

# **Peatlands rewetting, restoration and conservation offers a low-cost, low-tech, high impact Nature-Based Solution for Climate Action**

## **1. Context and rationale**

Peatlands are unique ecosystems that offer a triple win for the climate, people and the planet. Peatlands are enormous carbon sinks, they protect unique biodiversity, control water supply and quality, cool the atmosphere, prevent floods, and more, providing essential ecosystem services which people's lives depend on. Despite their importance and the extent of the threats they face, peatlands are one of the least understood and monitored ecosystems.

Peatlands occur in over 180 countries and although they only cover less than 3 per cent of global land surface, estimates suggest that peatlands contain twice as much carbon as the world's forest biomass. Healthy natural peatlands not only hold carbon (550 Gt), they continue sequestering approximately 0.37 Gt of CO<sub>2</sub> per year.

But peatlands around the world continue to be damaged by drainage, fire, overgrazing and extraction and their full potential for carbon sequestration and other vital functions remains unrealised. About 15% of the world's peatlands – covering less than 0.4% of the global land surface – have already been drained. This has released huge amounts of greenhouse gases, such as carbon dioxide (CO<sub>2</sub>), from the carbon stored within peat soils. In fact, degraded peatlands are responsible for 5% of the global anthropogenic GHG emissions at approximately 2Gt of CO<sub>2</sub> per year (Joosten, 2015) and when burning, that doubles to 10%. As peatlands become more accessible through development and investments in largescale commodity production their critical climate functions of carbon stores and sinks are put at risk.

There is evidence that the benefits of protecting and restoring peatlands outweigh the costs. Peatlands rewetting, restoration and conservation offers a low-cost, low-tech, high impact nature based solution for climate action. Peatlands experts have stressed the need to pay attention to fires in drained peatlands as “hotspots within the hotspots”, so countries that are fire-prone should take immediate action to rewet and restore their peatlands as a simple way to reduce carbon emissions.

## **2. An overview of the contribution**

Peatlands are vitally important to human societies around the world. They contribute significantly to climate change mitigation and play a crucial supporting role in efforts for adaptation through biodiversity conservation, water regulation, and support communities and their livelihoods. Research shows that conserving and restoring peatlands is an effective, but currently underutilised, pathway to reduce emissions and mitigate against climate change (Bonn, et al., 2016; Jaenicke et al., 2008).

The Global Peatlands Initiative is a partnership of 28 organizations aiming to reduce global greenhouse gas emissions and save thousands of lives by protecting peatlands, the world's largest terrestrial-soil organic carbon stock. Despite the growing momentum to mobilize governments, international organizations and academia in a targeted effort to protect peatlands, there is still a need for more countries, policy makers and senior level government technical advisors to become aware of the urgency of action to prevent the loss of peatlands to fires, degradation through drainage or disturbance and agricultural conversion. The protection of permafrost and other boreal and temperate peatlands is extremely important, yet has been a somewhat overlooked area for climate action.

Global Peatlands Initiative experts have called for a strengthened global exchange, collaboration and commitments by governments and private sector partners to abate the serious threat of peatland drainage and fires to climate change mitigation, human health, biodiversity and sustainable livelihoods. Countries with high peatland emissions should take immediate action to rewet their peatlands as part of their Nationally Determined Contributions (NDCs) as a simple way to reduce carbon emissions.

Tackling the challenges of peatland degradation and drainage will require sizeable political will that could be generated through the SG Climate Summit. This call to action could be transformative when combined with support to governments to implement strong peatland policies based on experiences and best practices from countries such as Indonesia and the United Kingdom. Accelerating rewetting, restoration and sustainable management of peatlands will need to draw on innovative community-led partnerships and take advantage of new wet-use and wet-agricultural approaches like eco-tourism and paludiculture to secure people's livelihoods.

### **3. How the contribution leverages living natural systems as a solution to climate change?**

Peatlands store 30% of all land-based carbon. Protecting this globally significant carbon store can play a crucial part in climate change mitigation efforts.

Degraded peatlands contribute approximately 5% of global CO<sub>2</sub> emissions. Peatland restoration provides a cost-effective pathway to prevent ongoing release of GHG emissions.

Healthy, functional peatlands actively sequester carbon while providing a multitude of other social and ecological benefits, representing a key Nature-Based Solution in responding to climate change.

### **4. Key outcomes**

*Reduction in carbon emissions and recovery and promotion of peatlands' natural ability for carbon capture*

*Increased climate resilience*

Healthy peatlands are integral to regional hydrology. Many communities around the world rely on their provision of drinking and irrigation water and stabilisation of discharge during flooding events. Peatlands also exert a cooling effect through evaporation and cloud formation. Regions with intact peatlands are more resilient to droughts and flooding. Changes in climate can alter the carbon cycle within peatlands and drained peatlands are less resilient to these changes. Warmer conditions increase the rate at which they dry and release carbon. The conservation of intact peatlands which can withstand climate stresses is a key pathway to increasing climate resilience (Bonn, et al., 2016).

*Social impact*

The social impacts of peatland degradation include land loss from subsidence, fires and associated health impacts of air pollution and reduced water quality. Land subsidence and flooding of degraded areas decreases agricultural productivity and puts lives at risk in coastal lowlands (Hooijer et al., 2012). Peatland fires in degraded areas produce dangerous air pollution and health impacts including respiratory tract infections, lung disease, and cancer (CIFOR, 2015). Millions rely on peatlands for their food, water and livelihoods. Support is needed to assist communities to manage peatlands sustainably and develop livelihood alternatives to halt destructive practices.

### *Net economic impact*

Research suggests that peatland conservation and restoration can be economically justified based on GHG emissions savings alone (Glenk & Martin-Ortega 2018). Inclusion of water management benefits reinforces this case significantly. The 2011 UK National Ecosystem Assessment calculated that the benefit peatlands bring to water quality in the UK are £1.5 billion per year and the amenity benefits a further £1.3 billion. UK water companies now consider peatlands restoration a cost-effective alternative to 'brown water' treatment works. Peatland restoration is extremely low-tech and cost-effective.

### *Realizing the 2030 Agenda for Sustainable Development*

The UNEA4 resolution on 'Conservation and Sustainable Management of Peatlands', adopted by all UN member states, acknowledged the contribution of peatlands to the implementation of the 2030 Agenda for Sustainable Development. Actions for peatlands conservation and restoration cuts across most SDGs and contributes directly to 1,2,6,13,14 and 15.

### *Food security*

Peatlands significant contribution to the water cycle and hydrology in most regions are important for food security and poverty reduction (FAO & Wetlands International, 2012). Land subsidence and flooding can lead to decreased agricultural yield and prevent implementation of sustainable practices, weakening food security. Improved ecosystem function and water regulation through restoration can increase yields and ensure resilient and sustainable food production. Organic peatland soils can be used sustainably by developing paludiculture (FAO & Wetlands International, 2012).

### *Biodiversity*

Peatlands support a wide range of unique plants and animals, including endemic and endangered species, such as the orangutans found in the tropical peatlands of South East Asia, bonobos and western lowland gorillas found in the Congos and the Aquatic Warbler of central and northern Europe. The critical importance of peatlands is recognised by the Convention on Biological Diversity.

## **5. Which countries and organisations are involved in the contribution?**

UN Environment Programme unites leading institutions on peatland conservation, restoration and sustainable management through the [Global Peatlands Initiative](#) (GPI). The Initiative, with its 28 partner organizations, support **all countries** and directly supports key peatland rich countries of **Republic of Congo (ROC), Democratic Republic of the Congo (DRC), Peru and Indonesia** to help them restore, conserve and sustainably manage their peatland resources.

## **6. How have stakeholders been consulted in developing the contribution?**

This action is responding to and reflects the commitments made by all UN member states when they adopted the UNEA4 resolution on 'Conservation and Sustainable Management of Peatlands'. It is further based on the goals set out by the 28 Global Peatlands Initiative partners.

## **7. Where the contribution can be put into action?**

Peatlands rewetting, restoration and conservation can be actioned in all countries where they are found (over 180) and priority can be put on those countries suffering most from their drainage and degradation – particularly countries experiencing peatland fires.

Efforts should also immediately support the protection of globally significant peatlands such as those found in the Cuvette Centrale of the Congo Basin – which is estimated to hold over 30Gt of carbon. Significant healthy peatlands are prevalent in Peru, Brazil, Canada and Russia so conservation efforts are also vital there.

Because of a lack of knowledge about peatlands, there is no complete inventory of peatlands globally. In 2019, the Global Peatlands Assessment, an effort of the GPI and supported by the International Climate Initiative of the German Government will aim to build a global peatlands inventory. The Assessment will help to quantify the carbon storage and current and potential greenhouse gas emissions, as well as identify the biodiversity value and protection status of peatlands in each region. This assessment will be useful to further determine where contributions can be most effective.

#### **8. How the contribution will be delivered? How will different stakeholders be engaged in its implementation? What are the potential transformational impacts?**

The Global Peatlands Initiative partners and partner countries will work to deliver this effort. If degraded peatlands are targeted for restoration, we could see a reduction of a minimum of 5-10% of global anthropogenic CO<sub>2</sub> emissions.

#### **9. Is this initiative contributing to other Climate Action Summit workstreams?**

This initiative also contributes towards the Resilience and Adaptation workstream.

#### **10. How does this contribution build upon this experience? How does the contribution link with different ongoing initiatives?**

This contribution links with the UN Decade for Ecosystem Restoration 2021-2030, initiatives such as UN-REDD and the Central African Forests (with Central African Forests Initiative (CAFI)).

#### **11. Funding mechanisms**

Peatland restoration efforts are low cost and have significant benefits.

- Peatland conservation and restoration projects have used innovative funding methods through public-private partnerships and voluntary carbon markets (e.g. UK Peatland Code, German MoorFutures standard).
- Payment for Ecosystems Services and Debt for Nature swapping schemes can also be effective.
- Other best practices can also be scaled up as we see that Indonesia is working to develop an integrated business model where government investment is committed to protecting and restoring the core zones of peatlands (in both financial and political terms).

#### **12. Means of stewardship, metrics for monitoring**

Partnership work is essential for large-scale peatland restoration, conservation and monitoring effectiveness. Depending on peatland type, vegetation monitoring (e.g. Sphagnum moss cover) can provide a clear, quantifiable project objective; where greenhouse gas reductions are the target, more advanced technologies to monitor fluxes may be needed. In some cases, citizen science programs can provide necessary data at a relatively low cost and the use of aerial photos, LiDAR, GIS and remote sensing technologies can also be invaluable.

### **13. Communication strategy**

The communications strategy for the Global Peatlands Initiative is currently under development. The GPI regularly shares information with its partners and the public through our website ([www.globalpeatlands.org](http://www.globalpeatlands.org)) and the partner's websites, videos, social media through the hashtag #PeatlandsMatter.

### **14. Contact details of proponents**

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