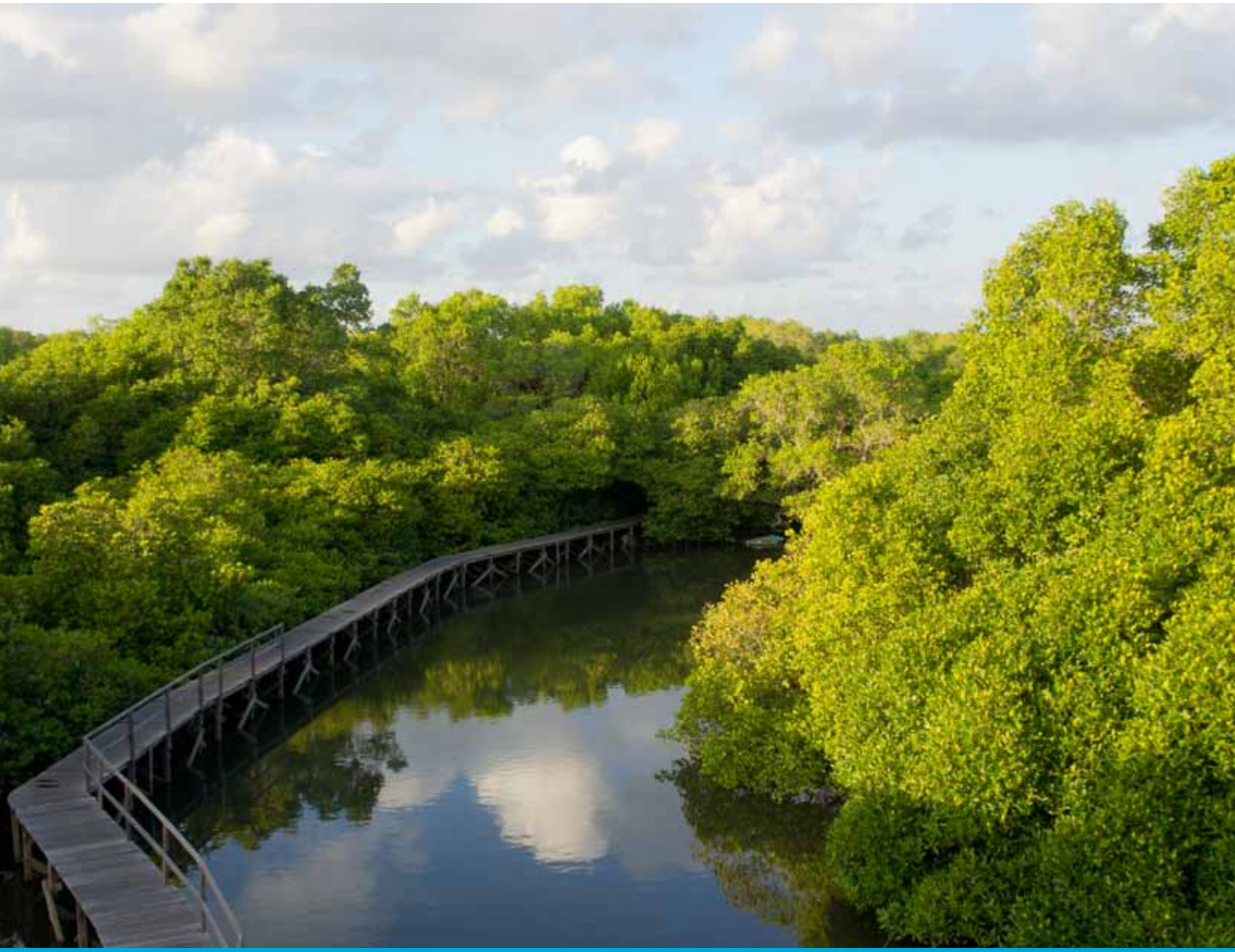
Keep it Fresh or Salty

An introductory guide to financing wetland carbon programs and projects

D. Herr, E. Trines, J. Howard, M. Silvius, E. Pidgeon



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IUCN, International Union for Conservation of Nature, helps the world find pragmatic solutions to our most pressing environment and development challenges.

IUCN's work focuses on valuing and conserving nature, ensuring effective and equitable governance of its use, and deploying nature-based solutions to global challenges in climate, food and development. IUCN supports scientific research, manages field projects all over the world, and brings governments, NGOs, the UN and companies together to develop policy, laws and best practice.

IUCN is the world's oldest and largest global environmental organization, with more than 1,200 government and NGO Members and almost 11,000 volunteer experts in some 160 countries. IUCN's work is supported by over 1,000 staff in 45 offices and hundreds of partners in public, NGO and private sectors around the

About Conservation International

Building upon a strong foundation of science, partnership and field demonstration, CI empowers societies to responsibly and sustainably care for nature, our global biodiversity, for the well-being of humanity.

CI's work focuses on creating a healthy, prosperous world in which societies are forever committed to caring for and valuing nature, for the long-term benefit of people and all life on Earth.

Founded in 1987, CI has headquarters in the Washington, DC area, and nearly 900 employees working in more than 30 countries on four continents, plus 1,000+ partners around the world.

About Wetlands International

The mission of Wetlands International is to safeguard and restore wetlands for people and nature. Wetlands International is an independent, non-profit organisation, active in around 100 countries, which works through a network of many partners and experts to achieve its goals. We are driven by the knowledge that safeguarding and restoring wetlands is urgent and vital for water security, biodiversity, climate regulation, sustainable development and human health.

Acknowledgments

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IUCN is grateful for the contribution from the GEF Blue Forest project. The Blue Forests Project is a global initiative focused on harnessing the values associated with coastal marine carbon and ecosystem services to achieve improved ecosystem management. The project is implemented by the United Nations Environment Programme (UNEP) with partners worldwide and addresses key 'blue forests' knowledge gaps, as well as providing experience and tools to help ensure greater global application in the future.

The report is also part of the efforts of the Blue Carbon Initiative, the first integrated program with a comprehensive and coordinated global agenda focused on mitigating climate change through the conservation and restoration of coastal marine ecosystems.

Comments and reactions to the paper are very welcome.
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1 Introduction

Posidonia Seagrass Meadow, Formentera
© Miguel Angel Mateo

Wetlands have been the focus of conservation and restoration efforts for over a century. A diverse portfolio of financing sources has been used for supporting such activities including philanthropy, multi- and bilateral aid, in-country governmental funding, tourism-related and other usage fees, as well as fees and levies associated with wetlands-centric extractive industries (e.g. peat extraction).

Wetlands conservation and restoration efforts are aimed at generating benefits and services to local communities and biodiversity, as well as to the fisheries, forestry and tourism sectors. Better wetland management also provides, amongst others, flood attenuation and wastewater treatment services, erosion control, and buffering against rising sea level and storm damage.

Governments, international actors (NGOs and academia) and local communities around the world are now increasingly engaging in wetland restoration or avoiding wetland degradation activities for climate change mitigation. Better carbon management of freshwater wetlands, such as peatlands, and saltwater wetlands (mangroves, tidal salt marshes and seagrass meadows), enhance carbon sequestration and can avoid greenhouse gas (GHG) emissions, in addition to providing co-benefits to local communities and biodiversity.

Unlike in the case of terrestrial ecosystems, supporting conservation and restoration of wetlands, especially coastal wetlands, through financial mechanisms for climate change mitigation (carbon sequestration/ avoided emissions) is still in its infancy.[1] Activities such as peatland rehabilitation to reduce emission are also not yet widespread.

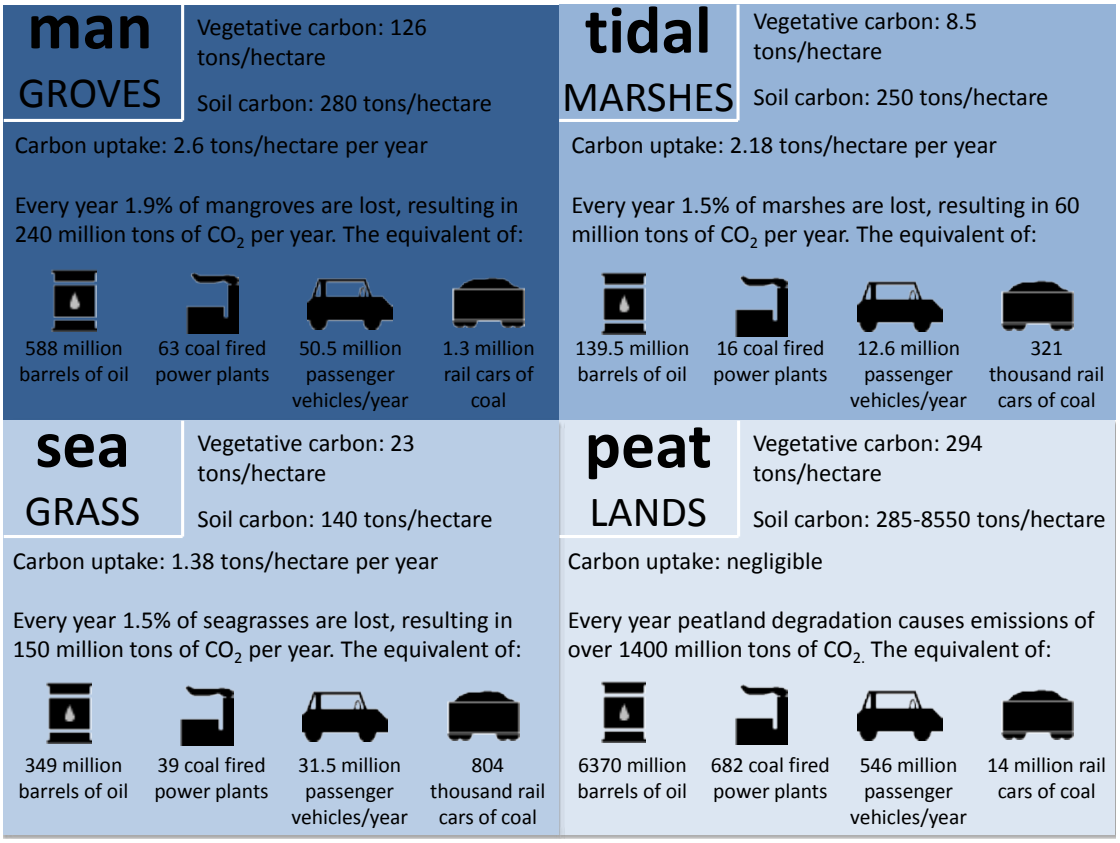
Despite the rapidly growing attention on wetland activities for climate change mitigation, **finding the appropriate funding sources to set up a wetland carbon project or develop a national wetland carbon program is often a challenge.** And after finding a possible funding window, project implementers in these systems must subsequently often interpret and adapt information designed for terrestrial systems to wetlands, especially for the application in coastal marine systems. This can be demanding, especially for coastal and marine managers who might have little experience in forest management and very little exposure to the necessities of meeting requirements for carbon financing.

The diverse range of existing carbon markets, regulatory environments driving some of those markets, and the broader context of complex international climate change negotiations can make developing eligible projects and accessing funding seem quite an overwhelming task. Similarly, lack of familiarity with coastal marine systems may hinder the capacity of carbon finance managers to adapt and apply their resources to these systems.

This report provides guidance for program and project developers from, or working in, developing countries on the numerous funds and finance mechanisms that can provide carbon finance for wetland carbon conservation and restoration. It also highlights ways to access and link carbon activities with non-carbon based sources of financing.

Whereas the report attempts to cover a suite of funds and finance mechanisms and be as complete as possible, given the still evolving nature of climate finance (e.g. changing objectives and application requirements), a fully comprehensive view will not be possible. References to regularly updated, online tools are provided in List 2 (page 29).

Figure 1. Comparative analysis of wetland carbon stocks and emissions



2 Why wetlands?

The wetlands systems targeted by this paper include peatlands and coastal wetland systems such as mangroves, tidal saltmarshes and seagrass meadows. **These systems have significant quantities of carbon stored in the vegetation and soil** (Fig. 1), and have, in recent years, received increased attention for playing an **important role to reduce or offset GHG emissions.** Restoration and or conservation efforts support carbon sequestration or avoid emissions from degradation (see List 1; wetland management activities are detailed in chapter 3). In addition, wetlands systems are some of the most endangered habitats on the planet, are significant for their biodiversity, and particularly in the case of coastal wetland systems, have significant social, socio-economic and environmental co-benefits.

Wetlands are prime for integration into carbon accounting and financing mechanisms. Many of the existing frameworks for financing that exist for dry terrestrial systems can be altered to address wetland systems without new mechanisms needing to be created. However, compared to the more advanced and mature conservation and restoration efforts within sectors such as the forest carbon sector (dating back to the early 1990s), wetland carbon projects and national programs are still relatively young. Wetlands also bring with them some unique qualities (e.g., tidal flooding/submergence, increased carbon storage in soil) that need to be taken into account to ensure successful climate change mitigation (see also Annex I) and the delivery of valuable co-benefits.

Due to their comparatively vast global extent, tropical forests have a huge conservation and restoration potential, and thus an important role in climate change mitigation. However, wetland ecosystems, while smaller in global extent, can store and release more carbon per unit area, have high soil carbon content and ongoing emissions from drained soils (Table 1),[1a] which need to be reflected in accounting and incentive mechanisms.

Further reading

Pendleton, L. et al. (2012) Estimating Global "Blue Carbon" Emissions from Conversion and Degradation of Vegetated Coastal Ecosystems. PLOS ONE. DOI: 10.1371/journal.pone.0043542

Fourqurean, J.W. et al. (2012) Seagrass ecosystems as a globally significant carbon stock. Nature Geoscience 5: 505–509. doi: 10.1038/ngeo1477

McLeod, E. et al. (2011) A blueprint for blue carbon: toward an improved understanding of the role of vegetated coastal habitats in sequestering CO_2. Frontiers in Ecology and the Environment 9: 552–560. doi: 10.1890/110004

Donato, D.C. et al. (2011) Mangroves among the most carbon-rich forests in the tropics. Nature Geoscience 4: 293–297. doi: 10.1038/ngeo1123

Dommain, R., Couwenberg, J.& Joosten, H. 2011.Development and carbon sequestration of tropical peat domes in Southeast Asia: links to post glacial sea level changes and Holocene climate variability. Quaternary Science Reviews, 99-1010, doi: 10.101/j.quascirev.2011.01.018.

Table 1. Comparing systems based on characteristics that make them attractive and unique for carbon mitigation and climate finance. A) Restoration potential B) Conservation potential

A	Carbon Potential		Loss	Emissions		Restoration potential	
ECOSYSTEM	Mean Sequestration Rate	Mean Carbon Storage	Mean Annual Loss	Emissions from degraded / drained areas	Ongoing emissions from drained soils	> Halting emissions > Re-establishing sequestration	Other ecosystem services
Mangroves							Protection from storms, sea level rise, and erosion. Improved water quality, habitat for marine species, and food security.
Salt Marshes							
Seagrasses						(*)	
Peatlands							Improved water quality, biodiversity, fire risk reduction
Tropical forests						(+)	Biodiversity, improved air quality, biomedicines, food security

B	Carbon Potential		Risk	Potential emissions		Conservation potential	
ECOSYSTEM	Mean Sequestration	Mean Carbon Storage	Risk for future degradation and loss	Potential emissions	Potential emissions from drained soils	> Avoided emissions	Other ecosystem services
Mangroves							Protection from storms, sea level rise, and erosion. Improved water quality, habitat for marine species, and food security.
Salt Marshes							
Seagrasses							
Peatlands							Improved water quality, biodiversity, fire risk reduction
Tropical forests						(+)	Biodiversity, improved air quality, biomedicines, food security

Positive Traits	Very High	High	Medium	Low
Negative Traits	Very High	High	Medium	Low

Note (1): This is a qualitative assessment, for quick illustration purposes only. For detailed, quantitative comparison, see for example Fourqurean et al. 2012; Pan et al. 2011; Pendleton et al. 2012, McLeod et al. 2011, Joosten, H. 2010.

Note (2): Degraded wetlands, especially peatlands, have ongoing emissions from soil. These emissions will continue even if conversion and/or deforestation are reduced unless proper restoration efforts are being undertaken.

(*) due to challenges with restoration practices
(+) due to their global extent

3 Wetland carbon mitigation activities

Wetland management practices that, compared to a baseline (starting point for comparison or business as usual scenario), show a reduction of GHGs emissions by sources, or increased sequestration of carbon by sinks, are considered carbon mitigation activities. Funding sources for these activities will depend on if they result in some sort of measurable (verifiable), accounted or credited carbon reductions and if so how. Mitigation activities that lead to GHG reductions are often referred to in the finance jargon as "results-based".[2] This is an important feature to look out for when seeking appropriate funding. Any results-based funding is expecting measurable, reported and verifiable (MRV) GHG reductions.

In its broadest sense, mitigation activities can also include national capacity building or awareness-raising efforts (e.g. enabling stakeholders to use mangroves in a sustainable manner), support for institutional set-up, developing and implementing sectorial policies, enforcing changes in national legislation, and engaging stakeholders.

Activities that can be undertaken in wetland systems are therefore numerous, but on average they fall into one of the following categories:

Wetland Conservation Activities / Avoided Emissions: This includes activities that avoid wetland conversion and subsequently result in avoided emissions. Since wetland soils are saturated with water creating an environment low in oxygen, the carbon that gets sequestered is buried and remains relatively stable without decaying. When drained, such as through development or conversion to agriculture or aquaculture, the carbon in the soil oxidizes and is released as carbon dioxide (CO_2) into the atmosphere/ ocean. Preventing wetland drainage and degradation can prevent large emissions of CO_2.

Wetland Restoration and Creation Activities: A range of wetland restoration and creation activities can provide net GHG benefits. These activities should simultaneously restore or create the balance between native flora and fauna, hydrology, and sediment and include activities leading to better water quality, re-established tidal flows, and increasing sediment supply. Restoration re-establishes carbon sequestration in biomass and soils, while halting ongoing emissions if the existing landscape contains drained organic soils. Otherwise drained organic soils continue to emit CO_2 until either the water table rises to near the surface of the soil or the stock of carbon is depleted. A common restoration activity includes rewetting since it elevates the water table, reducing CO_2 emissions from drained organic soils.

Successful implementation of activities is partially determined through carbon stock and flux monitoring. However, until recently, wetland ecosystem managers and other stakeholders interested in quantifying the above and below ground carbon in these systems have lacked practical tools and guidance to allow for proper carbon analyses. This is particularly true in developing countries where there may be large data gaps and a lack of technical and financial resources. New guidelines and methodologies have begun to emerge in the last few years that allow for the incorporation of wetland carbon into policies and management decisions that will hopefully result in enhanced wetland restoration and conservation (List 1).

List 1. Wetland restoration and conservation activities

Peatlands restoration activities leading to reduced emissions

- Rewetting, including blocking or infilling of drainage channels, establishing/allowing obstructions in water courses (trees, rocks, vegetation growth, beaver dams) restoring water influx, restoring natural eco-hydrological processes).
- Water management: restore (near) natural water levels for GHG emission reduction; increasing or decreasing water influx in sites or increasing or reducing water out-flux to maintain certain water levels or water dynamics for particular benign land-use and/or GHG emission reduction, establishment of hydrological buffer zones; decreasing of groundwater extraction; removal of subsurface drainage pipes; establishment of underwater drainage systems; diverting water into a site, irrigation by pumping).
- Landscaping: Installing bunds (e.g. to increase water storage over the peat surface), creating cascades (to rewet peat surfaces of different levels), maintaining or creating hollows (e.g. dammed canals) to increase depression storage; establishment of buffer zones of vegetation or particular land-use that help safeguard peatlands from harmful impacts.
- Revegetation, including e.g. supporting natural regeneration, replanting of natural vegetation.
- Paludiculture (biomass cultivation on peatlands under water-logged conditions).
- Improving water quality (e.g. diversion of influx of nutrient rich water away from fen areas).

Coastal wetlands and seagrass restoration activities leading to reduced emissions

- Rewetting of drained wetlands (dike breach, removing tidal barriers, managed wetlands).
- Water management: Lowering of water levels on impounded wetlands, restoring salinity conditions
- Landscaping: Restoring sediment supply, raising soil surfaces with dredged material, subsidence reversal (managed reed beds soil building).
- Revegetation (marsh / forest), including e.g. supporting natural regeneration, replanting of natural vegetation.
- Improving water quality (enabling recovery of seagrass meadows).
- Combinations of the above.

Wetlands conservation activities to avoid emissions

Management activities which conserve carbon stocks or avoid the loss, within at-risk wetlands through regulation and/or land owner or management agreements, including but not limited to:

- Establishment of protection or conservation zones.
- Low intensity use (uses that do not have significant negative impacts on the peatland carbon store and/or biodiversity conservation values, e.g. fisheries, enrichment planting, hay making, eco-tourism).
- Peat fire prevention and control (various management measures to reduce the risk of fire).
- Peatland management for water storage and supply functions and reduction of flood risks downstream.

Further reading

Emmett-Mattox, S. and Crooks, S. (2013) Coastal Blue Carbon as an Incentive for Coastal Conservation, Restoration and Management: A Template for Understanding Options. Restore America's Estuaries.

Page, S.E., Rieley, J.O.& Banks, C.J. (2011) Global and regional importance of the Tropical peatland carbon pool, Glob. Change Biol., 17, 798-818.

4 Relevant carbon projects and programs

The United Nations Framework Convention on Climate Change (UNFCCC) sets the general structure for internationally agreed GHG reduction measures, and provides technical details and dedicated funds to support a variety of climate mitigation activities, including wetland carbon activities. Within the context of the UNFCCC, wetland carbon activities can be initiated as independent projects or as components of larger national or sub-national programs to combat climate change. Although to some extent an artificial construct, the distinction this report makes between projects and national or sub-national programs should help the reader find those funds or financial mechanisms that best suit the type of activities he/she intends to initiate. Due to inevitable overlap between projects and programs, multiple funding options could be explored. For more detail on recent and ongoing activities pertinent for wetlands projects and programs, please see Appendix I.

While going through this report and identifying applicable wetland activities and funding sources, it is important to remember two concepts:

1. Some nations account for emissions and removals from wetlands as part of their national GHG inventories to the UNFCCC whilst others don't. **If both carbon offset projects, and a national wetlands accounting scheme exits (or where a national scheme is being developed) potential double-counting of the GHG benefits arises.** A potential conflict between project level crediting and country level crediting needs to be addressed to avoid GHG benefits being "part of the system" twice.[3]

2. **Synergies between specific mitigation and adaptation solutions** are prevalent in agriculture, forestry, and the rural land use sectors.[4] Those synergies also exist in coastal management; besides coastal protection and carbon sequestration, they provide many ecosystem services and provide income-generating opportunities, not only to local livelihoods, but also to the global community. The latest Assessment Report (the fifth) of the Intergovernmental Panel on Climate Change (IPCC)[5] stated that land-use policies, including REDD+ (Reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries), are more effective when both mitigation and adaptation are addressed. A significant potential for developing synergies between climate change mitigation and adaptation therefore exits and several adaptation-oriented funds should be considered. The Climate Finance Option website[6] by the World Bank and United Nations Development Program (UNDP), for example, reflects this development by allowing groups to search for funding sources that are available for both adaptation and mitigation projects (see also List 2).

4.1 National or sub-national programs

National or sub-national programs refer to large-scale efforts resulting in better management of wetland areas across all or part of the country. The UNFCCC provides guidance for countries to develop national or sub-national mitigation and adaptation programs in the context of land-use management, including forestry, peatlands and coastal wetlands. For climate mitigation, specific mechanisms have been put forward such as Nationally Appropriate Mitigation Activities (NAMAs) and Reducing Emissions from Deforestation and forest Degradation (REDD+) with corresponding financing mechanisms. In parallel, adaptation mechanisms like National Adaptation Programs of Action (NAPAs) and National Adaptation Plans (NAPs) with corresponding financing avenues also exist.

Table 2. Technical guidance documents

Title	Released	Organization	Content of the Document
2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands	2014	IPCC	Main target: National GHG inventories Content: National-level inventory methodological guidance on wetlands, including default emission factor values, which is an addition to and aims to fill gaps in the coverage of wetlands and organic soils in the *2006 IPCC Guidelines*. The guidance covers the estimation of carbon stock (changes) in drained inland organic soils, rewetted organic soils, coastal wetlands, inland wetland mineral soils and constructed wetlands for waste water treatments. It adds to the 2006 Guidelines by including off-site carbon dioxide emissions via water borne losses, guidance on CH_4 emissions from rewetting of organic soils, ditch/open water emissions and CO_2, CH_4 and CO_2 emissions from peat fires.
Coastal Blue Carbon: Methods for Assessing Carbon Stocks and Emission Factors in Mangroves, Tidal Salt Marshes, and Seagrasses	2014	Blue Carbon Initiative by CI, IUCN and UNESCO-IOC	Main target: Field practitioners, researchers Content: Provides standardized methods for field measurements and analysis of blue carbon stocks in coastal ecosystems. The goal is to utilize these assessments to support improved conservation and restoration of coastal ecosystems through various management and policy approaches, regulatory frameworks, and participation in voluntary carbon markets.
Guiding Principles for Delivering Coastal Wetland Carbon Projects	2014	UNEP and CIFOR	Main target: Carbon project developers Content: Draws together experience in carbon project and coastal wetland project development to demonstrate best practice principles in enacting blue carbon interventions.
Blue Carbon Practice Manual (working title)	2014 (Expected)	Restore America's Estuaries	Main target: VSC Carbon project developer Content: Provides detailed guidance on how to apply RAE's Methodology for tidal wetlands and seagrass restoration and develop a blue carbon project under the VCS standard.
Building Blue Carbon Projects: An Introductory Guide	2014	Abu Dhabi Global Environmental Data Initiative (AGEDI)	Main target: Carbon project developers Content: Serves as a snapshot of potential common blue carbon project elements based on existing projects and an introduction of key issues for consideration.

4.1.1 Nationally Appropriate Mitigation Activities (NAMAs)

NAMAs refer to any action that reduces emissions in developing countries and is mostly prepared under the umbrella of a national governmental initiative in the context of sustainable development. NAMAs were designed to emphasize financial assistance from developed to developing countries and to be flexible, allowing developing countries to foster activities based on their priorities and capabilities. In other words, national carbon wetland programs or individual NAMAs may qualify for support if the program or activity not only reduces GHG emissions but also contributes to economic and social development and/or poverty eradication. NAMAs can also be self-supported by a country with additional financial assistance. The UNFCCC provides a matchmaking platform to match NAMAs with financing opportunities.

Given the flexible nature of NAMAs, all activities mentioned in List 1 whether forested or not, could be included in NAMAs.

4.1.2 Reducing Emissions from Deforestation and forest Degradation (REDD+)

REDD+ aims to mitigate climate change by reducing and removing GHG emissions through enhanced forest management in developing countries. The '+' in REDD+ refers to the conservation, sustainable management, and the enhancement of forest carbon stocks for the purpose of increased removals of GHGs. Each country participating in REDD+ is allowed to define "forest" however they wish. Therefore, wetland activities mentioned in List 1 could qualify under REDD+ if the vegetation found in the wetlands is included in the national definition of forests (most applicable to mangroves) or if the wetland can be shown to improve forest health by addressing a particular driver of deforestation or forest degradation, for example by providing alternative livelihood strategies (most applicable to non-mangrove wetland ecosystems).

Converted swamp forest into palm oil plantations
© Wetlands International

4.1.3 National Adaptation Programs of Action (NAPAs)

NAPAs provide a process for Least Developed Countries (LDCs) to identify priority activities that respond to their urgent and immediate needs to adapt to climate change. Programs that qualify under NAPA are meant to be short-term and address issues where further delay would increase vulnerability and/or costs at a later stage. NAPA programs should use existing information (no new research), be action-oriented, country-driven, flexible, and based on available capacities and current circumstances.

All activities mentioned in List 1, whether forested or not, could be included in NAPAs. Whether and how those activities can be credited and accounted into national GHG inventories has to be determined.

4.1.4 National Adaptation Plans (NAPs)

NAPs are a means of identifying medium- and long-term adaptation needs and developing and implementing strategies and programs to address those needs. NAPs are a continuous, progressive and iterative process that follows a country-driven, gender-sensitive, participatory and fully transparent approach. Because NAPs are completely country driven, there are multiple opportunities to include wetlands and, unlike NAPAs that provide planning for LDCs, NAPs are for all developing countries.[7] This is a good opportunity for wetland practitioners to claim a spot in the NAPs and related funding.[8]

All activities mentioned in List 1, whether forested or not, could be included in NAPs. Whether and how those activities can be credited and accounted into national GHG inventories has to be determined.

Further reading

NAMA - van Tilburg, X. et al. (2013) Status Report on Nationally Appropriate Mitigation Actions (NAMAs) Mid-year update June 2013. ECN and Ecofys.

NAMA registry: http://www4.unfccc.int/sites/nama/SitePages/Home.aspx

REDD+

REDD Desk - The REDD Desk is the largest collaborative resource for REDD+ information, news and analysis on the web. http://theredddesk.org/what-is-redd

Angelsen, A., Brockhaus, M., Sunderlin, W.D. and Verchot, L.V. (eds) (2012) Analysing REDD+: Challenges and choices. CIFOR, Bogor, Indonesia.

Barquín, L., et al. (2014) The Knowledge and Skills Needed to Engage in REDD+: A Competencies Framework. Conservation International, Centro Agronómico Tropical de Investigación y Enseñanza, International Union for the Conservation of Nature, Regional Community Forestry Training Center. Arlington, Virginia, USA.

NAPAs

Status of NAPA implementation under the LDCF

http://unfccc.int/adaptation/knowledge_resources/ldc_portal/items/5632.php

Mavrogenis, S. and Kelman, I. (2014) Theory, Policy and Practice for Climate Change Adaptation. In: Environmental Change. Adaptation Challenges, Edition: 1st, Chapter: Theory, Policy and Practice for Climate Change Adaptation, Publisher: Global Change Research Centre, the Academy of Sciences of the Czech Republic, Editors: Barbora Duží, pp.12-20, Forthcoming .

NAPs

WRI (2014) Clarifying the UNFCCC National Adaptation Plan Process. Blog.[9]

UNFCCC (2012) National adaptation plans: Technical guidelines for the national adaptation plan process", LDC Expert Group, December 2012. Bonn, Germany.

4.2 Projects

Wetland carbon projects refer to distinct geographically confined activities that result in measurable and verifiable GHG reductions (i.e., mangrove replanting). The Clean Development Mechanism (CDM), see details below, was designed specifically for project level activities as part of countries' effort under the UNFCCC. Alternatively, projects that align with larger sub-national and national programs are eligible to be included in the programs listed in chapter 4.1. Other wetland carbon activities including capacity building, technical guidance and policy analysis reports can be seen as projects supporting UNFCCC objectives, undertaken foremost by NGOs, to support overall development and implementation of direct wetland carbon interventions.

4.2.1 Clean Development Mechanism (CDM)

The CDM was designed to support emission-reduction projects in developing countries which would account for carbon removals and earn Certified Emission Reduction (CERs) units, each corresponding to one tonne of CO_2. These can be traded on carbon markets. The CDM is intended to meet two objectives: (i) to assist non-Annex 1 parties (developing countries) in achieving sustainable development and contribute to the ultimate objective of the UNFCCC and (ii) to assist Annex 1 parties (developed countries) in achieving compliance with their emission limitation and reduction commitments by buying CERs from CDM emission reduction projects in developing countries. The projects and the issue of CERs are subject to approval by the CDM Executive Board to ensure that emission reductions are real and "additional" – meaning that the emissions are occurring because of this specific project and wouldn't have happened otherwise. Between 2001, which was the first year CDM projects could be registered, and September 2012, the CDM issued 1 billion CERs.[10]

Different GHG reduction activities are eligible under the CDM.[11] For wetlands, only Afforestation and Reforestation (A/R) activities are however relevant.[12,13] Avoiding deforestation or forest degradation, or enhancing forest carbon stocks are not eligible for crediting under the CDM.

In terms of funding, it was agreed that financial support for the CDM would not be a diversion of conventional Official Development Assistance (ODA); the finance had to be new and additional. This means that many finance streams are blocked off and the CDM has become mainly a private sector driven instrument.

Looking ahead, possible new wetland project activity types (beyond A/R) could become eligible under CDM. However that is currently still under negotiations within the UNFCCC.[14,15]

Seagrasses
© Jerker Tamelander

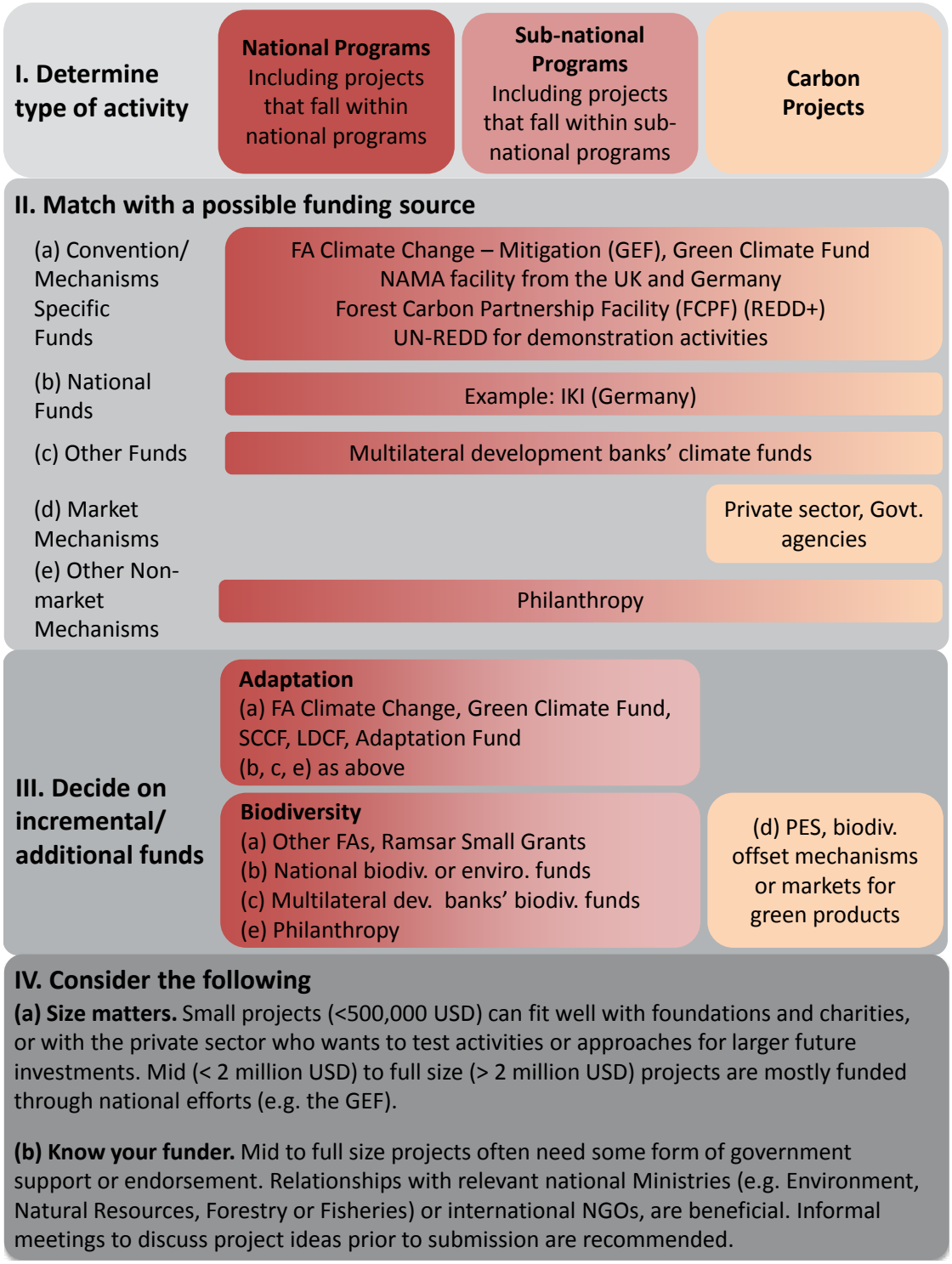
Further reading

Gillenwater, M. & Seres, S. (2011) The Clean Development Mechanism. A Review of the First International Offset Program. Prepared for the Pew Center on Global Climate Change.

UNFCCC CDM: Home https://cdm.unfccc.int/about/index.html

Figure 2. Overcoming the climate finance jungle - How and where do I start?

This summary briefly sets out the main elements that need to be considered when starting to look for wetland carbon finance (examples only). For details, please see following chapters.

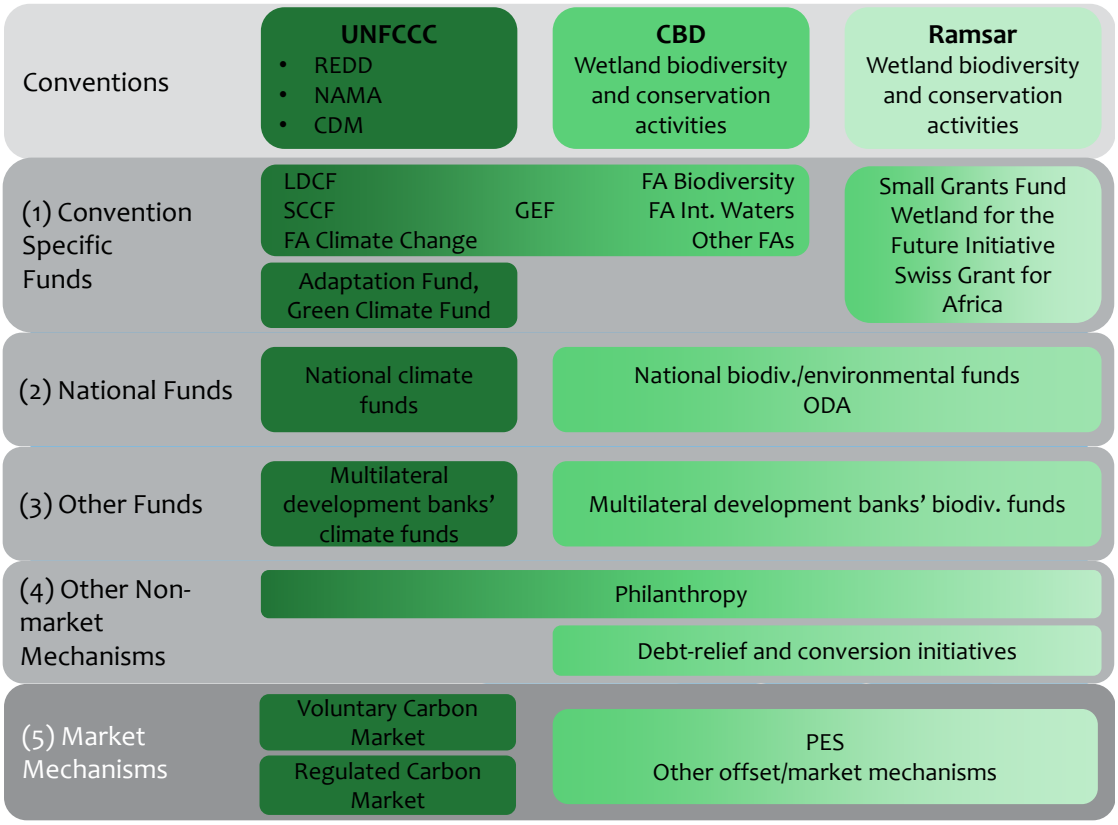


5 Available climate finance mechanisms and applications

Wetland carbon projects and programs can be financed through a variety of mechanisms. A schematic overview is shown in Fig. 3 below. Details can be found in the following sub-chapters.

Possibilities exist through funds that are directly linked to a convention, for example the UNFCCC, Convention for Biological Diversity (CBD) or Ramsar, and managed via a dedicated institution, e.g. the GEF. Other possibilities include national funds as well as funds from multilateral development banks. As explained in chapter 7, both climate change and biodiversity related finance mechanisms can be accessed for wetland carbon activities. Other non-market mechanisms – the more traditional grant type funding – include philanthropic donors as well as debt-relief agreements. Additional to these non-market mechanisms, carbon offset crediting schemes or Payment for Ecosystems Services (PES) mechanisms that use a direct market to receive payments for specific activities, should be explored.

Figure 3. Overview of the main climate (dark green) and biodiversity-related (lighter green) finance mechanisms relevant for wetland carbon projects and programs



5.1 About UNFCCC specific financial mechanisms

Wetland carbon mitigation and adaptation activities can be financed via several climate-related funds. The most prominent being the GEF Trust Fund (GEF TF) and its Focal Areas (FA), the Special Climate Change Fund (SCCF) and the Least Developed Countries Fund (LDCF) (Fig. 3 and 4). The UNFCCC has further set up specific funds such as the Green Climate Fund and the Adaptation Fund, both managed by their own boards and provide opportunities for financing wetland carbon activities. Other relevant international climate funds supporting the implementation of the UNFCCC, such as the BioCarbon Fund, are briefly explained below.

5.1.1. GEF Trust Fund

The GEF's central fund is the Trust Fund. Under the UNFCCC it finances activities in seven main FA, including biodiversity, climate change (mitigation and adaptation), chemicals, international waters, land degradation, sustainable forest management/ REDD+, and Ozone layer depletion (see Fig 4). Every four years the GEF undergoes a strategic review that sets the focus of the FAs and replenishes the fund with new donor money. At time of publication, efforts are being financed as part of the GEF 6th cycle (GEF-6: 2014 – 2018).

The GEF is simultaneously the financial mechanism for other environmental conventions, such as the CBD (see 7.1.1). It is supported by 183 countries in partnership with international institutions, NGOs, and the private sector and is governed by the GEF Council representing 32 constituencies (16 from developing countries, 14 from developed countries, and two from countries with transitional economies). The following section outlines the Climate Change Focal Area, while the other GEF Focal Areas, e.g. biodiversity, are further explained in chapter 7.2.1.

FA Climate Change

The FA Climate Change works on the basis of the GEF-6 Climate Change Mitigation Strategy which focuses on complementarity, to enable mitigation solutions to be implemented at a faster pace. During GEF-6, climate mitigation projects at the national level requesting GEF support should be designed as means to address barriers, mitigate risks, and facilitate the implementation of priorities identified in National Communications and Biennial Update Reports (BURs), or in line with a NAMA.[16]

The specific chapter of the **Climate Change Mitigation strategy for land use, forestry and agriculture** supports projects (via various objectives) that:

(1) Promote Conservation and Enhancement of Carbon Stocks in Forest, and other Land-Use, and Support Climate Smart Agriculture;

(2) Support initiatives in agriculture, forestry, and other land use sectors. Projects demonstrating innovative practices and sustainable financing/investment programs will be prioritized;

(3) Facilitate more accurate estimations of GHG emissions;

(4) Support the development of Measuring, Reporting and Verification (MRV) systems for carbon stocks accounting;

(5) Implement good management practices by local communities using financially sustainable mechanism to maintain or enhance carbon stocks.

The GEF actively supports so-called signature-integrated projects: Activities that may fit under this funding mechanism include projects and programs that both serve multiple environmental benefits at the global scale in addition to carbon emission removal benefits. Examples of eligible topics include sustainable forest management (SFM) and land use-related carbon management.

GEF projects have to be country-driven and need a formal endorsement from the country. The project application process includes several phases: (1) Review of project concepts by GEF CEO, (2) approval of work program by the GEF Council (3) endorsement of the full project proposal by the GEF CEO (commitment of funds) and (4) implementation supervision, monitoring and final evaluation. Details can be found in the GEF Operational Focal Point's Guide to the GEF Project Cycle.[17]

5.1.2 Special Climate Change Fund (SCCF)

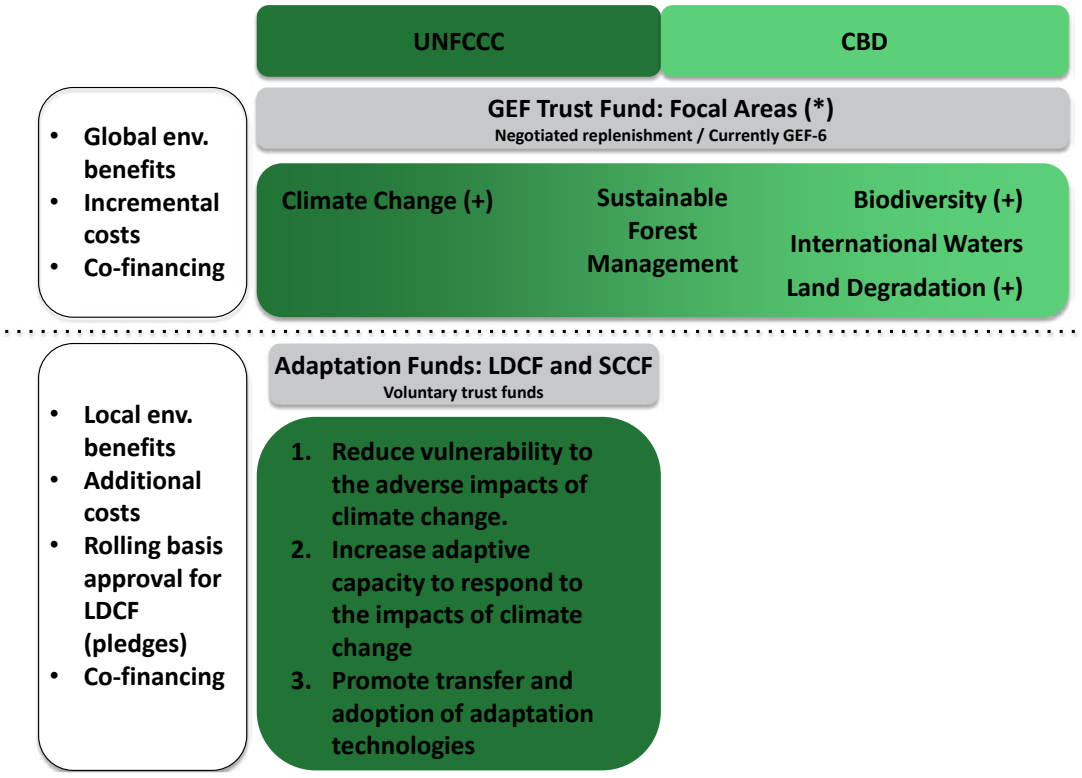
The SCCF, operated via the GEF, exists to finance programs relating to capacity-building, adaptation, technology transfer, and climate change mitigation and economic diversification for countries highly dependent on income from fossil fuels. At time of publication, some $333.1 million (USD) have been pledged to finance the SCCF, of which $299.1 million (USD) has been paid. The largest share of SCCF financing is directed towards enhancing the resilience of water resources management and agriculture, with 27% of approved resources for water management and agriculture respectively. Coastal zone and natural resources management are another priority sector for SCCF financing, with 9% of the resources approved respectively.

The SCCF has two active funding windows: the Adaptation window (SCCF-A) and Technology Transfer window (SCCF-B).

Financing under SCCF-A

For adaptation activities, the SCCF will pay for the "additional costs" incurred from integrating adaptation activities to a larger program where climate adaptation is not the main focus, or it will pay "the full costs of adaptation" if the program's main objective is climate change adaption. Costs of adaptation are added to costs of BAU development.

Figure 4. Overview GEF



(*) only FAs relevant for wetlands

(+) STAR (Allocation): Each individual country has access to an indicative allocation of resources.

For further detail see: A GEF Operational Focal Point's Guide to the GEF Project Cycle

BAU scenarios should include activities that would be implemented even if climate change mitigation was not considered. Therefore, co-financing (financing from other sources being used to execute a project) in the context of SCCF-funded adaptation projects is defined as the cost, which would be incurred for BAU. This amount is considered the project's baseline and constitutes the co-financing; beyond that, the full cost of adaptation is the so-called additional cost and is paid out of the SCCF. Baseline investments are generally expected to be larger than those of the SCCF. For example, the construction of coastal defenses, if that construction becomes more costly because of climate change causing a higher threat, that extra expenditure can be financed from the SCCF-A window. The 'co-financing' then constitutes the original cost, and the financial top-up is the 'additional cost'. The SCCF can also finance 100% in case the program is purely an adaptation project.

Financing under SCCF-B

For Technology Transfer activities, the SCCF will finance the "incremental costs of technology transfer activities". To what extent this Fund will be relevant to wetlands, remains to be seen.

Funding priorities under the SCCF are given to programs that are country-driven, cost-effective and integrated into national sustainable development and poverty-reduction strategies. Adaptation activities can be in the area of water resources management, land management, agriculture, health, infrastructure development, fragile ecosystems, including mountainous ecosystems, and integrated coastal zone management. But this is an 'inter alia' list and therefore, other activities may also be eligible.

5.1.3 Least Developed Countries Fund (LDCF)

The objective of the LDCF is to address the unique needs of the 48 Least Developed Countries (LDCs) which are especially vulnerable to the adverse impacts of climate change. Activities supported under this GEF operated fund include preparing and implementing NAPAs to identify the immediate needs of LDCs to adapt to climate change. LDCF grants are awarded to adaptation projects that address high-priority areas identified in the approved, country-specific NAPA. There have been a number of projects implemented, in a variety of sectors: agriculture and livestock, **forestry,** human health, **disaster risk reduction, coastal zone managemen**t, and water resources management, among others.

The LDCF is governed by the GEF and therefore is implemented only after the approval of the GEF Council and subsequent endorsement by the GEF CEO. LDCF funds are disbursed in the form of grants which are considered ODA. Applicants seeking LDCF funding must show co-financing plans and a cost-effectiveness study for their proposed activity.

To initiate implementation, an LDC Party prepares a concept note and requests an implementing agency of the GEF to assist with submitting a proposal for funding to the GEF under the LDC Fund. The GEF agency then works with the country to develop the concept into a full project that is ready for implementation under the GEF project cycle.

5.1.4 The Green Climate Fund (GCF)

The Green Climate Fund[18] (GCF) under the UNFCCC was agreed in 2010 as an operating entity of the financial mechanism of the Convention. The GCF is a mechanism to transfer money from the industrialised to the developing world, in order to assist the developing countries in adaptation and mitigation practices to counter climate change. The GCF will support projects, programs, policies and other activities in developing country Parties and will aim for a 50:50 balance between mitigation and adaptation over time. It is governed by the GCF Board. The modalities of the fund are still under discussion and no concrete measures have been funded. However, it is expected that in 2014 the fund will support the first preparatory measures in developing countries.[19]

Access to GCF resources will be through national, regional, and international implementing entities nominated by the recipient countries and accredited by the GCF Board. The GCF will provide financing mainly in the form of grants and concessional lending, with the remaining financing in the form of other modalities, instruments or facilities. Priority will be given to results-based approaches, in particular for incentivizing mitigation actions, and payments for verified results, where appropriate.

The GCF is **applicable to all sectors covered by the UNFCCC and Kyoto Protocol and will support project-based as well as programmatic approaches** as long as they are in line with the country's climate change strategies and plans. These can be low-emission development strategies or plans, nationally appropriate mitigation actions (NAMAs), national adaptation plans of action (NAPAs), national adaptation plans (NAPs) and other related activities.

The Fund will also have a **private sector arm** that enables it to finance private sector mitigation and adaptation activities at the national, regional and international levels. In addition, the facility will promote the participation of private sector actors in developing countries, in particular local actors, including small- and medium-sized enterprises and local financial intermediaries.[20]

5.1.5 The Adaptation Fund (AF)

The AF became operational in 2008 and administers grants to national, regional, or multilateral implementing entities. The aim is to finance practical adaptation projects and programs in developing countries and support capacity-building activities. Financing is derived from an adaptation levy (2%) on CDM projects[21] under the Kyoto Protocol and gets administered by the Adaptation Fund Board. AF financing post-2020 depends on the continuation of the CDM and the level of demand in the carbon market. Assuming that the adaptation levy of 2% on CDM projects applies post-2012, the level of funding could be $100−500 million (USD) for a low demand for credits from non-Annex I Parties to $1−5 billion (USD) in 2030 for high demand.

In order to qualify for funding from the AF the general eligibility criteria for countries are:

(1) Party to the Kyoto Protocol

(2) Particularly vulnerable to the adverse effects of climate change. This includes: low-lying coastal and other small island countries, and countries with fragile mountainous ecosystems, arid and semi-arid areas, and areas susceptible to floods, drought and desertification.

Supported activities relevant for wetlands include:

(1) **Water resources management, land management, agriculture,** health, infrastructure development, **fragile ecosystems;**

(2) Supporting capacity building, including institutional capacity, for preventive measures, planning, preparedness and management of disasters relating to climate change;

(3) Strengthening existing and, where needed, establishing national and regional centers and information networks for rapid response to extreme weather events, utilizing information technology as much as possible.

At time of publication, 34 projects have been financed through the AF, collectively amounting to $226 million (USD) of which $96 million (USD) have been disbursed. Four of those are coastal management projects (Tanzania, Mauritius, Senegal and Cuba), totaling $29 million (USD) of which $13 million (USD) have been disbursed.

5.2 Other multilateral and national climate funds

There are additional initiatives and funds (including bilateral and multilateral initiatives) such as the climate change funds (CCFs) from the African[22] and Asian[23] Development Banks, the Inter American Development Bank as well as the BioCarbon Fund as part of the Carbon Finance Unit of the World

Mangroves, Peru
© Conservation International/photo by Colin Foster

Bank that work towards the objectives of the UNFCCC, and countries' obligations under the Convention.

5.2.1 Multilateral Climate Change Funds

These funds aim at ensuring that - in the case of the African CCF[24] - countries on the African continent get more help adapting to the effects of global warming: a sort of funding for 'climate finance readiness' projects in individual countries, to allow governments to apply for larger amounts of money from the Green Climate Fund; and, in the case of the Asian CCF[25] resources get pooled within the Asian Development Bank to address climate change through technical assistance and grant components of investment projects.

5.2.2 BioCarbon Fund

BioCarbon Fund is a public-private sector initiative mobilizing financing to help develop projects that sequester or conserve carbon in forest and agro-ecosystems.[26]

The BioCFplus program (about $6 million) supports project development and implementation with **capacity building and training.** The program further supports the pioneering role of the BioCarbon Fund by **developing methodologies and tools for carbon accounting, promoting policy dialogue and by disseminating lessons learned.**

The BioCarbon Fund Initiative for Sustainable Forest Landscapes (ISFL)[26a] seeks to promote reduced greenhouse gas emissions from the land sector, from deforestation and forest degradation in developing countries (REDD+) and from sustainable agriculture, as well as smarter land-use planning, policies and practices.

Better management of peatlands and coastal wetlands for carbon mitigation often includes climate adaptation and biodiversity benefits and this allows access to additional funding mechanisms that can be combined with funding from the mechanisms described above.[27] However, the total annual biodiversity finance equals about $52 billion (USD) but developing countries receive the smallest shares: Latin American Countries: 6.5%; Africa: 6.24%, South-East Asia excluding China: 7.67%; and, Oceania: 5.12%, while the US absorbs over 32%, Europe over 22%, and China close to 20%: over 59% of the finance is delivered to high income countries. This difference in funding allocations is rather illogical, particularly considering that developing countries traditionally have much higher levels of biodiversity than industrialised countries.

Forest Carbon Partnership Facility (FCPF)

The FCPF is a global partnership of governments, businesses, civil society, and Indigenous Peoples focused on REDD+ in developing countries.

The FCPF has two separate but complementary funding mechanisms — the Readiness Fund and the Carbon Fund. Both funds are pledged by a multi-donor fund of governments and non-governmental entities that make a minimum financial contribution

of $5 million (USD). The total contribution to date is $825 million (USD): $360 million (USD) for the Readiness Fund and $465 million (USD) for the Carbon Fund.

There are currently 44 participating countries:[28] 17 in Africa, 16 in Latin America, and 11 in the Asia-Pacific region. From these 44, 22 have signed a Readiness Fund Grant and 8 countries are in the Carbon Fund pipeline.

Most support for countries is used for the development or improvement of institutional and legal frameworks, including the development of systems for MRV and monitoring, but some pilot projects may be financed too. In principle all activities mentioned in List 1 in coastal wetland and/or on peatlands could qualify as pilot projects, but only if the activity is an identified REDD+ priority (e.g. addressing some of the prime drivers or underlying causes of deforestation and/or forest degradation) is it likely to be selected for support.

UN-REDD

The UN-REDD Program is the United Nations' collaborative initiative on REDD in developing countries; a collaboration between the UNDP, Food and Agriculture Organisation (FAO), and United Nations Environment Program (UNEP). The UN-REDD Program supports nationally-led REDD+ processes and promotes the "informed and meaningful involvement of all stakeholders, including Indigenous Peoples and other forest-dependent communities, in national and international REDD+ implementation".

The program supports national REDD+ readiness efforts in 55 partner countries, spanning Africa, Asia-Pacific and Latin America, in two ways: (1) direct support to the design and implementation of UN-REDD National Programs; and (2) complementary support to national REDD+ action through common approaches, analyses, methodologies, tools, data and best practices developed through the UN-REDD Global Program.

UN-REDD however, does not finance project activities: it finances demonstration activities but these are not to be viewed as REDD+ pilot projects – the incentives/payments system for these activities will not be based on performance in terms of emission reductions/ removals.

To find out which countries have UN-REDD National Programs and which countries are other partner countries, please visit the link[29] for the most up-to-date lists.

Donors' contributions sum up to $215.2 million (USD), 91% of which is already allocated.[30]

5.3 Application of UNFCCC specific financial mechanisms to projects and programs

Any wetland carbon efforts working towards achieving the objectives of the UNFCCC are linked to either of the four nationally-oriented mechanisms explained in chapter 4.2, namely NAMAs, REDD, NAPAs and NAP, or implemented as a CDM project activity. The following chapter briefly summarizes the sources of finance for each.

A trend currently observed, especially for coastal wetlands, are so-called scoping or national assessment studies, to assess the climate change mitigation and adaptation potential of a country or region via better coastal management and policy change. Such studies are foremost supported by foundations or linked to university projects. Some countries, such as Abu Dhabi, are also directly investing into national or regional scoping assessments.[31]

Mangroves, Brazil
© Enrico Marone

Table 3. Summary of main international climate funds characteristics

	Applicable sectors / activities	Project-based or programmatic national approach	Type of finance	Direct or indirect access by projects/orgs	Full funding or co-financing
SCCF-A	All	Both	Grant	Via GEF agencies	Full adaptation costs*
SCCF-B	All	Both	Grant	Via GEF agencies	Full incremental costs**
LDCF	All	Both	Grant	Via GEF agencies	Full adaptation costs*
GCF	All	Both	Grant Concessional lending	Direct access	Identifiable additional costs*
AF	All	Projects	Grants	Via implementing agencies	Full costs
FCPF	All	Both	Grant	Via implementing agencies and NGOs etc.	Full costs
UN-REDD	All	Both UN-REDD does not fund activities, but the 3 UN organizations (UNEP, UNDP, FAO) provide Targeted Support and finance some demonstration activities where payment is not related to carbon benefits.	Grant	Via implementing agencies and NGOs etc.	Full costs
Bio Carbon Fund	All	Projects, mainly	Grant	Direct	Full costs

** Full adaptation costs is understood to mean: "additional costs" or the costs of adaptation that are added to costs of Business-as-Usual (BAU) development. BAU refers to activities that would be implemented also in absence of climate change. The full costs of adaptation are fully paid by the LDCF/SCCF.*

*** Full incremental costs are those costs directly associated with securing the 'global benefits' arising from the wide-scale adoption of clean technologies in participating countries.*

5.3.1 Financing NAMAs

Financial support for the implementation of national programs under NAMAs is available from various international and national funds.

UNFCCC funds: GEF Trust Fund, FA Climate Change, possibly linked to other FA (see 7.2.1) and the Green Climate Fund

NAMA specific funds: NAMA facility in the UK and Germany

National funds: e.g. Internationale Klimaschutzinitiative (IKI) (Germany), the Fonds Français pour l'Environnement Mondial (FFEM) (France).

Other funds: Multilateral institutions, e.g. ADB, IDB, WB Group

5.3.2 Financing REDD+

Financial support for the implementation of national programs under REDD+ is available from various international and national funds.

UNFCCC funds: GEF Trust Fund, FA Climate Change, possibly linked to other FA (see 7.2.1) and the Green Climate Fund

REDD specific funds: Even though the REDD+ financing mechanism hasn't been agreed yet under the UNFCCC, financing windows have already emerged to assist countries to get ready for the engagement in a possible future REDD+ mechanism. The main funding streams are those of the FCPF of the World Bank and UN-REDD (for more details see further below). In the context of REDD+, "readiness" can be applied to jurisdictional and/or sub-national programs and pilot project activities with the objective to explore and test the entire collective aspects associated with REDD+.

National funds: In addition, REDD+ readiness programs are being financed with bilateral funding from countries such as Norway, as well as through other national climate change funds, e.g. German ICI.

Other non-market: Philanthropy – Significant sums of money for stand-alone projects (with the aim to feed into national REDD+ programs) are also currently available to REDD+ and other wetland carbon activities through philanthropic organizations (e.g., Bill Gates Foundation or the Prince's Rainforest Project (Prince Charles, UK).

Private sector: Activities are also funded via the private sector, either directly or through a private fund (e.g., the Danone Livelihoods Fund or the Althelia Fund), or through investment groups (e.g. Permian Global).

5.3.3 Financing NAPAs

Financial support for the implementation of national programs under NAPAs is available from various international and national funds.

UNFCCC Funds: LDCF

National funds: Internationale Klimaschutzinitiative (IKI) (Germany), the Fonds Français pour l'Environnement Mondial (FFEM) (France).

Other funds: Multilateral institutions, e.g. ADB, IDB, WB Group

5.3.4. Financing NAPs

Financial support for the implementation of national programs under NAPs is available from various international and national funds.

UNFCCC funds: Financing of NAP preparation is currently not linked directly to a funding source, but can be facilitated through the SCCF. However, developing country Parties are encouraged to make use of existing support channels and mechanisms, including those available through multilateral and bilateral agencies. The GEF has created a "NAP support program" but that consists of a series of regional workshops and other technical assistance activities for LDCs launching NAPs.

5.3.5 Financing CDM projects

Private sector: In terms of funding, the UNFCCC agreed that financial support for the CDM would not be a diversion of conventional ODA; the finance had to be new and additional. This means that many finance streams are blocked off and the CDM has become **mainly a private sector driven instrument. The BioCarbon Fund** has also a strong track record of being involved in CDM related efforts, for example, it is responsible for the first issuance of carbon credits for a forestry project under the CDM, globally and also in Africa.[32]

The slow pace at which the intergovernmental process of the UNFCCC was moving prompted a high level of frustration within the private sector. The issue of Corporate Social Responsibility (CSR) combined with the protection of licences to operate (ensuring support for continued industry engagement despite social, community and environmental issues) in developing countries led to a high willingness of the private sector to start investing in restoration and conservation efforts. At the same time, the conservation community wanted to capitalize on the new "invest in nature" momentum that was building up. These shared interests were realized through the creation of voluntary carbon markets.

Unlike the CDM where verified CERs are sold through a UN-controlled or other regulated markets (e.g. European Union Emissions Trading Scheme (EU ETS)), the voluntary carbon market[36,37] deals with the selling and buying of emission reductions (offsets) using markets that are not government regulated.

Case Study 1: L'Oceanium De Dakar, Senegal

The Senegalese NGO Océanium along with The Livelihoods Fund, IUCN, and Danone started a revegetation project in 2008 to restore the shrinking mangrove forests with the goal of increasing coastal resilience to climate change, enhancing local agriculture, and restoring fish stocks. Since its inception, 79 million mangrove trees over 7920 hectares have already been planted, making it the world's largest mangrove reforestation project.[33] The new trees are estimated to be worth over half a million carbon credits. The Livelihoods Fund, comprised of investors from 10 European companies (Danone, Schneider Electric, Crédit Agricole, Michelin, Hermès, SAP, CDC Climat, La Poste, Firmenich, Voyageurs du Monde) directly funded the development of the large scale CDM mangrove reforestation methodology and further invested in the CDM project itself.

This project was validated by the UNFCCC Board. The PPD (Project Detailed Document) made by Carbon Decisions in December 2010 was audited by Ernst & Young as the DOE in May 2011. The approval of the Senegalese authorities (LoA) was obtained in March 2011. This approval is subject to a tripartite Memorandum of Understanding of 10 years between Livelihoods, Océanium, and the Senegalese government.

Further reading

Duke 2011. Financing Options for Blue Carbon: Opportunities and Lessons from the REDD+ Experience

Streck, C. & Costenbader, J. (2012) Standards for Results-Based REDD+ Finance: Overview and Design Parameters. Climate Focus.

Conway, D., Streck, C. and von Unger, M. (2014) REDD+ Finance in the European Union: Options for scaling-up near term support. Climate Focus.

List 2. Relevant online sites with overviews and updates in available climate funding

The Finance Portal

The Finance Portal[34], designed by the UNFCCC Secretariat will comprise three modules:

1. the 'National Communications Module' (here a compilation is made of information extracted from NC4 and 5 of industrialised countries reports on their contributions to less developed nations);
2. the 'Fast-start Finance Module' (approximately USD30 billion over the period 2010 – 2012, including forestry); and,
3. the module related to the 'Funds Managed by the GEF' (a joint effort between the UNFCCC and GEF secretariats).

Pilot versions of 1) and 2) can already be found on the UNFCCC website.[35] Additionally the Finance Portal provides information on projects and programs of the Adaptation Fund.

At http://www3.unfccc.int/pls/apex/f?p=116:1:901373738697176 an interactive flowchart is provided that leads to approximately 50 website pages with detailed information on expenditure to date.

Climate Funds Update

Climate Funds Update is an independent website that provides information on the growing number of international climate finance initiatives designed to help developing countries address the challenges of climate change.

http://www.climatefundsupdate.org/the-funds

Climate Finance Options

Climate Finance Options shows funds that are available for both adaptation and mitigation projects that reduce impacts of climate change. See whether your project is eligible, what the governance structure for these funds is, and how to access them.

http://www.climatefinanceoptions.org/cfo/

Terra Viva Grants

The Terra Viva Grants Directory develops and manages information about grants for agriculture, energy, environment, and natural resources in the world's developing countries.

http://www.terravivagrants.org/

Peatland restoration - blocking drainage channel
© Wetlands International

6 Wetland carbon projects financed via the voluntary carbon market

In the case of voluntary markets, the demand for verified carbon credits is driven by customer voluntary demand. Buyers of carbon offsets may be the general public driven to reduce their carbon footprint from activities such as air travel. Companies and other emitting entities are also participating in the voluntary market as a means to take action to reduce emissions above and beyond their legal obligation to comply with their own CSR or Good Stewardship, to brand themselves as green, or to hedge against future compliance obligations.

Successful carbon projects tend to be expensive, however, carbon projects can be made economically feasible at moderate to low carbon prices. The overall costs for wetland carbon projects vary greatly across countries and regions. To fully evaluate the economic potential of a wetland carbon project, the full costs of avoiding habitat conversion or undertaking restoration activities need to considered, including so-called opportunity costs – if someone was to use the wetland for another commercial purpose, e.g. hotel development, as well as costs for monitoring, accounting, etc.[38]

6.1 Carbon Standards

A number of carbon market facilities already include freshwater (peatland) wetland projects, often in connection with forestry projects.[39] There are opportunities to include coastal wetland project activities within existing markets. **Efforts are currently underway to develop methodologies for verifying coastal wetland carbon credits.** Leading organizations like the Verified Carbon Standard (VCS) or the American Climate Registry (ACR) are used globally to verify and issue carbon credits from field projects to be traded on the international voluntary offset market. Other standards generating CO_2-certificates for the voluntary market include:

The Climate, Community, and Biodiversity Standard (CCB) – uses VCS or CDM methodologies for the carbon component of their projects;

The CarbonFix Standard – now absorbed by the Gold Standard – only deals with forestation at this stage and is planning to scale-up to include “Improved Forest Management” (IFM) projects too; or

The Plan Vivo Systems and Standard – mainly concentrating on capacity building and lacking a robust carbon quantification procedure.

6.2 Methodologies

Carbon developers interested in setting up a wetland carbon project need to find an appropriate standard, as well as applicable methodologies, which can facilitate the certification of net emission reductions taking place in a given project. **If no methodology applies, a new one needs to be developed, increasing the funding needs to start a project.**

The VCS, for example, has generated 16 methodologies including one on peatland conservation and restoration, and has close to 80 projects in the fields of agriculture, land -use and forests (AFOLU).

For coastal wetlands, the Methodology for Coastal Wetland Creation, v1.0 facilitates the restoration of wetlands to protect the coastline and ultimately people’s homes.[39a] A Methodology for Tidal Wetland and Seagrass Restoration is under development. Although no coastal wetlands project is currently registered in the VCS, the technical framework is there to do so.

Similarly, ACR issued a methodology on Restoration of Degraded Deltaic Wetlands of the Mississippi Delta detailed requirements for GHG emission reduction accounting from wetland restoration activities implemented on degraded wetlands of the Mississippi

Delta. The methodology quantifies increased carbon sequestration in aboveground biomass, belowground biomass, and soil organic carbon over and above the baseline scenario. Increases in CO_2, methane or nitrous oxide, if significant and attributable to the project activity, must be quantified and deducted from net emission reductions.[40] A methodology on California Deltaic and Coastal Wetland Restoration is currently in development. No coastal wetlands project is registered in the ACR yet, but the ACR provides the technical framework to do so.

6.3 Sources of funding

Some *private actors* are engaging directly with projects to initiate new carbon offset methodologies to reduce and account for carbon emissions, such as for example the Livelihoods Fund, see case study 1. They are investing in offsets that their company will ultimately buy.

New *public funding* is available via actors that are experimenting with government-to-government carbon payments beyond the scope of traditional United Nations processes.[42] National and sub-national governments, as well as multilateral public agencies act as both buyers and suppliers, being responsible for 15% of offset transactions as project developers, and having financed 19% of all offsets purchased or financed.[43]

Public entities also invest in the development of new methodologies, as for example the Louisiana Coastal Protection and Restoration Authority (CPRA) who is responsible for the development of the Methodology for Coastal Wetland Creation, v1.0 (VCS).

6.3.1 Types of contracts

Important for project developers are the terms of delivery of a carbon offset contract that set the framework for when payments will be made. For example, for communities involved in offset projects, the so-called Forward Crediting of Ex-ante Offsets is of interest. The purchase price of an offset is paid upfront and is not repaid in case of delivery shortfalls. This of course bears a high transaction risk for the buyer, hence donors who do not depend on exact emission reductions are more likely to invest in this type of project, than for buyers who are looking to offset a precise amount. Other types of contracts include the Prompt Delivery of Existing Offsets, normally within a few days. Here the provider invests into the project upfront. Through the Forward Delivery of Future Offsets the offset provider commits to deliver emission reductions to the buyer at a pre-defined time and price.[44]

Activities designed to carry out nature-based solutions for climate change mitigation (and adaptation) and those to conserve biological diversity often have common goals and together improve our ability to respond to climate change.[46] Projects that combine biodiversity, socio-economic and climate mitigation and adaptation goals are also more attractive to donors than single-purpose projects.

Additionally, using or combining climate change finance with existing or planned biodiversity finance can thus help to reduce the additional (upfront) investment needed if climate finance would be used alone. In other terms, countries that have high marginal (extra) costs of setting up new projects or programs can use biodiversity finance to encourage climate finance by reducing the

Case Study 2: Luling Oxidation Pond Wetlands Assimilation System, Louisian, USA

Tierra Resources is working with Entergy Corporation to apply the new ACR wetland restoration methodology to a pilot project known as the Luling Oxidation Pond Wetlands Assimilation System.[41] The privately-owned project site will redirect treated municipal wastewater into an adjacent 950-acre wetland property to restore the hydrology of the wetland and boost plant and soil productivity. Carbon credits are expected in 2015.

Case Study 3: Ecosystem Restoration Concessions (ERC) in Katingan, Indonesia

In Central Kalimantan, the Indonesian Government has allocated several large peatswamp forest areas to private companies to be managed under Ecosystem Restoration Concessions (ERC). These concessions are granted for 60 year periods and can be extended by another 35 years, thus providing a high level of permanence. An example is a 108,000 ha ERC in Katingan, allocated to the Indonesian company Pt Rimba Makhmur Utama. Main activities in these ERC areas will be peatland rewetting, reforestation and conservation. The areas were earlier destined to be deforested and converted to agricultural (i.e. palm oil) or forest plantation (Acacia) uses. The ERCs thus result in avoided emissions (by conservation of remaining forests and undrained peat soil), emission reduction (by rewetting peatlands, thus stopping ongoing emissions), and carbons sequestration (by forest regeneration and reforestation). The project financing comes from local companies and international investors such as Permian Global. The carbon credits generated will cater for the voluntary carbon markets (and in future to any compliance markets that will open up to this business). As such these private sector projects provide a for-profit solution. The projects create many co-benefits including biodiversity conservation and sustainable community development, and they aim for both VCS as well as CCBA certification. http://www.katinganproject.com/about-us

incremental (additional) cost of mitigation and adaptation activities.[47] For example, REDD+ financing can be supplemented, creating a premium price for emission reductions originating in high-biodiversity forests and transaction and start-up costs could be lower for biodiversity payments using the infrastructure set in place for the implementation of REDD+ (e.g. monitoring, accounting and governance).

Case Study 4: Ex-ante payments for the communities in Mikoko Pamoja in Kenya

Gazi Bay contains 117 hectares of protected natural and reforested mangrove areas. Additional degraded forest areas are being replanted.[45] The project aims to generate $12,000 annually through the sale of Plan Vivo Certificates and improve local small-scale business opportunities within 2 village communities. The first payment was made ex-ante to ensure continued community commitment until actual emission reductions can be verified.

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Case Study 5: Hurdles for private sector investments in Indonesia

Indonesia has developed innovative legislation that provides a suitable embedding for carbon projects. This includes legislation on Ecosystem Restoration Concessions (ERC) in which Indonesian companies can obtain 60 year management licenses over forest areas, with a possibility for extension with an additional 35 years. This allows for required permanence under VCS. More recently the Indonesian Ministry of Forestry issued new regulations on Forest Management Units (FMU) in which REDD+ schemes can be implemented as one way of gaining income for management of such units under special licenses that last for 25 years. Indonesia can also provide permanent management rights over forest areas to local communities as ´Community Forests (Hutan Desa). This can provide a suitable basis for cooperation between communities and ERC or FMU managers, by linking the different land units under joint REDD+ projects.

A hurdle for such projects is that the various VCS methodologies are quite complex and thus require major expertise, investments for monitoring, reporting and verification. A comprehensive module VM0007 is currently in a final stage of approval. The complexity limits the applicability of VCS certification to relatively large projects. For smaller areas, and community-led projects different approaches will be needed, but no approved methods under recognized certification schemes exist for these. An option for project developers is to negotiate direct contracts with companies for e.g. mangrove or peatland rehabilitation and implement simple monitoring schemes using carbon emission reduction and sequestration proxies for a limited number of clear result indicators. Such projects can be very attractive for private sector companies, especially when they also include clear objectives in relation to community development and biodiversity conservation.

However, despite these options, few Indonesian Ecosystem Restoration Concession projects have actually made it to operational stages. They have to overcome major hurdles, including a complex trajectory of approvals from local authorities that is rife with corruption. A major obstacle for foreign investors to get involved is the requirement for significant upfront funding to the Indonesian company involved, without having control over such companies and without any guarantees that the application process for the concession will be successful. In addition, until now the Indonesian regulatory framework is unclear about the amount of taxation that will be imposed over profits from carbon projects. Other aspects include the weak law enforcement in Indonesia with regard to illegal logging practices and illegal conversion of forest areas. ERC managers will rely heavily on such law enforcement to prevent illegal encroachments in their concession areas.

7 Wetland carbon projects in the context of biodiversity finance

Biodiversity financing can be accessed via the financial mechanisms of biodiversity-orientated conventions and agreements such as the CBD or the Ramsar Convention (see further below).

7.1 Relevant biodiversity programs and projects

National biodiversity programs and projects are developed to also fulfill the obligations of international conventions such as the CBD[49] or the Convention on Wetlands of International Importance, referred to as the Ramsar Convention.[50] These conventions are not operating with specific mechanisms such as REDD+ under the UNFCCC, but have more generalized programs of work. Nevertheless, the implementation and funding associated with these efforts are vital, and can be used to enhance wetland conservation and restoration.

In 2010, the CBD invited countries to incorporate marine and coastal biodiversity into national climate change strategies and action plans and to promote ecosystem-based approaches to climate change mitigation and adaptation.[51] This provides a basis for the development of joint carbon mitigation and biodiversity projects and highlights the need for integrated national climate change programs which use ecosystem-based approaches, such as carbon wetland activities, within the context of climate change and conservation of biodiversity.

The topic of adequate finance for biodiversity is a topic of constant debate in the CBD. Sources for financial support for the ten year CBD Strategic Plan for Biodiversity (2011-2020) have been identified under the framework of the resource mobilization strategy.[52] Countries are currently working to materialize this strategy into practice.

The Contracting Parties to the Ramsar Convention have adopted a number of Resolutions that have relevance to coastal carbon management and the Convention's Scientific and Technical Review Panel (STRP) is currently working on different tasks related to climate change mitigation and wetlands.

7.2 International biodiversity and conservation funds

7.2.1 GEF Trust Fund

As previously outlined, the GEF supports developing countries to meet the objectives of international environmental conventions such as the UNFCCC (chapter 5.1.1) as well as the CBD. The relevant GEF FAs related to biodiversity and conservation are outlined below.

FA Biodiversity

The goal of the biodiversity FA strategy is to **maintain globally significant biodiversity and the ecosystem goods and services** that it provides to society. To achieve this goal, the strategy encompasses four objectives:[53]

(1) improve sustainability of protected area systems;

(2) reduce threats to biodiversity;

(3) sustainably use biodiversity; and

(4) mainstream conservation and sustainable use of biodiversity into production landscapes/seascapes and sectors.

Since 1991 the GEF has provided approximately $3.3 billion (USD) in grants, and leveraged an additional $9.5 billion (USD) in co-financing, in support of 1,219 biodiversity projects in more than 155 countries (data up to 2010). It is also supporting more than 40 conservation trust funds worldwide, investing more than $300 (USD) million in total.[54] The agreed programming targets for GEF-6 for the biodiversity FA is $1.296 (USD) billion.[55] The biodiversity FA is of relevance to all wetland conservation and restoration activities.

FA Sustainable Forest Management

The goal of the GEF-6 Strategy for Sustainable Forest Management (SFM) is to achieve multiple environmental, social and economic benefits from improved management of all types of forests and trees outside of forests. The GEF is targeting forest activities that address issues in a holistic manner and recognize the links between poverty alleviation and the sustainable management of forest resources.[56] **This FA is of specific relevance to mangrove forests as well as forested peatland areas.**

Objectives of the strategy include

(1) to maintain forest resources;

(2) enhance forest management;

(3) restore forest ecosystems; and

(4) to increase regional and global cooperation.

FA International Waters

The International Waters (IW) FA helps countries jointly manage their trans boundary surface water basins, groundwater basins, and coastal and marine systems to enable the sharing of benefits from their utilization. The long-term goal is to promote collective management of transboundary water systems and implementation of the full range of policy, legal, and institutional reforms and investments contributing to sustainable use and maintenance of ecosystem services. [57] **The IW FA can be accessed for coastal wetlands, showing the replication and trans boundary conservation and restoration elements of coastal carbon projects.**

To achieve this goal, the GEF-6 international waters strategy has three objectives aiming at:

(1) catalyzing sustainable management of transboundary water systems by supporting multi-state cooperation through foundational capacity building, targeted research and portfolio learning;

(2) catalyzing investments to balance competing water-uses in the management of trans boundary surface and groundwater and enhance multi-state cooperation;

(3) catalyzing investments to rebuild marine fisheries, restore and protect coastal habitats, reduce pollution of coasts and Large Marine Ecosystems (LMEs) and enhance multi-state cooperation.

The GEF IW FA supports the implementation of various conventions and agreements, including the CBD, the RAMSAR Convention, the UN Convention on the Law of the Sea (UNCLOS).

Project proposals under the IW FA are not part of the STAR Allocation, but are subject to the general GEF project cycle and approval processes (see Fig. 4).

7.2.2 GEF Small Grants Program

The GEF Small Grants Program, established in 1992, embodies the very essence of sustainable development by "thinking globally, acting locally".[58] The program provides grants of up to $50,000 (USD) directly to local communities including indigenous people, community-based organizations and other non-governmental groups for projects in Biodiversity, Climate Change Mitigation and Adaptation, Land Degradation and Sustainable Forest Management, International Waters and Chemicals.

7.2.3 Ramsar funds

The **Ramsar Convention does not directly fund projects, but maintains three direct assistance programs for small projects** (or parts of larger projects) for the conservation and wise use of wetlands.[59] While not able to fund a full size carbon project or a national program, these smaller funds could be used to support and improve specific activities, like e.g. outreach and training.

(1) The Small Grants Fund supports projects from around the world, both through direct assistance and through seeking donors for additional proposals. The 2014 project portfolio has been recently released. Each year the Ramsar Secretariat carries out a rigorous evaluation procedure to assess the project proposals according to the strength of the project design, their relevance to the


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Convention's objectives, and the capacity of the proponents to complete the project successfully. The Fund provides up to 40,000 CHF per project.[60]

(2) The Wetland for the Future initiative, funded by the United States State Department and Fish and Wildlife Services, supports small capacity-building projects in Latin America. This initiative focuses on training and capacity-building elements, awareness raising activities and networking efforts. The grants range from $5,000 to $20,000 (USD) and could be used as additional, supporting funds for specific training and assistance activities.[61]

(3) The Swiss Grant for Africa assists the Secretariat's Africa regional team in facilitating specific activities in that region. The Swiss Grant is extremely useful in financing suitable emergency action or specific activities in needy areas of wetland conservation and wise use. The Swiss Grant is however only applicable in countries that have paid their dues.[62]

7.3 Other national and multinational environmental funds

Financial support for biodiversity projects is also provided through national environmental funds, created, or planned to be created, by countries. The combination of biodiversity and carbon funds can leverage additional resources for activities with a win/win situation for biodiversity as well as climate change mitigation and adaptation.

The CBD, as part of its call to countries to consider the enhancement of existing, or the establishment of new, domestic funds and funding programs[63], has listed a suite of funding programs on its website, categorized by region. **Whereas most developing countries have established a domestic biodiversity funding system, many developing countries are still in the process of doing so.** Depending on the country, immediate opportunities for receiving funding for joint biodiversity/climate change activities via national funds do not exist yet.

Many multilateral development banks also have specialised biodiversity programs and related funds. See chapter 5.2.

7.4 Other innovative, non market-related financing option

Another form of biodiversity funding, which could be coupled with climate change gains, is through **debt relief and conversion initiatives,** including **debt-for-nature swaps.**

A debt-for-nature swap involves a lending country to cancel, or in other words, to sell the debt owed by a recipient country at less than the full value of the original loan, in exchange for an investment in conservation efforts in that country. The recipient country is often required to make direct payments into funds to support domestic conservation initiatives (see 6.3). Highly indebted countries have the possibility to work with willing commercial banks (or governments) that are aware that these countries are unlikely to ever repay their debt in full.[64] This form of finance is already being used to finance environmental conservation in many developing countries.[65] Wetland carbon could now be added as an additional objective for project activities funded under these type of initiatives.

Other non-market funding sources include **philanthropy,** including grants from private foundations, business-related foundations, and large conservation NGOs, or ODA. The scale of finance available from philanthropic donors is not likely to be large, unless long-term commitments towards, e.g. dedicated solution or research centres, are signed. Each foundation has its own application schedule and requirements.

7.5 Other innovative, market-related financing options

Other financial mechanisms or compensation approaches such as **Payment for Ecosystem Services (PES),** including via **biodiversity offset mechanisms** and **markets for green products.**

While not without controversy, PES is meant to compensate those people who are managing their natural systems well, so they keep providing ecosystem services. PES often refer to exchanges where the polluter pays for damage they have done to an ecosystem by buying an offset or credit. Other PES involved the beneficiary of ecosystem services, e.g. dive tourist, which pay for the 'use' of an ecosystem service or access to undamaged biodiversity.

The CBD summarizes a list of national initiatives having established PES, or are in the process of doing so.[66] Most large NGOs (e.g. CI, TNC, WWF) as well as local NGOs and governments have invested and implemented several successful PES schemes for wetlands.[67]

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8 A final word

Finding the adequate financial support to set up a wetland carbon project or program is not an undemanding task. However, reports like this one, or other tools and resources (see Table 2 and List 2), are trying to ease the way through the climate finance jungle. Wetland conservation and restoration efforts are more important than ever, and climate finance can help materialize some real implementation on the ground.

Climate change finance, coupled and leveraged through biodiversity finance, offers a suite of funding, as well as a plethora of financial mechanisms to support the conservation and restoration of wetlands worldwide, yet is not easy to navigate. This report tried to provide the reader interested in wetland carbon activities with a first overview of the types of finance available. The scope and scale as well as the geographical and political situation will determine which mechanism, or which combination of mechanisms, is accessible for the development and implementation of a particular wetland carbon project or program.

The stated literature and reading sources provide further insights and details for the reader to engage much deeper with a specific fund and/or financial mechanism. And as a final note, it has to be borne in mind that financing for climate change, biodiversity, and water resources will remain a quickly changing subject-matter for quite some years to come; and, therefore, checking the information against the latest on the provided websites is a wise approach.

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Annex I Recent and ongoing UNFCCC activities pertinent for wetland projects and programs

The most pertinent and recent activities relevant for wetland carbon project and program developers are:

- SBSTA workshop (2013) on technical and scientific aspects of ecosystems with high-carbon reservoirs not previously covered by the Convention, including coastal wetlands. The workshop concluded that current scientific knowledge is now sufficient to include some of these ecosystems within the broader UNFCCC framework to reduce GHGs and this should be encouraged at the international, national and sub-national levels (the workshop report is contained by document: FCCC/SBSTA/2014/INF.1). Incentives to develop projects and programs are herewith further emphasized.
- 2013 IPCC Supplement on Wetlands to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. It provides guidelines for countries to include GHG from conversion of wetlands in national climate accounting, REDD+ and the land use policies under the Kyoto Protocol.[68] It provides the urgently needed technical guidance for GHG accounting in wetlands (see also Table 2).
- A new accounting activity named “Wetland drainage and rewetting” was adopted under the Kyoto Protocol, which opens the opportunity for countries to reduce their emissions from peatlands and several coastal wetlands.[69] This provides an incentive for Annex I countries to account for wetland activities and also opens the door for possible future inclusion under the CDM.

Ongoing negotiations pertinent for wetlands projects and programs

In 2011, UNFCCC Parties agreed to negotiate a new global legally binding regime by 2015 that needs to come into effect soon thereafter. That new climate change mitigation regime is likely to include all sectors and apply to all countries. Next year (2015) Parties to the UNFCCC will make their “intended nationally determined contributions” (INDCs) available for the post-2020 era. Basically how much they intend to do, which in its turn creates the demand side of the equation for emission reductions and removals by sinks. That pledge will be an overall pledge including all sectors and GHGs. The deeper the cuts in emissions, the larger the future demand for reductions in emissions will be, having an effect on carbon prices and project/program funding.

Hurdles on this pathway however, obviously include the uncertainty about the emission cuts that Parties will commit to, the ongoing global economic crisis and the lucid geo-political situation and associated unrest in civil society: this does detrimentally impact on carbon prices and the willingness to invest at this point in time in new carbon projects.

However, in Lima (December 2014) one of the objectives of the meeting of the Parties is to agree on the information that needs to be submitted with the INDCs in order to obtain transparency on how the contributions were determined/ calculated/ modeled and what’s in or out. If this is not achieved as a minimum a mandate is expected to continue that debate after Lima.

To date nothing has been said specifically on sinks in this regard, other than that REDD+ will/ can be an integral part of the INDCs, including wetlands and/or peatlands. It is the hope that this will change in Lima if and when the negotiators agree on the information that needs to be provided by Parties with the depositing of their intended INDCs.

Without strong emission-reduction commitments by countries, unsustainable development and management of peatlands and coastal wetlands in the tropics, but also in countries in the temperate and boreal climate zones, will continue and increase. This will have significant

implications for the climate, but it is also disastrous for many threatened species and local communities whose lands will be either entirely lost or will become wastelands as a result of drainage-based land uses, coastal erosion, or loss of income-generating livelihood opportunities.

The likely new instruments and policy processes at the UNFCCC bear high relevance also to other conventions and policy platforms, including those of private sector fora such as the Roundtable for Sustainable Palm Oil, as well as in national policy settings. For instance, peatlands are part of the National REDD+ Strategy of Indonesia, and Indonesia has established a Moratorium on licensing further development of primary forests and peatlands. This provides an enhanced policy basis for carbon financing.

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