



IDENTIFYING MANGROVE BLUE CARBON BARRIERS

KEY CONSIDERATIONS FOR POLICY MAKERS

2021 OCTOBER

© BLUE VENTURES 2021.

Copyright in this publication and in all text, data and images contained herein, except as otherwise indicated, rests with Blue Ventures.

Lead author: Cécile Schneider Contributing Authors: Leah Glass, Nick Piludu, Steve Rocliffe, Will Stephens

This work would not have been possible without the generous support of the UK Government's ICF Blue Forests grant which contributed to supporting evidence and research.

Recommended citation: Schneider, C., et al 2021. "Identifying mangrove blue carbon barriers. Key considerations for policy makers". Blue Ventures, Bristol, United Kingdom.



EXECUTIVE SUMMARY

Mangrove and other blue carbon ecosystems provide extensive climate mitigation and adaptation benefits, as well as a range of other services that underpin coastal livelihoods. Yet these precious ecosystems are being lost rapidly, with devastating consequences for the climate and coastal communities.

Carbon projects have the potential to raise funds to deliver mangrove conservation and restoration through climate finance linked to verified, quantifiable emission reductions. But in coastal contexts, they face a range of technical, financial and policy barriers. These need urgently addressing if blue carbon projects are to fulfil their potential in averting the climate crisis.

Blue Ventures started working on mangroves and blue carbon in 2011 in Madagascar, supporting local communities to develop incentive-based approaches to mangrove conservation and restoration. As well as overcoming various technical and financial challenges, this experience has also helped identify a range of policy barriers. In the context of COP26, Blue Ventures is publishing this report to assist policy makers in ensuring blue carbon reaches its full potential for people and nature.

Four key policy barriers are explored:

- 1. Unclear and insecure tenure;
- 2. Inequitable benefit sharing;
- 3. Misalignment between small-scale blue carbon projects and national REDD+ frameworks; and
- 4. Complexities for blue carbon in the Paris Agreement and countries' Nationally Determined Contributions (NDCs).

Addressing these barriers will require extensive policy reform, and this report offers suggestions and ideas for how to do this.

Key recommendations *On tenure reform:*

- Recognising the research that now evidences the benefits of assigning tenure to local people for joint conservation and socioeconomic development outcomes.
- 2. Guiding policy reform in line with the customary rights of Indigenous and forest-dwelling communities.
- 3. Identifying and resolving overlapping mandates so relevant government ministries and agencies can deliver efficiently for people and nature.

On benefit sharing:

- 1. Ensuring that policies prioritise those bearing the primary burden of emission reductions or enhanced carbon stocks.
- 2. Ensuring that these policies mandate a clear, transparent, context-specific and participatory process for the development of benefit-sharing agreements.

On misalignments with REDD+:

- 1. Updating forest definitions to include mangrove forests and their soils and sediments.
- 2. Revisiting requirements around significant loss in order to encourage and incorporate conservation in lower-loss contexts.
- 3. Investing in technical capability so that smaller-scale and marine contexts are as well served as large-scale terrestrial projects.
- 4. Optimising administrative processes to enable smaller-scale projects to meet requirements affordably and ensure a transparent flow of benefits to communities.

And on complexities for blue carbon in the Paris Agreement and NDCs:

- 1. Including mangrove and other blue carbon ecosystems in NDCs for mitigation and adaptation.
- 2. Developing NDCs in line with the customary rights of Indigenous and forest-dwelling communities.
- Advocating for the swift adoption of a robust rulebook for Article 6 of the Paris Agreement under the United Nations Framework Convention on Climate Change (UNFCCC) so markets can start delivering for people and nature.

Mangroves deliver a multitude of critical services and benefits to people – including some of the poorest and most vulnerable on Earth, who stand on the front lines of climate breakdown. Mangroves are central to the adaptation and resilience of hundreds of millions of coastal people across the tropics. The Special Report on the Ocean and Cryosphere in a Changing Climate¹ (SROCC) of the Intergovernmental Panel on Climate Change (IPCC) underscores the importance of coastal ecosystems, including mangroves. They are the ultimate nature-based solution.

Blue Ventures hopes this report will provide useful examples and practical suggestions for strengthening policy for blue carbon. Doing so represents one of the most effective ways for countries to fulfil their Paris commitments, attract significant investment for mitigation and adaptation, and deliver for people and nature.

1 Intergovernmental Panel on Climate Change (IPCC), 2019. Special report on the ocean and cryosphere in a changing climate.



BACKGROUND

Mangroves and other tidal wetlands, such as tidal marshes and seagrass meadows, are very efficient at storing and sequestering carbon within their biomass and soils. Commonly referred to as coastal blue carbon, these ecosystems provide climate mitigation benefits and a range of other goods and services that underpin coastal livelihoods and support adaptation to climate change. They play a critical role in shore stabilisation, water filtration and coastal protection from storms, and are an important source of building materials and fuel wood. They also protect coral reefs from sedimentation and provide habitats that support fisheries essential for the livelihoods and food security of coastal people.

This report focuses on mangroves. Blue Ventures started working on mangroves and blue carbon in Madagascar in 2011, aiming to develop new approaches to incentivise locally led conservation of threatened mangrove forests. We have invested significantly in this work over the last decade here and elsewhere, publishing new research and technical guidance to help pave the way for future projects. Our experience offers insights into the disconnect between the sector's blue carbon potential and aspirations on the one hand, and limited delivery on the ground on the other, including our own.

Mangrove ecosystems become a major source of emissions when they are degraded or destroyed and the organic carbon they hold is released into the oceans and atmosphere. Over 1 million hectares of mangroves have been lost since 1990^2 .

Whilst the rate of loss has more than halved over this time, over 200,000 hectares of mangroves were still lost due to anthropogenic causes between 2000 and 2016³ This ongoing global loss of mangroves accounts for 29 million tCO₂e in emissions every year,⁴ roughly equivalent to the combined annual emissions from manufacturing and construction in the UK. Mangrove losses also over-index when compared with other forms of land cover change, representing 0.36% of the world's forests, yet accounting for 0.6% of emissions from land cover change globally. Furthermore, due to the loss of their associated goods and services, mangrove deforestation has devastating consequences for coastal communities, and a cost to humanity of upwards of USD 6 billion annually.⁶

Blue carbon projects can mitigate these losses by providing an incentive to avoid deforestation and degradation of coastal wetlands, or to restore coastal ecosystems. Such projects can in turn improve biodiversity, help alleviate warming, and unlock funding through climate finance linked to quantifiable emission reductions. Climate finance mechanisms can provide funding to a range of actors to support the expense and offset the opportunity costs associated with wetland conservation and restoration.

5 Link: https://www.climatewatchdata.org/ghg-

construction&source=CAIT&start_year=1990

² FAO. 2020. Global Forest Resources Assessment 2020: Main report. Rome. 164 pp.

³ Goldberg, L., Lagomasino, D., Thomas, N. and Fatoyinbo, T., 2020. Global declines in human-driven mangrove loss. Global change biology, 26(10), pp.5844-5855.

⁴ Richards, D.R., Thompson, B.S. and Wijedasa, L., 2020. Quantifying net loss of global mangrove carbon stocks from 20 years of land cover change. Nature communications, 11(1), pp.1-7.

emissionsbreakBy=sector&chartType=area&end_year=2018®ions=GBR§ors=manufacturing-

⁶ van Bochove, J., Sullivan, E. and Nakamura, T., 2014. The Importance of Mangroves to People: A Call to Action (Cambridge: UNEP).

blue ventures

For instance, verification of greenhouse gas (GHG) emission reductions by certification bodies such as the Voluntary Carbon Standard⁷ (VCS) or the Plan Vivo Standard⁸ enables projects to raise funds by selling carbon offsets on the voluntary carbon market.

Blue carbon has attracted feverish excitement in the marine conservation sector for over a decade, on account of its perceived potential to bring a new level of investment into ocean and intertidal ecosystem conservation. Yet investable projects remain scarce. At the time of writing, only a handful of mangrove restoration projects are certified and only three blue carbon mangrove conservation projects are in existence.

Barriers needing addressing for blue carbon to work include technical challenges, funding of start-up costs, and public policy issues. Working with local communities and national and regional governments under Blue Ventures' UK-funded Blue Forests programme, we have developed solutions to many of these challenges, from participatory mapping and remote sensing to quantifying the full climate impact of mangrove conservation, to name but a few. However, other challenges concern public policy barriers where communities, NGOs and investors require government intervention. In this report we focus on four of these policy barriers:

- 1. Unclear and insecure tenure;
- 2. Inequitable benefit sharing;
- 3. Misalignment between small-scale blue carbon projects and national REDD+ frameworks; and
- 4. Weaknesses for blue carbon in the Paris Agreement and countries' Nationally Determined Contributions.

Blue Ventures encourages policy makers to examine the challenges identified in this report and take decisive action in reforming policies to ensure blue carbon reaches its full potential to help avert the climate crisis.

7 Link: <u>https://verra.org/project/vcs-program/</u>



⁸ Link: <u>https://www.planvivo.org/</u>

BARRIER 1: UNCLEAR AND INSECURE TENURE

Key messages

- Secure land and/or sea tenure is an essential foundation for incentive-driven approaches to conservation, including blue carbon.
- Securing tenure can be complex, costly and time-consuming, shutting out local actors and delaying or preventing benefits for people and nature well beyond simple income from carbon projects.
- Community-led mangrove blue carbon projects have significant potential to address and reverse deforestation and degradation, including where these are driven by community actors themselves

 as long as there is a transfer of management authority to the local level.

Land tenure can be defined as the right, whether customary or statutory, that determines who can hold and use lands and resources, for how long, and under what conditions.⁹ Unclear and insecure land tenure poses serious challenges to the effectiveness, efficiency and equity of incentive-based land management strategies, including blue carbon initiatives.

Carbon projects – whether blue or green – seek to do at least one of three things: i) slow deforestation; ii) prevent deforestation; and iii) increase forest stocks. They typically achieve these outcomes through paying land holders not to cut down forests, and/or to plant new trees.¹⁰ For this to work, however, land holders must have both the right to exclude others who may wish to use the land's resources in ways that conflict with the aims of the project, and the power to exercise this right effectively.¹¹

In many tropical nations, forests and mangroves are considered open-access resources for use by all, with ownership typically vested in the State¹² In some cases this is a legacy of colonial and post-colonial policy making, which generally failed to recognise the customary rights of Indigenous and forest-dwelling communities.^{13, 14}

⁹ Angelsen, A. ed., 2009. Realising REDD+: National strategy and policy options. Cifor.

¹⁰ Streck, C., Gomez-Echeverri, L., Gutman, P., Loisel, C. and Werksman, J., 2009. REDD+ Institutional Options Assessment: developing an efficient, effective, and equitable institutional framework for REDD+ under the UNFCCC. Meridian Institute. Details available at: www.REDD-OAR.org

¹¹ Börner, J., Wunder, S., Wertz-Kanounnikoff, S., Tito, M.R., Pereira, L. and Nascimento, N., 2010. Direct conservation payments in the Brazilian Amazon: Scope and equity implications. Ecological economics, 69(6), pp.1272-1282.

¹² Angelsen, A. ed., 2009. Realising REDD+: National strategy and policy options. Cifor.

¹³ cover change. Nature communications, 11(1), pp.1-7.

¹⁴ Toni, F., 2006. Gestão florestal na Amazônia brasileira: avanços e obstáculos em um sistema federalista. Cifor.

Mangroves themselves pose an additional governance challenge. As both terrestrial and marine ecosystems, they can fall under the purview of the ministry responsible for forests and land management, or agencies responsible for fisheries and marine resources, or even all of these. Such overlapping mandates can lead to conflict, competition and a lack of clarity between government officials.

The unclear or contested tenure that results means that the distribution of benefits and contracts can be uneven, with larger forest owners, local or national leaders or non-forest stakeholders profiting disproportionately. In turn, this can increase inequity and trigger resentment and conflict, especially if benefits are captured by powerful elites.¹⁵

The need for reform of land tenure is thus well established, but progress to date has been slow and uneven in most developing nations¹⁶ and is even less advanced for marine tenure. Reform can be complex and political, and can be hampered by special interest groups, insufficient funding and a lack of technical capacity.¹⁷

Involving local communities in forest resource management and transferring management rights from the state to community actors can aid sustainable land stewardship. Blue Ventures' experience bears this out, including where sections of the community act as drivers of deforestation or degradation themselves – for example through charcoal production or using wood for construction. In these contexts, community-led mangrove blue carbon projects can have high potential.

At present, local communities and Indigenous peoples manage or hold tenure over lands containing 80% of the world's biodiversity^{18, 19} There is now ample evidence that areas under local or collaborative stewardship often outperform government-driven efforts.²⁰ For example, a recent global meta analysis of 156 protected areas²¹ found that explicitly integrating local people as stakeholders and assigning tenure tended to be more effective at achieving joint conservation and socioeconomic development outcomes. Studies of communitybased forest and mangrove management specifically have reached similar conclusions.^{22, 23}

16 Angelsen, A. ed., 2009. Realising REDD+: National strategy and policy options. Cifor.

¹⁵ Angelsen, A. ed., 2009. Realising REDD+: National strategy and policy options. Cifor.

¹⁷ Sunderlin, W.D., Hatcher, J. and Liddle, M., 2008. From exclusion to ownership? Challenges and opportunities in advancing forest tenure reform. Rights and Resources Initiative.

¹⁸ Sobrevila, C., 2008. The role of indigenous peoples in biodiversity conservation: The natural but often forgotten partners (No. 44300, pp. 1-102). The World Bank.

¹⁹ Garnett, S.T., Burgess, N.D., Fa, J.E., Fernández-Llamazares, Á., Molnár, Z., Robinson, C.J., Watson, J.E., Zander, K.K., Austin, B., Brondizio, E.S. and Collier, N.F., 2018. A spatial overview of the global importance of Indigenous lands for conservation. Nature Sustainability, 1(7), pp.369-374.

²⁰ Brondizio, E.S., Settele, J., Díaz, S. and Ngo, H.T., 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.S., Settele, J., Díaz, S. and Ngo, H. (eds). IPBES secretariat, Bonn, Germany. 1148 pages.

²¹ Oldekop, J.A., Holmes, G., Harris, W.E. and Evans, K.L., 2016. A global assessment of the social and conservation outcomes of protected areas. Conservation Biology, 30(1), pp.133-141.

²² Porter-Bolland, L., Ellis, E.A., Guariguata, M.R., Ruiz-Mallén, I., Negrete-Yankelevich, S. and Reyes-García, V., 2012. Community managed forests and forest protected areas: An assessment of their conservation effectiveness across the tropics. Forest ecology and management, 268, pp.6-17.

²³ Johnson-Bhola, L., 2020. Effects of Rural Land Tenure System on Mangroves Management in Corentyne, Guyana. Land Use Change and Sustainability, p.33.

A promising legal framework for community-based management in Madagascar in conflict with a national ban on mangrove cutting

Madagascar's GELOSE law ('*Gestion Locale Sécurisée*', secure local management) permits the transfer of forest and mangrove management rights from the state to a local community (Law 96-025). The terms of the transfer are defined by a contract and a management plan developed through a participatory approach with the local community. The management plan designates three types of zone: conservation zones, reforestation zones and zones for local use.

Once approved by the Forestry Department, the authority to manage forest and mangrove resources is delegated to a community-based association, a non-governmental group of volunteers within a local community. Commercial exploitation of forests and mangroves by communities is prohibited, but some use of wood – for example for the construction of local homes – is permitted. Such provisions are vital to ensure communities' basic needs are met and to sustain local support for broader management and conservation objectives.

Communities where management responsibility has not been transferred have to seek permission formally from local authorities every time they wish to harvest wood, a lengthy and burdensome process. In recent years, the promise of the GELOSE mechanism has been constrained by a nationwide ban (interministerial decree n°32100/2014) on the harvesting of mangrove wood, even for local uses. The passing of this decree has in effect prohibited the inclusion of local use zones in GELOSE management plans, limiting communities to conservation and reforestation areas only. The result is a greater burden of mangrove management on communities, but without the benefit of easier access to mangrove wood for local sustainable use. As such, the speed of adoption of the GELOSE mechanism has slowed substantially.

At the same time, mangrove cutting by commercial charcoal producers – to supply urban markets with charcoal for cooking fuel – continues largely unabated, due to patchy enforcement and control by Malagasy authorities. Charcoal production is one of the primary drivers of mangrove deforestation in Madagascar, with illicit charcoal producers continuing to ply their trade with relative impunity, due to low enforcement. Meanwhile coastal communities seeking formal permission to manage their mangroves sustainably fall foul of one law prohibiting what another specifically endorses.²⁴

²⁴ Schneider, C., 2020. Regulatory contradictions in Madagascar deny small-scale fishers the right to manage their mangrove forests. In: Kerezi, V., Pietruszka, D.K., and Chuenpagdee, R. (eds.) Blue Justice For Small-Scale Fisheries: A Global Scan. TBTI Global Publication Series, St. John's, NL, Canada.

Recommendations for policy makers

- Recognise the research that now evidences the benefits of assigning tenure to local people for joint conservation and socioeconomic development outcomes.
- 2. Guide policy reform in line with the customary rights of Indigenous and forest-dwelling communities.
- 3. Identify and resolve overlapping mandates so relevant government ministries and agencies can deliver efficiently for people and nature.



BARRIER 2: INEQUITABLE BENEFIT SHARING

Key messages

- Benefit sharing from blue carbon projects is often contentious, especially where land tenure is unclear or contested.
- Beneficiaries to be prioritised are those bearing the primary burden of any emission reductions or enhanced carbon stocks foreseen in the project, without rewarding illegal practices.
- Policy makers and project developers need to ensure benefit-sharing agreements are developed in a clear, transparent, context-specific and participatory manner.

For an incentive-based approach to be successful, benefits should outweigh costs as much as possible for all stakeholder groups. When formulating policies, governments need to decide how best to distribute the costs of reduced access to forest resources. They may do this by allocating a greater proportion of the costs to the actors best able to bear them, or through compensation. Such compensation may take the form of either direct payments to the affected individual or community, or non-cash benefits such as alternative sources of energy, food, shelter or livelihoods.²⁵

The benefit-sharing agreement is one of the most critical elements of any blue carbon project. For a project to succeed over the long term, it is imperative that agreements are developed in a clear, transparent and participatory manner with all affected stakeholders, particularly local communities.²⁶ This can be a lengthy process, typically requiring multiple discussions with stakeholders before the formal consultation process can begin. The underlying rationale for any proposed benefit-sharing agreement must be shared in a clear and comprehensible way.

How quickly benefits will start to flow is also of critical importance. Subsistence living in many tropical coastal settings means discount rates are high, with actors favouring short-term over long-term gains. Successful blue carbon projects therefore need to show quick returns to win and retain community engagement. Yet, well designed projects typically take several years to establish and generate revenue. Project developers must therefore integrate quickreturn incentives, for example livelihoods diversification or increased value from mangrove products, including fisheries.

25 Angelsen, A. ed., 2009. Realising REDD+: National strategy and policy options. Cifor.

²⁶ Crooks, S., Orr, M., Emmer, I., von Unger, M., Brown, B. and Murdiyarso, D., 2014. Guiding principles for delivering coastal wetland carbon projects.

A successful mangrove restoration project in the Sundarbans, India²⁷

The Sundarbans is the world's largest estuarine mangrove forest and spans more than 10,000km2 of India and Bangladesh along the Bay of Bengal. It is home to threatened species including the Bengal tiger and Indian python, as well as more than seven million people, for whom the mangroves are a vital defence against tides and cyclones. However, rising sea levels and coastal erosion are rapidly reducing the land area, and have so far forced more than a million people to migrate north.

To help counteract these threats, the India Sundarbans Mangrove Restoration project has planted more than 16 million mangroves since launching in 2011. These plantations will store a projected 700,000t of CO₂ over the project's 20-year lifespan. A collaboration between the Indian NGO Nature Environment and Wildlife Society and international impact investor Livelihoods, the principal objectives of the project are carbon emission reductions, climate adaptation and biodiversity conservation. In 2015, the project was validated by VCS, with emission reduction credits issued to Livelihoods as part of an offset strategy for their investors (Danone, Schneider Electric, Michelin, and others). The project costs, which include supporting local community restoration activities, are covered by Livelihoods. Community members known as "forest friends" helped mitigate threats such as grazing, earning \$45 USD per month. The project later transitioned to a voluntary monitoring system and began rewarding community members for raising seedlings, planting mangroves and managing the project locally. Planting – now long since completed – provided an alternative livelihood of \$50-56 USD per month. Project managers and field officers earn between \$120 and \$225 USD per month, while those doing the raising are paid per sapling, with prices ranging from 0.015 to 0.0375 USD per sapling.

The project is a successful example of a largerscale VCS initiative in which benefits are distributed among communities for restoration work. It has reached its financial and conservation targets, restoring more than 5,000 hectares of mangrove and impacting 250,000 people. There are also indications that the amount of carbon sequestered is almost three times what was originally projected at the outset of the project.

27 Wylie, L., Sutton-Grier, A.E. and Moore, A., 2016. Keys to successful blue carbon projects: lessons learned from global case studies. Marine Policy, 65, pp.76-84.

Recommendations for policy makers

- 1. When designing regulations governing benefit sharing in blue carbon projects, ensure that policies prioritise those bearing the primary burden of emission reductions or enhanced carbon stocks.
- 2. Ensure that these policies mandate a clear, transparent, context-specific and participatory process for the development of benefit-sharing agreements.



BARRIER 3: MISALIGNMENT BETWEEN SMALL-SCALE BLUE CARBON PROJECTS AND NATIONAL REDD+ FRAMEWORKS

Key messages

- Many countries have made significant progress in developing national REDD+ legal frameworks, enabling inclusion of mangrove blue carbon projects in some contexts.
- However, including mangrove blue carbon projects in REDD+ faces a number of challenges: the exclusion of mangroves from forest definitions, the exclusion of soil and sediment organic carbon, requirements to prove significant loss, sectoral expertise grounded more in terrestrial than marine contexts, and unwieldy processes that hamper community participation and speedy project development.

REDD+ is a mechanism established under the United Nations Framework Convention on Climate Change (UNFCCC) to support the conservation and sustainable management of forests and enhancement of forest carbon stocks. REDD+ was created to enable large-scale, cost effective and rapid emission reductions in global GHG emissions by providing a framework for the international community to pay forest-rich countries to decrease deforestation and manage their forests better.

However, the reality on the ground is complex. Since the inception of the concept in 2005, REDD+ projects have received significant funding ²⁸ and the experience of several hundred first-generation projects presents valuable lessons for realising REDD+ in a range of contexts. The framework has generally failed to deliver the anticipated results, both in terms of emission reductions and equitable benefit-sharing.²⁹

Working in tree ecosystems, mangrove blue carbon projects can in principle be incorporated in countries' REDD+ frameworks. However, REDD+ frameworks are often misaligned with some of the ecological and regulatory realities of mangroves. These misalignments limit mangroves' effective incorporation in REDD+ frameworks, to the detriment of countries' and communities' efforts to stem emissions, protect nature and enhance livelihoods.

²⁸ Rakatama, A., Pandit, R., Ma, C. and Iftekhar, S., 2017. The costs and benefits of REDD+: A review of the literature. Forest Policy and Economics, 75, pp.103-111.

²⁹ Angelsen, A., 2017. REDD+ as result-based aid: General lessons and bilateral agreements of Norway. Review of Development Economics, 21(2), pp.237-264.

The first misalignment concerns forest definitions. Ordinarily, REDD+ policies defer to national forestry policy for what constitutes a forest. This often excludes mangroves, sometimes for simple reasons, for example a stipulation of tree heights generally exceeding 5m. Good practice now sees mangroves included in forest definitions as an exceptional class, irrespective of whether they meet the ordinary criteria.

A second misalignment concerns soils and sediment. These are the most carbon-dense parts of the mangrove ecosystem and therefore integral to mangroves' powerful sequestration role. However, drawing again on traditional forest definitions, REDD+ frameworks typically exclude carbon below the ground. This amounts to a very significant missed opportunity for countries' climate efforts, and must be a priority for reform.

A third misalignment concerns anthropogenic threat. Significant anthropogenic threat entails large associated GHG emissions that could be offset or reversed through improved management or restoration. Significant mangrove loss is therefore an understandable precondition for REDD+ investments from international donors, typically seeking large GHG emission reductions. The unintended consequence however is the exclusion of conservation efforts in lower-loss contexts - a challenge for terrestrial forests too. Denying incentives to these areas risks more mangroves slipping into deforestation and degradation, as they remain unable to attract investment until able to prove sufficient loss, which can often be too late.

The generally terrestrial origination and focus of both the legislation governing REDD+ and of the majority of actual projects presents challenges for mangroves in other ways too. Developing REDD+ projects entails detailed carbon baselines, emission reduction calculations and management plans, all necessitating technical specialisms related to the ecosystem at hand. Where sectoral expertise is focused on such terrestrial systems, the technical specialisms needed for coastal ecosystems may be lacking. Countries looking to incorporate or improve mangroves' role in REDD+ should consider mangrove-specific capacity building for technical and regulatory actors.

Three last barriers warrant a further brief mention. As noted above, mangroves often straddle more than one agency (e.g. the Ministries of Fisheries and Forestry). This can confuse roles and responsibilities, hamper policy reform, and undermine enforcement. Countries looking to maximise the benefit of mangroves should anticipate this issue and negotiate simple agreements between agencies that deliver for people and nature.

The high technical and administrative requirements of REDD+ projects are also a challenge. These necessitate considerable resources for project setup - both financial and technical. This puts community-led projects at a significant disadvantage, as local communities rarely have the technical skills or financial resources to establish projects independently. This increases dependence on external actors such as NGOs to support and subsidise the setup phase of the project.



Weighing the costs and benefits of pursuing a mangrove blue carbon project under the national REDD+ framework in the Mekong Delta, Vietnam

In Vietnam's Mekong delta, the major threat to mangroves comes from shrimp farming, which destroys mangrove forests to produce aquaculture ponds. To reduce these impacts and provide incentives for mangrove conservation, in 2013 the International Union for the Conservation of Nature (IUCN) and SNV Netherlands Development Organisation launched the Mangrove and Markets project. The developers had originally expected that carbon financing through the REDD+ mechanism would be the economic cornerstone of the project, but soon discovered that organic shrimp certification could be a less burdensome and more lucrative alternative. The certification process delivered a price premium for shrimp greater than the opportunity cost of cutting mangroves. Certified farms are not permitted to clear mangroves, and must either maintain or achieve 50% mangrove coverage, creating incentives for farmers to restore or conserve their mangroves. As such, although the project does not incorporate a REDD+ financing component, it achieves emission reduction goals through alternative means and also boosts the profitability of the shrimp industry in Vietnam.



30 Mangroves & Markets: protecting the ecosystem. SNV World, 2014, p. 7:06.

Challenges integrating Madagascar's Tahiry Honko mangrove blue carbon project with the national REDD+ framework

Tahiry Honko is Madagascar's first communityled mangrove carbon conservation project. Developed by the NGO Blue Ventures in partnership with the Velondriake fishers' association, the project is helping to tackle climate breakdown and build community resilience by preserving and restoring mangrove forests in southwest Madagascar. It was validated by Plan Vivo in 2019.

Madagascar's REDD+ policy framework is well defined and includes mangroves, but has not yet been formally adopted and remains a draft decree. Tahiry Honko was developed simultaneously, but independently from the promulgation of the decree, leading to some misalignments.

For example, Plan Vivo as the certifier requires projects to distribute at least 60% of revenues to community partners. The government's draft REDD+ decree stipulates that 27% of funds should go to the REDD+ National Coordination Office, leaving 13% of funds available for project validation and external verification costs. Where this would be sufficient in larger projects, in this small scale scenario the funding for validation and verification is insufficient. For now, Blue Ventures has covered these costs from alternative means, but this throws into question the affordability of this model and thus its prospects for replication in other smallscale settings elsewhere.³¹

Further, with the government decree not yet enacted, transfers of funds from investors to Blue Ventures and local communities are blocked, undermining the project and risking further deforestation. Blue Ventures has fronted the income from the sale of blue carbon credits to community partners as an interim solution, until these blockages are resolved.



31 https://bluecharter.thecommonwealth.org/wp-content/uploads/2020/10/CBC-Case-Studies_19_Mangrove.pdf

To conclude, inclusion of mangrove and other blue carbon projects in countries' REDD+ frameworks is challenged by a number of misalignments, including forest definitions, the exclusion of soil and sediment organic carbon, requirements to prove significant loss, sectoral expertise grounded more in terrestrial than marine contexts, and unwieldy processes that hamper community participation and speedy project development. Taken together these factors limit incorporation of projects in national REDD+ frameworks to all but the very largest schemes with the technical and financial wherewithal to overcome these challenges.

Against this backdrop, countries with significant potential for smaller-scale blue carbon projects, particularly in marine environments where blue carbon ecosystems are by their nature more fragmented, face a choice: either reform REDD+ frameworks to enable more efficient incorporation of smaller projects (option 1), or permit smaller projects to continue outside of the REDD+ framework (option 2).

Recommendations for policy makers

For option 1, above:

- 1. Update forest definitions to include mangrove forests and their soils and sediments.
- 2. Revisit requirements around significant loss in order to encourage and incorporate conservation in lower-loss contexts.
- 3. Invest in technical capability so that smaller-scale and marine contexts are as well-served as large-scale terrestrial projects.
- 4. And optimise administrative processes to enable smaller-scale projects to meet requirements affordably and ensure a transparent flow of benefits to communities.

Option 2 entails forgoing the carbon contribution of non-REDD+ projects in countries' Nationally Determined Contributions (NDCs). We discuss this in more depth in the next section.



BARRIER 4: COMPLEXITIES FOR BLUE CARBON IN THE PARIS AGREEMENT AND NDCS

Key messages

- With their high capacity for CO2 sequestration, mangroves and other blue carbon systems present significant opportunities for countries and their national climate targets, known as NDCs. Including these systems can help countries manage risk and increase ambition on their mitigation commitments under the Paris Agreement of the UNFCCC.
- NDCs will fall short of their potential if they fail to leverage the knowledge and motivations of Indigenous peoples and local communities. This is not only preferable from a human rights perspective; it is expedient for the full gains of these nature-based solutions to be realised.

Under the Paris Agreement, all signatory countries have agreed to contribute to the global effort to keep the rise in the global average temperature to 'well below' 2°C degrees above pre-industrial levels, ideally below 1.5°C.

- Robust accounting of mitigation NDCs is central to the success of the Paris Agreement. Policy makers must reach consensus and finalise the rulebook for Article 6 at COP26 in Glasgow in 2021, to prevent doublecounting, ensure environmental integrity and encourage investment in nature-based solutions to the climate emergency.
- Mangroves are the cornerstone of adaptation and resilience along tropical coastlines. Incorporating mangroves into adaptation NDCs has the potential to unlock significant funding for mangrove protection and restoration and community development.

Each signatory defines its own mitigation a adaptation targets and strategies, known a: NDCs.

The climate emergency is grave and it is imperative that the Paris Agreement is realised if catastrophic climate change is to be avoided. Article 5.1 of the Paris Agreement states that countries should conserve and enhance carbon sinks and reservoirs, including forests.³² This underscores the important role of nature-based solutions in mitigating climate change.³³ Some argue that these can provide up to 30% of the global emission reductions required to avoid the worst-case climate scenarios.^{34, 35}

With their high rates of carbon sequestration, blue carbon ecosystems are prime candidates for inclusion in countries' mitigation NDCs. Costa Rica's most recent NDC submission in December 2020, for example, comprised numerous targets maximising nature's contribution to its overall mitigation objective, with blue carbon ecosystems playing a central role.³⁶

However, implementing ambitious NDC strategies brings several challenges, opportunities and trade-offs that coastal states must consider carefully. As noted earlier under Barrier 1, protecting nature is better achieved by protecting human rights for those who live among it and depend upon it. The burdens and benefits of mangrove protection and restoration must be shared justly and equitably, so that coastal people are not unfairly disadvantaged. The needs and rights of coastal communities, as well as the significant contribution that locally led conservation initiatives - such as small-scale blue carbon projects - can make to national targets, must be carefully considered by countries formulating their NDCs. And countries moving from NDC definition to implementation must harness coastal communities' potential to ensure the ecological restoration required to avert climate disaster.³⁷

Including coastal or ocean-based sectoral targets, policies, and measures in new or updated NDCs can provide a clear signal to investors to direct funding to marine initiatives.³⁸ One pathway for such funding is international carbon markets, whose governing regulations are covered under Article 6 of the Paris Agreement. With effective rules on transparency and robust accounting, international emissions trading can mobilise significant private sector investment and help the world meet the ambitious climate and development goals established in the Paris Agreement.

One of the most important accounting issues needing addressing is double-counting, where an emission reduction/removal is counted both in the country where the reduction/removal occurred as well as in the country where the reduction/removal was purchased.

32 United Nations (2015) Adoption of the Paris Agreement, 21st Conference of the Parties, Paris: United Nations.

³³ Seddon, N., Chausson, A., Berry, P., Girardin, C.A., Smith, A. and Turner, B., 2020. Understanding the value and limits of nature-based solutions to climate change and other global challenges. Philosophical Transactions of the Royal Society B, 375(1794), p.20190120. 34 Link: <u>https://www.conservation.org/priorities/protecting-nature-to-halt-climate-catastrophe</u>

³⁵ Griscom, B.W., Adams, J., Ellis, P.W., Houghton, R.A., Lomax, G., Miteva, D.A., Schlesinger, W.H., Shoch, D., Siikamäki, J.V., Smith, P. and Woodbury, P., 2017. Natural climate solutions. Proceedings of the National Academy of Sciences, 114(44), pp.11645-11650. 36 Link: <u>https://www-pewtrusts-org.cdn.ampproject.org/c/s/www.pewtrusts.org/en/research-and-analysis/articles/2021/02/02/costa-rica-puts-mangrove-protections-at-heart-of-paris-climate-commitments?amp=1</u>

³⁷ Brondizio, E.S., Settele, J., Díaz, S. and Ngo, H.T., 2019. Global assessment report on biodiversity and ecosystem services of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services.S., Settele, J., Díaz, S. and Ngo, H. (eds). IPBES secretariat, Bonn, Germany. 1148 pages.

³⁸ Northrop, E., Ruffo, S., Taraska, G., Murray, L.S., Pidgeon, E., Landis, E., Cerny-Chipman, E., Laura, A.M., Herr, D., Suatoni, L. and Miles, G., 2021. Enhancing Nationally Determined Contributions: Opportunities for Ocean-Based Climate Action.

Article 6 established these concepts in broad terms and countries have made some progress refining the rules since Paris. But their final shape is yet to be agreed, causing significant uncertainty, slowing investment and blocking new projects. For markets to work, signatories must settle Article 6 at COP26 in Glasgow in 2021.

However, mangroves and other blue carbon ecosystems are not only important for climate mitigation. As natural barriers against rising seas and increasingly destructive storms, they also have a critical role to play in countries' adaptation strategies. Including mangroves in adaptation NDCs enables countries to access funding for mangrove conservation and restoration.



Kenya's blue carbon adaptation NDCs

Looking to 2030, adaptation is a top priority for Kenya - not only preventing further damage and losses, but mainstreaming climate change adaptation throughout its national and countylevel development plans. To this end, Kenya has incorporated several key activities in its adaptation NDCs:

- Managing flood risk by incorporating nature-based solutions, including mangrove restoration;
- Rehabilitating and conserving degraded forests, including mangroves;
- Enhancing governance structures in participatory resource management in coastal ecosystems;
- Conducting blue carbon readiness assessment for full integration of blue carbon/ocean climate actions into NDCs;
- Integrating the use of nature-based solutions into national and county development plans, including the implementation of a national mangrove management plan.

The total cost of implementing Kenya's mitigation and adaptation actions is estimated at \$62 billion over the next 10 years. Kenya has committed to bear 13% of these costs from the domestic budget, with the remaining 87% to come from international support in the form of finance, technology development and transfer, and capacity building. For the adaptation costs themselves, a full 90% will need to be covered from this international support.



Recommendations for policy makers

- 1. Include mangrove and other blue carbon ecosystems in NDCs for mitigation and adaptation.
- 2. Develop NDCs in line with the customary rights of Indigenous and forest-dwelling communities.

3. Lobby for the swift and equitable resolution of Article 6 of the UNFCCC so markets can start delivering for people and nature.

<u>n).pdf</u>

³⁹ Submission of Kenya's updated Nationally Determined Contribution, December 2020

https://www4.unfccc.int/sites/ndcstaging/PublishedDocuments/Kenya%20First/Kenya%27s%20First%20%20NDC%20(updated%20versio

CONCLUSION

Addressing these four barriers will be essential for blue carbon projects to become an effective tool in the fight against climate breakdown and ensure that mangroves continue to deliver adaptation and mitigation benefits, biodiversity protection, and livelihood enhancement. Policy reform is urgently needed to ensure that:

- 1. Coastal communities have secure tenure over their mangroves;
- 2. Blue carbon benefit-sharing agreements are created in a clear, transparent and participatory manner ensuring communities receive an equitable share of income;
- 3. REDD+ frameworks are modified to include mangroves; and
- 4. Parties reach consensus and finalise the rulebook for Article 6 at COP26 in Glasgow in 2021.

As we continue to develop blue carbon projects, it is vital that the human rights of those who depend on mangrove forests are protected, and that policy enables coastal communities to take a leading role in the sustainable management of mangroves and drive the development of blue carbon projects. Doing so represents one of the most effective ways for countries to fulfil their Paris commitments, attract critical investment for mitigation and adaptation, and deliver for people and nature.



ABOUT BLUE VENTURES

We rebuild tropical fisheries with coastal communities.

Blue Ventures is a marine conservation organisation that exists to protect the life in our ocean. We were founded on the simple idea of putting people at the heart of conservation.

For almost two decades, we've supported coastal communities to develop locally led approaches to marine conservation and mangrove management that benefit people and nature alike.

By listening and responding to the needs of coastal communities, we've developed scalable approaches for catalysing and sustaining marine conservation, unlocking the potential of fishing communities to protect our seas.

We help traditional fishers to thrive by rebuilding fisheries and protecting ocean life.



IDENTIFYING MANGROVE BLUE CARBON BARRIERS

KEY CONSIDERATIONS FOR POLICY MAKERS

2021 OCTOBER