Blue Carbon in the UNFCCC

Introduction

Given the impact of climate change and the latest available science in the IPCC Special Report on 1.5°C, enhanced mitigation and adaptation efforts are critical. Natural Climate Solutions (NCS) – the protection, restoration and sustainable management of terrestrial and coastal ecosystems for their climate mitigation and adaptation value – offer up to 37 percent of the solution for keeping global temperature increase to 2°C or below by 2030.[1] While each of these climate change mitigation and adaptation pathways contribute to achieving the goals of the Paris Agreement, they remain largely underrealized in current Nationally Determined Contributions (NDCs), especially in relation to coastal ecosystem management for climate mitigation.[2]

Coastal wetlands – mangrove forests, tidal salt marshes, and seagrass meadows – known as blue carbon ecosystems are an essential part of the climate solution. For example, mangroves are extremely carbon rich. The soils in a mangrove forest store approximately 6.4 billion tonnes of carbon globally, representing 49%-98% of the carbon storage capacity in a mangrove ecosystem.[3,4] These unique coastal forests, and other blue carbon ecosystems, also increase and sustain biodiversity, water quality, and fishery production; contribute to tourism, jobs, and local livelihoods; as well as protect coastlines from storm surge, floods, erosion, and sea level rise.

Are Blue Carbon Ecosystems Part of the Paris Agreement?

The importance of the carbon sequestration benefits from mangrove forests and other terrestrial and marine systems are engrained in the Paris Agreement, specifically in Article 5.1 stating, ***"Parties should take action to conserve and enhance, as appropriate, sinks and reservoirs of greenhouse gases as referred to in Article 4, paragraph 1(d), of the Convention, including forests."*** Art 4, 1(d) of the Convention states that all Parties shall ***"promote sustainable management, and promote and cooperate in the conservation and enhancement, as appropriate, of sinks and reservoirs of all greenhouse gases not controlled by the Montreal Protocol, including biomass, forests and oceans as well as other terrestrial, coastal and marine ecosystems."*** Thus, one option for enhancing ambition on climate action is through the inclusion of mangroves, peatlands, and other terrestrial and coastal ecosystems in a country's NDC. While many blue carbon ecosystems have been included in some NDCs, there remains a gap across the relevant countries, particularly as they can be integrated into both mitigation and adaptation components. For example, while 118 countries have mangrove forests within their national boundaries, only 28 countries included coastal wetlands as a mitigation component in the first round of NDCs. This gap holds promise and opportunity to enhance ambition in the revised NDCs in 2020 as well as in future communicated NDCs that also yield sustainable development benefits.

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[1] Griscom, B., et al. (2017) Natural Climate Solutions. *Proceedings of the National Academy of Sciences*. 114: 11645–11650.

[2] Herr, D. and Landis, E. (2016). Coastal blue carbon ecosystems. Opportunities for Nationally Determined Contributions. Policy Brief. Gland, Switzerland: IUCN and Washington, DC, USA: TNC.

[3] Sanderman, J., et al. (2018) A global map of mangrove forest soil carbon at 30 m spatial resolution. *Environmental Research Letters*. 13:055002

[4] Donato, D, et al. (2011) Mangroves among the most carbon-rich forests in the tropics. *Nature Geoscience*. 4, 293:297

Are Blue Carbon Ecosystems Part of the Paris Rulebook?

Do not be alarmed if the words "mangrove" or "blue carbon" are not in the decision text. Mangrove forests as well as sinks, sources, and reservoirs from other terrestrial, coastal and marine ecosystems are incorporated in the Paris Rulebook. These ecosystems will not be explicitly described in the text of the Rulebook but the carbon sequestration and storage potential of these important sinks and sources are implicitly included as part of the guidance. Below we explore how the management activities supporting the mitigation function of mangrove and other coastal carbon ecosystems are likely to be framed in the Paris Rulebook and what additional recommendations we have to solidify that status during the COP24 negotiations.

Guidance on Nationally Determined Contributions (NDCs)

The land sector (e.g. forests, wetlands, peatlands, agricultural landscapes, and coastal ecosystems) deserves attention in the Ad Hoc Working Group on the Paris Agreement (APA) negotiations on NDC guidance. It is important to ensure that guidance on NDCs reflects the potential of nature to support the mitigation and adaptation outcomes described by the global climate goals of the Paris Agreement. In order to support comparability between Parties NDCs, we recommend that further guidance on NDCs should encourage countries to include efforts across all sectors of the economy, particularly on natural climate solutions such as mangrove conservation, including protection and restoration.

Recommendations for Blue Carbon:[5]

- **APA3(b): Information to facilitate clarity, transparency and understanding (ICTU) of a NDC:** Guidance for NDCs should encourage Parties to move towards complete coverage of ***all sectors***, activities, carbon pools, and greenhouse gas emissions over time, considering all sources and sinks. The term ***all sectors*** would thereby include terrestrial and coastal ecosystems, thus important for current and future blue carbon actions. Once a sector or carbon pool is included, it should remain in future NDCs. The level of detail could include information on multiple for different types of mitigation targets or all relevant gases, independently of each other.
- **APA3(c): Accounting for Parties' NDCs:** Having common metrics and methodologies are important for the comparability of Parties NDCs, and thus we recommend that NDC accounting aligns with methodologies established in the IPCC guidelines and that these be refined and updated periodically by the IPCC. The updates should be applicable to all Parties. For coastal ecosystems in particular, relevant methodologies would include the 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands ***(Wetlands Supplement)*** and related 2019 Refinement. We recommend the robust accounting guidance from the most up-to-date IPCC guidelines to ensure environmental integrity, accuracy, facilitate transparency and completeness, and avoid double counting of emission reduction units across all sectors. The assurance of environmental integrity in the accounting guidance is important for the current and future inclusion of blue carbon actions and plans in an NDC. Environmental integrity means that emissions and reductions are real and verifiable, and minimize any secondary effects to the health and quality of ecosystems and people.

[5] Note: The recommendations listed here have been identified from "Recommendations on Land-Sector Topics Addressed Under APA Agenda Item 3 – November 2018, Conservation International, National Wildlife Federation, Environmental Defense Fund, Forest Trends, The Nature Conservancy, Wildlife Conservation Society, and Woods Hole Research Center, and distilled for coastal ecosystems such as mangroves while still applying to the broader land sector. Other relevant and more detailed recommendations related to the APA3 negotiations and the Land Sector can be found here: www.conservation.org/publications/Documents/COP-24-Recommendations-for-Land-Sector-in-NDC-Guidance.pdf

Global Stocktake

The Global Stocktake (GST) is the mechanism created by the Article 14 of the Paris Agreement to periodically "take stock," or assess the collective progress towards achieving the long-term goals outlined in the Paris Agreement. The GST will be the fundamental driver that encourages increased ambition of NDCs over time. A comprehensive and robust design of the GST is a critical step that will provide countries with confidence that we are collectively acting on climate. To enhance ambition, countries should ensure that the untapped mitigation potential of natural climate solutions can be included in the GST as countries revise or update their NDCs.

Recommendations for Blue Carbon:

- **APA6: (a) sources of input and (b) development of modalities:** Specific sectors do not need to be explicitly referenced in the Paris Rulebook text to be considered. We recommend that the focus remain on incorporating all sinks and sources, thereby ensuring the inclusion of the land sector (terrestrial and coastal ecosystems) without the need to call out a specific sector. Instead, either an implicit or explicit reference to Article 5 of the Paris Agreement can be made. Focusing on relevant sources of inputs that capture all sinks, sources, and reservoirs ensures that all sectors may be included, thus making it possible to incorporate emissions from the land sector, including managed and unmanaged land as well as coastal ecosystems.
- **Connections to APA3:** It is worth noting that while accounting for emissions and removals with common metrics is being discussed in the APA3 negotiations, the outcomes from the APA3 negotiations on NDC guidance are particularly important for how the GST will assess and include GHG accounting from coastal and terrestrial ecosystems.

Transparency Framework

The "enhanced transparency framework for action and support" was established under Article 13 of the Paris Agreement, and lays out the reporting obligations of Parties and review mechanisms necessary to promote effective implementation. As such, it has critical links to other elements of the agreement, including the formulation of NDCs (Article 4), the Global Stocktake (Article 14) and increasing ambition over time, as well as markets (Article 6). The Transparency Framework contains key legally binding provisions that require all Parties – developed and developing – to regularly provide information necessary to track progress made in implementing and achieving their NDCs.

IPCC 2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands

The Wetlands Supplement provides a standardized methodology for accounting for coastal carbon emissions and removals, and how to include them in national inventories. Activities for using mangroves' mitigation potential span conservation and restoration. This methodology will also rely on each countries' definition of a forest and including below-ground biomass in this accounting is crucial, as up to 90% of the carbon in coastal wetland systems is found in the soil. With the inclusion of coastal wetlands into a national GHG inventory allows for these carbon rich systems to be accounted for in a NDC as well as the Global Stocktake.

Recommendations for Blue Carbon:

- **APA5: Guidelines for the transparency framework for action and support.** Encourage all Parties, developed and developing, to use the latest available IPCC guidance for the National inventory report of anthropogenic emissions by sources and removals by sinks of greenhouse gases. Addendum 6, Options 3.1.1.1 in the methodologies, parameters and data section (B.3.a.), recommends that ***"Each Party shall use the 2006 IPCC Guidelines for National GHG Inventories and shall use any subsequent version or refinement of the IPCC guidelines once agreed upon by the CMA. Each Party is encouraged to use the 2013 Supplement to the 2006 IPCC Guidelines: Wetlands".*** Using the latest IPCC guidance could provide

countries with more accurate data which could increase opportunities for engaging in carbon enhancement and conservation activities as well as contributing to an enhanced NDC.

- **APA5: Assessment for Completeness.** Given that coastal blue carbon ecosystems are not explicitly required to be included in national inventory reports, we recommend the options in the assessment of completeness section (B.3.e1) to encourage the indication of all sources and sinks (categories, pools, and gases) that are not considered in the national inventory report but for which estimation methods are included in the IPCC guidelines. We hope Parties will include all significant sources and sinks over time, and in the interim, provide an explanation as to the reasons for the exclusion.

Adaptation Communications

Adaptation communications are important for achieving mitigation and adaptation goals under the Paris Agreement, including the global goal on adaptation (Article 7.1 in the Paris Agreement),[6] and have strong connections with the Global Stocktake and the Transparency Framework. Ecosystem-based Adaptation (EbA) can play a critical role in helping a country adapt to climate change with enhanced coastal protection from flood surges or increased food security, for example. Further, EbA actions have direct ties to mitigation co-benefits which can be acknowledged and accounted for if addressed accordingly in the NDC.

Recommendations for Blue Carbon:

- **APA4: Further Guidance related to adaptation communication:** Regardless of whether Parties decide to provide further guidance for adaptation communications or not, the concept of including ecosystem-based adaptation in National Adaptation Plans or other adaptation actions is already engrained in the options available. These options need enhanced uptake and implementation from countries. EbA guidance exists, and one example can be found publicly available online on Making EbA Effective, A Framework for Defining Qualification Criteria and Quality Standards.[7]

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[6] *"Parties hereby establish the global goal on adaptation of enhancing adaptive capacity, strengthening resilience and reducing vulnerability to climate change, with a view to contributing to sustainable development and ensuring an adequate adaptation response in the context of the temperature goal referred to in Article 2."*

[7] FEBA. (2017). Making Ecosystem-based Adaptation Effective: A Framework for Defining Qualification Criteria and Quality Standards (FEBA Technical paper developed for UNFCCC -SBSTA 46). Bertram, M, Barrow, E., Blackwood, K., Rizvi, A.R., Reid, H., and von Scheliha-Dawid, S. GIZ, Bonn, Germany, IIED, London, UK, and IUCN, Gland, Switzerland. 14pp.