

Peatland opportunities

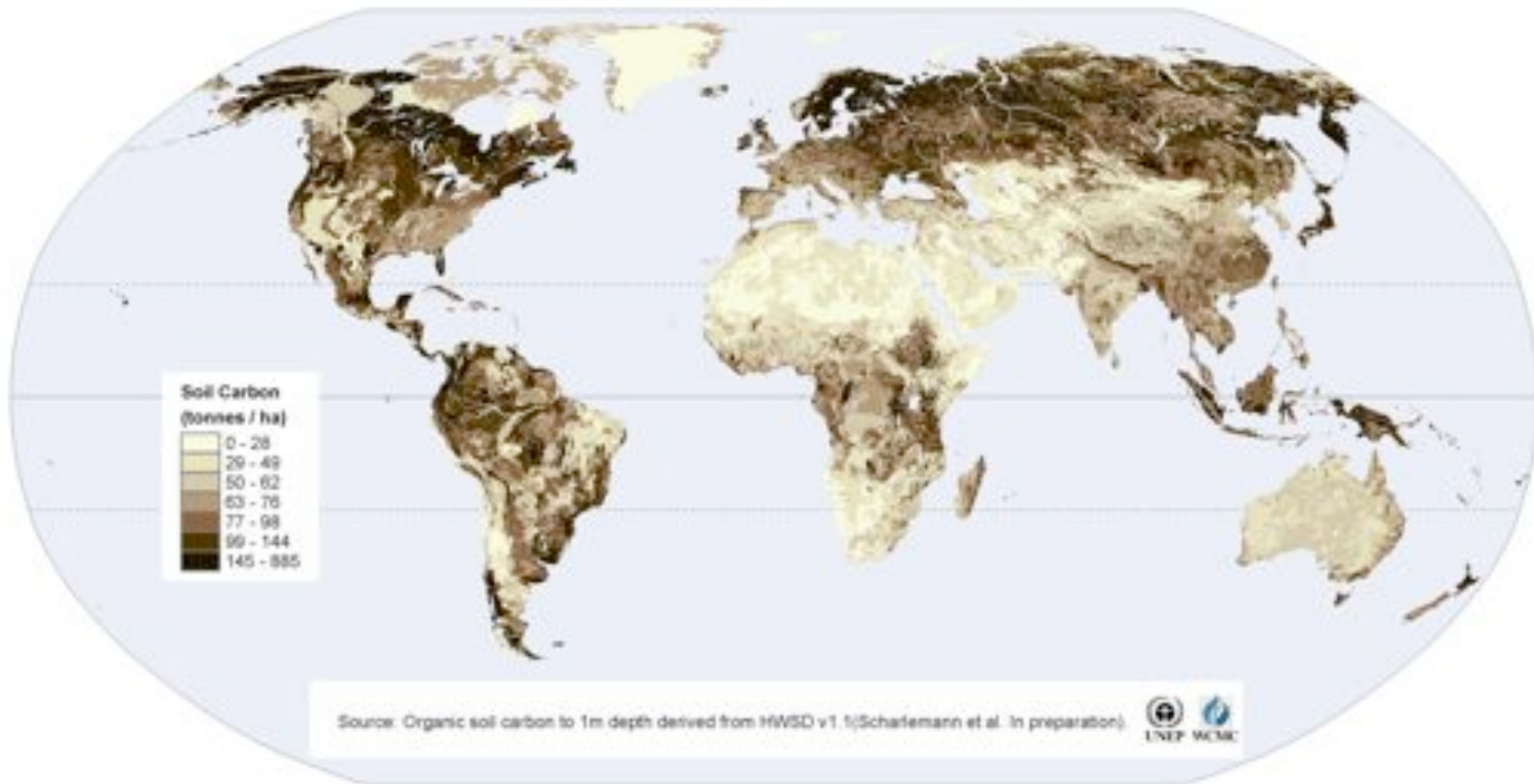
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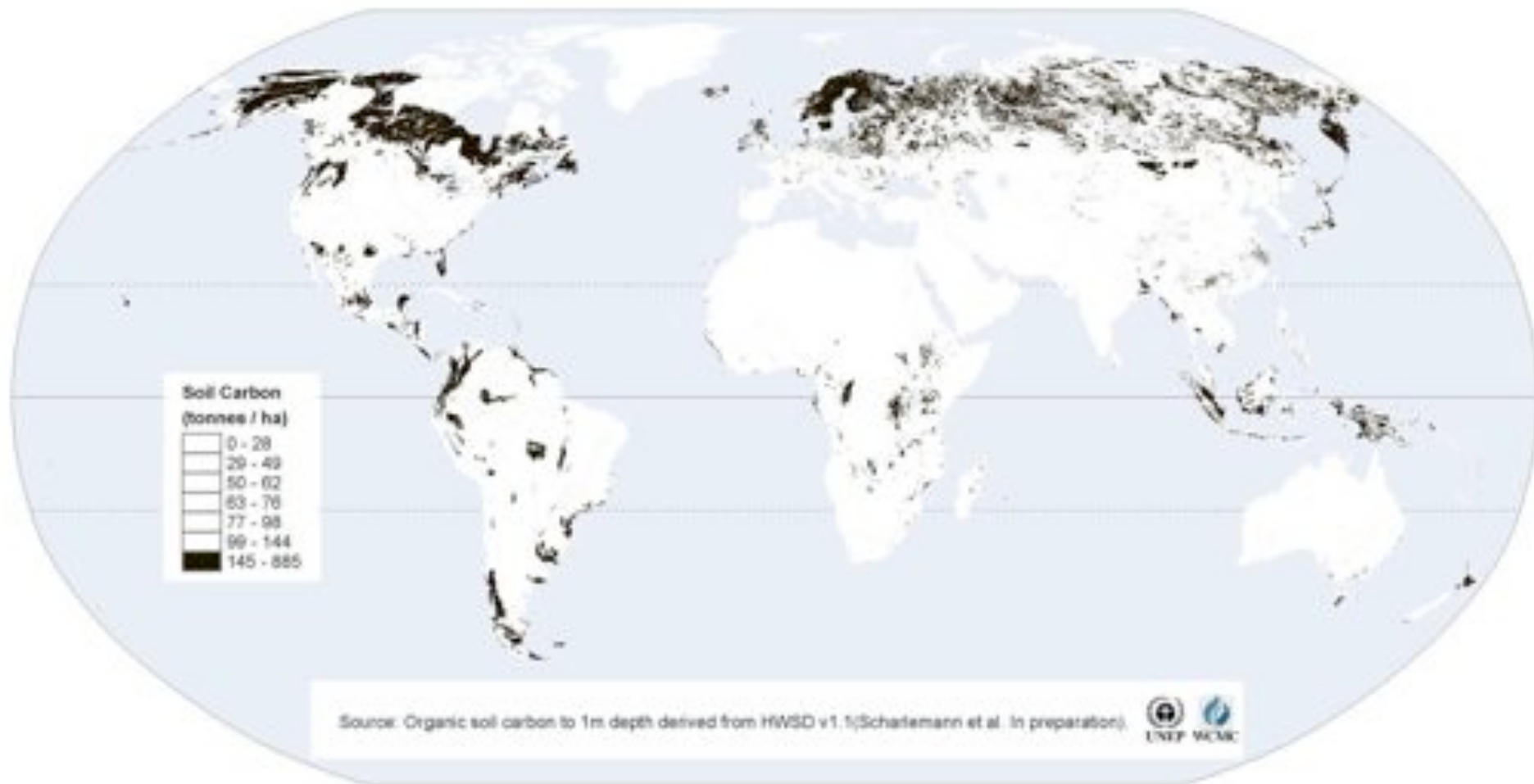
- Introduction
- **Implementation**
- Finance options
- MRV and practical solutions
- Country-wide overview of opportunities

The neglected pool: SOC



Soil Organic Carbon holds 6x more carbon than the entire global forest biomass pool

The SOC hotspot



Peatlands (organic soils) on 3% of the land
contain 30% of all Soil Organic Carbon

The LULUCF emission hotspot



Drained and degraded peatlands on 0.3% of the land
emit 6% of all anthropogenic CO₂

In living peatlands:

- Production is larger than decay
- Dead plants accumulate as peat

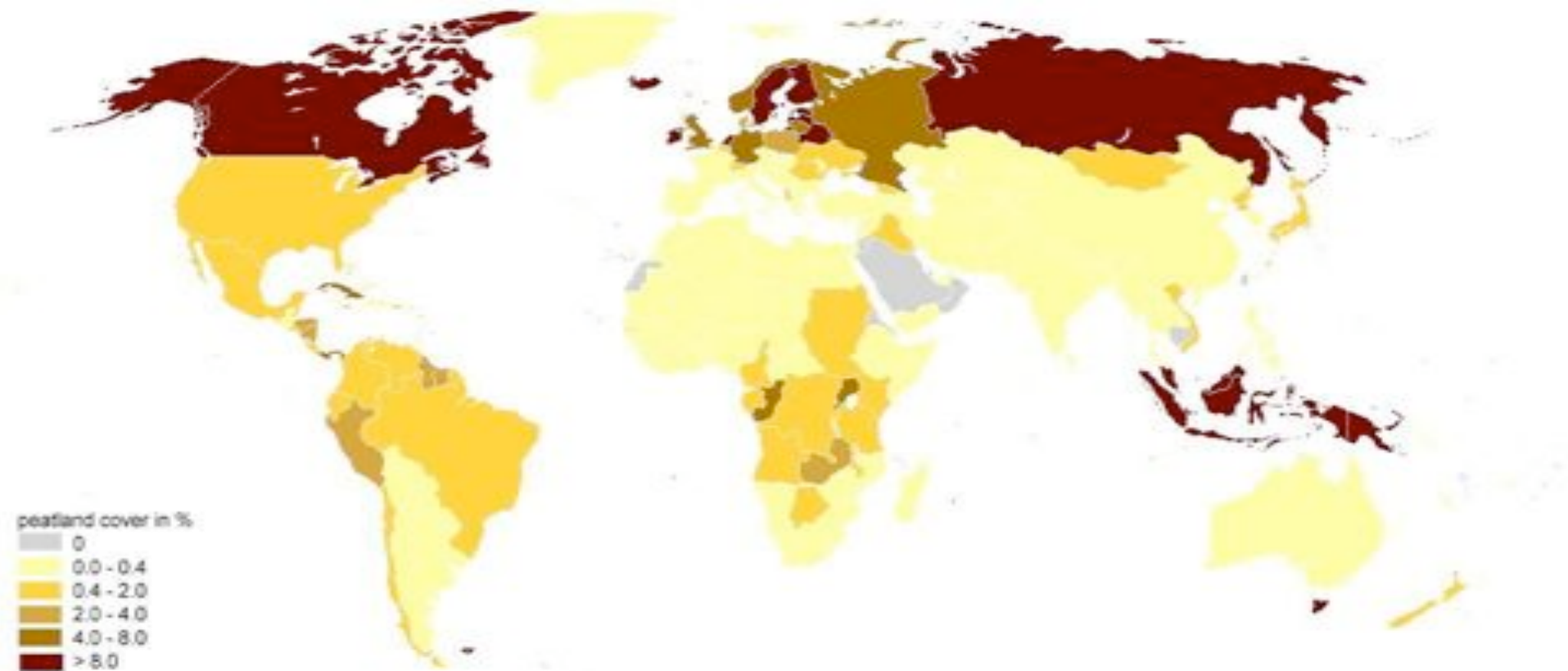


Kolkheti, Georgia

Peat accumulates during thousands of years and stores concentrated carbon in thick layers



Lesotho



Peatlands are found in almost every country.
Worldwide: 4 million km²

... from the tundra ...



Yakutia, RF

... to the tropics and ...



Brunei

...to the uttermost part of the World...



Tierra del Fuego
Argentina

...from the mountains ...

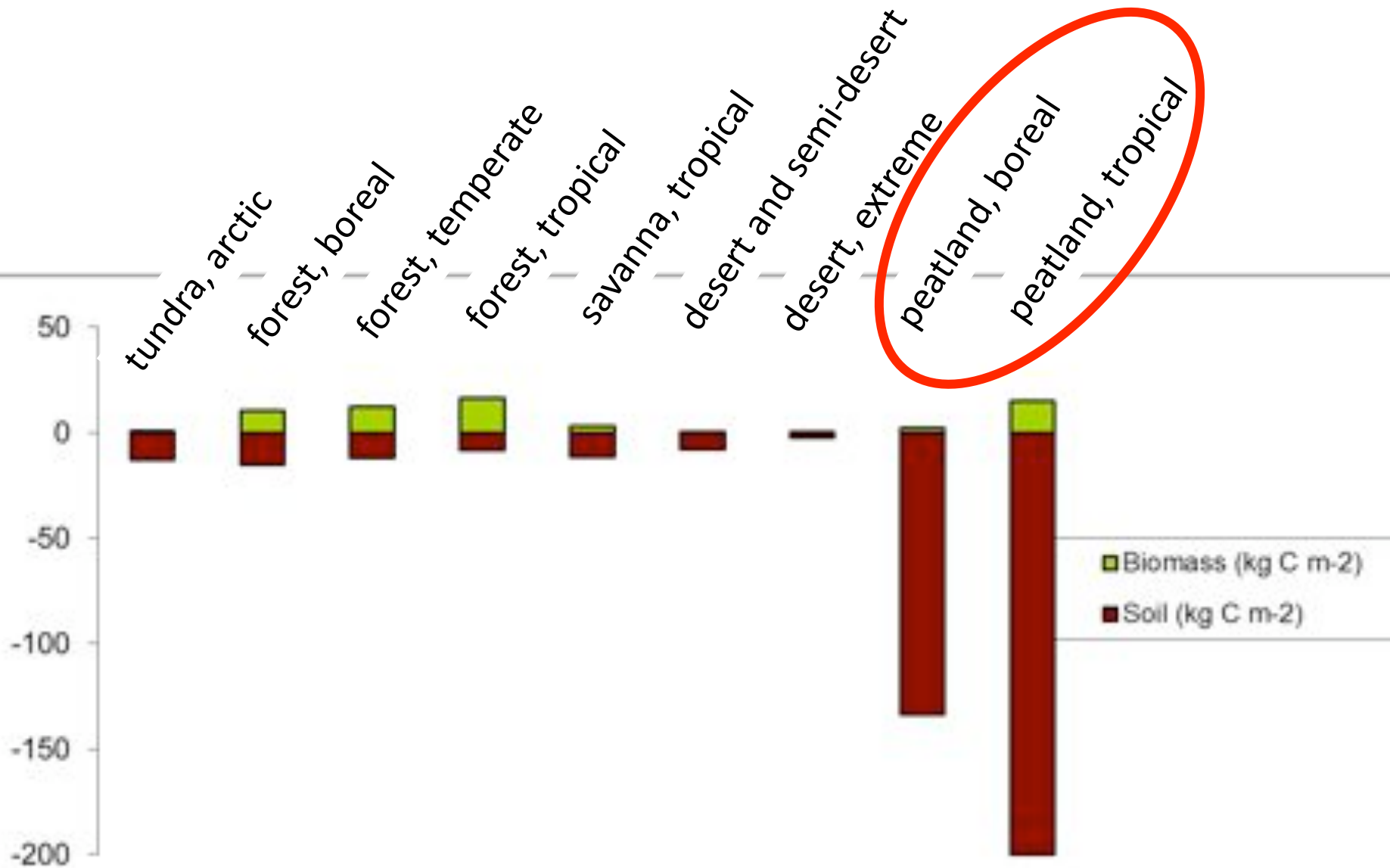


Kyrgystan

... to the sea ...



Archangelsk, RF



Peatlands contain disproportional carbon in their soil

Kalimantan



When drained, peatlands become vigorous sources of carbon dioxide (and nitrous oxide)



Globally peatlands have turned from a carbon-sink to a carbon-source (although 80% is still “pristine”...).



Globally, degraded peatlands emit 2 Gigatonnes CO₂ a⁻¹

Top peatland CO₂-emitters (Mt a⁻¹)

(excl. extraction and fires)

Indonesia	500	Poland	24
Russia Eur. part	139	Russia Asian part	22
China	77	Uganda	20
Finland	50	Pap. New Guinea	20
Malaysia	48	Iceland	18
Mongolia	45	Sweden	15
Belarus	41	Brazil	12
USA (lower 48)	33	United Kingdom	10
Germany	32	Estonia	10



Southeast Asia (Indonesia, Malaysia) leads the list...



But the EU is a good second...: In the EU 80% of the CO₂ emissions from agricultural land use comes from peatland!



Panama

Globally, emissions from drained peatland have increased with +25% since 1990, especially in the tropics

Main drivers: drained agriculture...



Kalimantan

...overgrazing...



Tibet

...drained forestry



Germany

Peatland drainage causes problems



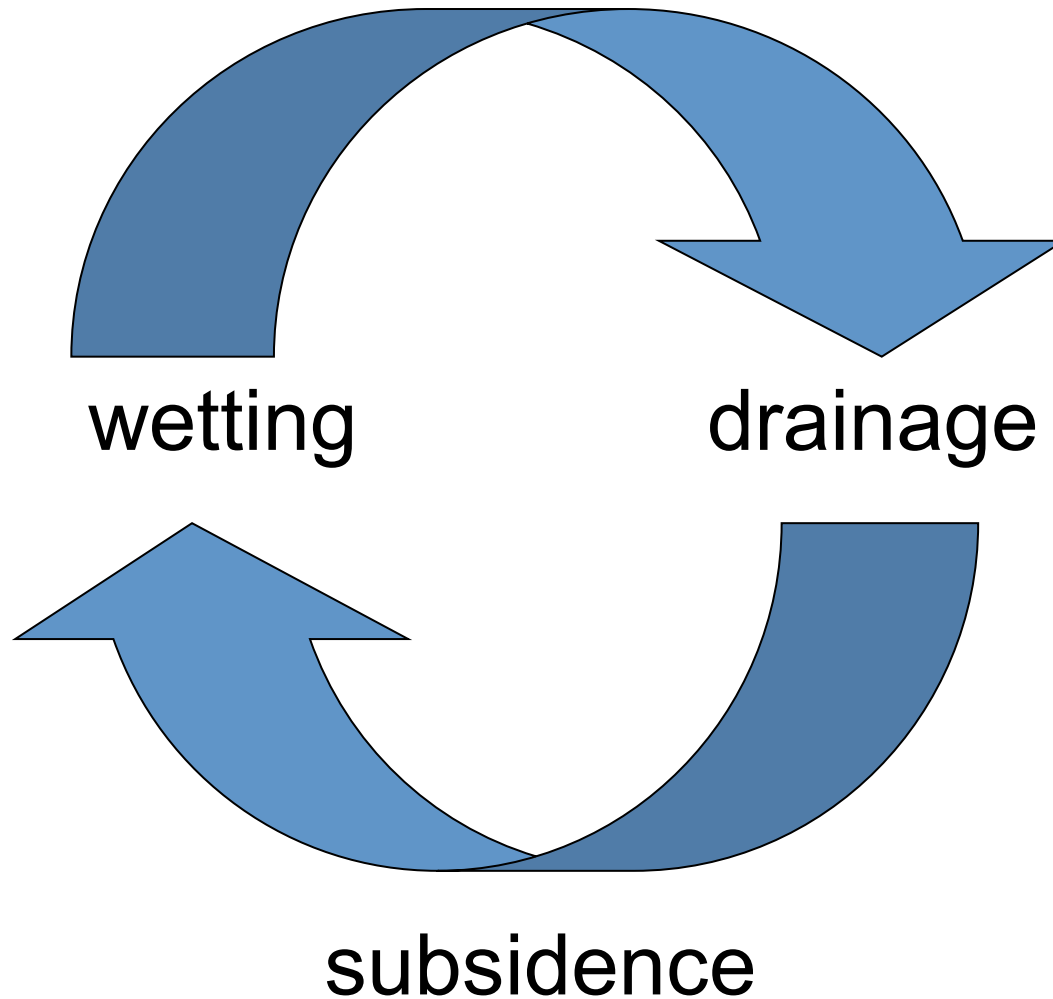
Uganda



Drained peatland subsides, becomes wetter and requires ever deeper drainage, leading to further subsidence

... the “*devil’s cycle*” of peatland utilisation...

wet “problem sites”





Bavaria: 3 m loss since 1836

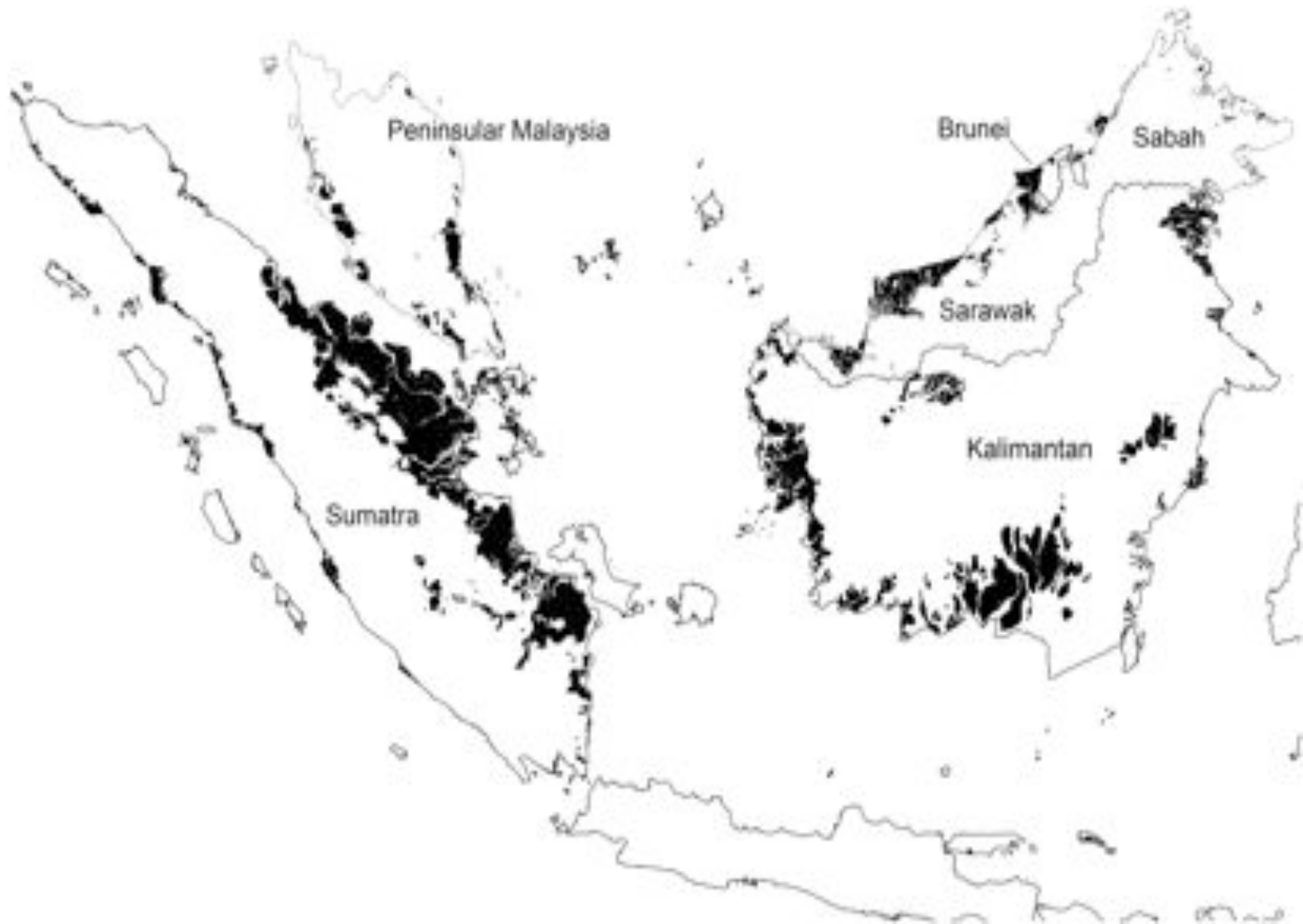


UK: 4 m loss since 1870

...*Nether*-lands: 1000 yr of peatland drainage, now half the country deep under sea level...



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



Many peatlands are coastal and will - with continuous drainage - become undrainable ...



In Germany, ten thousands of hectares of agricultural peatland have been given up as they could no longer be drained

Ukraine



In continental areas peat soils degrade irreversibly. In Belarus, Ukraine and Russia millions of hectares have been abandoned

Mongolia



Desertification after peatland overgrazing



Peatland erosion in Ireland...



.. Lesotho...

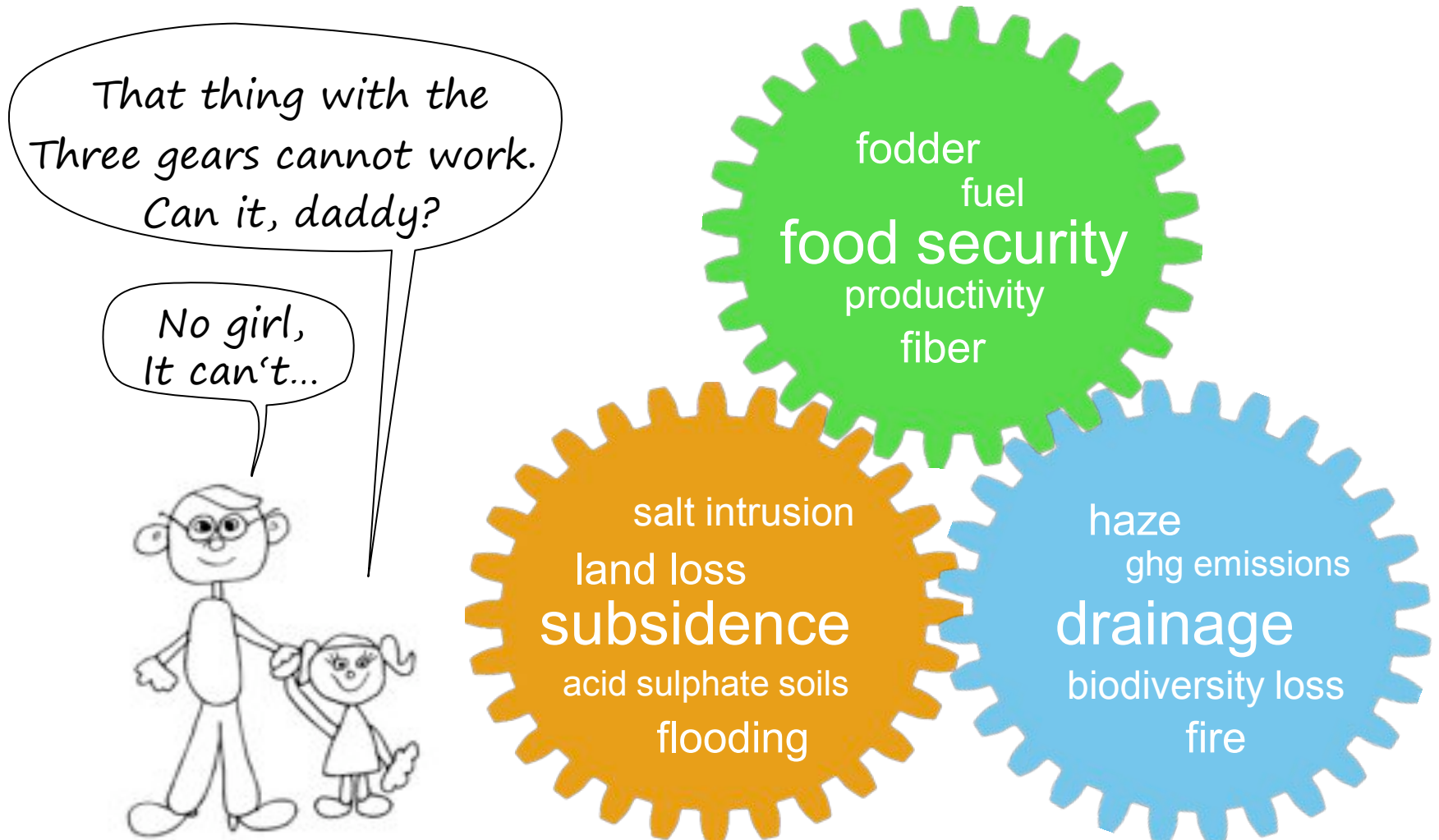


.. and Tibet...

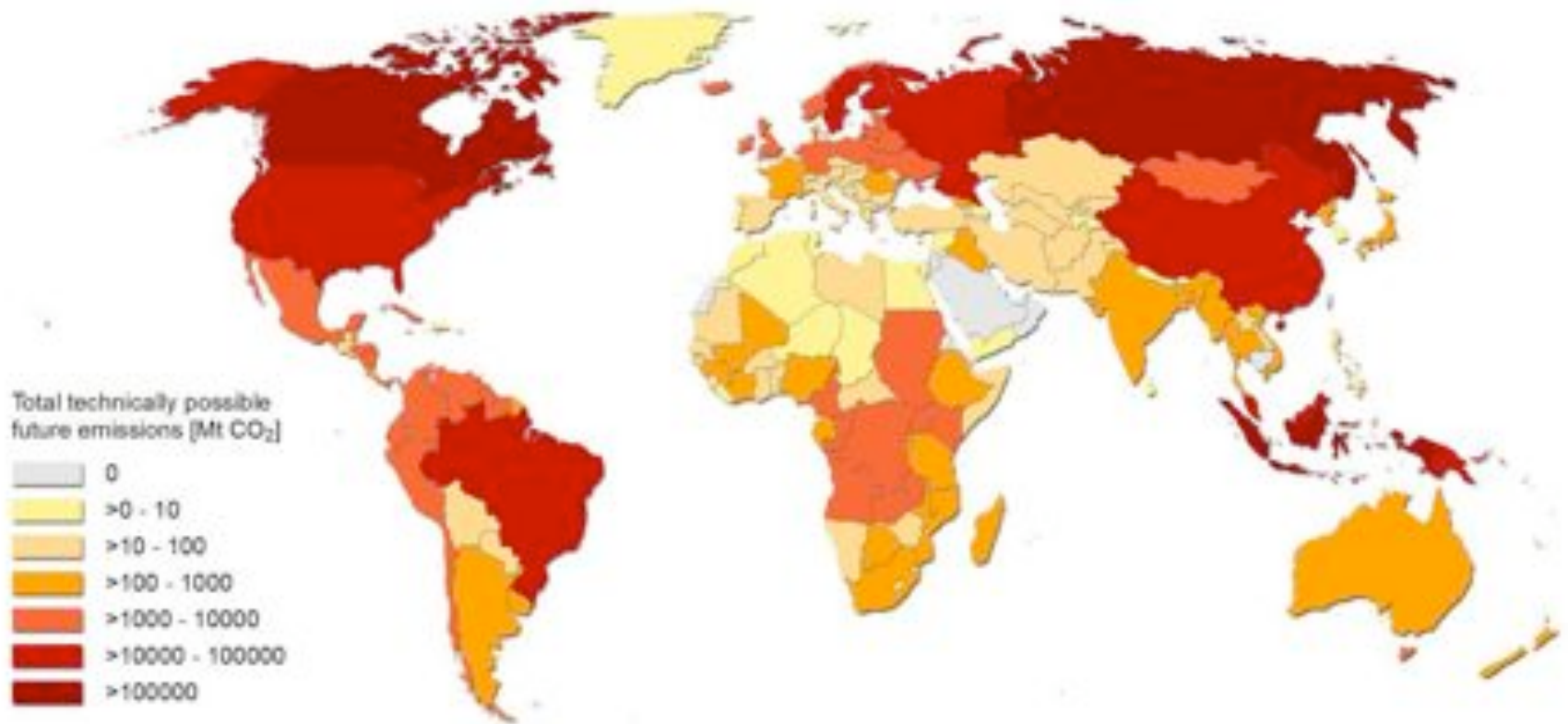


...and drained peatlands burn, even under snow...

Drained peatland use destroys its subsistence base

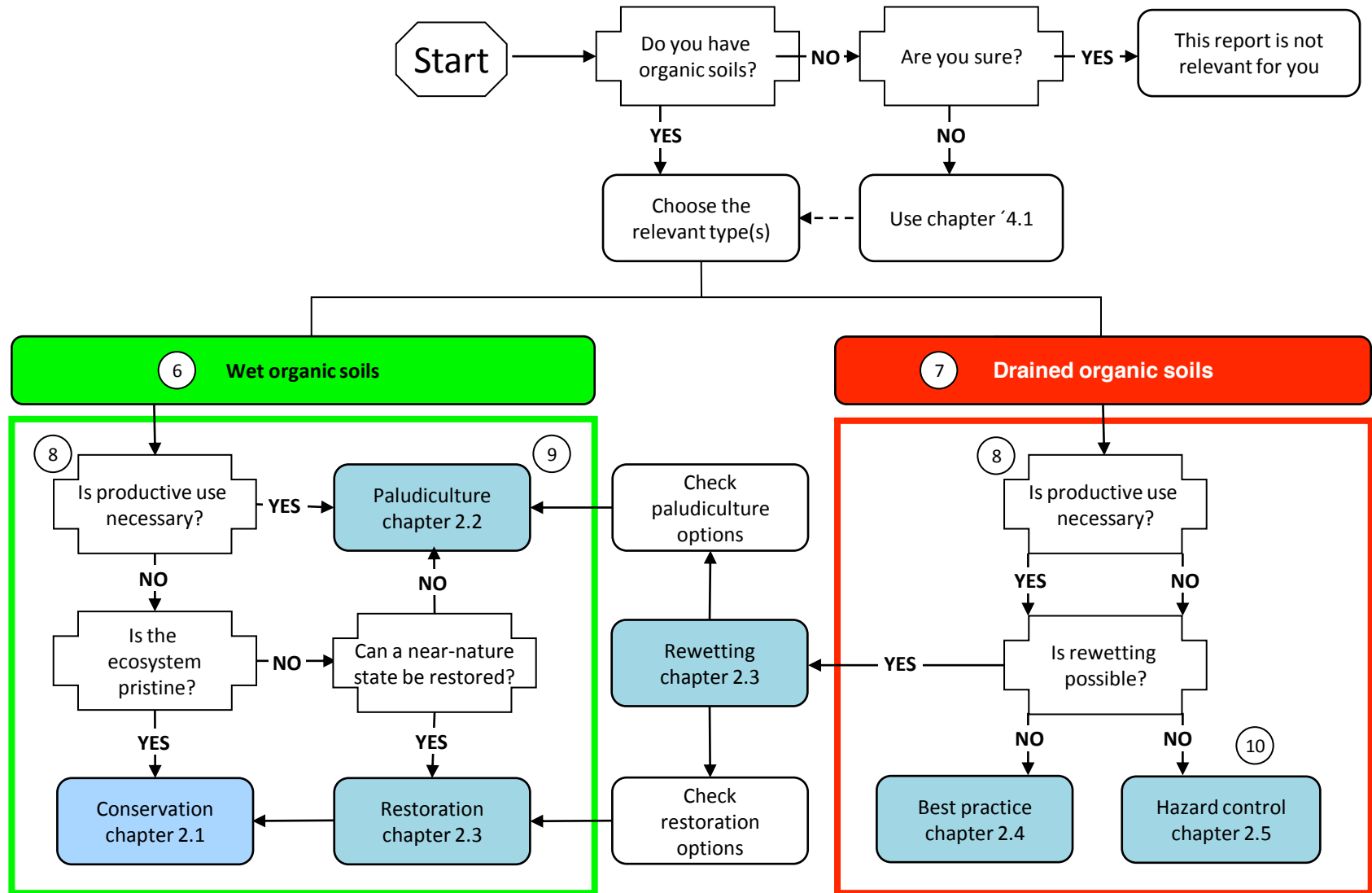


We can't continue like this!

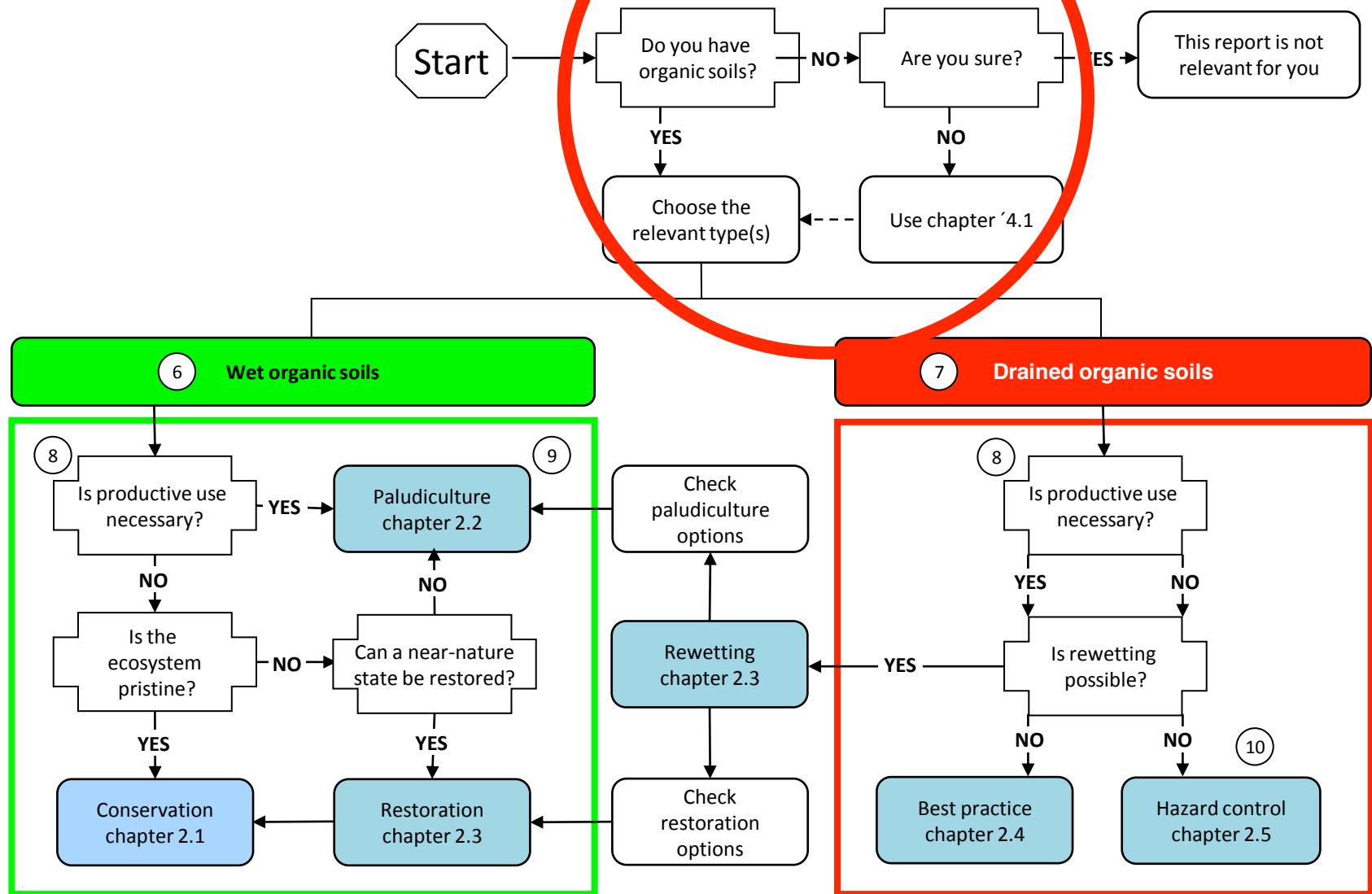


Many countries are huge *potential* peatland CO₂-emitters

Decision support tree



Decision support tree



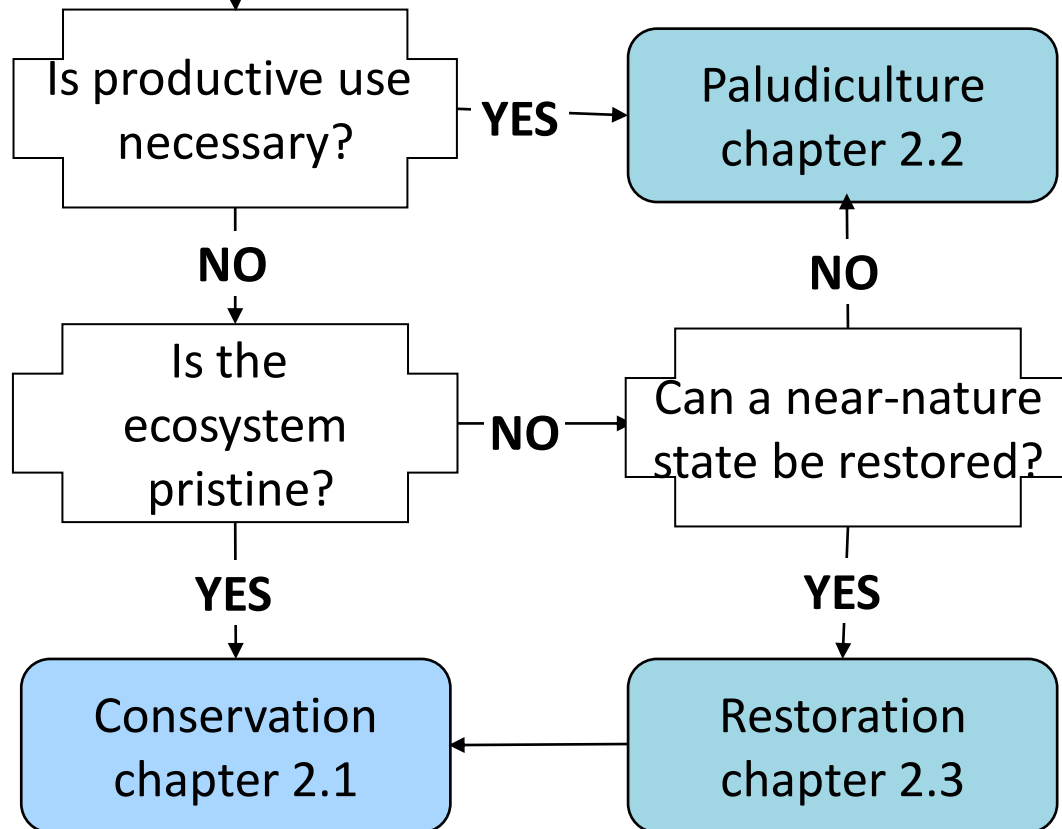
Kenya



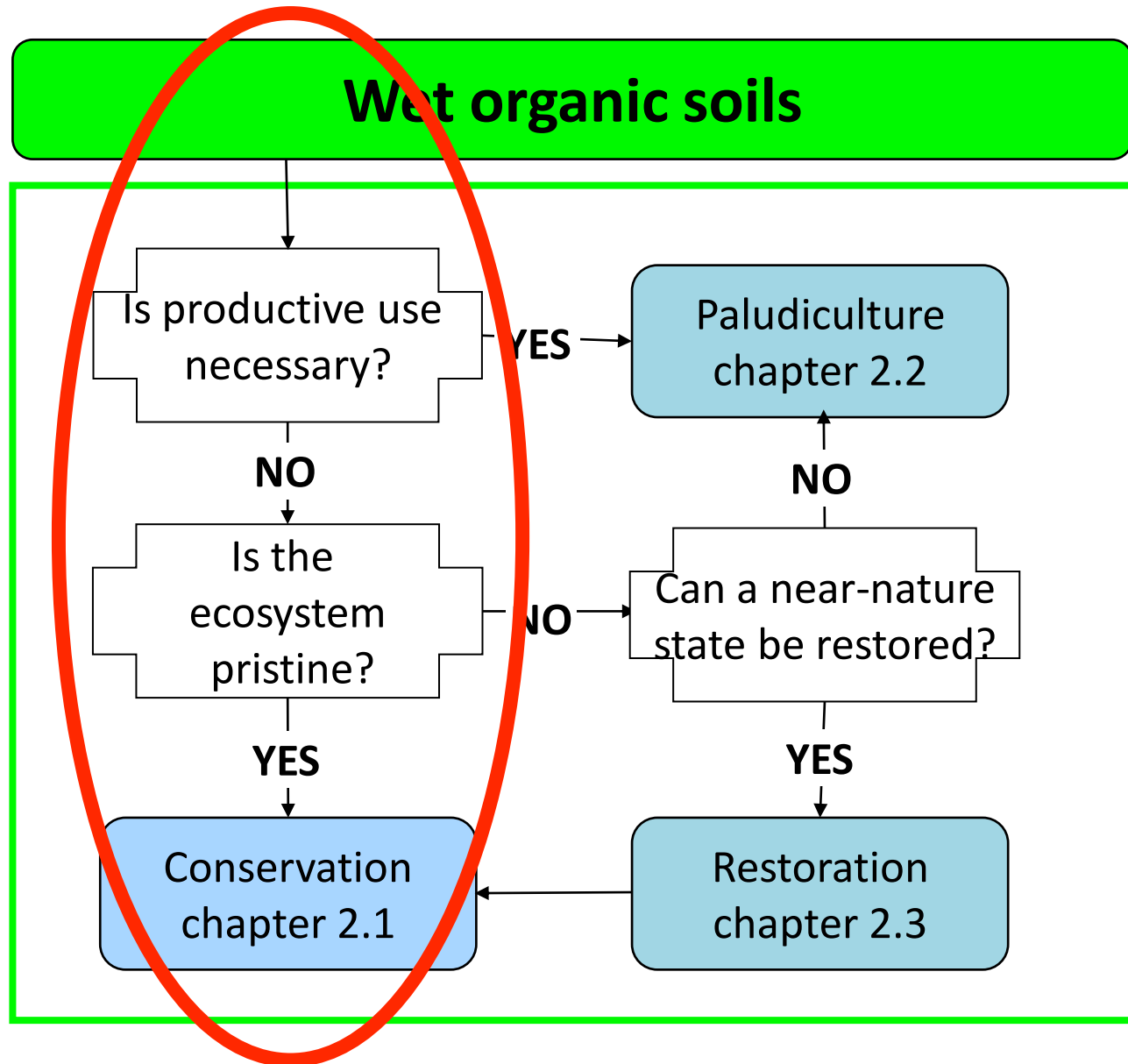
In Kenya there is no peat...

Decision support tree

Wet organic soils



Decision support tree



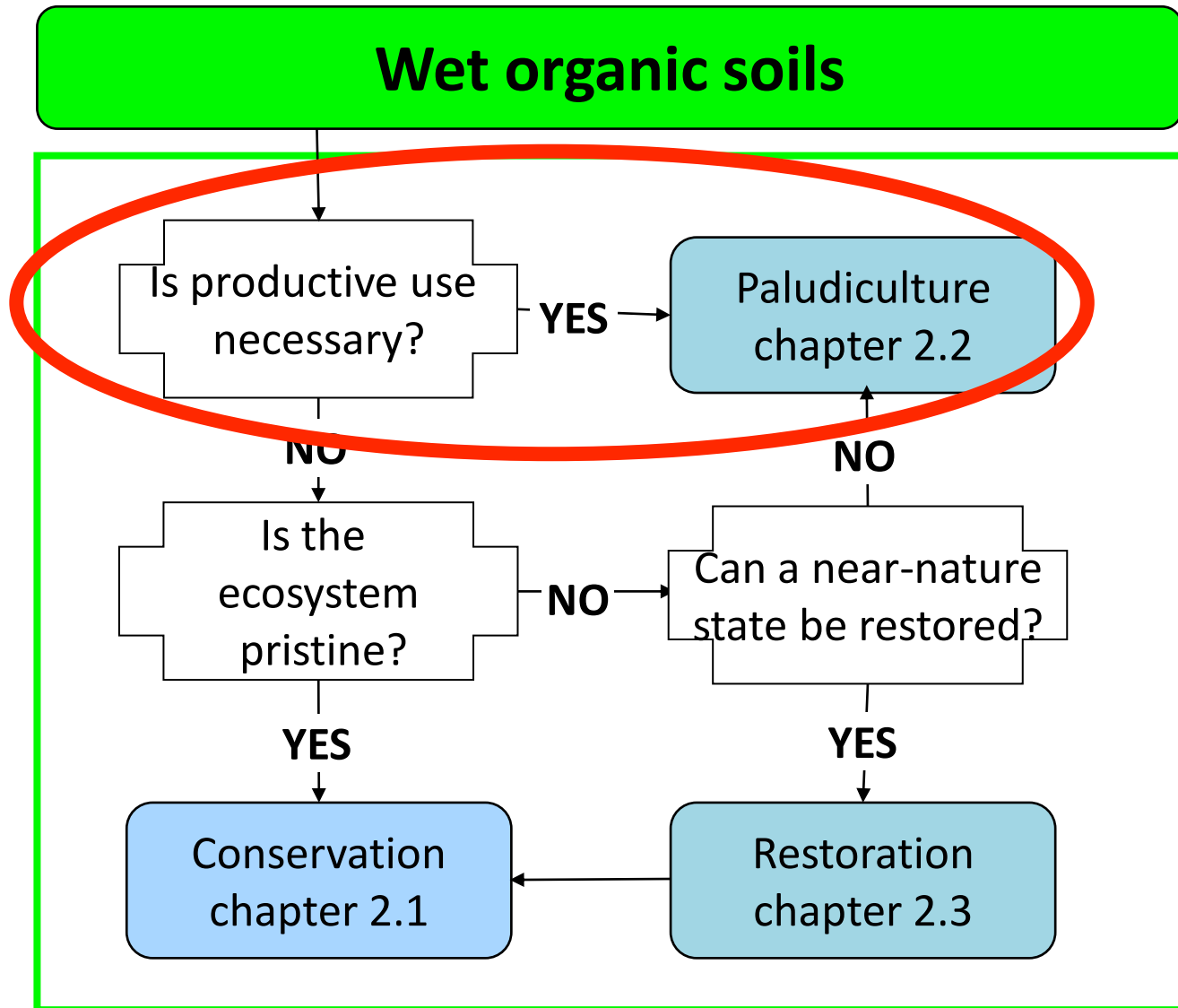


Non-used peatlands are not use-less: they provide vital ecosystem services...



and are important for biodiversity ...

Decision support tree





If you need to use them, use them wet: paludicultures!



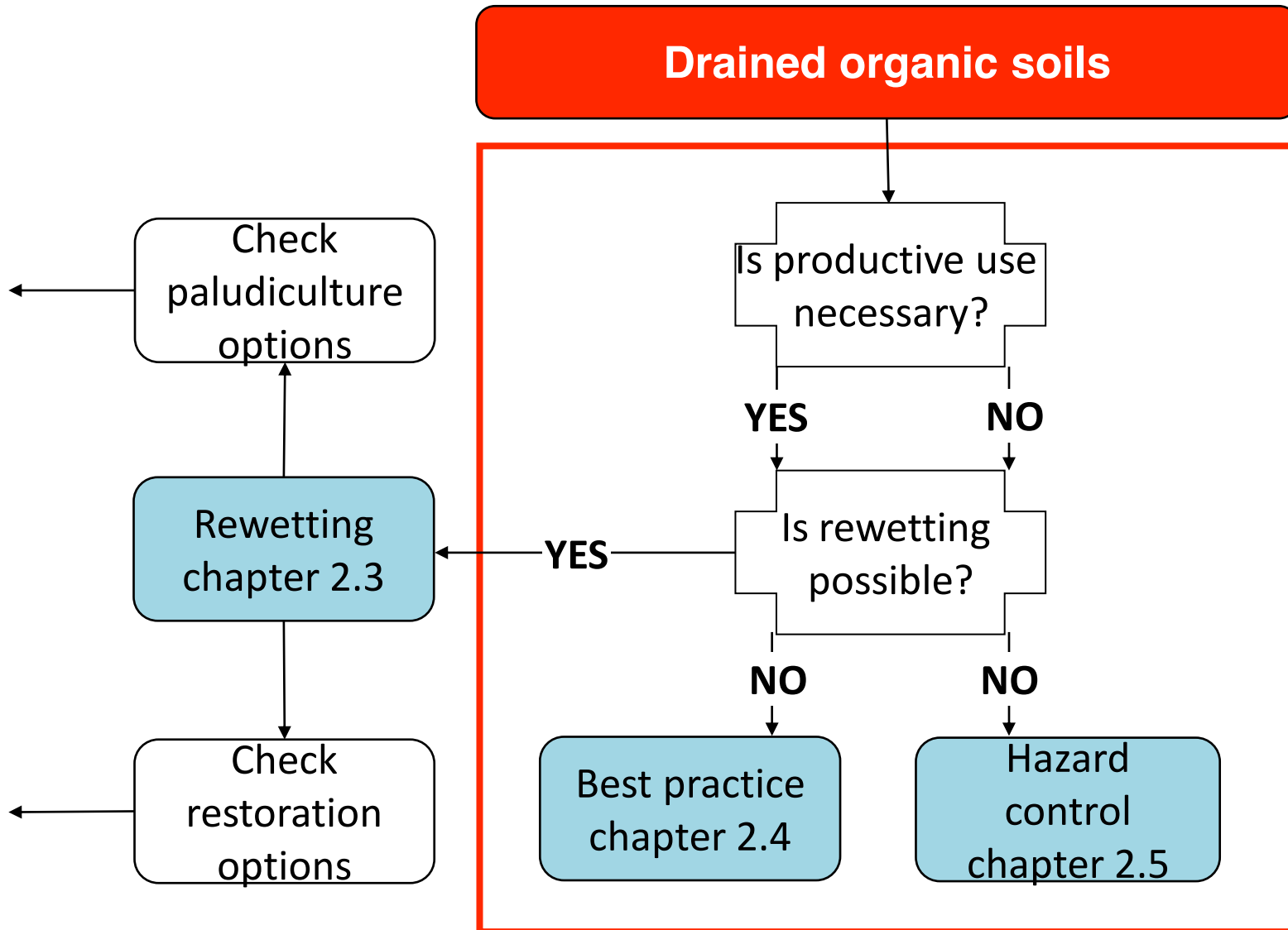
Paludiculture is agriculture/grazing/forestry on wet peatland

Germany

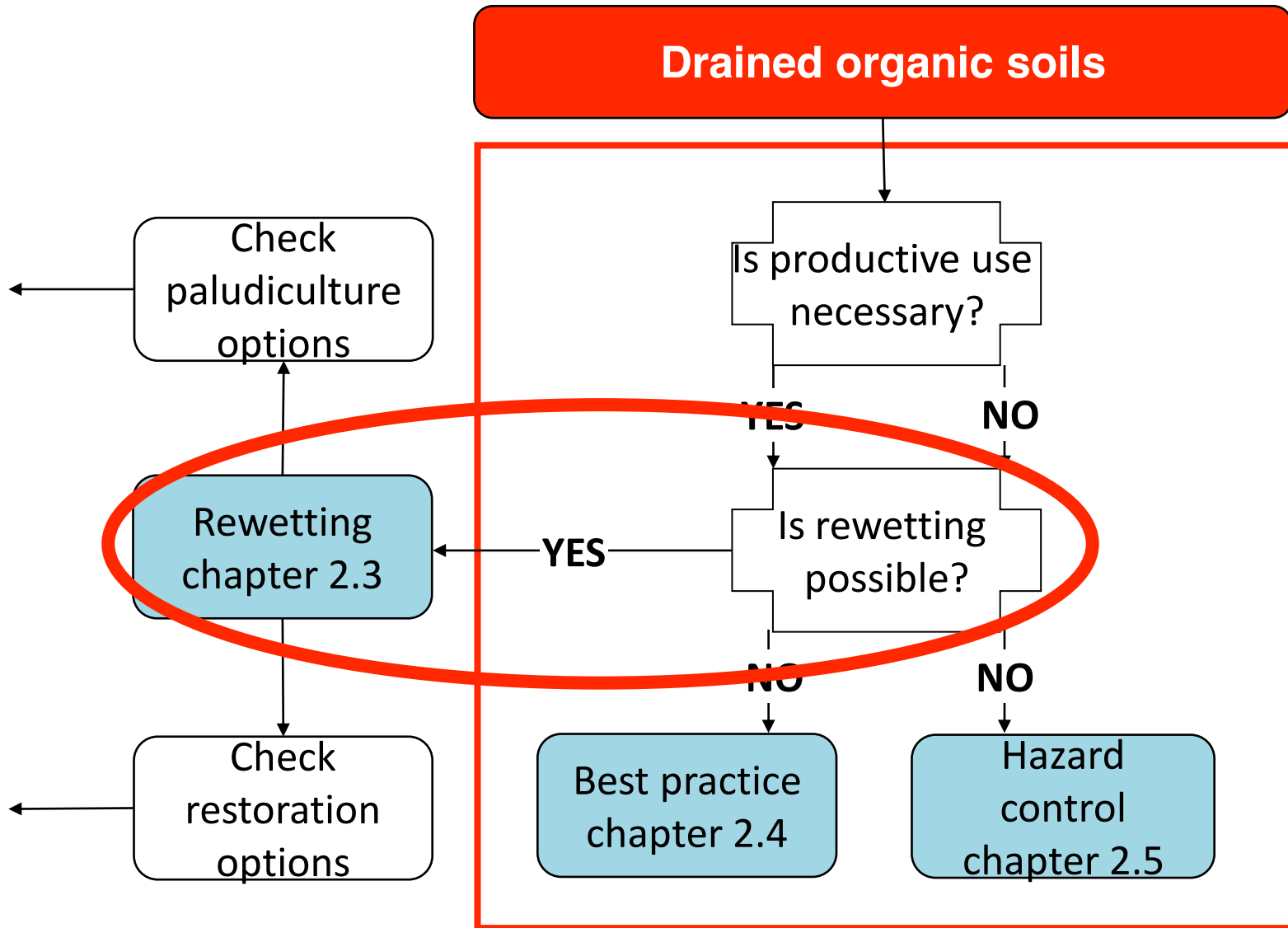


Wet alder forestry: biomass and peat accumulation

Decision support tree



Decision support tree



Rewetting to reduce emissions



Kalimantan



Rewetting to reduce emissions



Belarus

Rewetting to reduce emissions

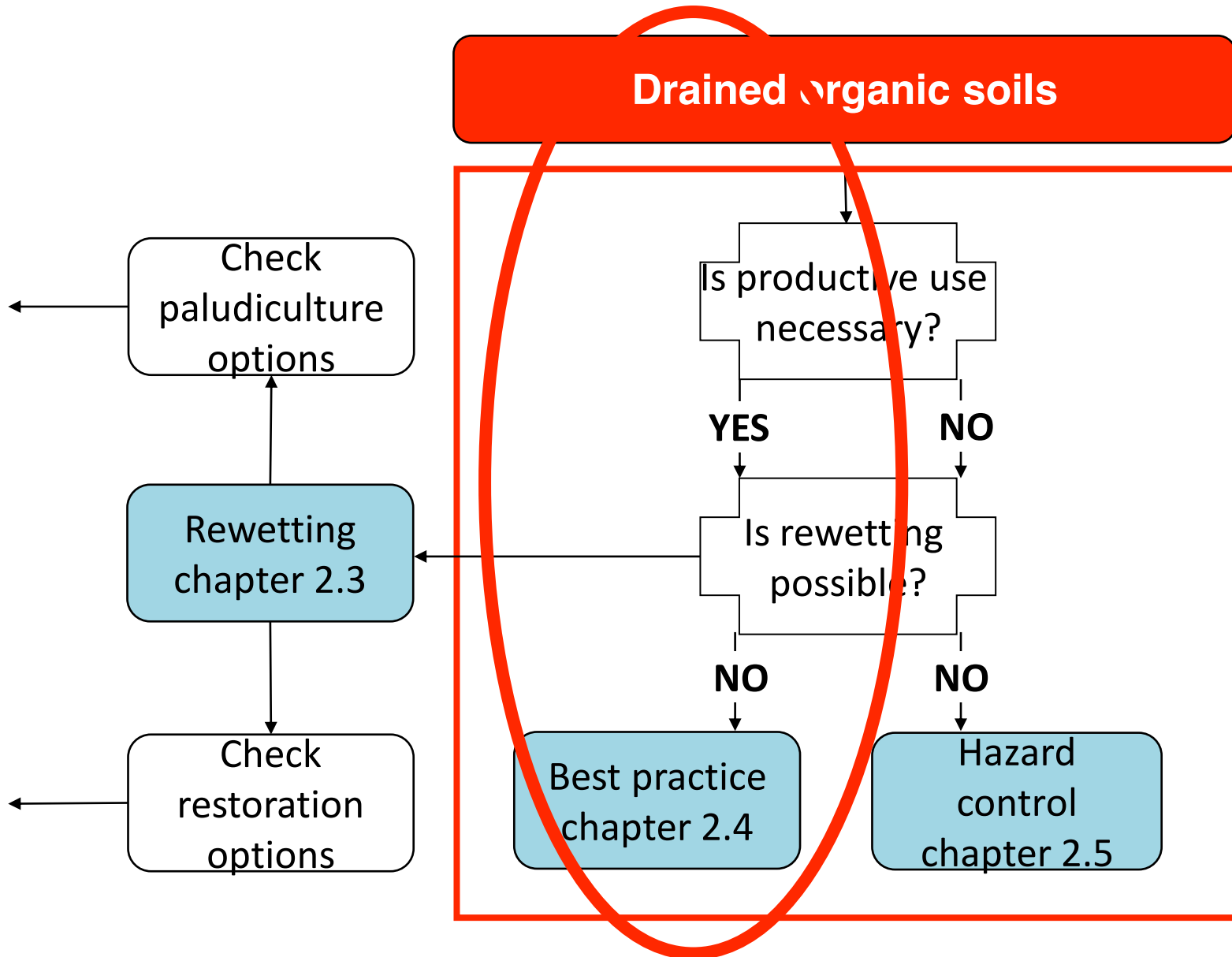


Rewetting with paludiculture reduces peatland emissions *and* produces renewable biomass resources: Reed



Rewetting with paludiculture reduces peatland emissions *and* produces renewable biomass resources: Jelutung

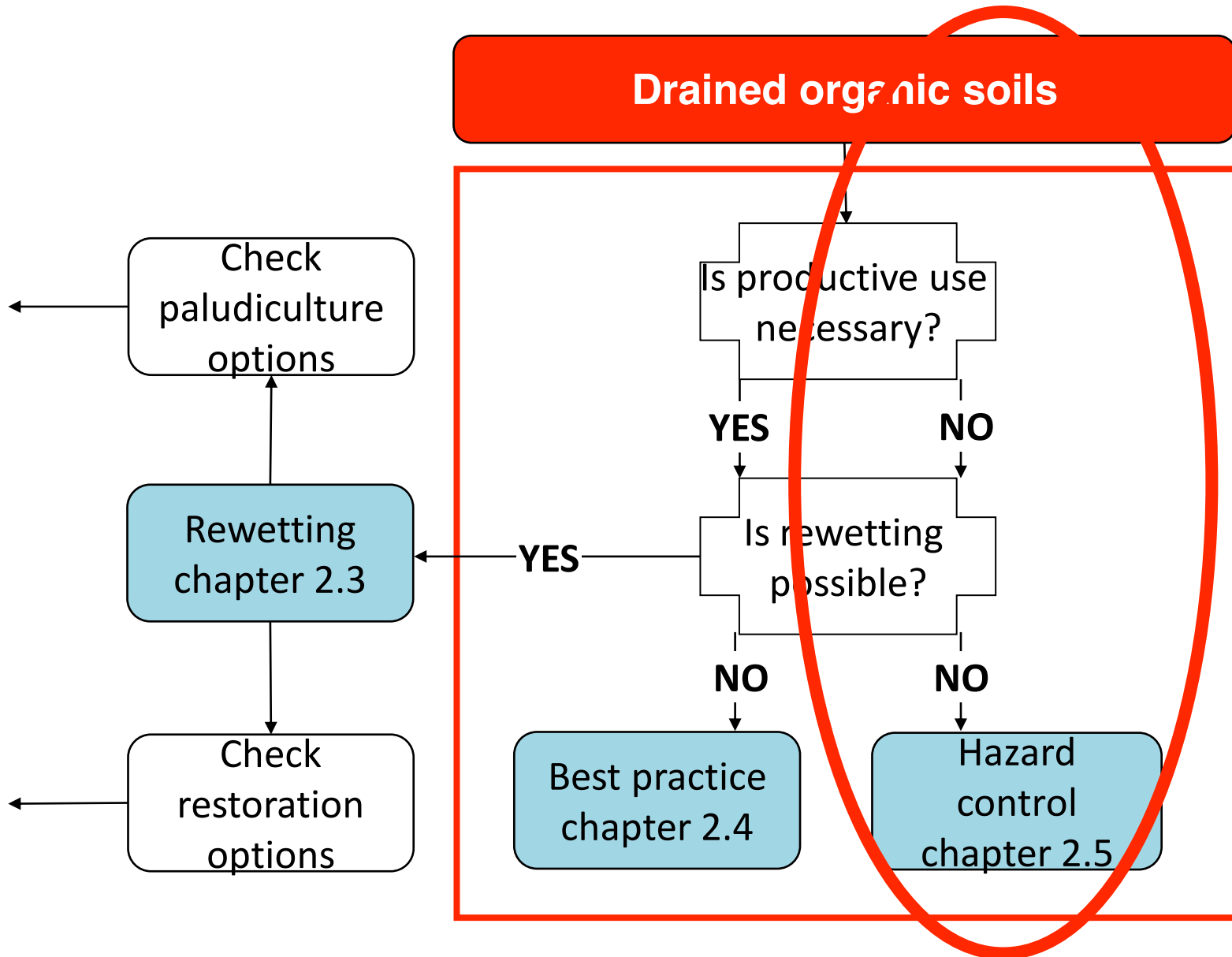
Decision support tree



Used and not rewet-able

- Minimize drainage as far as possible
- Choose crops adapted to high soil moisture
- Avoid plowing
- Cultivate permanent crops that reduce surface temperatures
- Avoid land clearing by fire
- Limit fertilization

Decision support tree





Peatlands burn if drained, abandoned and easily accessible.
Better prevent this!

Peatlands

- provide many important ecosystem services
- have an enormous peat carbon pool that is highly sensitive for disturbance
- cause – when drained - large emissions (which continue long after conversion) and virtually irreversible peat carbon losses
- Any further degradation should be prevented.
- Peatland conservation, restoration and better management are low-hanging fruits for climate change mitigation and climate-smart agriculture (CSA).

Peatlands

- Secure undrained peatlands.
- Rewet drained peatlands.
- Adapt management of peatlands that cannot be rewetted.



Peatlands must be wet!