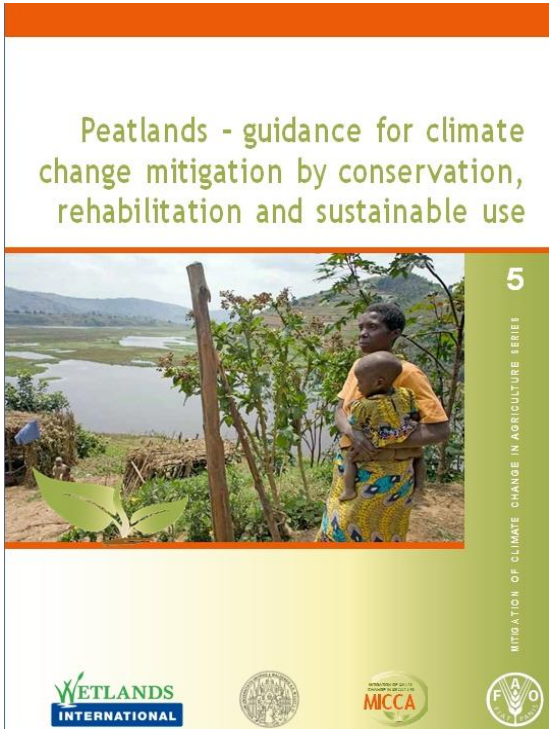
GLOBAL RESEARCH ALLIANCE
ON AGRICULTURAL GREENHOUSE GASES

IUCN | National Committee United Kingdom
Peatland Programme

FAO
FIAT PANIS

Support for countries

- **Policy** support:
  - New report and materials
  - Technical workshops
- **Knowledge**:
  - Mapping of degraded organic soils started
  - Data development
- **Side event** Thursday 6 December at 20:15, Side event room 2, Doha



Thank you

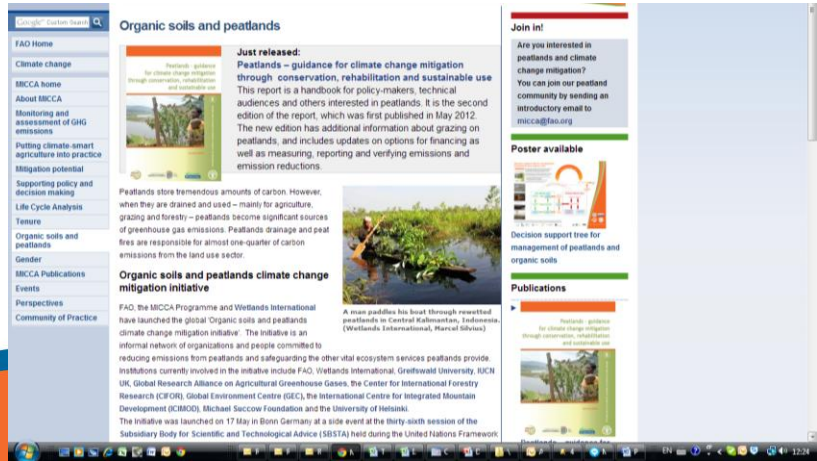
We need to start a paradigm shift from unsustainable Practices to climate-smart agriculture & forestry and conservation & rehabilitation

More info: micca@fao.org

Organic Soils and Peatlands Climate Change Mitigation Initiative

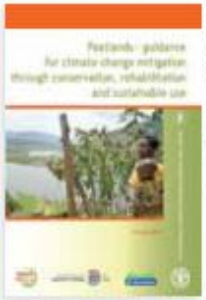
WWW.WETLANDS.ORG/PEATCLIMATE

WWW.FAO.ORG/CLIMATECHANGE/MICCA/PEAT



ADDITIONAL RESOURCES

Decision support tree for management of peatlands and organic soils



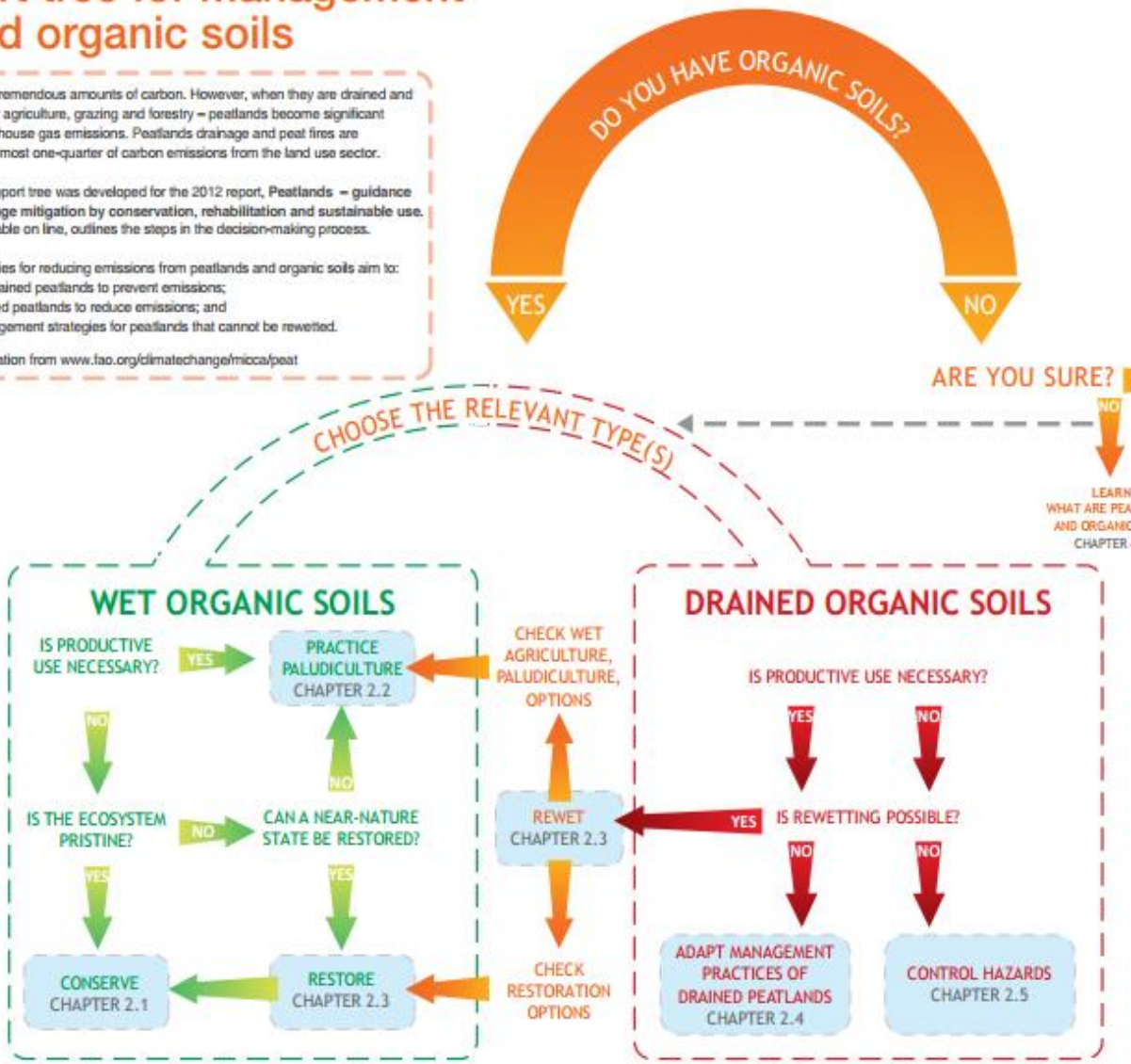
Peatlands store tremendous amounts of carbon. However, when they are drained and used – mainly for agriculture, grazing and forestry – peatlands become significant sources of greenhouse gas emissions. Peatlands drainage and peat fires are responsible for almost one-quarter of carbon emissions from the land use sector.

This decision support tree was developed for the 2012 report, **Peatlands – guidance for climate change mitigation by conservation, rehabilitation and sustainable use.** The report, available on line, outlines the steps in the decision-making process.

The main strategies for reducing emissions from peatlands and organic soils aim to:

1. secure undrained peatlands to prevent emissions;
2. rewet drained peatlands to reduce emissions; and
3. adapt management strategies for peatlands that cannot be rewetted.

Download publication from www.fao.org/climatechange/micca/peat



The Organic Soils and Peatlands Climate Change Mitigation Initiative has been established to increase awareness about peatlands and promote strategic action for reducing greenhouse gas emissions from peatlands and organic soils. The Initiative, an informal network of organizations and people, also aims to safeguard vital peatland ecosystem services, as well as contribute to food security and poverty reduction. Contact the initiative through: micca@fao.org

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WETLANDS INTERNATIONAL

MICCA

www.fao.org/climatechange/micca/peat

Adapted management – less emissions

- Minimizing drainage → reduction in peat oxidation and land degradation
- Choosing crops:
  - adapted to high soil moisture
  - permanent crops
  - shade reduces surface temperatures
- Avoiding plowing & land clearing by fire
- Limited fertilization
- Well managed grazing: limited heard sizes

Jauhiainen *et al.,* 2012; FAO & Wetlands International, 2012

Alternative livelihoods on peatlands

- Social safeguards:
  - Policies
  - Local communities involvement
  - Stakeholder participation
- Developing paludiculture on rewetted peatlands
- Other possible livelihoods from peatlands: aquaculture, tourism, biomass, fibre, rubber…