

## **Addendum to the Pathway for Increasing Nature-based Solutions in NDCs<sup>1</sup>** **Wetlands as Nature-based Solutions for Nationally Determined Contributions**

Climate change and biodiversity loss are critical economic and societal risks impacting jobs and livelihoods, food and water security, community resilience and public health. In 2015, the Paris Agreement was adopted and ratified by 189 countries to address the climate crisis. The Agreement recognizes the role of ecosystems in climate action and calls on all Parties to acknowledge ‘the importance of ensuring the integrity of all ecosystems, including oceans, and the protection of biodiversity, recognized by some cultures as Mother Earth’<sup>2</sup>. Countries develop and communicate their national contributions to climate change mitigation and adaptation through their Nationally Determined Contributions (NDCs) submitted to UNFCCC as signatories to the Paris Agreement.

Nature-based solutions (NBS) across forests, wetlands, marine and coastal ecosystems and agriculture can together provide over one third of the cost-effective climate change mitigation needed by 2030 to limit warming below 2 °C<sup>3</sup>. Further, NBS support climate change adaptation and provide multiple co-benefits across food and water security, community resilience, livelihoods and health. These solutions are indivisible with half of the Sustainable Development Goals’ (SDGs) targets. NBS ensure that no one is left behind, and provide a safety net for the 3+ billion people who depend on nature for their livelihoods.

**Nature-based solutions:** actions to protect, sustainably manage and/or restore degraded ecosystems, while simultaneously contributing to the achievement of multiple sustainable development goals, including national goals for climate, food security, water security, disaster risk reduction and livelihoods, among others.

Wetlands (both inland wetlands and coastal ecosystems) contribute to climate adaptation by reducing risks of many increasing climate-related disasters (drought, flood, shoreline destruction, earthslides, etc.) and climate mitigation by sequestering and storing carbon, with wetlands holding the largest global terrestrial and coastal stores of carbon. Further, these ecosystems are essential for advancing climate adaptation and the SDGs. Yet only during the last 50 years another 35% of the world's remaining wetlands were lost, at a rate three times greater than that of forests<sup>4</sup>.

Wetlands are an essential pathway to achievement of the Sustainable Development Goals. The Ramsar Convention on Wetlands, to which 171 States are Parties, provides the global legal framework for the conservation and sustainable use of all wetlands. These water-related ecosystems include inland wetland types such as peatlands, lakes and rivers as well as marine and coastal ecosystems such as saltmarshes, mangroves, coral reefs and sea grass beds. Under the Convention on Wetlands, Parties have made commitments on the conservation and wise (sustainable) use of wetlands. Parties have an opportunity to integrate wetland-specific targets and actions under Ramsar, as well as other national development and environmental policies, into their Nationally Determined Contributions to achieve the objectives of the Paris Accord,

<sup>1</sup> <https://www.ndcs.undp.org/content/ndc-support-programme/en/home/impact-and-learning/library/nature-based-solutions-for-ndcs-pathway-framework.html>

<sup>2</sup> [https://unfccc.int/files/meetings/paris\\_nov\\_2015/application/pdf/paris\\_agreement\\_english\\_.pdf](https://unfccc.int/files/meetings/paris_nov_2015/application/pdf/paris_agreement_english_.pdf)

<sup>3</sup> Griscom et al. 2017. Natural Climate Solutions. PNAS

<sup>4</sup> <https://www.global-wetland-outlook.ramsar.org/outlook>

where the climate benefits of wetlands are under-represented. This process can synchronize actions and align various institutions and policy processes for wetland protection, sustainable use and restoration to strengthen climate action and accelerate achievement of the SDGs.

## **A National Pathway for inclusion of wetland-based actions in the NDCs**

A wetland-specific addendum to the 'Pathway for Increasing Nature-based Solutions in NDCs: A Seven-Step Approach for Enhancing Nationally Determined Contributions through Nature-based Solutions'<sup>5</sup> which provides a 7-step approach for enhancing climate mitigation and adaptation in the Nationally Determined Contributions (NDCs) through nature-based solutions. This addendum outlines a process for identifying and integrating wetland-based actions that can contribute to climate mitigation and adaptation objectives in NDCs.

### **1. EXAMINE THE NATIONAL GHG ACCOUNTING CONTEXT, ESTIMATE WETLAND EMISSIONS**

- a. Key Action 1: Gather reports and official data submitted to the UNFCCC as well as all wetland-specific GHG-relevant studies done in the country.
  - i. [National Communication submissions from Non-Annex I Parties](#)
  - ii. [Review Reports of National Communications and Biennial Reports](#)
  - iii. [Biennial Update Report submissions from Non-Annex I Parties](#)
  - iv. [2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands](#)
- b. Key Action 2: Review this information to estimate the existing profile of emissions associated with wetlands

### **2. IDENTIFY AND REVIEW EXISTING WETLAND-BASED ACTIONS IN NATIONAL ENVIRONMENTAL AND DEVELOPMENT PLANS**

- a. Key Action 1: Identify wetland-specific actions in existing national development and environmental policies, laws, regulations and commitments (see the national 'Nature for Climate Briefing' by UNDP, if available). Clarify which institutions are responsible for each set of actions.
  - i. National Biodiversity Strategy and Action Plans (NBSAPs) to the UN Convention on Biological Diversity
  - ii. National Land Degradation Neutrality (LDN) targets to the UN Convention to Combat Desertification
  - iii. Bonn Challenge commitments
  - iv. National REDD+ Strategies and Action Plans
  - v. National agricultural and related land-use policies
  - vi. Protected Area Plans
  - vii. National Adaptation Plans
  - viii. Disaster Risk Management Policies
  - ix. National Development Plan
- b. Key Action 2: Examine the quality and measurability of current wetland actions:

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<sup>5</sup> <https://www.ndcs.undp.org/content/ndc-support-programme/en/home/impact-and-learning/library/nature-based-solutions-for-ndcs-pathway-framework.html>

- i. Are there wetland actions present in both adaptation and mitigation sections?
- ii. Are these actions measurable (e.g. are they specific, quantitative, time bound)?

**3. IDENTIFY AND REVIEW EXISTING WETLAND-BASED ACTIONS IN BOTH THE NDC AND NATIONAL ENVIRONMENTAL AND DEVELOPMENT PLANS**

- a. Key Action 2: Identify current wetland-specific actions and/or goals and entry points in the existing Nationally Determined Contributions (NDC) to the UNFCCC (see the national 'Nature for Climate Briefing' by UNDP, if available)
  - i. [Blue Carbon and Nationally Determined Contributions Guidelines on Enhanced Action](#)
- b. Key Action 2: Examine the quality and measurability of the current wetland actions:
  - i. Are there wetland actions present in both adaptation and mitigation sections?
    - 1. Examples of 'blue carbon' for climate change mitigation and adaptation available in [Blue Carbon and Nationally Determined Contributions Guidelines on Enhanced Action](#)
  - ii. Are these actions measurable (e.g. specific, quantitative, time bound)?

**4. DEVELOP A RAPID ANALYSIS FOR ESTIMATING THE CLIMATE CHANGE MITIGATION AND ADAPTATION POTENTIAL OF EXISTING WETLAND ACTIONS**

- a. Key Action 1: Assess the national potential climate change mitigation and adaptation contributions of wetlands overall.
  - i. [Nature4Climate NCS World Atlas](#)
  - ii. [Agriculture, Forestry, and Other Land Use \(AFOLU\) Carbon Calculator](#)
- b. Key Action 2: Assess the national potential climate change mitigation and adaptation contributions of wetlands in the NDC as well as in existing environmental and development policies and commitments.
  - i. [Nature4Climate NCS World Atlas](#)
  - ii. [Increasing ambition & action on NDCs through FLR](#)
  - iii. [Initiative for Climate Action Transparency \(ICAT\) Guidance](#)
  - iv. [Agriculture, Forestry, and Other Land Use \(AFOLU\) Carbon Calculator](#)
  - v. [2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands](#)
- c. Key Action 3: Compare mitigation potential of existing initiatives across national environmental and development policies and commitments with the goals of their NDC

**5. CROSSWALK WETLAND POTENTIAL WITH EXISTING MEASURABLE WETLAND ACTIONS AND IDENTIFY OPPORTUNITIES FOR ENHANCING NDCS USING SPATIAL DATA**

- a. Key Action 1: Compare wetland-specific solutions pathways with wetland actions in the NDC and in other national policies
  - i. [Nature4Climate NCS World Atlas](#)
- b. Key Action 2: Use national data to estimate the potential of these newly identified wetland-specific actions

- c. Key Action 3: Identify the adaptation and co-benefits potential of wetland-specific actions
- d. Key Action 4: Identify and prioritize NBS hotspots using spatial data to maximize opportunities to protect and restore ecosystems. Using spatial data tools, such as the [UN Biodiversity Lab](#), identify the current status of national wetlands' distribution, health, area change, protection, intactness and more, including maps such as:
  - i. Distribution of wetlands
  - ii. Protected upstream land
  - iii. Vulnerable soil organic carbon density
  - iv. Soil organic carbon
  - v. Human footprint
  - vi. Biodiversity intactness
  - vii. Marine protected areas
  - viii. Salt marsh distribution, coverage, area change and areas in need of rehabilitation
  - ix. Seagrass bed distribution, coverage, area change and areas in need of rehabilitation
  - x. Mangrove distribution, coverage, area change and areas in need of rehabilitation
  - xi. Cumulative ocean impact

## **6. INTEGRATE MEASURABLE WETLAND-BASED ACTIONS INTO THE NDC**

- a. Key Action 1: Analyze the enhanced NDC to determine the means for its implementation, considering potential sources of finance and the capacity of national institutions, and new potential partnerships to undertake new NBS action
- b. Key Action 2: Introduce measurable indicators, informed by engagement with stakeholders, such as research bodies and indigenous peoples and local communities
  - i. [2006 IPCC Guidelines for National Greenhouse Gas Inventories – AFOLU](#)
  - ii. [2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands](#)
  - iii. [Adaptation Support Tool](#)
  - iv. Country's Monitoring Systems (Forests, Biodiversity, Coastal areas, etc.)
- c. Key Action 3: Inter-sectoral dialogue to define the integration of new goals, including engagement with relevant stakeholders such as local communities and indigenous peoples representatives

## **7. IMPROVE OR CREATE THE ENABLING CONDITIONS TO SUPPORT INTEGRATION OF WETLAND-BASED ACTION IN NDCs**

Identify areas for implementation support and improve or create the enabling conditions to support integration of NBS into the NDC

- a) Key Action 1: Elevate the political support and strengthen political will for NDC implementation.
- a. Key Action 2: Enhance financial and international cooperation to support NBS actions in NDC implementation
  - i.

- b. Key Action 3: Reduce risks for potential investors
- c. Key Action 4: Consolidate the necessary inter-sectoral coordination and support technical capacity and information exchange
- d. Key Action 5: Ensure that the general NDC governance structure(s) incorporates the NBS goals
  - i. [Environmental governance: A practical framework to guide, design, evaluation, and analysis \(SCB\)](#)
  - ii. [A Handbook for Integrated Water Resources Management in Basins \(GWP\)](#)
- e. Key Action 6: Strengthen stakeholder engagement

## Case Studies and Examples of Good Practice

### **Sustainable Marine and Coastal Ecosystem Management Model in Costa Rica<sup>6</sup>**

In response to challenges including limited stakeholder engagement, unsustainable use of natural resources, and local climate change vulnerabilities, a marine and coastal ecosystem management initiative was established. This initiative uses scientific information to prioritize sites of importance for conservation that are vulnerable to climate change on the northern Pacific coast of Costa Rica. It has developed protected areas coverage analysis, vulnerability and climate risk assessment, a legal participatory process, a multisectoral dialogue platform, and a governance model. The consultative participatory process engages a variety of stakeholders and beneficiaries including participation by residents, fishermen, and local and regional authorities, that together are building a shared vision for sustainable management of coastal and marine resources in the area including the governance model and management rules. This has resulted in improved relations between the actors and empowerment of local stakeholders, enhanced local capabilities in negotiation, organization and leadership, and increased clarity about the local communities' priorities for marine and coastal resources management.

### **Wetland forest conservation for water security, biodiversity protection and carbon storage in Thailand<sup>7</sup>**

The Boon Rueang Wetland Forest Conservation Group formed in response to threats against the largest wetland forest in the Ing River Basin in Northern Thailand. The community has maintained stewardship over the 483 hectare forest through coordinated advocacy and dialogue with stakeholders, while pursuing a successful community forestry model under a landscape



<sup>6</sup> <https://panorama.solutions/en/solution/multi-sectoral-coastal-and-marine-management-vision>

<sup>7</sup> [Equator Initiative: https://www.equatorinitiative.org/2020/06/04/boon-rueang-wetland-forest-conservation-group/](https://www.equatorinitiative.org/2020/06/04/boon-rueang-wetland-forest-conservation-group/)

conservation paradigm. Education, mobilization, fundraising, and extensive research on the rich biodiversity and significant economic value of the wetland forest all have ensured the protection of an ecosystem critical to providing natural water reserves for agriculture and consumption, habitats for wildlife, acting as carbon storage and preserving the biodiversity of the Indo-Burma Region. Through thoughtful advocacy, the group achieved the reversal of an earlier administrative decision to use Boon Rueang wetland forest for industrial purposes. The wetland forest is now protected as a community inheritance for generations to come.

### **The social & environmental impacts of largest mangrove restoration project in Senegal<sup>8</sup>**

In 2009, more than 100,000 Senegalese villagers were involved in a major project to restore the mangroves that provide fish and many other food resources and that had been largely destroyed over the years. In 3 years, they succeeded in planting 80 million mangroves between the estuaries of the Casamance and Siné Saloum rivers. This initiative, led by the Senegalese NGO Océanium, is the largest mangrove restoration program in the world. The Livelihoods-Senegal project



was financed through carbon finance: the 10 private companies gathered within the Livelihoods Carbon Fund have invested together in this reforestation program with the dual objective of offsetting part of their CO<sub>2</sub> emissions and contributing to the sustainable improvement of the lives of local populations. Verra, one of the main international carbon standards, has certified that this project has already sequestered more than 160,000 tonnes of CO<sub>2</sub> out of the 600,000 tonnes expected over its 20-year lifespan. The impact study of this project, conducted by La Tour du Valat, revealed that the project has had enormous benefits for and strong ownership by the villages involved. In fact, 95% of villagers believe that mangroves have had at least one positive impact on their lives. The improvement of biodiversity and the increase in the number of fish and oysters are the benefits that top the list of villagers. In 60% of the villages, fishermen now have more substantial catches, which has resulted in improved food security and increased income. It is estimated that the restoration of mangroves has led to an increase in fish stocks of more than 4,200 tons per year. The restoration of mangroves has also improved rice growing conditions, increased the availability of fuelwood and timber, and more than 70% of the villages have set up monitoring of their mangroves to protect their forests from illegal logging. A key factor for the success of this project is that it has enabled the villagers themselves to be the actors in the preservation and sustainable use of their natural resources.

### **A Peatland Ecosystem Restoration Concession in Central Kalimantan, Indonesia<sup>9</sup>**

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<sup>8</sup> <https://www.ramsar.org/news/the-social-environmental-impacts-of-the-livelihoods-carbon-funds-largest-mangrove-restoration>

<sup>9</sup> [https://www.ramsar.org/sites/default/files/documents/library/fs\\_8\\_peatlands\\_en\\_v5.pdf](https://www.ramsar.org/sites/default/files/documents/library/fs_8_peatlands_en_v5.pdf)

Peatlands cover only 3% of the Earth's land surface, but store more carbon than all the world's forests combined – if they are kept wet. About 15% of the peatlands have been drained, covering less than 0.4% of the global land surface. Yet this relatively small area contributes 5% of global anthropogenic carbon dioxide emissions. In Central Kalimantan, Indonesia a 108,000 ha peatland Ecosystem Restoration Concession has been established in the Katingan area with a 60-year license, financed with private sector carbon funding. It is a high biodiversity area supporting a large population of Orangutan. Restoration involves the closing of drainage ditches, stopping logging and restoring the vegetation. Paludiculture of native peat swamp species is being piloted with local communities.

### **Mangrove Conservation and Restoration Blue Carbon Project in Kenya<sup>10</sup>**



Started in 2013, Mikoko Pamoja brings together two communities in Gazi Bay in Southern Kenya to sell carbon credits from mangrove conservation, trading 3,000 tons CO<sub>2</sub>-equivalent per year in the voluntary carbon market. Mikoko Pamoja is the first community-based project of this kind in the world to successfully trade mangrove carbon credits. Benefits are reinvested in the community to improve clean water access for 3,500 community members, provide educational materials to 700 school children, and to ensure the 117 hectare mangrove forest remains protected. Ecotourism provides a further source of income for this initiative, which is in the process of being replicated in other regions in Kenya and other countries.

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<sup>10</sup> <https://www.equatorinitiative.org/2017/06/28/mikoko-pamoja/>