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# Peatland ecosystems – restoration and role in climate regulation (and for biodiversity) - Guidance from the Ramsar Convention

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STRP Lead in the current triennium on peatlands

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**Recent Ramsar guidance on peatlands:**

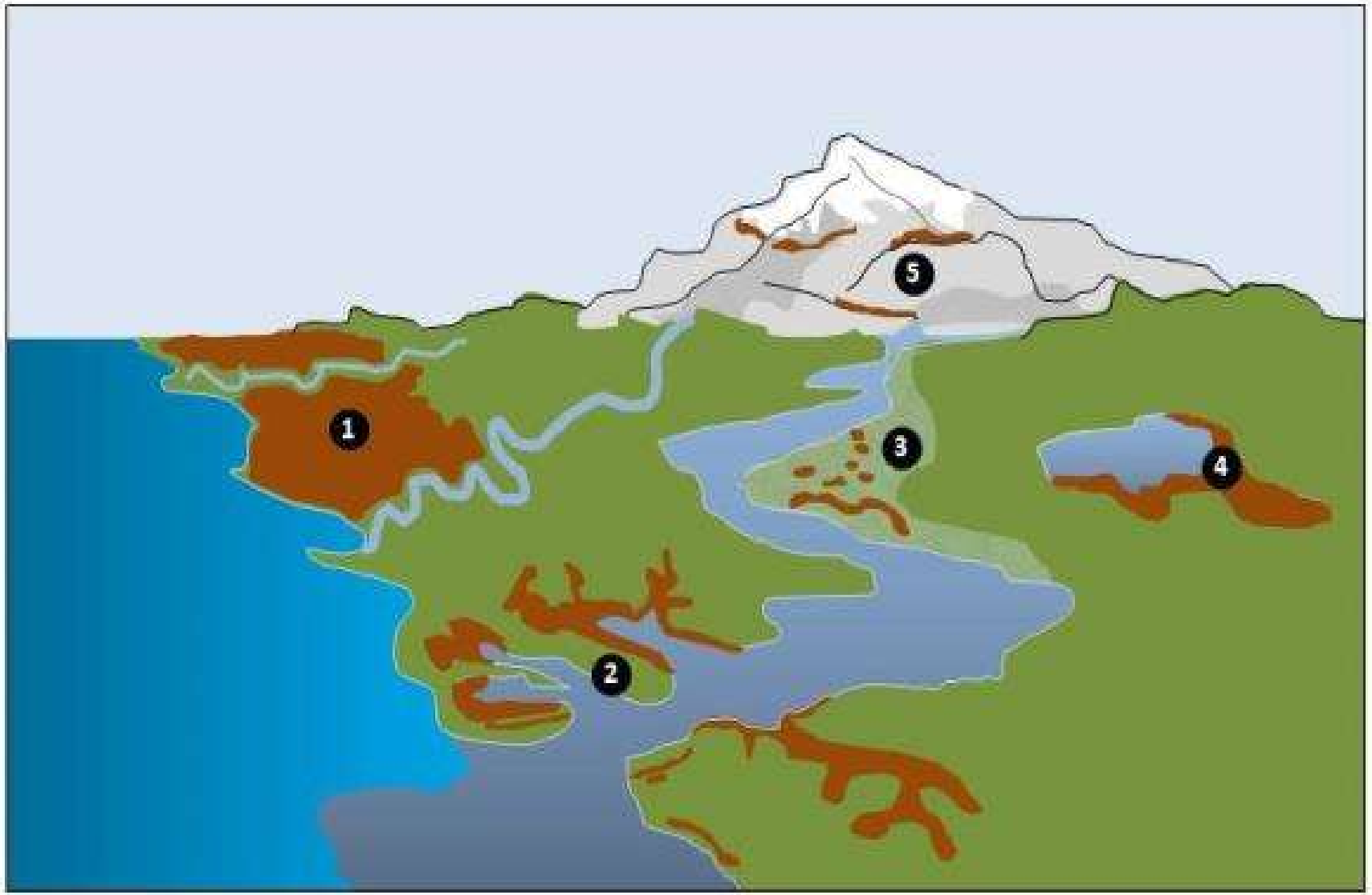
- **Policy Brief 5**: Restoring drained peatlands: A necessary step to achieve global climate goals: https://www.ramsar.org/document/ramsar-policy-brief-5-restoring-drained-peatlands-a-necessary-step-to-achieve-global

- **Briefing Note 11**: Practical peatland restoration: https://www.ramsar.org/document/briefing-note-11-practical-peatland-restoration

- **Technical Report 11**: Global guidelines for peatland rewetting and restoration: https://www.ramsar.org/document/ramsar-technical-report-11-global-guidelines-for-peatland-rewetting-and-restoration

- Guidelines for inventories of tropical peatlands to facilitate their designation as Ramsar Sites: bn9_peatland_inventory_e.pdf (ramsar.org)

# Peatlands are found from mountains to lowlands and from arctic to the tropics



# New peatlands found in the Congo and Amazonas

The Cuvette Centrale peatlands in central Congo basin recently discovered cover 145,500 km2.

The peat covers only 4% of the whole Congo basin, but stores the same amount of carbon below ground as that stored above ground in the trees covering the other 96%.

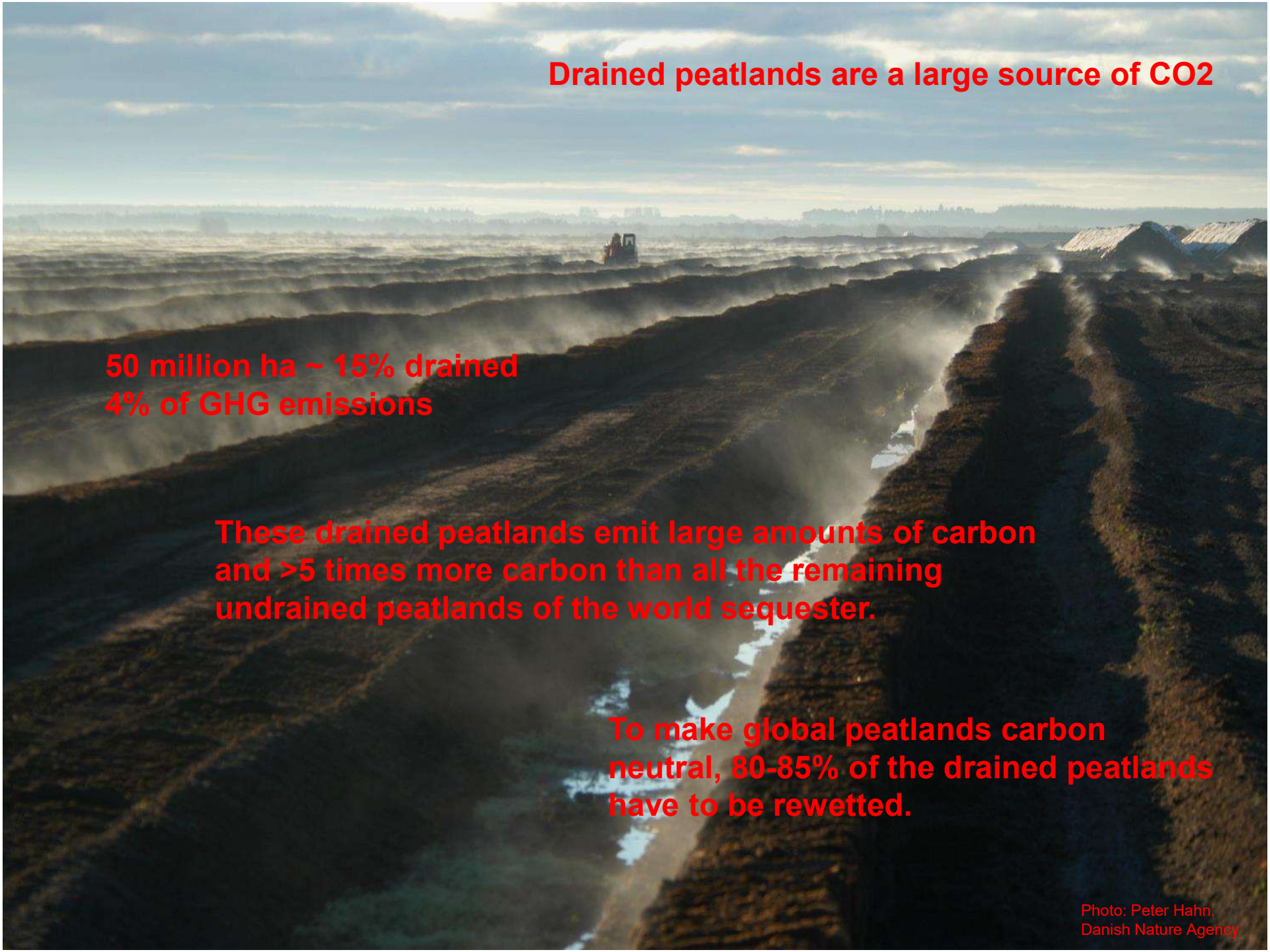
Dargie et al. 2017 Nature 542: 86-90.

About 35,000 km2 of peatland in north eastern Peruvian Amazonas.

Covers just 3% of forested Peru but about 50% of the stored carbon.

Draper et al. 2014. Environmental Research Letters


Peatlands in their original state are important for biodiversity and as carbon stores
Photo: Hans Joosten, Greifswald University
3% of land, 400 million ha
600 G ton carbon


Drained peatlands are a large source of CO2
50 million ha ~ 15% drained
4% of GHG emissions
These drained peatlands emit large amounts of carbon and >5 times more carbon than all the remaining undrained peatlands of the world sequester.
To make global peatlands carbon neutral, 80-85% of the drained peatlands have to be rewetted.
Photo: Peter Hahn, Danish Nature Agency


One common goal: < 2˚C and emission brought to zero in 2050

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## Policy Brief: Key policy messages

Dinesen, Joosten, Rochefort, Lindsay, Glatzel, 2021

**Protecting existing carbon stocks by stopping new drainage of peatlands will enable continued carbon sequestration and biodiversity conservation on these lands.**

At least 50 percent (25 million ha) of the currently degraded peatland area should be restored by 2030 to enable global warming to remain below 1.5 to 2.0 °C.

The UN Decade on Ecosystem Restoration provides opportunity to rapidly scale up peatland restoration efforts.

By simply blocking drainage systems and reintroducing peat-forming plants when needed, parties can effectively restore peatlands and reduce carbon dioxide emission).

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## Policy Brief: Key policy messages

Dinesen, Joosten, Rochefort, Lindsay, Glatzel, 2021

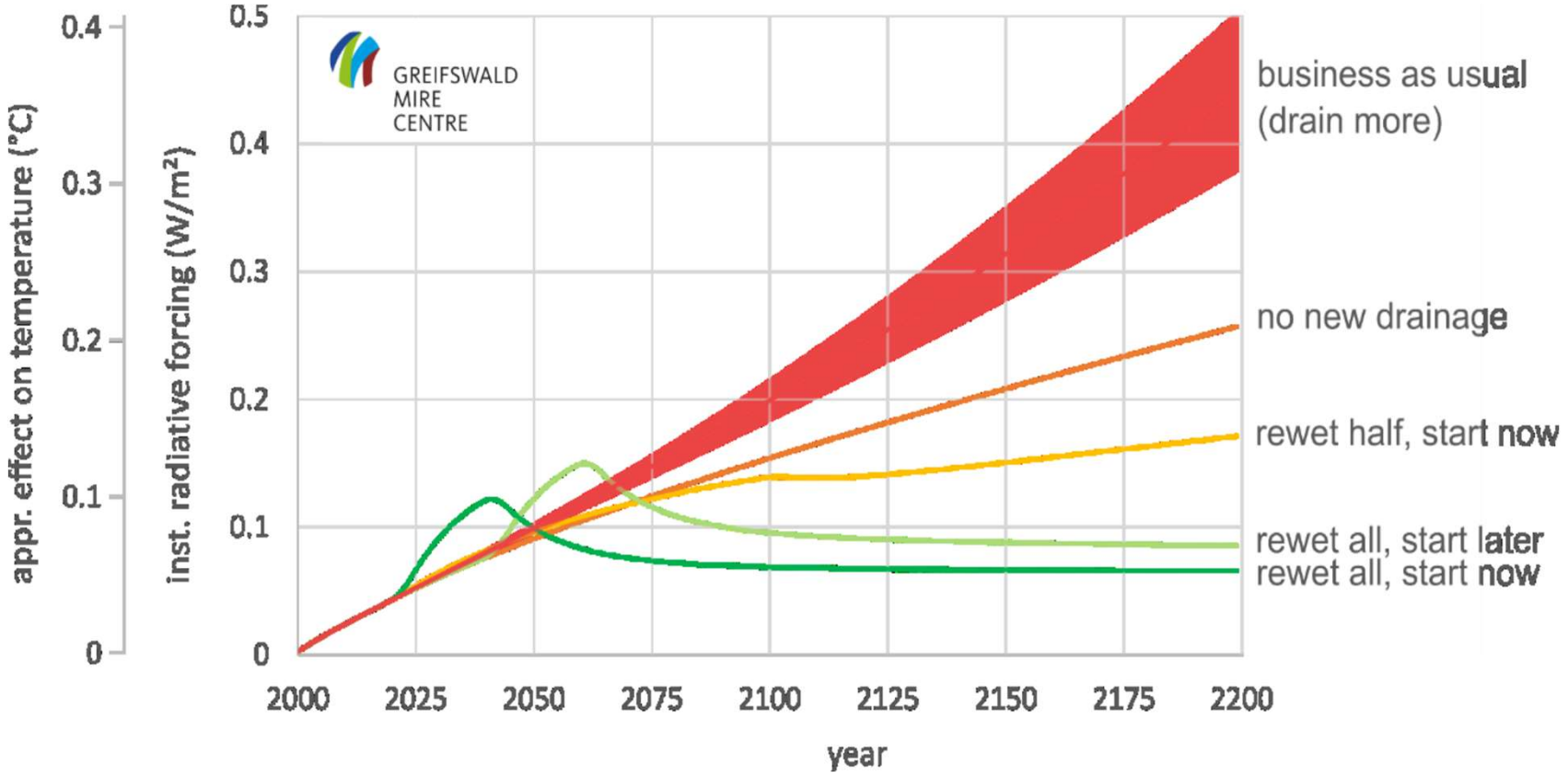
Possible short-term increases in methane emissions associated with rewetting are offset by avoided carbon losses and can be reduced by available management techniques.

Parties are encouraged to include emissions from organic soils and emission reductions from peatland rewetting and restoration in national greenhouse gas inventories and to join and forward information as a NDCs under the Paris Agreement.

Land use policies, including those for agriculture and forestry, should ensure that drainage-based agriculture and forestry do not expand further into peatland areas.

Governments, international financing institutions and private investors are encouraged to provide financial resources for large-scale peatland rewetting and restoration.

# Restoration of peatlands globally



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# Global guidelines for peatland rewetting and restoration

Author:
Hans Joosten,
Greifswald University

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## RTR: Global guidelines for peatland rewetting and restoration

By Hans Joosten supported by the STRP

- The Paris Agreement implies **rewetting virtually all drained peatland** (50 m ha globally).
- Without **complete rewetting** and vegetation regeneration, peat subsidence and carbon emissions continue;
- Peatland restoration **cannot bring back all the values lost, so conservation comes first**.
- Peatland restoration depends on societal opportunities and constraints. **Goal setting must involve an iterative process of problem analysis and goal formulation**.
- Restoration **experiences should be monitored, evaluated and lessons incorporated** in future work and planning.
- Low and unstable water tables are the central issue to be addressed by restoration, but **the type of actions needed differs between peatlands**.

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## RTR: Global guidelines for peatland rewetting and restoration

By Hans Joosten supported by the STRP

- Effective **blocking of drainage** involves strategic planning of dam location and spacing, regular inspection, timely maintenance, and promotion of spontaneous ditch re-filling.
- **When blocking ditches is not enough**, bunds, hummocks, buttressed or stilt-rooted trees are needed to hamper wet-season surface run-off.
- **Re-establishing peat forming vegetation is the second main restoration challenge**. Re-introduction may be needed.
- **In raised bogs, a key aim is to restore the acrotelm**, a vegetation-based hydrologic self-regulation mechanism.
- **Peatlands share many characteristics**; one site can learn from experiences elsewhere.

# Ramsar Briefing Note: Practical peatland restoration

Author: Hans Joosten Greifswald University

**The most important restoration technique is rewetting, i.e., raising the annual average water table to around the peat surface.**

**Re-establishing a suitable vegetation is vital for protecting the peat body, re-installing peat formation, supporting biodiversity**

# Recent resolutions on peatlands from about 170 Ramsar Contracting Parties

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## Resolution XIII.12 - On identifying peatlands as Wetlands of International Importance (Ramsar Sites) for global climate change regulation as an additional argument to existing Ramsar criteria

Presenting guidelines for identifying and designating peatlands as Ramsar sites and use this guidance to inventorise and designate peatlands for communicating their huge role in climate change regulation

## Resolution XIII.13 - Restoration of degraded peatlands to mitigate and adapt to climate change and enhance biodiversity and disaster risk reduction

Encourages countries to conserve existing peatlands and to restore degraded peatlands in their territory, as one means to contribute to climate-change mitigation, adaptation, biodiversity conservation, and disaster risk reduction

## Resolution XII.11 - Peatlands, climate change and wise use: Implications for the Ramsar Convention

Initiated a number of tasks within the Convention and encouraged countries to consider limiting activities that lead to drainage of peatlands and may cause subsidence, flooding and the emission of greenhouse gases and urges greater international cooperation, technical assistance and capacity building to address this

# The challenge ahead is major:

Meeting the Paris Agreement and reaching carbon neutrality means that by 2050 some **50 million ha of drained peatlands, half of which is in agricultural use, need to be rewetted and restored: almost *two million hectares per year***.

This needs an **enormous upscaling of restoration practice**, innovative approaches, clear and comprehensive guidance, as well as supportive government policies. Also implies that we tackle the core challenge: Intensive agriculture and forestry on drained peat: