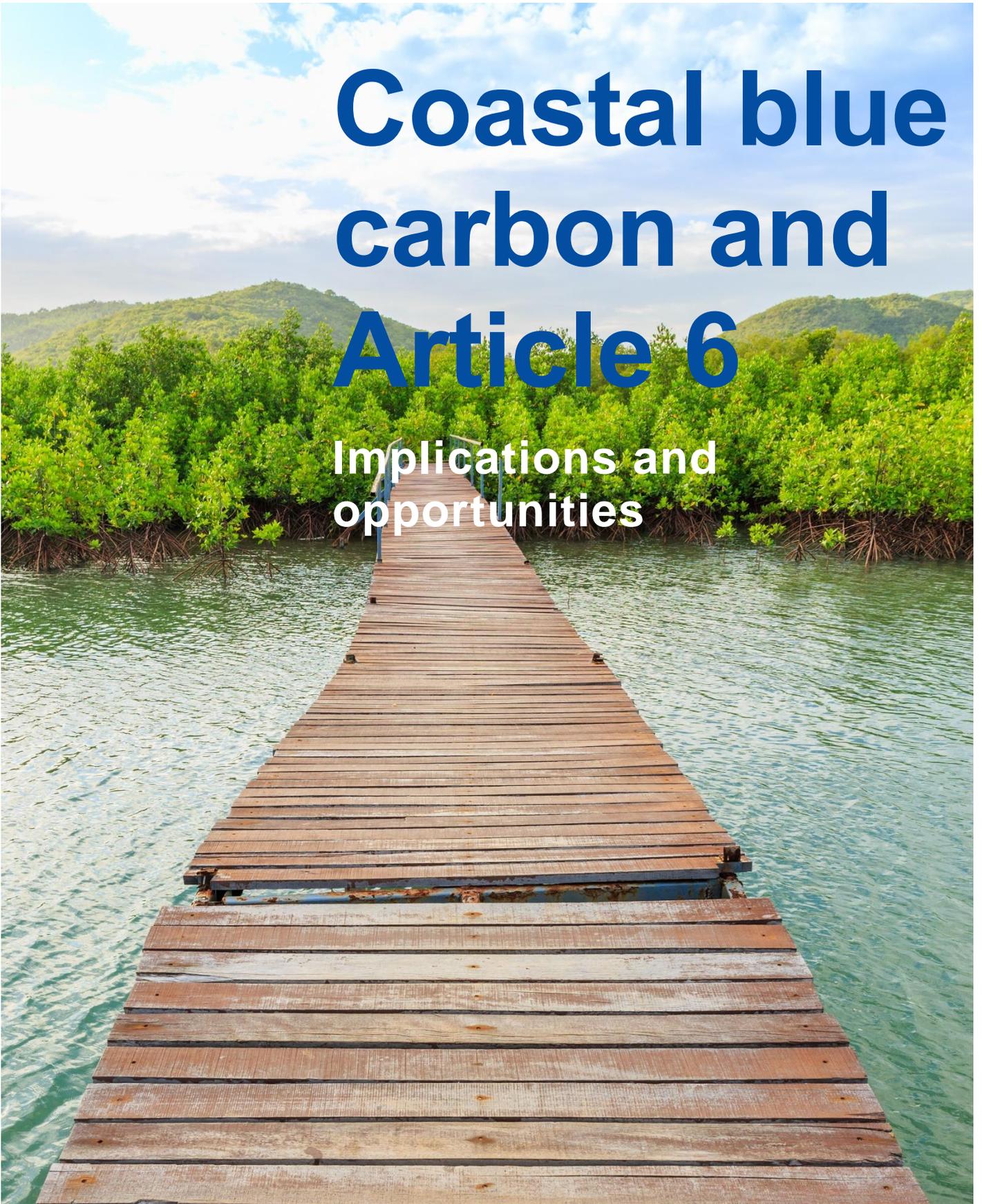




2 December 2018

Coastal blue carbon and Article 6

Implications and opportunities





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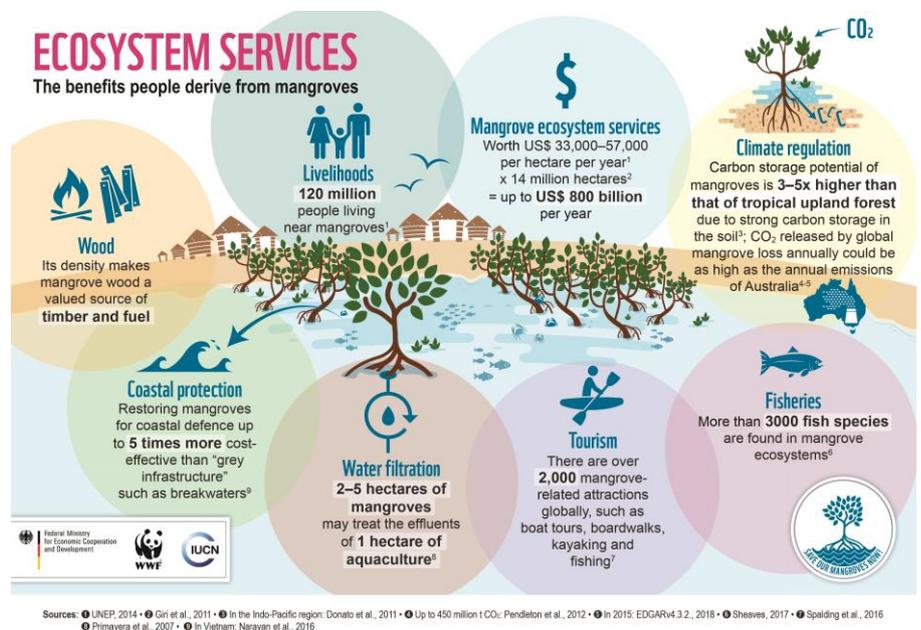
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1. Coastal blue carbon

Mangroves, saltmarshes and seagrasses – often referred to jointly as coastal blue carbon ecosystems – provide a variety of ecosystem services. While carbon mitigation delivers global benefits, the provision of nursery grounds for fish and other marine products and shoreline protection are examples of local climate adaptation, livelihood and biodiversity benefits.¹ These ecosystem services provide strong reasons to conserve, restore and sustainably manage coastal ecosystems.

Figure 1
Ecosystem Services: The benefits people derive from mangroves



Mangrove forests in particular are one of Earth's most effective ecosystems for carbon sequestration and storage. They can store three to four times more carbon on a per area basis than most terrestrial forests and, if undisturbed, mangrove soil carbon remains stable for centuries to millennia.²

Conversely, mangrove loss can lead to significant amounts of carbon being emitted back to the atmosphere, with mangroves' loss contributing up to 10% of global emissions from deforestation³. Approximately 20% of the world's mangrove cover (36.000km²) was lost between 1980 and 2005.⁴ A new Mangrove Restoration Potential Map (MRP) Map⁵ further concludes

¹ Barbier et al., 2011. The value of estuarine and coastal ecosystem services. Ecological Monographs, 81 (2), 169-193.

² Worthington and Spalding. 2018. Mangrove Restoration Potential A global map highlighting a critical opportunity.

³ Donato, C.D. et al. 2011. Mangroves among the most carbon-rich forests in the tropics. Available [here](#).

⁴ FAO. 2007. The world's mangroves 1980-2005. FAO Forestry Paper. no.153.

⁵ See the Mangrove Restoration Potential Map (MRP): Available [here](#).

that 9,736 km² of mangrove have been lost since 1996, and 1,389 km² of mangroves have been degraded over the same period.

Tidal marshes are coastal wetland ecosystems dominated by grass and shrub species that are regularly tidally flooded. Seagrasses are submerged aquatic flowering plants that are found in meadows along the shore of every continent except Antarctica. The geographic extent of seagrass is not well resolved, but global estimates range from 17.7 to 60 million ha.⁶

Scientists have estimated that at least 35% of the global cover of tidal marshes and 35% of seagrass meadows have already been lost (Pendleton et al., 2012).

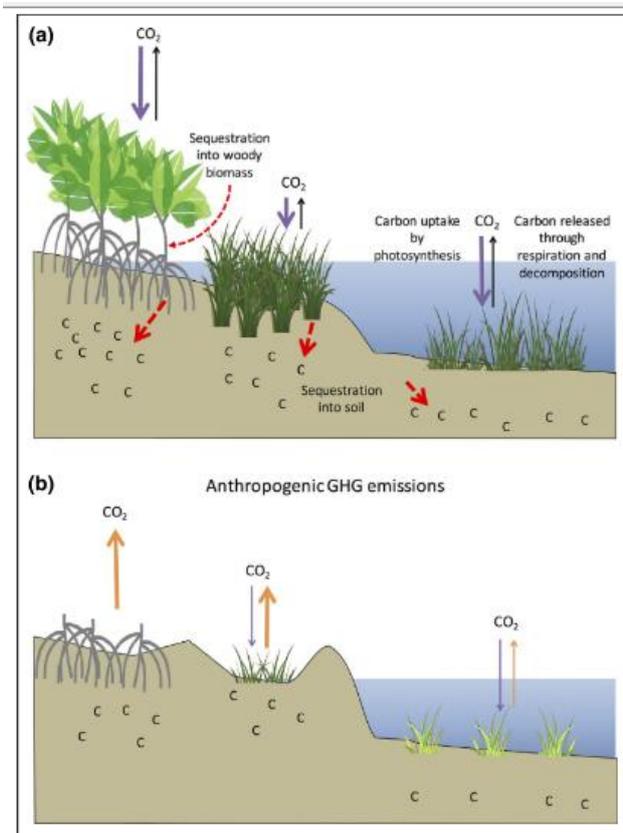
Global estimates of carbon stocks in these systems range from 10.4–25.1 billion Mg of carbon (Table 1), but this is likely an underestimate as although organic- rich soil profiles may extend several meters deep, most studies account for carbon only in the topmost meter of soil. The vast stocks of stable carbon, as well as the high rates of sequestration provide robust evidence for making the case on the importance of coastal wetlands for more ambitious climate mitigation policy efforts.⁷

The MRP Map further explores the estimated climate mitigation benefit of mangrove restoration, both in soil storage and above ground biomass. The latter is the living plant material – trunks, branches and leaves – that makes up a constant carbon store while continuing to add dead matter to the soils below.

Figure 2

From Howard et al. 2017

(a) In intact coastal wetlands (from left to right: mangroves, tidal marshes, and seagrasses), carbon is taken up via photosynthesis (purple arrows) where it gets sequestered long term into woody biomass and soil (red dashed arrows) or respired (black arrows). (b) When soil is drained from degraded coastal wetlands, the carbon stored in the soils is consumed by microorganisms, which respire and release CO₂ as a metabolic waste product. This happens at an increased rate when the soils are drained (when oxygen is more available), which leads to greater CO₂ emissions. The degradation, drainage, and conversion of coastal blue carbon ecosystems from human activity (ie deforestation and drainage, impounded wetlands for agriculture, dredging) results in a reduction in CO₂ uptake due to the loss of vegetation (purple arrows) and the release of globally important GHG emissions (orange arrows). This is a unique trait of coastal blue carbon ecosystems compared to the other ecosystems discussed.



⁶ Howard et al. 2017. Clarifying the role of coastal and marine systems in climate mitigation. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.1451>

⁷ Howard et al. 2017. Clarifying the role of coastal and marine systems in climate mitigation. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.1451>

The MRP Map shows that restoration of lost mangroves worldwide could lead to the storage of an extra 69 million Mg of carbon in aboveground biomass and would also help to avoid further emissions of some 296 million MgC tonnes of soil carbon. This can be converted to the equivalent of annual emissions from 25 million US homes in sequestration and 117 million homes in avoided emissions.

A new paper by Cameron et al 2018 suggests that the initial conversion of mangroves to aquaculture ponds releases extremely high rates of GHGs. In order to mediate GHG fluxes, the re-institution of hydrological regimes in dry, disused aquaculture ponds to facilitate tidal flushing is instrumental. The authors further note that such considerations are vital for carbon project developers seeking profitable creditable GHG emission reductions and removals.

Table 1

From Howard et al. 2017

Table 1. Carbon storage potential of coastal and marine ecosystems					
	<i>Geographic extent</i>	<i>Total carbon sequestered annually</i>	<i>Mean global estimate of carbon stock</i>	<i>Anthropogenic conversion rate</i>	<i>Potential emissions due to anthropogenic conversion[#]</i>
	<i>Million hectares (ha)</i>	<i>Million Mg C yr⁻¹</i>	<i>Total (million Mg C)</i>	<i>% yr⁻¹</i>	<i>Million Mg CO₂</i>
Mangroves	13.8–15.2	31.2–34.4	5617–6186	0.7–3.0	144.3–681.1
Tidal marshes	2.2–40	4.8–87.2	570–10,360	1.0–2.0	20.9–760.4
Seagrasses	17.7–60	41.4–82.8	4260–8520	0.4–2.6	62.5–813.0

2. Coastal blue carbon and the UNFCCC

2.1 UNFCCC and nature-based solutions for climate mitigation

The United Nations Framework Convention on Climate Change (UNFCCC) aims to stabilize greenhouse gas (GHG) concentrations to prevent continued anthropogenic interference with the climate system.⁸ As a framework convention, it establishes a legal regime that does not single out any particular ecosystem, but rather focuses on Parties' GHG emissions and their measures in place for mitigating climate change.

Article 4.1(d) of the UNFCCC, in particular, emphasizes the need for all Parties to “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”.⁹

On this basis, the conservation and restoration of terrestrial forests and peatlands has long been identified as a vital component of climate change mitigation. Consequently, several countries have developed policies and programs to sustainably manage these natural systems. Under the UNFCCC, a number of accounting tools and financing mechanisms also already exist that support such nature-based solutions to climate change, including under REDD+,¹⁰ National Appropriate Mitigation Actions (NAMAs), the Clean Development Mechanisms (CDM), as well as under overall Land-Use, Land-Use Change and Forestry (LULUCF) monitoring and reporting, Nationally Determined Contributions (NDCs) under the Paris Agreement, or under mitigation or adaptation financing windows under the Green Climate Fund (GCF), among others.¹¹

These policy instruments, accounting tools and financial mechanisms, along with national policies are continually being broadened to manage and promote the protection of existing other nature-based solutions (NbS) that serve as rich carbon reservoirs and have a high potential for emissions due to loss and degradation. This particularly includes coastal ecosystems such as mangroves, tidal marshes and seagrasses. While coastal ecosystems capture and store what has been coined as “blue carbon”, at significant

⁸ United Nations Framework Convention on Climate Change (1992) FCCC/INFORMAL/84 GE.05-62220 (E) 200705, entered into force 21 March 1994. Available [here](#).

⁹ United Nations Framework Convention on Climate Change (1992). Available [here](#).

¹⁰ Reduced Emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries

¹¹ Chagas et al. (2018) Considering Oceans in the Climate Regime: Opportunities and Strategic Considerations. Climate Focus. Pg. 1-38.

levels, they continue to be degraded and destroyed, which has resulted in increased emissions in the atmosphere and the ocean.¹²

While blue carbon is not an official term used under the UNFCCC, the legal framework of the Convention currently narrows GHG emissions to the territorial jurisdiction of countries, and with that, coastal wetlands.¹³ In 2013 the Intergovernmental Panel on Climate Change (IPCC) issued the Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories for Wetlands (Wetlands Supplement), providing GHG accounting methodologies for inland and coastal wetlands.¹⁴

The climate regime encouraged all developed country parties to make use of the Wetlands Supplement in 2013, with some particular activities becoming mandatory (as of 2015 submissions) in these countries' national GHG reports.¹⁵ Since then, a few developed countries have begun collecting data and exploring the possibility of including emissions by sources and removals by sinks from coastal wetlands in their national inventories.¹⁶

While carbon emissions – and the carbon sequestration services - from coastal ecosystems are scientifically backed¹⁷ and sufficient to establish suitable and effective carbon policies and management strategies, better and more dedicated approaches are needed to fully integrate coastal blue carbon into international mechanisms and national frameworks for achieving national and international climate mitigation objectives. **On this basis, NDCs coupled with Article 6 cooperative approaches can provide a suitable avenue for promoting better accounting of coastal ecosystems and incentivize financial flows to coastal blue carbon interventions.**

2.2 Blue carbon under existing NDCs

In 2016 Herr and Landis examined the existing INDCs and ratified NDCs to explore the inclusion of specific efforts that address blue carbon ecosystems, namely mangroves, tidal saltmarshes and seagrasses, as climate mitigation or adaptation solutions.

Out of 195 Parties to the Paris Agreement, 151 countries contain at least one blue carbon ecosystem (seagrass, saltmarshes or mangroves) and 71 countries contain all three. From all revised NDCs, 28 countries include a reference to coastal wetlands in terms of mitigation while 59 countries include coastal ecosystems and the coastal zone into their adaptation strategies (see Figure 3).

¹² Crooks, S. et al. 2011 Mitigating Climate Change through Restoration and Management of Coastal Wetlands and Nearshore marine Ecosystems. Challenges and Opportunities. Environment Department Paper 121, World Bank, Washington, DC, USA. Donato, D.C. et al. 2011. Mangroves among the most carbon-rich forests in the tropics. *Nature Geoscience* vol. 4, pp. 293–297. Mcleod, E. et al. 2011. A blueprint for Blue Carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO₂. The Ecological Society of America. DOI:10.1890/110004.

¹³ Thiago Chagas, Nicole Krämer, Charlotte Streck, Dorothee Herr (2018) Considering Oceans in the Climate Regime: Opportunities and Strategic Considerations. *Climate Focus*. IUCN. Pg. 1-38.

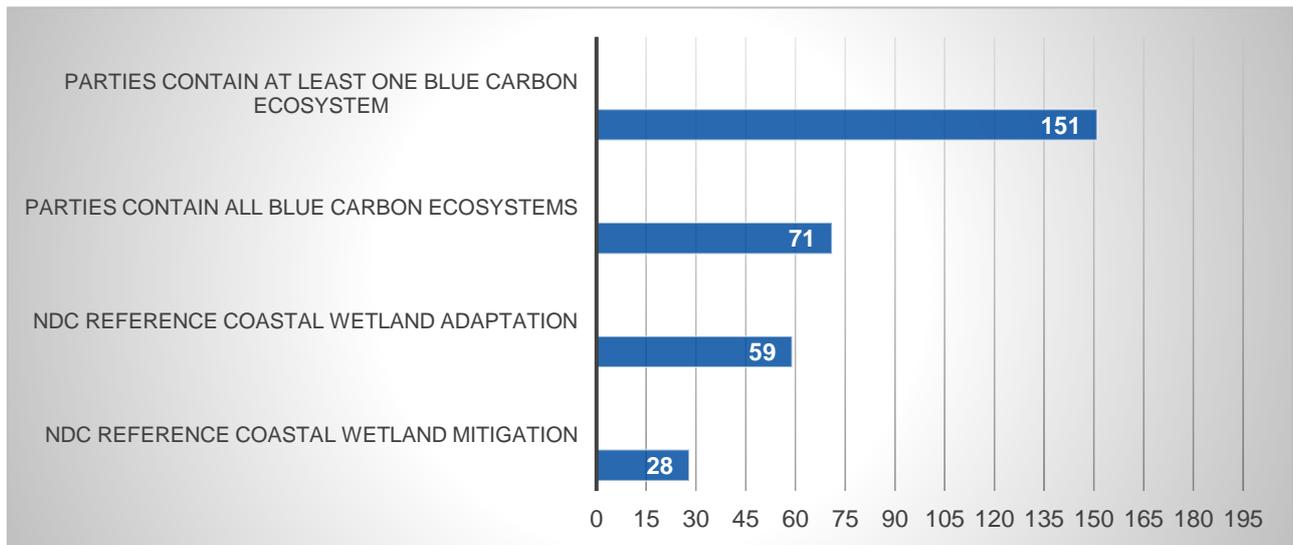
¹⁴ IPCC (Intergovernmental Panel on Climate Change) (2013) *Climate change 2013: The physical science basis*. Working Group I contribution to the IPCC Fifth Assessment Report. Cambridge University Press. Available here.

¹⁵ Wetland rewetting and drainage. See Decision 6/CMP.9. See also Gregory Briner and Susanne Konrad. *Planting the Foundations of a Post-2020 Land Sector Reporting and Accounting Framework*. OECD, 2014.

¹⁶ <http://bluecarbonpartnership.org/wp-content/uploads/2018/09/IPBC-Wetlands-Supplement-Lessons-Learned.pdf>

¹⁷ Howard et al. 2017. Clarifying the role of coastal and marine systems in climate mitigation. *Frontiers in Ecology and the Environment*. <https://doi.org/10.1002/fee.1451>

Figure 3
Parties containing and referencing coastal blue carbon



The report further notes that the overall climate mitigation opportunity of coastal blue carbon ecosystems are as follows:

If half of the annual coastal wetlands' loss was halted, emissions would be reduced by a 0.23Gt CO₂ yr⁻¹. This is equivalent to offsetting the 2013 emissions of Spain. If coastal wetlands were restored to their 1990 extent, it would have the potential to increase annual carbon sequestration 160Mt CO₂ yr⁻¹ which is the equivalent to offsetting the burning of 77.4 million tonnes of coal.¹⁸

¹⁸ Martin, A., Landis, E., Bryson, C., Lynaugh, S., Mongeau, A., and Lutz, S. (2016). Blue Carbon - Nationally Determined Contributions Inventory. Appendix to: Coastal Blue Carbon Ecosystems. Opportunities for Nationally Determined Contributions. Published by GRID-Arendal, Norway.

3. Coastal blue carbon and carbon markets

As the Protocol's second commitment period approaches its final year, there is virtually no chance that countries will commit to a third commitment period under the Kyoto Protocol.¹⁹ This means that carbon markets under the Kyoto Protocol and Kyoto's project-based mechanisms – the Clean Development Mechanism (CDM) and Joint Implementation (JI) – will also eventually cease to operate.²⁰

Countries are now engaged in agreeing the rules and procedures for operationalizing a new carbon markets regime under Article 6 of the Paris Agreement for the post-2020 period.²¹ This includes negotiating the rules around transitioning activities, methodologies, and how the existing CDM and JI infrastructure will be factored into Article 6 of the Paris Agreement.

3.1 Kyoto flexible mechanisms and blue carbon

Thus far, countries have hardly used the flexible mechanisms for coastal blue carbon projects. The CDM and JI were created to help countries achieve their national emission reduction targets under the Kyoto Protocol through carbon trading and kick-started the global carbon market as we know it today. While small- and large-scale methodologies for mangrove restoration exist²² and have been applied,²³ credits have never been traded.

The CDM and JI are project-based market mechanisms that aim to stimulate sustainable development, help countries reduce emission reductions in a cost-effective way, and encourage developing countries as well as the private sector to enhance their emission reduction efforts. While the CDM involves the investment in emission reduction or removal enhancement projects in developing countries that lead to sustainable development, JI allows for developed countries to engage in emission reductions of removal enhancement projects in other developed countries.²⁴ JI provides Parties with a flexible and cost-efficient means of meeting Kyoto commitments, while the host Party benefits from foreign investment and technology transfer.

The CDM adopts a **centralized review process**. While having a centralized review process ensures environmental integrity, the CDM became a high administrative burden for many project developers, discouraging investment in projects that could provide significant benefits.²⁵ Moreover, compliance

¹⁹ In fact, even ratification of the second commitment period is questionable at this stage. It is both a legal and a political question. Time will tell the course of Parties willing to individually or collectively pursue to either maintain parts of the CDM infrastructure or dismantle it post 2020.

²⁰ The exact moment the CDM will cease to exist is still uncertain.

²¹ Paris Agreement (2015) Article 6. Available [here](#).

²² UNFCCC (2018) CDM Methodologies. Available [here](#).

²³ Livelihoods Fund (2018) Project Portfolio. Available [here](#).

²⁴ UNFCCC (2018) Mechanisms under the Kyoto Protocol. Available [here](#).

²⁵ GAO (Government Accountability Office) (2008) International Climate Change Programs: Lessons Learned from the European Union's Emissions Trading Scheme and the Kyoto

with and implementation the CDM is time consuming and in most cases, developing countries need years even to prepare for its standards. These and other challenges faced by project developers and countries have undermined its purpose and efficiency and have been one of the causes of its slow phase out.

Similarly, blue carbon projects are far and few under the flexible mechanisms, and in most cases have yet to fully take off. The CDM, for example, can impose minimum thresholds that make it difficult for smaller coastal carbon projects to reach.²⁶ A project under the compliance market must sell 5,000 metric tons of carbon to justify transaction costs, yet the blue carbon Mikoko Pamoja project only sells 2,215 credits in the voluntary market (each equal to one metric ton of carbon) per year.²⁷ Coastal wetland projects, especially small-scale ones, seek more flexibility, less costs and administrative burden to engage in market mechanisms.²⁸

Blue carbon projects are therefore found in the voluntary market due its flexibility and its ability to better address the needs of communities and project developers. Methodologies under the voluntary carbon market (particularly the Verified Carbon Standard (VCS) or Plan Vivo), are much easier to implement as they offer multiple voluntary standards with reduced costs for the required carbon accounting, verification and certification processes.

3.2 New possibilities under the Paris Agreement

Carbon markets under the Kyoto Protocol differ significantly from the emerging markets under the Paris Agreement. The Kyoto Protocol set out binding and quantified GHG reduction commitments to only a handful of developed countries, leaving out other major economies and GHG emitters. The Protocol made use of centralized accounting rules for countries wanting to engage in carbon markets that were ultimately too difficult to negotiate and maintain.

In contrast, the Paris Agreement has gained near universal participation under a common system. Its more inclusive approach enables all countries to elaborate and communicate their own climate pledges that are reviewed and discussed internationally. This pledge-and-review system combines the flexibility needed to have all countries commit, yet still ensures a common and centralized transparency system to follow up on individual as well as collective mitigation and adaptation progress made.²⁹

Under the Paris Agreement, carbon markets have therefore new and more nuanced features. In contrast to carbon markets under the Kyoto Protocol, **all Parties now have emission reduction pledges, which means that developing countries can no longer freely sell and transfer all of their emission reductions.** Developing countries will need to evaluate the level of mitigation that must be achieved and retained in the country to meet their own NDC targets. Moreover, **with all Parties to the Agreement**

Protocol's Clean Development Mechanism, Report GAO-09-151. Washington, DC: Government Accountability Office. <https://www.gao.gov/new.items/d09151.pdf>.

²⁶ Wylie, L., A. E. Sutton-Grier, A. Moore (2016) Keys to successful blue carbon projects: Lessons learned from global case studies. *Marine Policy* 65, pp. 76-84. Available [here](#).

²⁷ Wylie, L., A. E. Sutton-Grier, A. Moore (2016) Keys to successful blue carbon projects: Lessons learned from global case studies. *Marine Policy* 65, pp. 76-84. Available [here](#).

²⁸ Wylie, L., A. E. Sutton-Grier, A. Moore (2016) Keys to successful blue carbon projects: Lessons learned from global case studies. *Marine Policy* 65, pp. 76-84. Available [here](#).

²⁹ This hybrid governance structure entails a combination of (i) mitigation and adaptation contributions are nationally determined and bottom-up; and (ii) international provisions ensuring the transparency of domestic actions and emissions are centrally determined and top-down.

functioning under common rules, all of them could potentially become sellers and buyers of emission reductions if engaging under cooperative approaches developed under Article 6 of the Agreement.

All Parties to the Paris Agreement have to regularly prepare and communicate successive NDCs at five-yearly intervals, with the next round of submissions being in 2020. NDC cycles should build on each other and ratchet their aggregate and individual ambition over time. To do so, Parties have the option to engage in market and non-market approaches outlined under Article 6 of the Paris Agreement.

These cooperative approaches offer centralized as well as decentralized routes through which countries (and the private sector) can cooperate to improve sectoral accounting of emissions and removals and broaden the scope of mitigation actions. This opens-up new possibilities for coastal blue carbon, where blue carbon countries and financiers can joint explore which market or non-market-based route is most fitting for engagement.

4.

Options for cooperation under Article 6

Article 6 builds on the experience of markets under the CDM and simultaneously offers new features that provide Parties with various options to heighten engagement in achieving their NDC pledges. It also captures various routes for cooperation including both market and non-market-based cooperation. These routes for cooperation are currently being elaborated internationally and key decisions by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA) are expected for this year at COP24 in Katowice.

4.1 Article 6.2 Cooperative Approaches

Article 6.2 of the Paris Agreement provides countries the **opportunity to voluntarily engage in a decentralized form of cooperation**. Parties that wish to retain flexibility and greater domestic control over how they engage and benefit from carbon markets, can voluntarily implement country-led and collaborative market mechanisms to achieve their NDCs. Provided they meet the emerging international standards developed by the CMA, Parties will be able to transfer **Internationally Transferred Mitigation Outcomes (ITMOs)** to achieve their NDCs.

Parties can choose to experiment with different cooperative arrangements including for example, government-to-government transfers of ITMOs, domestic crediting mechanisms, linking of emissions trading, as well as other possible forms of bilateral and plurilateral forms of cooperation.

While these aspects form the basic understanding and framework of Article 6.2, several points of convergence and divergence exist that remain to be negotiated. These points include the ambition, environmental integrity, accounting of ITMOs and corresponding adjustments. A more overarching point that Parties are also discussing is the format of international oversight or governance regarding Article 6.2. The question is to what extent this oversight should be rigorous or flexible, as well as how much oversight from the CMA is needed and how much can be left for national governments to take on themselves. Another key aspect is if Article 6.2 guidance should be provided for the accounting of ITMOs only, or if other aspects should be covered as well, such as environmental integrity, sustainable development and transparency in governance.

Parties have suggested various approaches. Brazil and the Environmental Integrity Group (EIG), for example, tend to prefer strong international oversight for accounting and ITMOs. EIG, in particular, argues that guidance for Article 6.2 should be comparable to those under Article 6.4, so as to ensure (high) environmental integrity standards for both approaches. Other groups such as the Independent Association of Latin America and the Caribbean (AILAC) and Like-Minded Developing Countries (LMDCs) seem

to prefer more minimal oversight and wish to limit Article 6.2 governance for accounting and ITMOs.

As it stands, ITMOs remain undefined under the Paris Agreement and countries will need to negotiate options regarding the form, the scope and the characteristics. One option includes that ITMOs be measured in CO₂e and represent emission reductions and are real, permanent, and verifiable.

4.2 Article 6.4 Market Mechanism

Under Article 6.4 of the Paris Agreement, Parties have the opportunity to use a **centralized crediting mechanism that will be directly governed by a UNFCCC body and is open to all Parties**. Article 6.4 can enable countries to implement cost-effective mitigation opportunities, achieve their NDCs and promote sustainable development.

The Article 6.4 mechanism is particularly interesting for Parties that either do not have the capacities to implement their own crediting systems as well as those that want to use a globally accepted crediting standard for generating emission reductions. These emission reductions must be real, measurable, additional and long-term in order to qualify for certification.

Article 6.4 is deemed the successor of the project-based mechanisms under the Kyoto Protocol. However, while the Article 6.4 mechanism builds on the CDM and JI, **it has the potential to be broader in scope, eventually incorporating sectoral approaches rather than just programs and projects**. The overall architecture of Article 6.4 resembles the JI more closely, considering that all Parties must achieve their own mitigation pledges.

4.3 Article 6.8 Work Programme

Article 6.8 establishes **a framework for non-market cooperation approaches as well as a work programme**. The framework provides Parties with the opportunity to share experiences and best practices, whilst preserving national prerogatives regarding sustainable development.

Article 6.8 aims to enhance the support given to developing countries through finance and capacity-building. It works on a voluntary basis, for the achievement of NDCs, enhancement of the public and private sector engagement and promotion of environmental integrity while providing incentives for domestic mitigation actions in the form of payments without transfer of units.

The Work Programme that is considered under Article 6.8, **aims to enhance linkages and create synergies between mitigation and adaptation finance technology transfer and capacity building** and how to facilitate the implementation and coordination of non-market approaches. As well, it aims to enhance public and private sector participation in the implementation of NDCs.

4.4 Status of Article 6 negotiations

The mandate of the Paris Agreement and the COP21 Decision is for Parties to agree on the guidance for Article 6.2, as well as develop the rules, modalities and procedures of the new mechanism under Article 6.4 by the end of this year at COP24 in Katowice. At the 48th session of the Subsidiary Body for Scientific and Technological Advice (SBSTA 48) and Subsidiary

Body for Implementation (SBI 48) in Bangkok, Thailand, Parties reorganized the informal notes produced at COP23.³⁰

Various elements in Article 6 that remain to be negotiated, Parties have clustered into issues that are to be resolved by COP24 and issues that will require further work and refinement in 2019, through additional decisions to be taken by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA).³¹

Some of the issues that Parties are still very much split on include: how much oversight from the UN is needed for cooperative approaches, whether this leads to the establishment of an Article 6.2 body, whether the participation in markets should be limited to particular types of NDCs or sectors covered by the NDCs, what the basis should be for corresponding adjustments, and finally whether CDM activities and credits should transition to the new mechanism under Article 6.4.

The general requirements for participating in Article 6 are likely to already include that countries have ratified the Paris Agreement, that a NDC has been prepared, communicated and maintained in accordance with Article 6.2 as well as relevant decisions of the CMA, and that has a designated national authority (DNA) that will oversee the mechanism.³²

³⁰ UNFCCC APA-SBSTA-SBI (2018) Joint reflections note by the presiding officers of the Ad Hoc Working Group on the Paris Agreement, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation. Available [here](#).

³¹ UNFCCC APA-SBSTA-SBI (2018) Joint reflections note by the presiding officers of the Ad Hoc Working Group on the Paris Agreement, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation. Available [here](#).

³² Draft CMA decision containing the draft rules, modalities and procedures for the mechanism established by Article 6, paragraph 4, of the Paris Agreement (2018).

5. Implications for NbS and coastal blue carbon

Article 6 can enhance the recognition of NbS, in particular coastal blue carbon under the climate regime, while enabling countries to implement their NDCs and broaden the scope of their mitigation actions over time. Functioning as an additional financing mechanism, Parties can utilize Article 6 cooperative approaches to develop and implement coastal carbon interventions that can be integrated both under the Paris Agreement and within the UNFCCC framework.

5.1 Blue carbon projects in the voluntary carbon market

As established above, the currently mandatory compliance markets are rather limited in terms of allowing and being interesting for trading of coastal blue carbon credits. For ‘regular’ compliance offset buyers, coastal credits are just another project type among many. Their decisions for one versus another type of carbon offset is based on low prices and low risks – which are characteristics coastal carbon offsets credits currently do not have (see Table 2).

Table 2
From Herr et al (2018 in review)
Comparing buyer’s decision factors with the characteristics of coastal carbon offsets credits

	COASTAL CARBON OFFSET CREDITS	VOLUNTARY BUYERS	MATCH	COMPLIANCE BUYERS ANF FOR PROFIT VOLUNTARY BUYER	MATCH
CHARACTERISTIC OF COASTAL CARBON PROJECTS					
CARBON CONTENT	OFFER HIGH AMOUNT OF CARBON PER UNIT AREA, INCLUDING BELOW GROUND	CARBON IS ONE OF THE LEAST IMPORTANT FACTORS IN A BUYER'S DECISION MAKING	~	CARBON IS ONE OF THE LEAST IMPORTANT FACTORS IN A BUYER'S DECISION MAKING	~
PRICE	SELL FOR HIGHER PRICES	WILLING TO PAY HIGHER PRICES	√	LOOKING FOR THE CHEAPEST PRICE	\
RISKS	ENTAIL SEVERAL HIGH RISK ELEMENTS	WILLING TO PAY HIGHER RISKS	√	LESS WILLING TO TAKE HIGHER RISKS	\
COUNTRY RISK	H				
COUNTERPART RISK	H				
QUALITY RISK	L				
METHODOLOGY RISK	M				
RISK OF REVERSAL	H				
REPUTATIONAL RISK	H				
CO-BENEFITS	HAVE VERY HIGH POTENTIAL FOR CO-BENEFITS	ARE VERY INTERESTED IN CO-BENEFITS	√	ARE LESS INTERESTED IN CO-BENEFITS	\
OTHER FACTORS					
PROJECT LOCATION	SITE SPECIFIC	CAN HAVE VERY SITE SPECIFIC REQUESTS	√	ARE LESS INTERESTED IN SITE LOCATION	~
PROJECT TYPE	VARIOUS TYPES ARE AVAILABLE	CAN HAVE PREFERENCE IN SPECIFIC ECOSYSTEM TYPE	√	ARE LESS INTERESTED IN SITE LOCATION	~
EXTERNAL FACTORS	DEMAND INFLUENCED VERY HIGHLY BY EXTERNAL FACTORS	INTEREST FOR CREDITS INFLUENCED VERY HIGHLY BY EXTERNAL FACTORS	~	INTEREST FOR CREDITS INFLUENCED VERY HIGHLY BY EXTERNAL FACTORS	~

Coastal blue carbon offset credits as characterized for a 'niche market' driven mostly through voluntary demand. The prices currently seen and expected in the voluntary market lie above some of the other prices seen in the compliance and voluntary markets. One of the main drivers for voluntary action is Corporate Social Responsibility (CSR) (as it relates to marketing, company image and public relations) and non-governmental organizations and individuals who work closely with mangroves. Dixon and Challies argue that if it were not for CSR-linked initiatives, many REDD+ projects would have ceased to exist in recent years, and this logic can be applied to coastal carbon offset projects as well.³³

Many experts judge the carbon markets somewhat stable at the moment, with not too many new buyers currently joining in. They, however, note that there is nevertheless an ongoing demand and appetite for innovative and new projects, which could speak in favour of a growing interest to buy coastal carbon offset credits.

In terms of generating demand from carbon credit buyers, there is broad agreement among carbon market experts that coastal offsets have to sell their unique value proposition: the co-benefits. Individuals, NGOs or small companies with a marine connection which show a high interest in contributions of projects beyond carbon seem, therefore, to be the most likely buyers in the near future. While such voluntary, individual interest can become the major driving force behind the demand for coastal carbon offset credits, a sector-wide initiative from the maritime industries – such as what the International Civil Aviation Organization (ICAO) is doing with the Carbon Offset and Reduction Scheme for International Aviation (CORSIA)³⁴ – could boost the demand for carbon credits from coastal projects and help reduce transaction costs. This could make it more lucrative for project developers to actually generate coastal carbon credits in the first place. The CORSIA pilot phase will run from 2021 with a voluntary participation of 66 countries and is likely to allow forest carbon credits for compliance, thus still of interest to coastal mangrove projects.

There are means to reduce risks to potential buyers as well as provide opportunities for increased demand for coastal carbon offset credits. Coastal carbon credits could become part of credit pools from different sectors, technologies, methodologies and performance risk profiles.³⁵ This could help minimize the buyer's risks, such as reducing the need for buffer pools and the risk of reversal (e.g. cyclone impacts). Sellers on the other hand, could reduce financial risks by not having to guarantee the delivery of credits from one single project.

To increase the likelihood for coastal carbon to be traded in carbon markets, methodologies accounting for both GHG reductions from restoration and conservation could be developed, to, in turn, allow for more flexibility of project type and activities being implemented to achieve carbon reductions as well as account for the maximum carbon potentials, including in the soil.

The discussion and application of landscape level standards, including environmental and social metrics, has been ongoing, but still raises

³³ Dixon and Challies 2015. Making REDD+ pay: Shifting rationales and tactics of private finance and the governance of avoided deforestation in Indonesia. *Asia Pacific Viewpoint*, Vol. 56, No. 1, April 2015 ISSN 1360-7456, pp6–20. Making

³⁴ Herr et al. 2017. Pathways for implementation of blue carbon initiatives. *Aquatic Conserv: Mar Freshw Ecosyst.* 2017;27(S1):116–129

³⁵ Cohen and Barrow 2009. Why Structuring is Important for CDM Development, available at [/blog/why-structuring-is-important-for-cdm-development](#)

challenging questions around appropriate methodologies and risks of implementation.³⁶ While some small-scale coastal carbon projects are able to finance some conservation efforts via selling carbon credits,³⁷ a new trend towards verification and results-based finance (paying for performance) for co-benefits is being observed.³⁸ This new way of generating additional finance and revenue is mainly driven through the 2030 Agenda and the UN Sustainable Development Goals (SDGs).

In summary, there are additional opportunities to market coastal carbon credits, for example as part of curated portfolios and linked to resilience/adaptation values, as well as promoting coastal carbon projects as contributions to achieving the SDGs and a company's carbon neutrality linked to emission reductions on their supply chain. As a new economy emerges that values natural capital appropriately,³⁹ there is an opportunity for blue natural capital to emerge as a new asset class, acknowledging and protecting the value of coastal ecosystems more comprehensively, beyond carbon alone.

5.2 Requirements for linking coastal blue carbon to Article 6

While Article 6 offers a new opportunity for financing coastal blue carbon, there are several hurdles to consider at this stage. COP24 in Katowice aims to provide clarity on many issues regarding NDC accounting, reporting on mitigation and adaptation progress, and the use of Article 6 cooperative approaches. However, with a work plan set for 2019 not all aspects will be clear by the end of COP24.⁴⁰

Articles 4 and 13 of the Paris Agreement require all Parties to account for their anthropogenic GHG emissions and removals corresponding to their NDCs. **This accounting and reporting must be done in a way that promotes environmental integrity, as well as transparency, accuracy, completeness, comparability and consistency (known as the TACCC principles).** Accounting and inventory reporting must also make use of good practice methodologies accepted by the IPCC and agreed upon by the CMA.⁴¹

So far only a few developed countries have been using the Wetland Supplement and many have described a number of difficulties in obtaining activity data and consistently applying the additional methodologies related to coastal wetlands (among other types of wetlands).⁴² Therefore, an important first barrier could be overcome by engaging in more systematic collection of national data, assessment and reporting of wetlands in general – and coastal blue carbon emissions more specifically.

³⁶ Global Landscape Forum (2017) Digital Summit: What is a landscape approach. Available [here](#).

³⁷ Plan Vivo (2018) Mikoko Pamoja – Kenya. Available [here](#).

³⁸ Hamrick and Goldstein.2016. Raising Ambition State of the Voluntary Carbon Markets 2016

³⁹ Guerry et al. 2015. Natural capital and ecosystem services informing decisions: From promise to practice. PNAS.

⁴⁰ Annex II of the informal document containing draft guidance and modalities for Article 6.2 and 6.4, respectively, specifies the topics that will probably be left for a final decision in 2019. See UNFCCC APA-SBSTA-SBI (2018) Joint reflections note by the presiding officers of the Ad Hoc Working Group on the Paris Agreement, the Subsidiary Body for Scientific and Technological Advice and the Subsidiary Body for Implementation. Available [here](#).

⁴¹ Paris Agreement (2015) Article 4 and 13. Available [here](#); and UNFCCC (2015) Decision 1/CP.21. Available [here](#).

⁴² See, for instance, submissions by Japan and the EU (2017) to the SBSTA on experiences in the use of the IPCC Wetland Supplement. Available [here](#) and [here](#).

Avoidance of double counting through corresponding adjustments is another key responsibility of countries intending to use Article 6 to achieve their NDCs.⁴³ If coastal blue carbon mitigation activities are included in the scope of a host country's NDC, any international transfer of mitigation outcomes from those activities will require accounting adjustments at inventory or NDC level so that emission reductions are not double counted. **In order to be able to properly effect these accounting adjustments, the host country will have to quantify its NDC and the mitigation efforts that are expected from coastal blue carbon interventions.**⁴⁴

By extension, before transferring away mitigation outcomes from blue carbon interventions, the host country will need to strategically assess which portion of these mitigation outcomes must be retained in-country in order to meet its own unconditional NDC commitments.

Finally, the participation and use of Article 6.2 in particular may have requirements of its own. These participation requirements may apply at national and NDC level, as well as at cooperative level. At the national level host countries may be required to establish: (i) a registry; (ii) a system that records the origin, creation, transfer, acquisition and use of ITMOs for its NDC achievement; (iii) provide up to date inventory reports meeting modalities, procedures and guidelines under Article 13.7; (iv) and/or communicate economy-wide, long-term, low-emission development strategies in accordance with Article 4.19.⁴⁵

On an NDC level, countries may also be required to quantify their current NDCs, which could entail (i) quantifying mitigation into tonnes of CO₂e; (ii) identifying sectors and GHGs covered by its NDC; (iii) calculating an absolute-emissions, multi-year, economy-wide target.

In turn, on a cooperative level, countries may need to fulfil potential participation requirements related to the cooperative approach itself as well as to ITMOs. This means that countries may need to, regarding the cooperative approach, have in place (i) a baseline setting process; (ii) leakage risk mitigation requirements; and/or (iii) a system to ensure permanence. Regarding ITMOs, countries may also need to establish an independent process to verify ITMOs created and transferred out of the country.⁴⁶

However, while these hurdles seem daunting at this stage, Article 6 mechanisms can be used as a **tool for capacity building and establishing cooperative measures to better equip Parties to participate in more complex market systems in the future.** More specifically, countries can utilize the various approaches under Article 6 to collect data and establish the appropriate capacities and institutions required to participate.

⁴³ Paris Agreement (2015) Article 4 and 13. Available [here](#); and UNFCCC (2015) Decision 1/CP.21. Available [here](#).

⁴⁴ See Lambert Schneider et al. Robust Accounting of International Transfers under Article 6 of the Paris Agreement. DEHSt, 2017; and Robert Stowe. The Paris Agreement's Article 6 and Cooperation in Northeast Asia to Address Climate Change. Asia Society Policy Institute. Carbon Market Cooperation in Northeast Asia, 2018.

⁴⁵ (2018) SBSTA 48-2 agenda item 12 (a): Draft CMA decision containing draft guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Section VIII. Participation requirements and responsibilities, paragraph A. Participation Requirements.

⁴⁶ (2018) SBSTA 48-2 agenda item 12 (a): Draft CMA decision containing draft guidance on cooperative approaches referred to in Article 6, paragraph 2, of the Paris Agreement. Section VIII. Participation requirements and responsibilities, paragraph A. Participation Requirements.

6. A cooperative approach for blue carbon

Article 6 of the Paris Agreement can become the international mechanism that provides the necessary incentive for host countries to fully integrate coastal blue carbon into their NDCs. Article 6's different routes and levels of (de-)centralization may be leveraged to create a gradual approach to adequately include coastal blue carbon emissions and removals into NDCs, while providing finance both for capacity building on emissions management, as well as actual coastal carbon restoration and conservation interventions.

The aim of this phased approach is for host countries to increase coverage of coastal blue carbon sources and sinks over successive cycles of NDCs, while making the most of the opportunities that Article 6 offers, ranging from general climate finance (through Article 6.8), passing through an international centralized MRV and crediting system (under Article 6.4), and moving on to a country-owned MRV and crediting process at a later stage (via Article 6.2).

This type of phased approach could be reflected under a bilateral or plurilateral cooperative approach between countries that favour a clearer and more transparent process for reporting and accounting coastal blue carbon and wish to make use of both climate and carbon finance to achieve it. Each stage of this pilot cooperation would follow the relevant guidance or modalities and procedures established under Article 6, **but would be established through a cooperative bilateral agreement largely outside the UNFCCC process. This means that this initiative would, as a minimum, follow the standards set by the Paris Agreement, but likely add additional criteria to create a cooperative model that could eventually be replicated to other interested countries.**

To some extent, an Article 6 coastal blue carbon cooperative approach would work as a less centralized version of the model adopted for REDD+ under the UNFCCC. The phased system for REDD+ results-based payment was regulated by the Warsaw Framework ('WFR')⁴⁷ and provides incentives for tropical forest countries to reduce deforestation and forest degradation. Countries submit (and then update) their forest reference level and/or reference emission level, which undergo technical assessments coordinated by the UNFCCC Secretariat. The results achieved by countries are reported as an annex to their Biennial Update Reports and also undergo technical analysis as part of the International Consultation and Analysis (ICA).⁴⁸ Payments for results can be made by the GCF, as well as other multilateral and bilateral institutions which build on the WFR as part of their

⁴⁷ An overview of the seven decisions that together comprise the Warsaw Framework can be found at: <https://bit.ly/2O5BT0D>

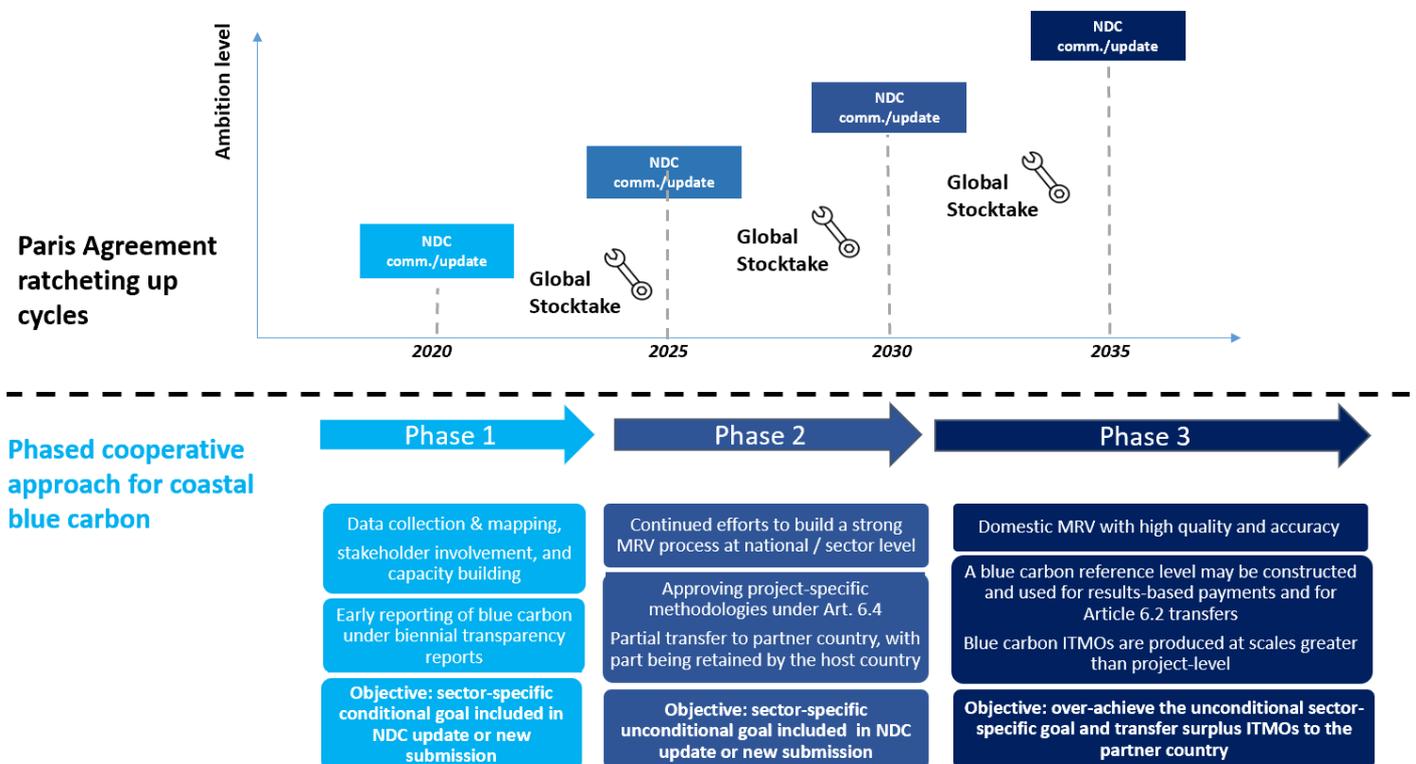
⁴⁸ See <https://redd.unfccc.int/fact-sheets/forest-reference-emission-levels.html> and FAO, "From reference levels to results reporting: REDD+ under the UNFCCC 2018 update"

(complementary) capacity building and performance-based payment initiatives.

For a coastal blue carbon cooperative approach, an international incentive system could be established through a bilateral or plurilateral cooperation in line with Article 6. Provided that the pilot blue carbon cooperative approach meets the participation requirements to be set at COP24 in Katowice and beyond, and ensures corresponding adjustments are timely and transparently made whenever mitigation outcomes are transferred, **the countries interested in financing and developing coastal blue carbon initiatives could partner with blue carbon host countries in order to establish the necessary capacities and infrastructure needed to eventually produce and transfer mitigation outcomes.**

On this basis, possible phases for carrying out such cooperative approaches are suggested below. While the timing of each phase varies from host country to host country and is dependent on domestic capacities, the phases suggested below could – to a certain extent – match the five-yearly NDC communication cycles.⁴⁹ The first phase would in this case be expected to be completed by 2025, the second phase by 2030 and the third phase by 2035. Countries that have greater or more advanced capacities could advance through the phases more quickly or perhaps start with phase 2, if institutions for data collection and sufficient capacity building is already in place.

Figure 4
Phased cooperative approach for coastal blue carbon



⁴⁹ Under the Paris Agreement, each Party communicates successive NDCs every 5 years. Submissions of new or updated NDCs are due in 2020, 2025, 2030 and so on. See Articles 4.2 and 4.9 of the Paris Agreement.

6.1 Phase 1: Data gathering and capacity building

Data gathering and capacity building comprise the first phase, and a vital first step, to address coastal blue carbon via Article 6. Mapping out the existing knowledge and information, institutions and policies and national targets is important to understand where a country stands in terms of its capacities to tackle blue carbon.

Phase 1 therefore captures several aspects that are relevant for cooperating countries to consider in order to kick-start the process of accounting and reporting on their blue carbon stocks, among others:

- **Gathering adequate data in the host country**, including identifying blue carbon resources and on-going or planned blue carbon interventions, as well as establishing and regularly updating blue carbon stock maps, all with a view to begin a systematic use of the Wetland Supplement.
- **Assigning the responsibility for cooperating with stakeholders** (including government, project developers, research institutions, academia, and the private sector) to an existing institution in order to compile, digitize, and update information in a transparent and accessible manner.
- **Starting discussions on the role of blue carbon under the NDC**, and the potential impact of blue carbon emissions and reductions in (over-)achieving the current and future mitigation pledges of the host country.
- **Considering the need for creating and/or further refining social and environmental safeguards** that need to be in place to protect biological diversity and enable effective participation of relevant stakeholders, including indigenous peoples and local communities.

Having completed these steps and as an outcome of this phase 1, the cooperating countries can agree to either: (i) include coastal blue carbon areas and ecosystems for which adequate data has become available (for a host country that had not yet covered coastal blue carbon as part of its NDC-related mitigation efforts) in the host country's NDCs; (ii) develop and propose a (conditional) sector-specific goal to be included in the NDC (for a host country in which coastal blue carbon was already considered as a mitigation strategy under the NDC). This may also be limited to specific coastal blue carbon ecosystems where activity data is more certain, with the remainder being left out for inclusion in the following NDC cycle.

Since these types of NDC modifications entail an increase in ambition of the host country mitigation pledges, they can be communicated to the CMA at any point in time. However politically, it is more likely that host countries would be inclined to rather make such changes at the moment of submitting a new NDC, in which case these modifications would only apply to the following NDC accounting cycle.⁵⁰

⁵⁰ Submission of a new NDC in 2025, for instance, would only apply to the NDC accounting cycle related to 2031-2035. A new submission in 2030, for the NDC accounting cycle of 2036-2040. See in this respect Desgain, Denis and Sharma, Sudhir Understanding the Paris agreement: analysing the reporting requirements under the enhanced transparency framework, DTU, 2016.

This suggested first phase could be supported by other cooperating countries and partners in different ways. Climate finance can be disbursed multilaterally or bilaterally in a similar way as the first and second stages of REDD+ implementation (i.e. through grants and technical assistance), where the choice of the starting stage varies according to the specific national circumstances and capacities of each host country and the level of support provided.⁵¹

Article 6.8's framework for non-market approaches can also be an opportunity for financing the first phase of a coastal blue carbon pilot cooperative approach. The concepts that fit under Article 6.8 and the possible benefits of this route still have to be defined and fleshed out by the Parties over the course of 2019. This said, some countries already indicated that they wish Article 6.8 to function in a complementary manner to other provisions in the Paris Agreement, including in Articles 6.2 and 6.4.⁵²

A pilot cooperation focused on blue carbon restoration and conservation interventions is likely to meet the key objectives and criteria set out for Article 6 in the Paris Agreement, namely: that it is voluntary; enables higher ambition for adaptation and mitigation measures; endorses environmental integrity; and supports Parties with the implementation of their NDCs.⁵³

Article 6.8 and Article 6.9 more specifically, embody these principles as Parties suggest that non-market approaches be: voluntary, integrated and holistic; support Parties in meeting their NDC objectives including through capacity building; promote sustainable development, poverty eradication, and enhance adaptation and mitigation ambition. Moreover, it also suggests they improve the role of the public and private sectors in NDC implementation; allow for cooperation and coordination across instruments as well as institutional arrangements; and include an Adaptation Benefit mechanism.⁵⁴

6.2 Phase 2: Crediting specific blue carbon activities

Following phase 1, **countries can aim to credit specific blue carbon activities for which activity data is robust enough.** For instance, the host and the partner country can work towards approving project-specific methodologies under Article 6.4 for those coastal blue carbon activities where uncertainty over carbon fluxes and permanence risks can be deemed lower. This could, for example, build on methodologies under the CDM and voluntary markets (e.g. VCS and Plan Vivo).

The cooperating countries can then jointly decide how to account for and use Article 6.4 units eventually generated by the relevant blue carbon activities (if any). For instance, a portion of these units could be retained domestically in order to assist the host country in achieving its overall NDC pledge or a possible sector-specific (blue carbon) goal set by the host country. Importantly, **the use of Article 6.4 would also require the**

⁵¹ See UNFCCC, REDD+ Web Platform, available at <https://redd.unfccc.int/fact-sheets/unfccc-negotiations.html>

⁵² Decoding Article 6 of the Paris Agreement. Asian Development Bank. 2018

⁵³ SBSTA 48-2 agenda item 12(c) (2018) Draft CMA decision containing the draft work programme under the framework for non-market approaches referred to in Article 6, paragraph 8, of the Paris Agreement. Annex I, S. II. Principles.

⁵⁴ Decoding Article 6 of the Paris Agreement. Asian Development Bank. 2018

cooperating countries to deliver overall mitigation in global emissions, thus going beyond mere offsetting of emissions.⁵⁵

The work at project level will assist in gathering additional valuable data for further refining accounting at the sectoral level, helping the host country to better understand the blue carbon storage potential. **For those blue carbon activities where a higher level of uncertainty remains, a non-transfer results-based approach can be used.** The partner country and the host country can agree, for instance, on the use of proxies against which performance-based payments can be made. For these cases, however, there would not be any transfer of emission reductions between the cooperating countries,⁵⁶ but the partner country could still count its financial contributions towards its commitments on the provision of general climate finance (pursuant to Article 9 of the Paris Agreement).⁵⁷

In the meantime, the cooperating countries can also continue their efforts to build a strong MRV process at national and sectoral (coastal blue carbon) level, including an institutionalized process for data gathering and analysis, quality assurance and quality control processes and, where useful, promoting the use of remote sensing technologies.⁵⁸

As an outcome of this second phase, the host country can already consider an unconditional blue carbon-specific target for inclusion in the subsequent NDC cycle. Moreover, the cooperating countries can begin the construction of a blue carbon reference level which may be used for results-based payments, as well as for Article 6.2 transfer-based finance in phase 3.

Such a blue carbon reference level can be developed pursuant to the Wetland Supplement and following expertise provided or supported by the partner country. The host country would also need to align its blue carbon reference level with the unconditional target to be specified in the NDC, so that crediting of emission reductions is additional and does not compromise the achievement of the host country own mitigation pledges.⁵⁹

6.3 Phase 3: Crediting coastal blue carbon at larger scales

As MRV capacities in the host country consolidates and collected data achieves a certain level of quality and accuracy, a clearer understanding of the contribution of blue carbon to (over-)achieve the NDC becomes possible and a larger range of mitigation opportunities can be explored.

At this stage it is expected that the host country has already been collecting data, maintaining records and reporting on blue carbon for an adequate

⁵⁵ See Article 6.4(d) of the Paris Agreement. See also in this respect Andrei Marcu, Article 6 of the Paris Agreement: Reflections on Party Submissions before Marrakech, ICTSD, 2017; and Lambert Schneider et al. Environmental Integrity under Article 6 of the Paris Agreement. DEHSt, 2017.

⁵⁶ On results-based vs. transfer-based finance, see C. Streck, A. Howard and R. Rajão. Options for Enhancing REDD+ Collaboration in the Context of Article 6 of the Paris Agreement. Meridian Institute, 2017.

⁵⁷ For an overview of the modalities for the accounting of financial resources provided and mobilized through public interventions, refer to UNFCCC. Modalities for the accounting of financial resources provided and mobilized through public interventions in accordance with Article 9, paragraph 7, of the Paris Agreement. Technical Paper by the Secretariat, 2017.

⁵⁸ It is worth noting that eventually this will be needed for all NDC covered sectors, and not only for coastal blue carbon.

⁵⁹ On additionality and baselines in the context of the Paris Agreement, see Randall Spalding-Fecher et al. Environmental integrity and additionality in the new context of the Paris Agreement crediting mechanisms. Carbon Limits, 2017.

number of years. It is also expected that the host country will have developed a few specific blue carbon activities and interventions, for which measurement of emissions and removals can be made with reasonable confidence (possibly with the international issuance of Article 6.4 units for some of these activities).

In this last phase an Article 6.2 route can be tested. Being more decentralised in nature, Article 6.2 allows countries to define the scope and extent of their cooperation, provided that key international principles are respected. Therefore, unless explicitly excluded from accounting or market-based approaches under the Paris Agreement, blue carbon can also be the focus of cooperation among countries.⁶⁰

Crediting coastal blue carbon as a sector would allow the host country to consider offering coastal blue carbon ITMOs (pursuant to Article 6.2 guidance) at scales greater than project-level. Available ITMOs would be measured against a blue carbon reference level that reflects the unconditional NDC target and the mitigation contribution expected from blue carbon interventions.⁶¹

Blue carbon reference levels can undergo independent technical assessments (outside the UNFCCC process) organized and made public by the cooperating countries. In addition, the host country would report internationally, along with its biennial transparency report, information related to its coastal blue carbon interventions, including on the proposed reference level for coastal blue carbon. The suggested pilot blue carbon cooperative approach and its results could therefore be also discussed/reviewed internationally in the context of Article 13 and/or Article 6.2, depending on final guidance and modalities emerging from the Paris rulebook.

As an outcome of this suggested phase 3, the host country would aim to over-achieve the unconditional sector-specific goal (along with the entirety of the NDC) and sell surplus mitigation outcomes to the partner country, which may or not use these mitigation outcomes for its own NDC achievement.

During this final phase, the Article 6.4 route could still be used by the host country to allow specific activities to be directly incentivized. But assuming the national MRV system of the host country as well as sectoral blue carbon reporting and accounting are robust enough at this stage, the host country will also have the option to transfer ITMOs at larger (sectoral) scale and then pass-on the incentives and benefits to the respective programme developers and local stakeholders.

⁶⁰ Some experts have observed that an “ocean-friendly” Paris rulebook would, at a minimum, ensure that it does not exclude ocean-related mitigation from NDCs, while pointing out that including language supporting ocean-related mitigation would be desirable. See Daniel Bodansky and Susan Biniiaz. Review of Paris Agreement Work Programme (PAWP) Texts. Ocean Conservancy and Climate Advisers, 2018. In the context of land-use, some organisations have emphasised that specific sectors do not need to be explicitly referenced in Article 6 guidance, as this could be time-consuming and potentially create a limitation on the use of other sectors under Article 6. See Accelerating Climate Action in the Land Sector through Article 6. Climate Advisers Trust, Conservation International, EDF, IETA, and The Nature Conservancy, 2018.

⁶¹ On the need for crediting baselines to reflect unconditional and possibly conditional NDC targets, see World Bank. Establishing Scaled-Up Crediting Program baselines under the Paris Agreement: Issues and Options. PMR, 2017.

7. Conclusions

Article 6 of the Paris Agreement can become an international incentive mechanism for countries to appropriately identify and implement coastal blue carbon interventions, while at the same time improving countries' domestic capacities through data collection, enhanced transparency and more comprehensive accounting of blue carbon stocks and fluxes in coastal ecosystems.

A phased cooperative approach for coastal blue carbon could resemble to some extent the phased approach adopted for REDD+. However, and differently from REDD+ in this aspect, it does not need to be fully reflected and articulated in CMA decisions. Article 6 – and in particular Article 6.2 – offers the necessary flexibility for cooperating countries to define the scope and extent of their cooperation, provided that key international principles of environmental integrity, mitigation and adaptation ambition and transparency are respected.

It would suffice that the countries establishing bilateral cooperative approach agree on seeking and achieving consistency (and then remaining consistent) with Article 6.2 guidance whenever mitigation outcomes are produced and transferred internationally. When specific coastal blue carbon activities (e.g. coastal wetland restoration in a specific area) seek to issue and transfer Article 6.4 units to the partner country (or any other possible investor), these would also have to follow the modalities set-out under the Art. 6.4 mechanism.

The flexibility offered by Article 6 enables countries to select an appropriate cooperative route, according to their current domestic capacities and needs. Therefore, if well designed, a bilateral cooperative approach for blue carbon can provide a suitable avenue for promoting better accounting of coastal ecosystems and incentivize financial flows to coastal blue carbon interventions.

The suggested phased approach for blue carbon would also contribute to gradually enhancing NDC coverage in blue carbon countries, helping these to progress to economy-wide emission reduction or limitation targets. For this to work, however, the host and the partner country need to agree on a mitigation outcome sharing arrangement, where the host country is able to retain enough emission reductions to achieve its own NDC or at least the blue carbon sector-specific goal.