Sustainable Markets Initiative

FINANCING COASTAL NATURE-BASED SOLUTIONS

Mobilising commercial capital for the protection of coastal ecosystems

Authors, contributions and acknowledgements

This publication was authored by Pollination, with support from the Sustainable Market Initiative's Financial Services Task Force.

About the Financial Services Task Force

The Sustainable Markets Initiative was launched in 2020 by His Majesty King Charles III when he was the Prince of Wales. It is a network of global CEOs across industries working together to build prosperous and sustainable economies that generate long-term value through the balanced integration of natural, social, human, and financial capital. These global CEOs see themselves as the 'Coalition of the Willing' helping to lead their industries onto a more ambitious, accelerated, and sustainable trajectory. The Sustainable Markets Initiative's Financial Services Task Force is a group of CEO-level executives from some of the world's largest banks. It brings together financial services leaders to develop and enable solutions that aim to help accelerate the transition to sustainable markets and support the rapid decarbonisation required across the real economy. Read more about the Sustainable Markets Initiative's Financial Services Task Force at www.sustainable-markets.org.

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Foreword

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The global economy depends on nature. Restoring, enhancing and protecting natural landscapes is a critical part of the fight against climate change, whilst simultaneously providing opportunities to generate economic value. Coastal ecosystems are a vital part of that, as they provide several benefits to people such as access to food sources, reduce carbon dioxide in the atmosphere, prevent coastal erosion and support economic activity across the value chain.

Despite this, to date limited finance has been channelled towards coastal nature-based solutions. This financing gap can be put down to the fact that the requisite valuation mechanisms, tools and frameworks are still nascent, deterring large private capital investors.

In light of the growing urgency to unlock financing for coastal nature-based solutions, the Financial Services Task Force has chosen to focus its work this year to tackle this issue and help accelerate investment. This has culminated in the publication of this practitioners' guide to provide the practical information needed to build the institutional capacity in, and understanding of, coastal nature-based solutions as critical steps towards closing the financing gap. We have also partnered across industry groups and sectors on this work, including with The Mangrove Breakthrough by providing input into their Finance Roadmap, a separate publication which we have also referenced within this guide.

As we report, there are inspiring examples where coastal nature-based solutions are included across a range of financial structures – from corporate issuances to nature capital funds and financing mechanisms such as payments for ecosystem services.

The banking sector has a key role to play in scaling up those examples on top and above governments, supra nationals and philanthropic investments. Significant investment prospects will stem from the accurate measurement of risks and opportunities, alongside the creation of the mechanisms to monetise ecosystem services.

We encourage financial institutions to draw on the recommendations of this practitioner's guide and consider how to embrace coastal nature-based solutions financial structuring where appropriate. They could also support special nature capital funds and back emerging innovative projects and technologies that will help to accelerate market development.

There is a strong case for financing nature, but a steep implementation curve for institutions. Given our central role in channelling investment toward a sustainable future and our commitment to financial innovation, it is one that we must all climb.

"Markets are waking up to the fact that our natural ecosystems are formidable allies in cutting emissions and building resilience against climate impacts. Each dollar invested in Nature-based Solutions is an investment in the future – a future where economic prosperity thrives in harmony with a healthy planet. We welcome the Sustainable Markets Initiative - Financial Services Task Force's focus on the protection of coastal ecosystems and collaboration on the Mangrove Breakthrough Finance Roadmap."

- **H.E. Razan Al Mubarak**, United Nations Climate Change High-Level Champion for COP28

Executive summary

Coastal Nature-based Solutions (NbS) are actions taken in coastal environments which are designed to protect, sustainably manage, or restore ecosystems, as well as produce societal benefits in a fair and equitable way. If done well, these projects can deliver significant climate adaptation and mitigation benefits, generate access to alternative revenue streams, promote social and environmental co-benefits, and offer a cost-effective approach to comply with regulatory requirements and investor expectations.

Several methods exist to incorporate coastal NbS in financial structures across asset classes. These range from providing sustainability-linked financing and the structuring of thematic bonds, to supporting specialised natural capital funds and designing innovative financing mechanisms such as payments for ecosystem services. There is a strong case for financing nature but a steep implementation and learning curve remains for institutions. Coastal NbS are still a nascent asset class and it's important to consider ways of addressing these financing challenges to support this new sector.

Early-mover investors are beginning to back projects with attractive returns, but the majority of coastal NbS projects still depend on public or donor support due to market nascency. Projects with clear revenue and/or cost-saving propositions can be financed using traditional debt and equity instruments (e.g. project finance, green debt, impact funds, and venture capital). Projects that may not generate revenue but provide public benefits such as coastal resilience can be financed using public debt (e.g. debt conversions). Each one of these asset classes provides room for innovation and allows investors to engage creatively.

This document serves as a practitioner's guide to build awareness and address key potential considerations for embedding coastal NbS in financial structuring. This guide:

- Proposes a definition for coastal NbS activities and identifies the financial structures that can be used to finance these activities, taking into consideration the project lifecycle and the roles of various types of capital at each stage of the lifecycle;
- Illustrates the role of different asset classes in shifting capital towards coastal NbS; and
- Identifies key considerations for financing coastal NbS projects in terms of commercial viability, risk mitigation, and impact reporting through practical case studies.

This guide is **not**:

- A financial roadmap for scaling public and private capital into coastal NbS. The Mangrove Breakthrough Initiative is currently developing such a roadmap in collaboration with the Sustainable Market Initiative's Financial Services Task Force, which is set to launch at COP28. It provides recommendations for financial instruments and the enabling conditions required to mobilise private, public, and philanthropic capital at scale for mangrove conservation and restoration;
- Focused on international policy frameworks or interventions required to scale investment in coastal NbS ecosystems. One such framework is the International Union for the Conservation of Nature's international policy framework for blue carbon ecosystems[1]; or
- Focused on other categories of NbS projects, such as terrestrial and marine ecosystems. However, many of the recommendations for coastal NbS projects may be relevant for other types of NbS projects.

[1] IUCN (2023), International policy framework for blue carbon ecosystems

Section 1. State of play of coastal Nature-based Solutions financing

INTRODUCTION

Nature is essential to the global economy – more than half the world's total GDP is moderately or highly dependent on nature.[2] Yet, its contribution has been systemically undervalued, posing a material risk to all levels of the economy.

Nature loss has significant adverse macroeconomic consequences. The OECD estimated nature loss costs the global economy between (USD) $4-20 trillion annually in lost ecosystem services,[3] leading to reduced economic output and higher production costs.[4]

Collapsing ecosystems could also trigger sovereign credit rating downgrades. According to a recent study, 58% of studied sovereigns could face a downgrade of one rating notch or more in the event of partial ecosystem collapse, costing downgraded governments (USD) $28-53 billion in extra annual interest payments. Emerging markets that are reliant on natural capital face heightened risks.[5]

Whilst there is currently no accurate market sizing of the investment opportunity in coastal NbS, there is evidence of growing awareness amongst commercial investors that nature is emerging as an investment theme. A recent survey of 557 institutional and commercial investors highlights that two-thirds of global institutional investors intend to increase their investments in nature improvements, solutions, or markets.[6]

Coastal NbS projects, which sit at the intersection of terrestrial and marine NbS, could offer significant economic value. The UN estimates that investing just (USD) $6 billion a year in nature-based disaster risk management measures, such as restoring coastal ecosystems, would save the world (USD) $360 billion in avoided losses over the next 15 years.[7]

Multistakeholder initiatives focused on catalysing public and private finance can unlock some of this economic value. One such initiative is the Mangrove Breakthrough. Established at COP27 as part of the Sharm El-Sheikh Adaptation Agenda, the Breakthrough builds on the work of the Global Mangrove Alliance, with the goal of mobilising (USD) $4 billion to protect 15 million hectares of mangroves by 2030. A key deliverable of the initiative is the Mangrove Breakthrough Financial Roadmap.[8] Developed in close collaboration with experts and partners, including the Financial Services Task Force, the Roadmap outlines a complementary package of financial instruments and enabling conditions which can together meet the Breakthrough's ambitious goals.

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[2] World Economic Forum (2020), Nature Risk Rising: Why the Crisis Engulfing Nature Matters for Business and the Economy

[3] European Parliament (2015), Ecosystem Services: Valuing our natural capital

[4] OECD (2019), Biodiversity: Finance and the Economic and Business Case for Action

[5] Finance for Biodiversity Initiative (2022), Nature Loss and Sovereign Credit Ratings

[6] Pollination (2023), Nature Finance Focus

[7] UNFCCC Climate Champions (2021), The Business Case For Investing In Resilient Coastal Ecosystems

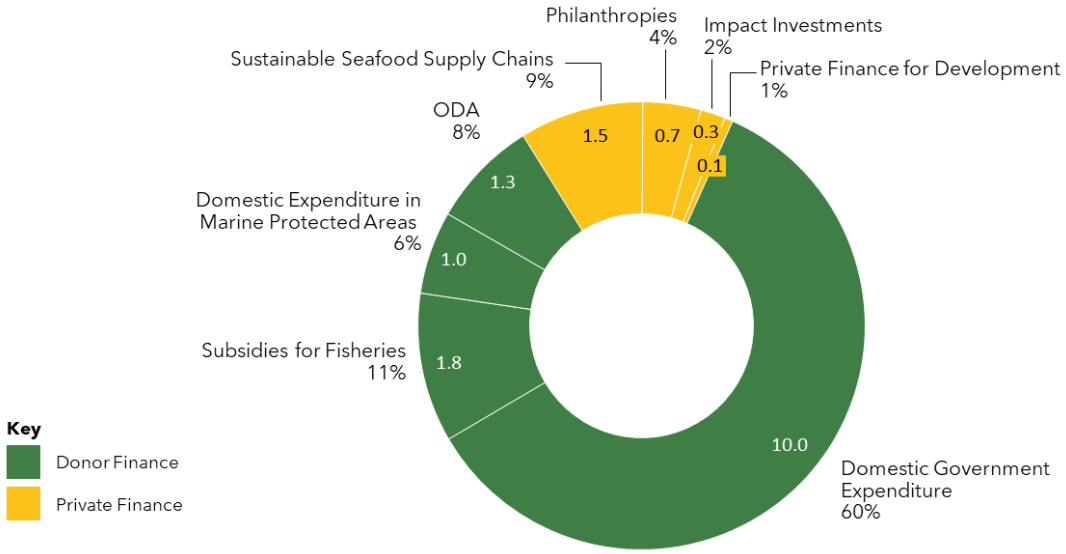
[8] The Mangrove Breakthrough (2023), The Mangrove Breakthrough financial roadmap: unlocking investment at scale in critical coastal ecosystems

THE MOMENTUM BEHIND FINANCING COASTAL NBS

Coastal NbS is emerging as an investment thematic, but a lack of information on capital allocation is hindering both accurate market sizing and the widespread adoption of these solutions.

Currently, (USD) $154 billion is invested into NbS annually, with the majority coming from public sources. Terrestrial NbS attracts most of this funding. Marine NbS, of which coastal NbS is a subset, receives just 9% ((USD) $14 billion) of the total annual investment. As of 2022, it was estimated that the private sector contributed only (USD) $2.6 billion annually to marine NbS. The majority of it, (USD) $1.5 billion, was spent in sustainable seafood supply chains and the remainder through corporate philanthropy.[9]

Figure 1 – Annual financial flows to marine Nature-based Solutions by type ((USD) $ billions)[10]



The dramatic increase in boutique investment funds dedicated to natural capital investing demonstrates momentum in private investments in NbS. These managers have successfully raised capital from high-net-worth individuals and corporates, evidencing growing awareness amongst commercial investors of the investment opportunity in natural capital. Activity has included investments from banks into Climate Asset Management (HSBC in 2020[11]) and Mirova (a 100% affiliate of Natixis[12]); as well as new strategies from asset managers including Nuveen's Natural Capital Platform (2021[13]), Schroder's Akaria Natural Capital (2022[14]), and Ardian's Averrhoa Nature-Based Solutions fund (2023[15]).

In the debt market, there is evidence of issuers using thematic bonds to fund eligible coastal NbS activities. We were able to identify at least (USD) $408 billion of green-labelled bonds issued in the past decade which included the conservation of coastal and marine environments as eligible activities under

[9] UNEP (2022), State of Finance for Nature 2022

[10] Pollination, See 7

[11] Business Wire (2020), HSBC Global Asset Management & Pollination Launch Partnership to Create World's Largest Natural Capital Manager

[12] Mirova (2021), Mission Report 2021

[13] IPE Real Assets (2021), Nuveen launches natural capital and infrastructure platforms

[14] Reuters (2022), Schroders teams up with conservation body to invest in nature-protection projects | Reuters

[15] Ardian (2023) Ardian and aDryada announce the launch of Averrhoa Nature-Based Solutions, a strategy dedicated to large-scale nature-based projects

the defined use of proceeds.[16] This includes both private and public borrowing, with 87% ((USD) $354 billion) of the total amount being raised since 2021.

The development of specialised 'blue' bonds for activities which benefit coastal and marine ecosystems signal the emergence of a new market. Since the first issuance in 2018 there has been a rapid growth in blue bond issuance, with 26 issuances taking place between 2018-2022, amounting to a total value of (USD) $5 billion.[17] Despite challenges associated with market nascency, the expectation is that the market will continue to grow as investments in coastal and marine ecosystems increase due to regulatory and market pressures. Additionally, the release of frameworks and standards will support borrowers in their labelled issuances and help mitigate the risk of greenwashing.

Box 1 – Blue finance guidelines and principles

The Sustainable Blue Economy Finance Principles, introduced by the European Commission, the World Wide Fund for Nature (WWF), the World Resources Institute (WRI), and the European Investment Bank (EIB) in 2018, is the world's first global guiding framework for banks, insurers, and investors to finance a sustainable blue economy.[18]

In September 2023, the International Capital Markets Association (ICMA) released a practitioner's guide for bonds to finance a sustainable blue economy.[19] The guidance provides definitions for blue economy project types and eligibility criteria, and highlights potential key performance indicators for impact and reporting purposes. Building upon existing standards including ICMA's Green Bond Principles[20] and the IFC's Blue Economy Finance Principles,[21] it is designed to provide information on the key steps required in issuing a credible blue bond, how to evaluate the impact of eligible projects, and the steps required to facilitate transactions to promote market integrity.

Given its recent release, all 'blue bonds' discussed in this document do not necessarily follow these principles and therefore should not be considered as ICMA-aligned blue bonds.

Despite growing momentum, coastal NbS face a funding gap. Only a small fraction of the current public and private climate adaptation and mitigation finance goes towards marine and coastal ecosystems.[22] Building awareness of the investment case for coastal NbS is an important first step towards mobilising public and private capital into coastal NbS.

THE INVESTMENT CASE FOR COASTAL NBS

Defining coastal Nature-based Solutions

The International Union for Conservation of Nature (IUCN)'s Global Standard for Nature-based Solutions provides a robust framework for designing, implementing, and verifying NbS projects that take an ecosystem-based approach to solving one or more societal challenges.[23]

For the purpose of this report, we adopted the definitions provided by the UN Environment Assembly[24] and Masselink and Lazarus[25] as follows:

- **Coastal Nature-based Solutions (NbS) are defined as actions to protect, conserve, restore, sustainably use, and manage natural or modified coastal ecosystems, which address social, economic, and environmental challenges effectively and adaptively while simultaneously**

[16] Pollination analysis, Bloomberg

[17] Bosmans and de Mariz (2023), The Blue Bond Market: A Catalyst for Ocean and Water Financing.

[18] UN Environmental Programme (2018), The Sustainable Blue Economy Finance Principles

[19] ICMA (2023), Bonds To Finance The Sustainable Blue Economy

[20] ICMA (2022), Green Bond Principles

[21] IFC (2022), Blue Finance Guidelines

[22] See 8

[23] IUCN (2020), IUCN Global Standard for Nature-based Solutions

[24] UNEA (2022) Resolution adopted by the United Nations Environment Assembly on 2 March 2022. Note, original definition also includes natural or modified terrestrial, freshwater, and marine ecosystems.

[25] Masselink and Lazarus (2019), Defining Coastal Resilience

providing human well-being, ecosystem services, and resilience and biodiversity benefits, in areas between 50 metres above or below mean sea level (MEA, 2005), which may be influenced by both terrestrial and marine processes. This excludes wetland and riparian ecosystems greater than 100 metres from the coastline, which are not influenced directly by marine processes, as well as ecosystems below an average depth of 50 metres and/or in the open ocean.

- **Coastal resilience is the capacity of both socioeconomic systems (i.e. communities, grey infrastructure) and natural systems (i.e. ecosystems, green infrastructure) to adapt to and recover from both acute and slow-onset climate events while maintaining essential functions, both human and natural.** Building coastal resilience includes reducing risks and potential impacts of acute and slow onset events, while increasing the capacity to adapt to and recover from those events over time.

Within these definitions, there is no distinction between sources of revenue generated by NbS projects. Therefore, projects designed with the sale of carbon credits as the primary revenue source, which may be termed Natural Climate Solutions (NCS), fall as a subset of this broader NbS category.

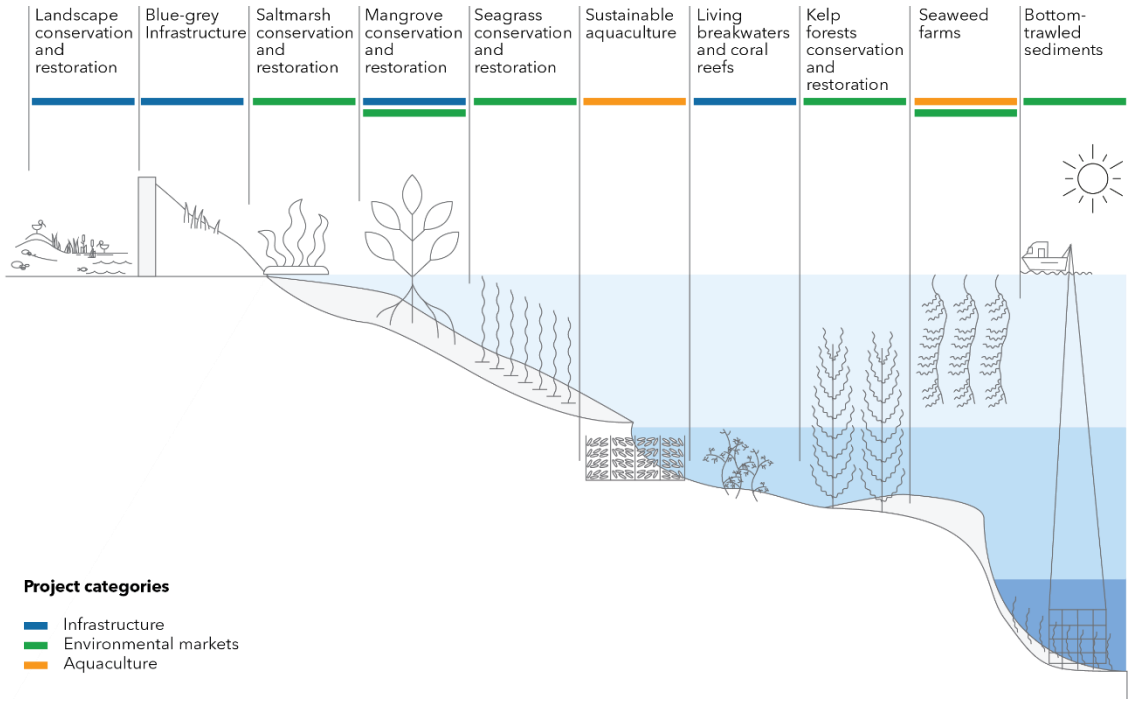
Table 1 – Eligible Activities and Key Performance Indicators of coastal NbS projects[26]

Eligible activities could include:	**Key performance indicators by project type include:**
• Coastal climate adaption and resilience: – Blue-grey infrastructure • Marine ecosystem management, conservation, and restoration, including for: – Mangroves – Seagrasses – Kelp – Seaweeds – Saltmarshes – Coral reefs • Sustainable coastal and marine tourism • Sustainable marine value chains: – Sustainable fisheries – Sustainable aquaculture • Investments in technology and instruments deployed for measuring, tracking, and reporting physical and chemical indicators of a body of water, water-related ecosystem restoration, and disaster resilience as well as promising restoration techniques	• Nature-based Solutions for coastal protection: – Area benefitting from improved climate resilience (ha) – Reduction in land-loss from coastal erosion (km^2) – Water quality (e.g. dissolved oxygen concentration (ml/L)) – Biodiversity enhancement (e.g. increase in Biodiversity Intactness Index (BII), Ecological Integrity Assessment (EIA) (%)) • Blue-grey infrastructure: – Area benefiting from improved urban environment, climate resilience, and disaster risk management (ha) • Coastal ecosystems restored or protected: – Area of protected or restored habitat (ha) – Maintenance and safeguarding (km^2) and increase (%) of protected area[27] – Changes in CO_2, nutrient and/or pH levels (%) • Sustainable ecotourism: – Revenues generated from permitted visitors – Operators (number) certified to sustainable tourism certifications • Local stakeholder engagement: – Indigenous Peoples and Local Communities (IPLCs) benefitted and/or engaged by activities (number)

[26] ADB, ICMA (2023), Bonds To Finance The Sustainable Blue Economy

[27] Includes Protect Areas (PAs) and Other Effective area-based Conservation Measures (OECMs) as defined by IUCN.

Figure 2: Coastal NbS project types[28]



Unlocking financial and environmental value through coastal NbS

Measuring the economic benefits provided by coastal NbS is key to realising their potential as an investable asset class. The framework below outlines the main investment value drivers for any type of coastal NbS project.

Table 2 – Value drivers for coastal NbS

Value driver	Investment case
Coastal resilience A cost-effective natural barrier safeguarding against coastal erosion, tides, storms, and hazards	**Coastal ecosystems act as natural flood defences, yielding significant cost-avoidance benefits.** Investing in coastal NbS projects is a cost-effective tool for sovereigns and corporates to mitigate physical risks. • Mangroves are estimated to prevent over (USD) $65 billion in global property damage and safeguard 15 million coastal residents annually. In addition, mangroves can yield more than (USD) $250 million in annual flood protection for coastal cities.[29] • Coral reefs are estimated to generate cost-avoidance benefits of over (USD) $4 billion in storm damages worldwide annually.[30]
Carbon sequestration A powerful carbon sink that supports businesses' decarbonisation goals	**Coastal NbS projects have significant carbon sequestration potential that is cost-competitive with terrestrial solutions.** Research indicates that established blue-carbon NbS projects (i.e. mangroves, salt marshes, and seagrass meadows) can generate 0.4 to 1.2 $GtCO_2$ of annual carbon sequestration (c. 1-3% of current emissions) at a lower cost per tonne than other types of NbS, including terrestrial NbS.[31]

[28] Pollination

[29] P. Menendez et al. (2020), The Global Flood Protection Benefits of Mangroves

[30] M. Beck et al. (2018), The Global Flood Protection Savings Provided By Coral Reefs

[31] McKinsey (2022), Blue Carbon: The Potential Of Coastal And Oceanic Climate Action

Value driver	Investment case
Alternative revenue streams A tool to increase the value of land and improve community livelihoods by supporting sustainable fishing and ecotourism	**Better management of coastal ecosystems can increase household incomes, for example through higher seafood yields.** In the past, the shrimp aquaculture industry, valued at (USD) $45 billion, has been one of the leading drivers of mangrove deforestation in Asia. New studies suggest that restoring mangroves could improve shrimp farming by increasing yields, enhancing water quality, raising premium prices for certified production, and through the sale of carbon offset credits. An example of this is the offshore wind power project, Zephyr Power Limited in Pakistan, which enabled local fishermen to increase their catch of premium shrimp for the export market with mangrove restoration, doubling their annual income.[32]
Regulatory compliance An instrument for cost-effective site restoration to meet regulatory standards and investors' environmental expectations	**Coastal ecosystem conservation and restoration offer important nature-based benefits for industries such as mining and extractives, subject to rigorous environmental regulations.** For example, Origin Energy and ConocoPhillips included 40+ hectares of mangrove restoration in the environmental management plan of a liquified natural gas (LNG) project in order to fulfil Australia's marine offset requirements.[33] The emergence of biodiversity compliance markets discussed in Section 2 also creates regulatory mechanisms to channel capital into conservation and restoration activities.

UNDERSTANDING THE CAPITAL REQUIREMENTS FOR COASTAL NBS PROJECTS

The typical project lifecycle of a coastal NbS project resembles that of grey infrastructure projects. These projects encompass a development phase involving research, project design, and financial close, followed by implementation and operation phases which continue for the duration of the project's lifetime. Drawing this comparison can assist commercial investors in evaluating coastal NbS as an emerging investment theme.

Box 2 – Blue-grey infrastructure

Blue-grey infrastructure is the subset of green-grey infrastructure relating to water. Green-grey infrastructure is a hybrid form of engineering, which combines conventional artificial, or 'grey', approaches with the conservation and restoration of nature to harness the associated benefits of both to achieve the objectives of the infrastructure.[34] A common example of this is the widespread use of restored coastal ecosystems alongside sea walls and artificial reefs in the US, including at Chesapeake Bay, Maryland,[35] Stratford Point, Connecticut,[36] and throughout Florida.[37]

The landscape of capital providers for coastal NbS projects is complex and evolving, ranging from philanthropic capital providers (e.g. governments, NGOs, corporate philanthropies) to commercial capital providers (e.g. venture capital funds, nature impact investing funds, and corporate off-takers).

Despite the positive momentum in recent years, the coastal NbS market continues to struggle to scale up, primarily due to a lack of funding for early-stage projects. Uncertainty with market standards, lack of historical data on project performance, and the limited experience of project developers, who often are Indigenous Peoples and Local Communities (IPLCs) with no prior financial or business track record, are

[32] Earth Security (2022), Financing The Earth's Assets: The Case For Mangroves As A Nature-Based Climate Solution – Updated

[33] See 32

[34] Conservation International (2023), Green-Grey Infrastructure

[35] Chesapeake Bay Environmental Center (2023), Living Shorelines

[36] University of Connecticut (2023), Stratford Point Living Shoreline: Restoring Coastal Habitats to Maintain Resiliency and Function

[37] Florida Department of Environmental Protection (2023), Resilient Florida Program – Living Shorelines

major limiting factors. Coastal NbS projects require patient capital, with significant investment into scientific research and establishing policy and legal frameworks in the project preparation stage, some of which could be site-specific and therefore may not be easily replicable in other areas and/or projects. Consequently, numerous coastal NbS projects never advance to the implementation phase, hindering the growth of the market. Philanthropic sources of capital, including NGOs, foundations, and commercial financial institutions with philanthropic budgets, are key to enabling more early-stage projects to advance.

Access to multiple sources of revenue may pave the way forward for an increasing number of projects reaching implementation. Capitalising on revenue streams such as ecotourism or infrastructure protection payments can unlock the commercial viability of projects. The monetisation of carbon credits and biodiversity credits may provide additional revenue streams and unlock significant financial value.

Box 3 – Environmental markets: Blue carbon and biodiversity credits

Blue carbon is a term used to refer to the carbon that is sequestered by and stored in coastal and marine ecosystems, such as mangroves, kelp forests, seagrass meadows, and tidal marshes.[38] Methodologies have been developed by global carbon standard bodies (such as Verra) to enable blue carbon projects to generate carbon credits within global carbon markets, where credits representing avoided emissions or removals of greenhouse gases to/from the atmosphere are traded.

The global voluntary biodiversity credit market is seeing significant momentum, as a growing number of institutions and initiatives are developing frameworks, standards and methodologies for biodiversity credits to drive finance into restoration and conservation activities and meet the Global Biodiversity Framework (GBF) goals and targets.[39] Key actors include the Global Environment Facility[40] , the Biodiversity Credit Alliance[41] , the World Economic Forum[42], and global standard bodies Verra[43] and Plan Vivo.[44] In Europe, the governments of the UK and France have launched the joint UK-France Global Biodiversity Credits Roadmap to facilitate the sharing of best practices on the governance mechanisms for credit funding, monitoring regimes, and the fair distribution of income to IPLCs.

Currently, a number of global initiatives are working to develop the governance, legal, and integrity principles needed to define how and whether it will be possible to 'stack' biodiversity and carbon credits (including blue carbon). Interest in monetising biodiversity benefits is likely to gain traction in the context of increasing global focus on nature and the achievement of the GBF targets; however, it is important to note that biodiversity credits are still largely nascent and evidence of global demand for credits remains uncertain.

Furthermore, opportunities to securitise carbon credits are limited. The absence of a well-defined pipeline of projects and established credit rating methodologies present significant obstacles to the securitisation of blue carbon projects. Government interventions, such as tax credits for blue carbon investments, may help create the necessary enabling environment.

[38] IUCN (2017), Issues Brief Blue Carbon

[39] Convention on Biological Diversity (CBD) (2022), Kunming-Montreal Global Biodiversity Framework.

[40] Global Environment Facility (2023), Innovative Finance for Nature and People

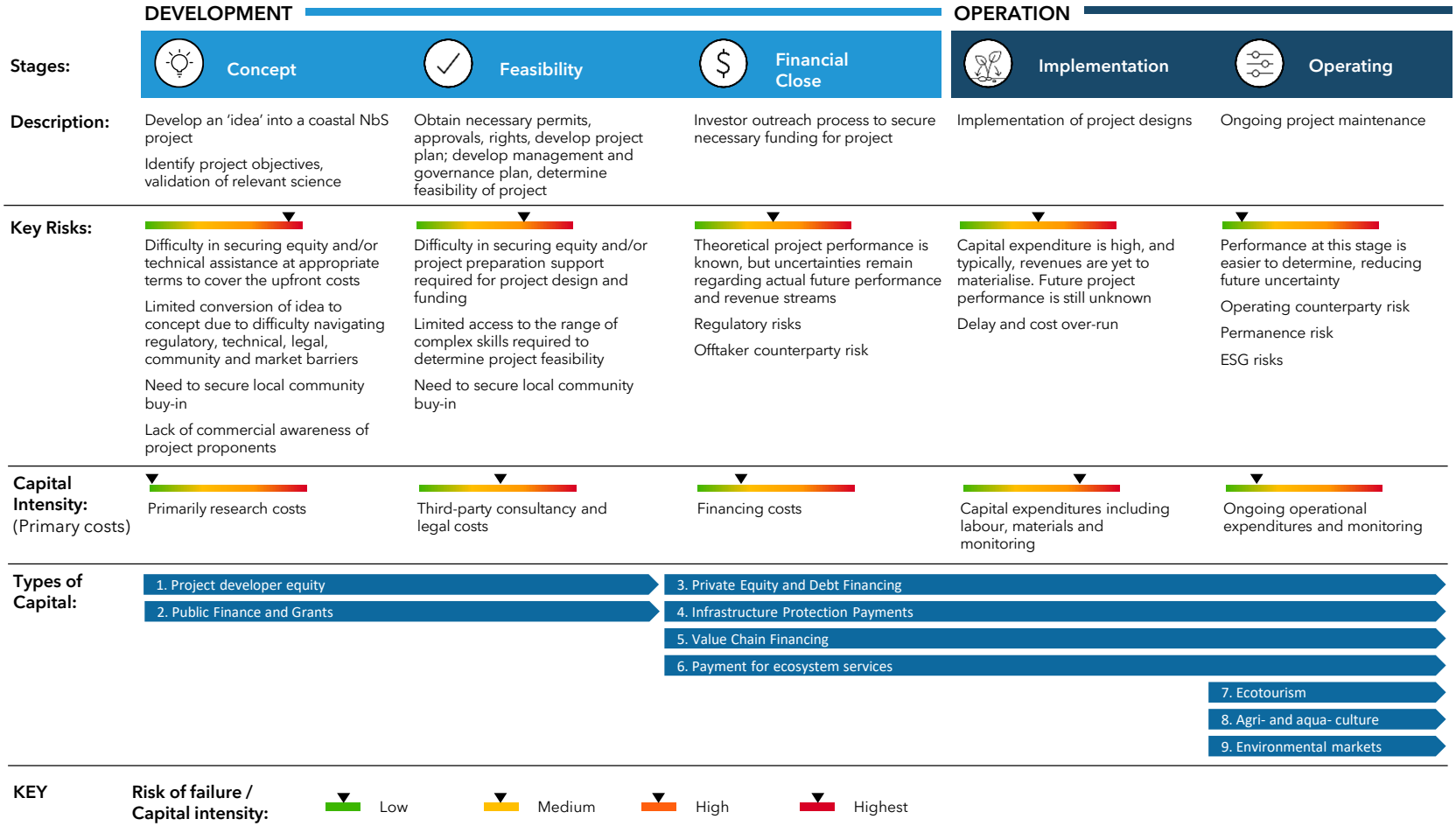
[41] Biodiversity Credit Alliance (2023), BCA's Mission

[42] World Economic Forum (2022), Biodiversity Credits: Unlocking Financial Markets for Nature-Positive Outcomes

[43] Verra (2023), SD VISta Nature Framework

[44] Plan Vivo (2023), PV Nature

Figure 3 – Typical project lifecycle of a coastal NbS projects[45]



[45] Pollination

ROLE OF FINANCIAL INSTITUTIONS IN MOVING CAPITAL TOWARDS COASTAL NBS

The financial community is being called upon to work with scientists, field practitioners, governments, IPLCs, conservation agencies, businesses, and emerging technology solutions providers to help them develop the structures to move capital towards coastal NbS.

Financial institutions could play five important roles in arranging finance for coastal NbS projects:

1. Structuring **thematic bonds** to direct capital towards eligible activities;
2. Embedding coastal NbS in **sustainability-linked and SME financing;**
3. Structuring **project-level financing** on the back of alternative revenue streams;
4. Supporting **specialised natural capital and carbon fund managers** to scale up; and/or
5. Supporting **emerging projects, technologies, and enabling environment initiatives** to accelerate market development.

Table 3 – Roles and example uses of financial instruments

Role	Instrument	Example	Key Considerations
Structuring thematic bonds to direct capital towards eligible activities	**Sovereign & supranational thematic issuances** Debt issued to raise capital to finance eligible blue economy activities: sustainable fisheries, coastal infrastructure, or marine protected areas.	**Indonesia's Blue Bond**: In 2023, the government of Indonesia raised ¥20.7 billion ((USD) $150 million) through a publicly listed blue bond aligned with ICMA's principles with designated use of proceeds for the development of a blue economy strategy.[46] This was the world's first publicly offered sovereign blue bond and was predominantly sold to Japanese institutional investors. **ADB's Blue Bond**: In 2021, the Asian Development Bank (ADB) issued a dual-tranche blue bond: an (AUD) $208 million, 15-year issuance purchased by the Dai-chi Life Insurance Company and an (NZD) $217 million, 10-year issuance purchased by the Meiji Yasuda Life Insurance Company, both under the ADB's expanded Green and Blue Bond Framework.[47]	The ability to identify enough eligible projects within a standalone blue bond offering remains limited; for many investors, a green or sustainability-labelled issuance is sufficient to allocate capital towards coastal NbS.
	Debt conversions Refinancing of existing sovereign debt in exchange for financial commitments to achieve environmental outcomes.	**Gabon's Debt-for-Nature Conversion**: In 2023, The Nature Conservancy announced a (USD) $500 million refinancing of the Government of Gabon's national debt, generating an expected (USD) $163 million in funding for marine conservation, with an aim to conserve 30% of the country's ocean area. Bank of America was the sole structuring agent and book runner for the transaction, which also included political risk insurance coverage from the U.S. Development Finance Corporation.[48] For more information, see page 32 (Case Study 3 – Gabon Debt). **Galapagos Islands Debt-for-Nature Conversion**: In 2023, the Government of Ecuador announced the execution of the largest debt-for-nature conversion to date, with the refinancing of (USD) $1.63 billion in sovereign debt with a (USD) $656 million loan arranged by Credit Suisse.[49] The savings will be expected to generate (USD) $12 million for conservation and (USD) $5.4 million to seed an endowment fund annually.[50] For more information, see page 33 (Case Study 4 – Galapagos Islands Debt Conversion).	Countries with debt trading at distressed levels and significant natural capital assets at risk are most likely to pursue debt-for-nature conversions as a way to reduce debt burden, and direct resources towards conservation and restoration projects. Labelling these transactions as 'green' or 'blue' bonds may raise greenwashing risks if the use of proceeds is not fully allocated to environmental projects.
	Corporate issuances	**Orsted's Blue Bond:** In 2023, Orsted became the first energy company to issue a blue bond with a (EUR) €100 million, five-year issuance. Proceeds from the issuance were	Increasing scrutiny from investors for companies to demonstrate that the

[46] United Nations Development Programme (2023), Indonesia Launches the World's First Publicly Offered Sovereign Blue Bond – with UNDP's Support
[47] Asian Development Bank (2021), ADB Issues First Blue Bond for Ocean Investments | Asian Development Bank
[48] The Nature Conservancy (2023), The Nature Conservancy Announces Debt Conversion in Gabon
[49] Reuters (2023), Ecuador seals record debt-for-nature swap with Galapagos bond
[50] US International Development Finance Corporation (2023), Financial Close Reached in Largest Debt Conversion for Marine Conservation to Protect the Galápagos

Role	Instrument	Example	Key Considerations
	Funds raised at corporate balance sheet under a broader green or sustainable finance framework.	allocated towards investments in sustainable shipping and offshore biodiversity, including the installation of artificial coral reefs and the restoration of coastal areas. The bond was arranged by NatWest Markets N.V. with Dutch pension fund APG acting as the lead investor.[51] **Grieg Seafood's Blue Bond**: In 2020, salmon farming company Grieg Seafood raised NOK 1.5 billion ((USD) $93 million) by issuing a five-year, labelled green bond. The use of proceeds will go towards sustainability-related projects, including achieving Aquaculture Stewardship Council (ASC) certification, reducing carbon emissions, and commercialising new feed ingredients with lower environmental impacts.[52]	projects are part of their corporate or governance strategies and not just a means of attracting cheaper financing.
Embedding coastal NbS in sustainability-linked and SME financing	**Sustainability-Linked Financing** Financial terms are linked to the achievement of predetermined Sustainability Performance Targets (SPTs).	**Thai Union Group PCL**, a global leader in seafood processing, issued the first sustainability-linked bond (SLB) in Thailand in July 2021. The seven-year, THB 5 billion (approximately (USD) $160 million) bond incorporates step-up and step-down facilities related to the achievement of three Sustainability Performance Targets (SPTs). The SPTs were designed around the percentage of tuna sourced from fisheries that meet the Marine Stewardship Council (MSC) standard or are in a Fishery Improvement Program.[53]	Selected SPTs must be material and relevant to the issuer's businesses. Investors are increasingly requiring alignment of the targets to their TCFD and SBTi commitments.
Structuring project-level finance on the back of alternative revenue streams	**Prepayments (forward purchase agreements) for blue carbon projects** Advance cash payments for forward credits generated by the project.	**CBA RLF AgTech Alliance**: In 2023, Commonwealth Bank (CBA) entered into a strategic partnership with plant nutrition company RLF AgTech to finance a pilot programme that aims to generate soil carbon credits. Under the financing structure terms, the bank has prepaid for Australian Carbon Credit Units that will be delivered over five years.[54] **Senken** launched a new financing instrument for carbon projects in 2023 called 'carbon forward tokens' or 'carbon forwards', allowing buyers to provide advance payment for credits produced from carbon projects that are still in development at a lower cost.[55] Carbon project developer **Vlinder** has committed to reducing 500 tCO2e through the sale of these forward carbon credit tokens, which has helped to provide the required financing for its Papariko mangrove reforestation project in Kenya.	Investors should follow the mitigation hierarchy and look to reduce their impact on climate and nature before investing to offset negative impacts. The integrity of the carbon credits may have a direct impact on the price of the credit, which is the primary source of repayment in these structures.

[51] Orsted (2023), Ørsted becomes world's first energy company to issue blue bonds
[52] Greig Seafood (2020), Annual Report 2020
[53] Thai Union (2021), Thai Union Launches Thailand's First Sustainability-Linked Bond
[54] Commonwealth Bank of Australia (2023), CBA supports innovation in soil carbon sequestration
[55] Senken (2023), Senken is launching the world's first public sale of carbon forward tokens

Role	Instrument	Example	Key Considerations
	Financing on the back of taxes/payments for ecosystem services Structuring of alternative revenue streams by stakeholders benefiting from the coastal NBS.	**Mirova, IUCN, and TASA Belize blue economy partnership:** In 2021, Mirova's Sustainable Ocean Fund structured and funded a (USD) $1.2 million debt facility with the IUCN's Blue Natural Capital Finance Facility. The funds raised enabled the Turneffe Atoll Sustainability Association (TASA), a local NGO, to improve its long-term management of the Turneffe Atoll Marine Reserve and enhance the collection of a levy on local ecotourism, granted by the Government of Belize.[56] For more information, see page 31 (Case Study 2 – Mirova/TASA loan).	Valuation of the assets to the amount issued is required. Structures may involve negotiations with multiple stakeholders and the need of a special-purpose vehicle to direct financing towards and collect payments.
	Financing on the back of infrastructure protection Cost savings from enhanced climate resilience by integrating coastal NbS near their operations.	**Zephyr Power Ltd:** Started in 2017, the 50MW wind power project is situated in Pakistan on the Indus River Delta, the world's seventh-largest mangrove ecosystem. British International Investments (formerly CDC Group) is the leading investor. The ecological value of the mangroves was incorporated into the project design, with the asset protection benefits of mangroves core to the decision to restore and conserve mangroves on the site.[57]	As investors advance their climate and physical risk modelling, attaching value to asset protection is becoming increasingly feasible as part of project financing models.
Supporting specialised natural capital and carbon fund managers to scale up	**Specialised natural capital and impact funds** Alternative investment funds focused on natural capital and carbon offer a platform solution.	**Climate Asset Management (CAM)** is a natural capital investment manager co-founded by HSBC and Pollination which raised more than (USD) $650 million in commitments across its Natural Capital Strategy, which seeks to invest in regenerative landscape management in agriculture, forestry, and environmental assets, and its Nature-based Carbon Strategy, which targets early-stage, nature-based carbon projects in developing countries.[58] **Mirova,** an affiliate of Natixis Investment Managers dedicated to sustainable investing, manages the **Mirova Sustainable Ocean Fund,** which invests in companies and projects with a positive impact on ocean resilience in emerging markets, including sustainable seafood, blue infrastructure, and ocean conservation.[59] **The Global Fund for Coral Reefs (GFCR**) is joint-managed by Pegasus Capital Advisors and Deliberate Capital and aims to generate commercial returns by investing in sustainable ocean production, circular economy and pollution management, marine-related hospitality, and enabling technologies. The GFCR has secured a first-loss investment from	Creates space and the scale for financial investors to direct capital towards real assets that are otherwise outside of their risk appetite. Most fund managers are boutique and/or first-time fund managers who may benefit from the scale and distribution capability of a larger financial institution.

[56] Mirova (2021), Mirova, IUCN, TASA, Blue Finance and ministry of Blue Economy of Belize announce their partnership in an innovative blended finance facility to improve the management of Belize's marine protected areas & contribute to its blue economy

[57] Earth Security, CDC Group (2020), The Investment Value of Nature: The Case of Zephyr Power Limited

[58] Climate Asset Management

[59] Mirova (2022), Sustainable Ocean Fund Impact Report 2022

Role	Instrument	Example	Key Considerations
		the Green Climate Fund (GCF), which has committed to providing 25% first-loss protection of the GFCR's target size of (USD) $500 million.[60] **Sea Change Impact Financing Facility (SCIFF)** is a collaborative effort by the Ocean Risk and Resilience Action Alliance (ORRAA) and its members to develop an open ocean financing architecture designed to drive at least (USD) $1 billion of private investment into coastal and ocean ecosystems, primarily in the Global South, by 2030.[61]	
Supporting emerging projects, technologies, and enabling environment initiatives to accelerate market development	**Venture capital** Pre-seed and seed funding for innovation and enabling technologies to promote transparency and innovation in financing for coastal NbS projects.	**ARC Marine** is a manufacturer of low-carbon marine technologies, including artificial reef cubes which can be incorporated into grey infrastructure design to enhance biodiversity and protect assets. The company completed a (GBP) £2 million seed funding round in late 2021 with VC investor The FSE Group acting as the lead investor.[62] **Jala** develops a suite of hardware and software dedicated to small and medium-scale shrimp farmers, to support them in improving farm management, decision making and market access. In November 2021, the company completed a (USD) $6 million fundraising round in which Mirova acquired a minority stake through its Sustainable Ocean Fund.[63]	As it currently stands, the VC market is skewed towards financing coastal NbS projects with a technology component (e.g. remote sensing technologies, carbon removal companies with technology solutions).
	Philanthropic capital Funding from philanthropic or foundation arms of financial institutions to demonstrate project viability and/or support enabling environment initiatives.	**HSBC's Climate Solutions Partnership** is a five-year partnership between HSBC, the World Resources Institute (WRI), and the World Wide Fund for Nature (WWF) which aims to identify and remove barriers to scale for climate change solutions. One of the three workstreams focuses on NbS, including mangrove conservation and restoration projects.[64] **BNP Paribas Foundation** has supported the CORESCAM Project via its Climate & Biodiversity Initiative ((EUR) €6 million). The project has three main goals: 1) to study the impact of more frequent extreme natural disasters on coastal biodiversity resilience mechanisms; 2) to assess the role of protected areas and conservation management to promote resilience; and 3) to model biodiversity scenarios for coastal ecosystems under future regimes of extreme events. The project is helping Central American governments in their risk management plans and guiding them in the creation of protected areas.[65]	There is increasing appetite from financial institutions to partner with nature conservation organisations and NGOs to accelerate the pipeline of investment opportunities.

[60] Global Fund for Coral Reefs (2023)

[61] Ocean Risk and Resilience Action Alliance (2023), Sea Change Impact Financing Facility

[62] Pollination analysis, PitchBook (2023)

[63] Mirova (2021), JALA raises US$6m in new funding from Mirova, Meloy Fund and Real Tech Fund

[64] HSBC (2023), HSBC Climate Solutions Partnership

[65] BNP Paribas, CORESCAM (2023), What is CORESCAM?

Section 2. Assessing the characteristics of coastal NbS projects

This guide presents a framework for assessing coastal NbS projects based on three characteristics: commercial viability, risk management, and impact reporting and disclosures. This framework can be used by financial markets actors to assess eligible projects towards which the financing is being directed.

Figure 4 – Framework for assessing coastal NbS characteristics.[66]

1. Commercial viability	• Revenue streams • Cost structures • Exit strategy	**The ability of the project to generate attractive financial returns and offer a clear exit strategy**
2. Risk management	• Financial risks • Social and environmental risks • Operational, regulatory, legal, and political risks	**The ability of the project to mitigate risks through high-quality project design, insurance products, and other financial mechanisms**
3. Impact reporting and disclosures	• Impact reporting • Independent verification of impacts	**Measurement and reporting of project impacts in line with global sustainability disclosure requirements and market-leading standards**

[66] Pollination

COMMERCIAL VIABILITY

Coastal NbS projects may fall in one of two categories based on their commercial profile and access to financing:

- **Projects whose primary function is revenue generation (e.g. blue carbon projects).** These projects can be financed at the asset level using traditional debt or equity instruments, and/or venture capital.
- **Projects whose primary function is cost avoidance (e.g. blue-grey infrastructure).** These projects can be financed at the sovereign or corporate level (e.g. issuance of use of proceeds and sustainability-linked financing) and at the project level (e.g. factoring in project finance models).

The following considerations are recommended when integrating coastal NbS projects in financial structures:

- In the case of projects whose primary function is revenue generation, investors/financiers should extend the horizon of their financial models to align with the project lifecycle and the lifecycle of the relevant natural asset (e.g. mangroves, seagrass) as well as use third-party verification to obtain assurance of the underlying scientific and financial assumptions that underpin the project's business plan.
- In the case of projects whose primary function is cost avoidance, investors/financiers should integrate into their climate risk screening process a comparative analysis of the climate risks and associated costs from conventional projects, as well as the relative cost-benefit of integrating adaptive blue-grey solutions. This allows for a holistic assessment of the true costs and benefits over a project lifecycle while highlighting potential opportunities to allocate capital efficiently for the longer term.
- In the case of other types of projects, investors/financiers should prioritise their role as financial arrangers by employing innovative approaches to structure deals and by seeking to optimise the cost of financing through effective matchmaking of borrowers and capital providers.

Revenue streams

One of the primary factors in determining the commercial viability of a coastal NbS at the project level is the existence of one or multiple sources of revenue. Revenue streams will depend on the specific context and objectives of the project, but may include the following in the context of coastal NbS:

- Issuance and sale of blue carbon credits and/or biodiversity credits;
- Payment for ecosystem services (e.g. flood risk protection, water quality);
- Infrastructure Protection Payments (e.g. installation of artificial reefs for offshore wind infrastructure protection);
- Ecotourism (e.g. entry fees, business levies);
- Sales of products and commodities from aquaculture and sustainable fisheries; and/or
- Public sector support through tax revenues, rebates, or other financial incentives.

Most coastal NbS projects do not generate sufficient revenue from a single revenue stream, especially in the early years of project implementation and operation; additional revenue streams are likely required to attract direct financing from commercial investors.

Commercially viable financing of a coastal NbS project can be structured through various revenue streams. For example, a mangrove restoration project could generate revenue from payments for flood risk reduction in addition to sales of blue carbon credits. A coral reef restoration project may also benefit from ecotourism revenue.

Revenue streams linked to the sustainable management of conserved areas will become increasingly important in the context of the '30 by 30' target. A landmark agreement to protect 30% of the Earth's

land and sea area by 2030 was achieved at the 2022 COP15 summit on biodiversity.[67] This means that revenue-generating coastal NbS projects can be counted towards the 30 by 30 target by establishing Other Effective area-based Conservation Measures (OECMs), a new category of protected area introduced by IUCN where conservation efforts can be combined with socio-economic activity.[68]

Blue carbon credits can create a long-term alternative revenue stream for coastal NbS projects. The high implementation costs of blue carbon projects, especially restoration projects, can be offset through pre-payment agreements for carbon credits, which can be either bilateral or facilitated by 'carbon streaming' firms. Most offtake agreements involve purchasing future credits at pre-set prices. Emerging marketplaces provide a centralised exchange for corporates to directly buy credits from various projects across different regions and methodologies, enhancing market liquidity.

Innovative examples of credit schemes related to coastal resilience are starting to emerge, but their replicability and scalability are largely unproven. Beyond payment for carbon sequestration in the form of blue carbon credits, the emergence of biodiversity credit frameworks (listed in Section 1.5) offers a path forward for payments for ecosystem services (PES), though biodiversity credit markets are still highly nascent. Examples of coastal resilience and water quality PES are outlined below.

Box 4 – Payment for ecosystem services

The Nature Conservancy (TNC) and AXA XL collaborated to design a Blue Carbon Resilience Credit, which is a financial mechanism intended to reflect the value of the combined carbon sequestration and coastal risk reduction benefits of coastal ecosystems. In theory, the Blue Carbon Resilience Credit can be stacked with a blue carbon credit or purchased as a standalone credit. TNC estimates that the mechanism could mobilise up to (USD) $320 million annually for coastal conservation and restoration projects while contributing to carbon sequestration and supporting long-term coastal resilience.[69]

The initiative, which is supported by the ORRAA, was first established in the Bahamas with plans to scale globally. A pre-feasibility study has already been completed, focused on two project sites covering 10,000 hectares of mangroves. The restoration of these two sites alone could avoid over (USD) $140 million in coastal property damages while reducing the vulnerability of more than 750 people.[70]

The Maryland Water Quality Trading Program, jointly established by the Maryland Departments of Environment and Agriculture in 2018, is a market-based initiative designed to address water quality issues in the Chesapeake Bay through the trade of nutrient credits, which represent one pound of nitrogen, phosphorus, or sediment reduction a year. Individuals, businesses, and initiatives involved in agriculture, aquaculture, stormwater control, and environmental restoration can generate additional revenue streams through the credits they generate and sell on the market, creating a financial incentive for activities that improve water quality in the area.[71]

In the UK, property developers will be required to demonstrate a 10% Biodiversity Net Gain[72] on lands under development or create biodiversity net gain elsewhere. In the event that developers are not able to demonstrate biodiversity net gain as a result of their actions, they will be able to purchase credits as a last resort. This will create a compliance biodiversity credits market in the country, underpinned by a specially designed Biodiversity Metric which will quantify changes to biodiversity.

Cost structure

Capital expenditure (CapEx) and operating expenditure (OpEx) can vary significantly depending on the type, location, and overall context of a coastal NbS project.

[67] UN Environment Programme, Convention on Biological Diversity (2022), Kunming-Montreal Global Biodiversity Framework

[68] UN Environment Programme, Convention on Biological Diversity (2018), Protected areas and other effective area-based conservation measures

[69] AXA XL (2019), A Blue Carbon future: how innovative thinking aims to increase coastal resilience and meet climate targets

[70] Ocean Risk and Resilience Action Alliance (2023), Capturing the Value of Coastal Wetlands through Blue Carbon Resilience Credits

[71] Maryland Department of the Environment (2023), Water Quality Trading Program Home

[72] UK Government (2023), Understanding Biodiversity Net Gain

Table 4 – Typical capital and operation expenditures for coastal NbS projects

CapEx	OpEx
Primary drivers of CapEx include: • Feasibility analysis costs • Community engagement costs • Land acquisition and legal costs associated with land permits • Construction and restoration activities (e.g. construction of blue-grey infrastructure, planting of mangrove trees or other natural assets) • Equipment purchase, where applicable • One-off costs associated with project validation	**Primary drivers of OpEx include:** • Day-to-day project management • Ongoing maintenance and monitoring • Measurement, reporting, and verification (e.g. MRV costs) • Benefit sharing, alternative livelihoods, and ongoing community engagement • Carbon standard fees (blue carbon projects only) • Training and capacity building • Financing costs

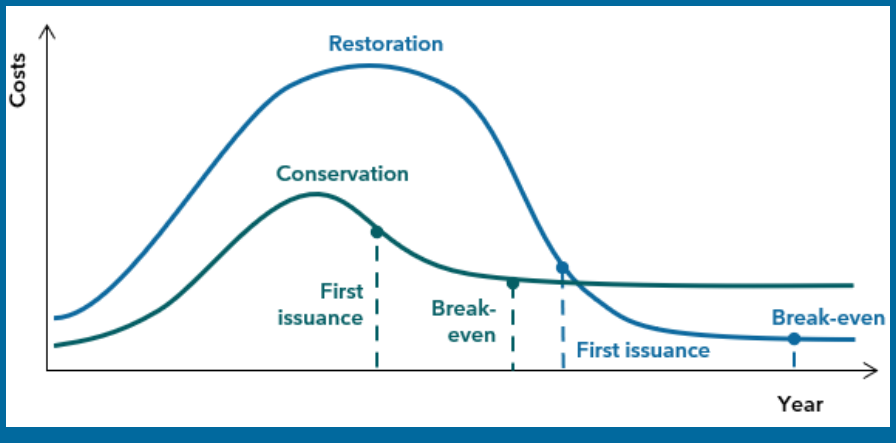
While cost curves of coastal NbS will be determined by the underlying characteristics of the project, the following considerations are relevant across different project types:

- **In the concept stage of a project, costs remain relatively low compared to the feasibility and implementation phases, although this may not be the case for some conservation projects**. At this stage, costs are mainly driven by primary and secondary research required to develop the project concept, third-party consultant and legal fees involved with conducting feasibility studies, and efforts related to fundraising to reach financial close. For conservation projects, however, these costs may actually be smaller than ongoing monitoring, reporting, and validation (MRV) costs.
- **During the feasibility and implementation phases, CapEx tends to increase significantly due to costs related to labour, materials, and monitoring of operations**. The CapEx profile is different depending on whether the projects are focused on conservation or restoration activities (see Figure 5).

Box 5 – Typical cost curves for blue carbon projects

The cost curve of blue carbon projects is distinct depending on whether the projects have conservation or restoration activities. For restoration projects, CapEx is generally higher and the break-even points occur later in the project lifecycle whilst for conservation projects break-even points are realised earlier in the project lifecycle, because revenue from credits are generated earlier and most of the costs are incurred in the implementation phase.

Figure 5 – Typical cost curves of restoration and conservation blue carbon projects[73]



[73] Pollination

While investment in blue carbon projects is rapidly increasing, public reported returns are not widely available. A 2021 market review by Finance Earth found only five disclosed IRR metrics from 200 NbS projects.[74] These five ranged from 2-12%, but included a mix of philanthropic funding, which typically expect lower returns. A report by Conservation International considered REDD+ and Natural Forest Management projects which produced IRRs of 15-18%.[75]

Exit strategy

Coastal NbS projects are inherently illiquid and investors tend to hold them until maturity. Compared to traditional infrastructure investments, refinancing of coastal NbS projects is not yet a viable exit strategy and secondary markets are still to be developed across all other relevant asset classes**.**

Whilst an exit strategy for coastal NbS investments will depend on the specific context of the project, the type of financial instrument being used, and the objectives and fiduciary obligations of the investor, there are a couple of common factors to consider in any exit strategy:

- **There is a lack of information on historical exits due to the nascency of coastal NbS projects** which may deter capital providers from deploying large pools of capital, as they are unable to assess exit opportunities.
- **Liquidity requirements should be carefully assessed.** Investors in coastal NbS projects need to carefully consider their liquidity needs over the lifetime of the investment, given the long tenure of these projects.
- **Inherent links with local communities in the project areas might give rise to reputational risks in the event of exit.** Investors should ensure that their exit strategy includes safeguards which mitigate any unintended adverse impact on local communities. One such example is that community-based ownership empowers local communities to engage in decision-making processes and strengthens accountability.

[74] Finance Earth (2021), A Market Review of NbS

[75] Ecosperity (2020), The Business Case for Natural Climate Solutions: Insights and Opportunities for Southeast Asia

RISK MANAGEMENT

Whilst the distribution of financial, environmental, social, and operational risks varies across coastal NbS project types, there are some common types of risks and strategies for risk mitigation, as discussed below.

Table 5 – Overview of key risks and risk mitigants associated with coastal NbS projects

Risk category	Risks	Mitigants
Financial Risks Risks associated with credit events, market volatility, and illiquidity	• Commercial viability of the project (e.g. cost overruns, under-delivery against revenue targets) • Creditworthiness of the project proponent and off-taker (e.g. default risk) • Collateral risk • Liquidity risk (e.g. exit strategy) • Portfolio risk (in the case of cross-collateralisation) • Market risk (e.g. demand / price volatility)	• Enhanced due diligence process at the level of the project and the project proponent • Reputable, investment grade offtaker with required capabilities to meet its contractual obligations • Credit enhancements and guarantees • Recourse to the underlying asset and/or cross-collateralisation of projects • Portfolio diversification • Offtake agreements with lock-in price curves
Environmental and Social Risks Risk that an asset will have negative environmental and/or social impacts	• Social risks (e.g. license to operate) • Under-delivery risk (e.g. failure to meet environmental impact targets) • Adverse environmental impact risk (e.g. project inadvertently causes negative impacts outside the project area) • Stakeholder consent risks	• Adherence to international sustainability standards (e.g. the IFC Performance Standards) • Community engagement and participation • Free, Prior & Informed Consent (FPIC) from affected communities • Equitable benefit sharing mechanisms • Independent monitoring and verification of outcomes • Partnership with reputable NGOs
Operational Risks Risk of financial losses due to a range of factors, including changes in regulation, laws, or political instability	• Scientific risks (e.g. inaccuracy of underlying assumptions) • Physical risks (e.g. adverse impacts from climate change) • Management risks (e.g. mismanagement of assets, encroachment) • Regulatory, political, and legal risks (e.g. change in land property rights and/or concession agreements)	• Rigorous scientific modelling, including climate scenario analysis • Independent verification of the scientific research and modelling assumptions • Parametric insurance products • Blue carbon insurance (e.g. carbon credit invalidation and carbon purchase insurance) • Due diligence of management structures • Political risk insurance • Government participation in the project design and execution

The subsequent sections focus on the risk mitigation strategies available to commercial investors to manage some of the major financial, environmental, social, and operational risks at the project level.

Financial risks

Financial risks are material across all asset classes, but the underlying distribution differs by project type and financial instrument. Enhanced due diligence is a financial risk mitigation strategy that can be implemented irrespective of the project type or financial instrument used. It focuses on evaluating the project development and the track record of the project proponent, and it could include the following considerations:

- Completion of pre-feasibility or feasibility studies;
- Registration of projects on registries with supporting documentation e.g. a Project Design Document (PDD);
- Evidence regarding the cancellation or withdrawal of any projects by the developer;
- Securing offtake agreement;
- Assessment of project proponent's balance sheet / financial health;
- Access to other forms of capital e.g. concessional funding arrangements with government or philanthropic funding;
- Participation in market facilitation programmes such as incubators or accelerators e.g. the Nature-Based Solutions Accelerator, a joint initiative by HSBC, WRI and WWF, the Bright Tide's Blue Carbon Accelerator, and Sustainable Market Initiative's Resilient Water Accelerator;
- Agreement and formalisation of land access rights with local government and communities and/or landholders;[76]
- Previous issuance of carbon or biodiversity credits;
- Evidence of track record of the project developer in other relevant activities; and
- Use of guarantees and credit enhancements.

Risk mitigation tools such as credit guarantees and first-loss capital can be effective mechanisms to reduce financial risks and attract greater levels of commercial capital for coastal NbS projects. One example is Mirova's Sustainable Ocean Fund (SOF), which is supported by a (USD) $50 million guarantee facility through USAID's Development Credit Authority (DCA).[77] Under this facility, DCA can provide principal protection to eligible investments in SOF's portfolio. Another example is the Ocean Guarantee Company (OGC), which is currently being developed by ORRAA in partnership with the Development Guarantee Group (DGG). OGC will provide guarantee solutions to mobilise private sector investors to finance SMEs and critical infrastructure projects in the blue economy in the Global South and Small Island Developing States (SIDS).[78]

Environmental and social risks

Financing costal NbS projects could entail significant environmental and social (E&S) risks due to the nature and nascency of these projects. Risks such as under-delivery against intended outcomes and insufficient community engagement are material across asset classes and can lead to financial risks (e.g. financial penalties for failing to meet SPTs) and reputation risks (e.g. greenwashing).

[76] In emerging markets, private land ownership, especially in coastal areas, is not as common as in developed countries. This can lead to a distinct set of risks arising from potentially uncertain land access rights over the long term due to changing government attitudes or regulations.

[77] Green Finance Institute (2021), Althelia Sustainable Ocean Fund

[78] Ocean Risk and Resilience Action Alliance (2023), interview

As with financial risks, a robust due diligence process is an effective E&S risk mitigation strategy. Such a due diligence process should consider the following environmental and social characteristics of a coastal NbS project:

- Do No Significant Harm (DNSH) principle – project proponents must take all reasonable steps to ensure the project does not cause environmental or social harm. As part of their risk mitigation strategies, commercial investors can refer to international sustainability standards such as the IFC Performance Standards[79] and IUCN Global Standard for Nature-based Solutions.[80] These standards provide frameworks for ensuring environmental and social rigour in NbS projects, including components and criteria for stakeholder engagement, project design and implementation, and monitoring and evaluation;
- Robust feasibility study and project design documentation ensures projects are appropriately scoped and provides an estimate of the project's intended benefits;
- Clear and defined legal rights to the project area and buffer zone, or right to the use of land, as well as regulatory approvals to carry out the project at the required levels of government; and
- FPIC should be sought and maintained from all people and communities likely to be impacted by the project, both positively and negatively. This is especially important in instances where the project is located on the lands of IPLCs or makes use of their resources.

Box 6 – Additional considerations for high quality blue carbon projects

Carbon and biodiversity projects must be registered under a certification standard and comply with the rules set out under a methodology. Projects should be accredited against credible standards with a methodology which reflects the latest science, data, and technology. Coastal NbS projects in the carbon market should always meet a minimum set of integrity principles[81] before other quality aspects are considered.

At COP27 in 2022, ORRAA launched a set of five principles for High-Quality Blue Carbon, which sets out a framework to build confidence and momentum for blue carbon markets. The principles are: safeguard nature, empower people, employ the best information and carbon accounting principles, operate contextually and locally, and mobilise high-integrity capital.[82]

Coastal NbS projects which have not secured buy-in from local communities affected by the operations of the project have very little chance of advancing beyond the concept stage. The involvement of local experts and IPLCs in the project's design and execution is critical to safeguard project outcomes. On the one hand, these projects necessitate the adoption of regenerative practices by IPLCs, which, in turn, demands fair compensation mechanisms and strong buy-in from local communities. On the other hand, these groups possess deep knowledge of the ecosystem and habitat and therefore can make significant contributions to the restoration efforts. By engaging with these groups, project proponents should seek to generate synergies which give local communities access to economic benefits and improved livelihoods in exchange for a commitment to restoration/conservation activities and access to local know-how of local natural habitats and ecosystems.

High-integrity benefit sharing mechanisms serve as important safeguards of the project delivery. They ensure the economic benefits of the project are re-invested into local communities, reducing the incentive to return to previous, environmentally damaging practices, and increasing the chance of long-term project success.

[79] International Finance Corporation (2020), Performance Standards on Environmental and Social Sustainability

[80] IUCN (2020), Global Standard for Nature-based Solutions : first edition

[81] The integrity principles of additionality, permanence, accuracy, leakage, double counting, and measurability are set out in the project methodology/standard.

[82] Ocean Risk and Resilience Action Alliance (2022), High-Quality Blue Carbon Principles and Guidance

Box 7 – Benefit sharing mechanisms

Benefit sharing refers to the intentional transfer of monetary and non-monetary incentives to stakeholders for the generation of benefits produced by a project. The benefit sharing model adopted by a project can take different forms and will depend on the local context. This can include:

- **Monetary benefits:** Project revenue is directly shared with IPLCs or other stakeholders.
- **Non-monetary benefits:** Indigenous peoples, local communities, or other stakeholders are employed directly by the project. Could also include community initiatives such as social infrastructure are financed by the project.

Increasingly, many investors now expect benefit sharing with stakeholders as they look to keep pace with the market's scrutiny and expectations for integrity. In carbon markets, some accreditation standards such as Verra are now even considering whether to formally require benefit sharing in projects.

New models for involving stakeholders in NbS projects are emerging. Some projects have incorporated stakeholders such as indigenous organisations as formal owners or leaders of the project which increases their influence and agency over outcomes.

Operational risks

Operational risks for coastal NbS projects are those that pose threats to the ongoing successful delivery and permanence of the project over its tenure. These risks could be significant due to the complexity of restoring natural habitats, prolonged delivery timelines and exposure to physical climate risks (e.g. floods, fires, crop failure). They can be grouped into four categories: scientific, physical, management risks, and regulatory, political, and legal risks.

Scientific risks

The validity of the underlying scientific modelling and assumptions is a critical success factor for coastal NbS projects. Restoration projects are complex and require a deep understanding of the local environment and ecosystems. This necessitates expensive scientific research which often cannot be extrapolated to other project areas and access to intricate community knowledge developed by local populations over generations. Initiatives such as the Ocean Risk and Resilience Action Alliance and the Global Mangrove Alliance are actively working to provide project proponents with access to the latest science and data related to coastal NbS project design, delivery, and monitoring.

Scientific evidence of the carbon sequestration potential is established for some coastal ecosystems but not for all. In the case of mangrove, seagrass, and salt marsh ecosystems there are blue carbon methodologies, including Verra's Methodology for Tidal Wetland and Seagrass Restoration (VM0033)[83], which can unlock financing for blue carbon conservation and restoration activities. In other areas, such as seaweed farming, kelp forests, and bottom trawling, scientific research is underdeveloped which leaves uncertainty about the impacts of abatement.[84]

Mini Case Study 1 – Blue Green Futures

Blue Green Future develops bespoke, science-based, ex-ante financial models that project the carbon sequestration potential of natural assets and ecosystems.[85] The output of Blue Green Future's models is dynamic projections of carbon sequestration potential using non-linear parameterisation and revenue forecasts based on carbon prices. The value proposition for offtakers and financial institutions is independent verification of blue carbon financial projections using independently verified scientific and financial inputs.

[83] Verra (2023), VM0033 Methodology for Tidal Wetland and Seagrass Restoration, v2.1

[84] Climate.gov (2022), Understanding blue carbon, Pollination analysis

[85] Blue Green Future (2023), Home Page

Physical risks

Physical risks, such as increases in sea-levels, surface temperature, and the prevalence of natural disasters also pose a major threat to the ongoing success of coastal NbS projects. For example, rising sea levels and warming waters may cause coral reef restorations to fail and hurricane winds may cause severe damage to infrastructure and landscapes. Data on the permanence of carbon sequestration and the likelihood of disturbance events (in the context of results-based payments and carbon markets) will be critical to effectively pricing various project-level risks. As a result, careful forecasting of the relevant effects of long-term climate change is required at the project design stage and periodically throughout project implementation. In addition, parametric insurance offers an effective risk mitigation strategy.

Box 8 – Innovative insurance products

Parametric Insurance is a new form of insurance that pays policyholders a pre-determined amount following the occurrence of a specifically defined event. This type of insurance does not require an assessment of damages as payouts are not linked to the cost of any negative consequences of an event. As a result, this form of insurance is well suited where the cost of damages may be difficult, or even impossible, to assess. Instead, pay-outs can be linked to measurable phenomena, such as earthquake magnitude, tropical cyclone category, or cumulative rainfall. Although still relatively nascent in the market, parametric insurance has proven to be a powerful tool to mitigate operational risks and protect ecosystems.

In 2019, The Nature Conservancy (TNC), supported with funding from Bank of America, in collaboration with SwissRe implemented the world's first coral reef insurance policy in Quintana Roo, Mexico, which covered costs related to hurricane damage. The first payout of nearly (USD) $800,000 occurred in October 2020 following Hurricane Delta, which caused significant damage to the Mesoamerican Reef in the Yucatan Peninsula. Subsequently, the Mesoamerican Reef (MAR) Fund and Willis Towers Watson (WTW)'s Climate and Resilience Hub collaborated to create a parametric reef insurance program in 2021, which covers the entire Mesoamerican Reef along the coastlines of Southern Mexico, Belize, Guatemala, and Honduras. The MAR Insurance Programme's first pay-out was triggered by Hurricane Lisa in November 2022; within two weeks of the storm, insurers transferred (USD) $175,000 to the MAR Fund, which in turn transferred the funds to a local association to repair damage to Belize's Turneffe Atoll.

In November 2022, TNC, WTW, and Munich Re launched the first-ever coral reef insurance policy in the United States, with support from Bank of America Foundation and Howden Group Foundation, to cover hurricane and tropical storm damage in Hawai'i. The policy is triggered at wind speeds of 50 miles per hour and provides pay-outs up to (USD) $2 million, depending on the wind intensity, to facilitate rapid reef repair and restoration.[86] The funding focused on a pilot to protect the Mesoamerican Reef in Mexico. Protecting and rebuilding coral reefs is critical to protecting coastal ecosystems, as well as the people, businesses, and buildings along vulnerable coastlines. Following the success of the Mexican pilot, the Mesoamerican Reef (MAR) Fund, working in collaboration with WTW's Climate and Resilience Hub, built out a parametric insurance programme across the full extent of the MAR from southern Mexico through Belize, Guatemala, and Honduras.

Management risks

Coastal NbS projects could be exposed to significant management risks due to their complex delivery structures. The project management team for a coastal NbS project might include a project proponent, an implementation partner, and possibly a carbon project developer. Each of these parties has a different set of roles and responsibilities giving rise to risks such as inefficient use of resources, oversight, and lack of adequate experience or a proven track record.

This underscores the need for rigorous due diligence of the project's governance and management processes. Examples of risk mitigants include the presence of governance frameworks, verification that the management team includes individuals with significant experience in critical project activities and the implementation of adaptive management plans that systematically identify, assess, and create a mitigation plan for potential risks to the project.

Regulatory, political, and legal risks

Regulatory, legal, and political risks associated with coastal NbS projects will depend on the geography in which the projects are implemented. Many coastal NbS projects are based in emerging markets where

[86] Willis Towers Watson (2022), WTW and The Nature Conservancy launch first ever coral reef insurance policy in the U.S.

political and legal risks are significant. In addition, Article 6[87] regulatory risks and risks associated with changes to accrediting methodologies are significant for blue carbon projects and can disrupt international voluntary carbon markets.

An effective risk mitigation strategy would involve a combination of insurance, guarantee products, and first-loss investments. Political risk insurance covers adverse actions from domestic governments and aims to reduce the risk burden on foreign investors in emerging markets. Insurance of this type may help to reduce the provisioning requirement from commercial lenders, improving access to financing and lowering costs to borrowers. In 2018, the World Bank provided a (USD) $5 million partial credit guarantee through the International Bank for Reconstruction and Development (IBRD), for the Seychelles 'blue' bond, the first sovereign issuance of its kind. The guarantee improved the risk profile of the instrument, thereby lowering the cost of borrowing by 2% annually.[88] Similar forms of political risk insurance and partial credit guarantees are common in recent debt conversions.

Box 9 – Blue carbon insurance products

As interest in blue carbon grows, there is a role for insurance products to help scale the market and enhance the risk-return profile of coastal NbS projects. On the demand side, there are two products that have recently launched for investors and purchasers of carbon credits:

Howden, Respira International, and Nephila Capital collaborated to launch the world's first carbon credit invalidation insurance product in September 2022,[89] which seeks to increase confidence in the voluntary carbon market by covering the risk of third-party negligence and fraud.

In addition, Kita, a specialised carbon insurance company, offers carbon purchase protection cover for buyers of forward-purchased carbon credits against carbon delivery risks. Kita is a managing general agent within Lloyd's, backed by Chaucer, MunichRe, and RenaissanceRe, signalling the wider interest of the insurance industry in the carbon market space. The Multilateral Investment Guarantee Agency (MIGA) is also looking to begin providing insurance products for carbon projects as part of a drive to increase investment into developing countries where these projects may be considered too risky.[90]

An important insight gathered through consultations with insurance companies and other stakeholders centres around the topic of 'insurable interest'. Many bilateral carbon transactions that use pay-upon-delivery contracts do not have 'insurable interest' (i.e. it is unclear what the buyer stands to lose in the case of under-delivery), which forms the basis of the insurance coverage policy.

REPORTING AND DISCLOSURES

As a subset of the sustainable investment asset class, financing of coastal NbS projects should adhere to impact reporting best practices. Relevant investment-related frameworks include the Global Impact Investing Network's IRIS+ system[91], the International Capital Market Association (ICMA) principles[92], and the International Finance Corporation's Guidelines for Blue Finance.[93] These frameworks create common systems for measuring and managing impact and should help increase the market's impact.

By aligning their reporting with the requirements of the TNFD and the wider sustainability reporting architecture led by the International Sustainability Standards Board, coastal NbS project proponents can engage more effectively with investors and other financial stakeholders. The WWF-UK plans to launch a guide in early 2024 that explains how NbS projects can align their project governance, monitoring, and reporting with the reporting requirements of investors and financial stakeholders under global reporting

[87] Article 6 of the Paris Agreement sets out the three approaches states may take in order to achieve their Nationally Determined Contributions (NDCs). This includes Article 6.4, which outlines how states may account for credits generated in their country but sold to a foreign party.

[88] World Bank (2019), Seychelles: Introducing the World's First Sovereign Blue Bond

[89] Reuters (2022) Howden offers first insurance against fraud in voluntary carbon markets

[90] Climate Home News (2023), World Bank set to take on risk of insuring carbon credits amid market upheaval

[91] IRIS+ (2023) IRIS+ System | Standards

[92] International Capital Markets Association (2020) Handbook: Harmonized Framework for Impact Reporting

[93] International Finance Corporation (2022) Guidelines for Blue Finance

regimes. The objective is to unlock private financing for NbS projects by helping project proponents articulate their value proposition in the language of their investors.[94]

The quality of monitoring, reporting, and verification (MRV) systems in coastal NbS projects is critical to managing their impact but can be particularly challenging due to the inherent difficulty with boundary setting and measuring carbon and biodiversity in highly dynamic ecosystems. The use of remote sensing technologies with enhanced spectral and spatial resolution to map changes in coastal biomass and model carbon sequestered is increasing. This includes sub-surface autonomous hyperspectral imaging capabilities that provide high-resolution imaging of marine environments. A current limitation in remote sensing technologies is their inability to give biodiversity information in sufficient detail.

Mini Case Study 2 – PlanBlue

PlanBlue is a German company founded in 2017 focused on developing underwater hyperspectral imaging technology for seafloor monitoring and verification of carbon sequestration estimates.[95] Their flagship product–the DiveRay–is an autonomous underwater vehicle (AUV) used to map and assess seafloor areas quickly, efficiently, and in greater detail than other traditional methods. The DiveRay uses hyperspectral imaging, which captures data at multiple wavelengths of light, to create a detailed picture of the seafloor, which can be used to identify and map different types of seabed habitats and track changes in the seafloor over time. This is combined with a mobile application that is simple and accessible without specialised training. The DiveRay's sensor technology delivers a step change in seafloor mapping by implementing algorithms to filter out the distorting effect of the water columns that impact the scale and quality of the data.

Planblue is currently focused on developing a methodology to estimate the carbon stock of seagrass meadows to increase transparency in the blue carbon market and increase investment in coastal NbS.

Alternative methodologies for biodiversity measurement are improving, although few are widely adopted by global financial institutions. One such methodology is the High Conservation Values (HCV) approach which identifies social and environmental values that must be protected from harmful land-use practices through adaptive management and monitoring. It balances pragmatic action with environmental, social, and cultural considerations, and it has been adopted across multiple sectors including agriculture, forestry, and mining.

Finally, composite tools are emerging to measure coastal risks. One such example is the Coastal Risk Index (CRI), developed by ORRAA, with partners IHE Delft, the University of California Santa Cruz, and AXA, which is designed as a modelling tool for policymakers and investors to calculate coastal flood hazards under different climate change scenarios and quantify the potential risk reduction benefits of coral reefs and mangroves for coastal communities around the world.[96]

Investors should take advantage of these emerging technologies and approaches to enhance their ability to report and disclose impacts related to coastal NbS investments as they become available.

[94] WWF (2023), interview

[95] PlanBlue

[96] Ocean Risk And Resilience Action Alliance (2023), The Coastal Risk Index

Section 3. Conclusion

This report focuses on coastal NbS because of its economic significance. Coastal NbS projects can deliver significant climate adaptation and mitigation benefits, generate access to alternative revenue streams, promote social and environmental co-benefits, and offer a cost-effective approach to comply with regulatory requirements and investor expectations. Whilst these benefits are generally understood by the investment community, the lack of mechanisms to value them could deter large private capital investments.

Coastal NbS is an emerging investment thematic. Despite its nascency, there is growing evidence of successful inclusion of coastal NbS across a wide range of financial structures, from corporate issuances to natural capital funds and innovative financing mechanisms such as payments for ecosystem services. When building institutional capacity, it is important for commercial investors to recognise coastal NbS as a thematic that cuts across their investment, underwriting, and risk management processes.

Sovereign issuances have the biggest potential to scale commercial financing in coastal NbS projects. In the absence of frameworks to monetise and stack all the benefits of coastal NbS projects, only a few projects can generate sufficient commercial returns to attract financing at the project level. In this context, governments and supranationals have a big role to play by using their own balance sheets to mobilise capital towards coastal NbS.

Other opportunities to unlock financial value from investments in coastal NbS are also emerging. There is room for financial innovation as carbon markets and alternative investments in the form of natural capital funds grow. As we continue to define the ways in which we measure risks and opportunities associated with nature and build the mechanisms to monetise ecosystem services, there is an opportunity to generate significant investment opportunities.

What is our role?

Our primary role is to build capacity and the understanding of coastal NbS as an investment theme in our underwriting, structuring, and risk management processes. This means:

- Embedding coastal NbS in financial structures where appropriate;
- Supporting conservation agencies and sovereigns who are looking to create innovative financial structures to channel commercial capital towards coastal NbS projects; and
- Supporting specialised natural capital funds and emerging innovative projects and technologies to accelerate market development and remove barriers.

To achieve this, this practitioner's guide serves as a foundational resource for building institutional capacity to understand coastal NbS as an investment theme. It is expected to evolve, with future iterations incorporating the latest trends in coastal NbS financing.

Section 4. Case Studies

CASE STUDY 1 – DELTA BLUE CARBON

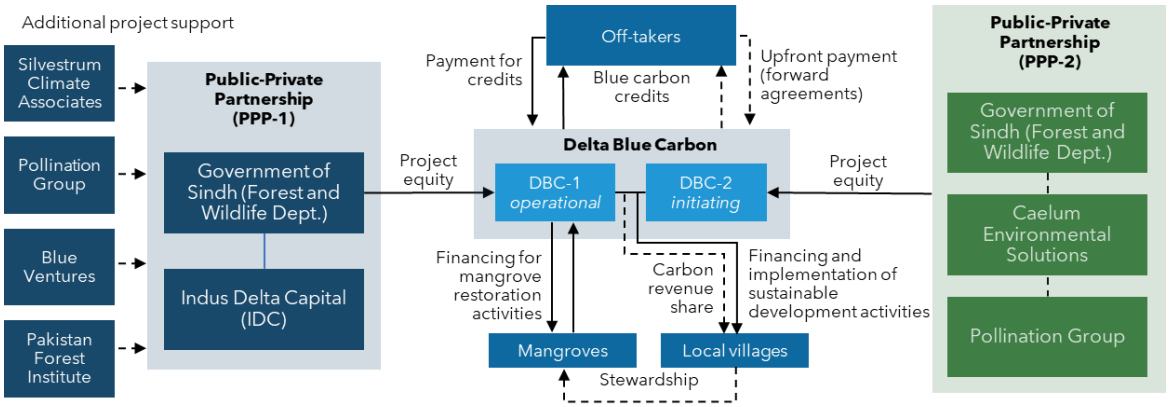
Blue Carbon – Mangrove Restoration and Community Development: The Delta Blue Carbon Project (DBC) is the largest coastal blue carbon project in the world, aiming to restore over 400,000ha of degraded mangroves in the Indus Delta region of Sindh Province, Pakistan. The first phase of the project (DBC-1), which is approved under the Verified Carbon Standard and the Climate, Community & Biodiversity Standard, has delivered strong environmental and social outcomes since launching in 2015, including the planting of over 90,000ha of mangroves along with significant interventions to improve the livelihoods and well-being of marginalised communities in the project zone. The second phase (DBC-2) aims to restore an additional 180,000ha of degraded mangroves and is expected to deliver more than 110 million tonnes of high-quality blue carbon credits, bringing DBC's total carbon sequestration potential to 250 million tonnes over its 60-year lifetime. DBC-2 is currently closing a capital raise and has initiated planting.

Financing: The Government of Sindh and Indus Delta Capital (IDC), a local project developer, jointly contributed approximately seven years of 'sweat equity' into the project before any carbon revenue was generated, covering all operating expenses associated with planting and other implementation activities with developer equity capital and governmental budget. No philanthropic capital or upfront financing was provided to DBC-1, largely due to the nascency of the market, the size of the project, and the perceived risks associated with establishing a blue carbon project in Pakistan. Following the issuance of its first batch of credits in 2022, the project is now funded through a combination of project developer equity, carbon revenues from DBC-1, and multi-year forward purchase agreements.

Funding: DBC generates revenue from the sale of blue carbon credits. The first credits from DBC-1 were issued and sold to Carbon Growth Partners, Microsoft, Trafigura, and Respira International in 2022, a total of three million blue carbon credits.

Innovation and Scalability: DBC was created through an innovative public-private partnership between the Government of Sindh's Forest and Wildlife Department and IDC, with support from Pollination, Silvestrum Climate Associates, Blue Ventures, and the Pakistan Forest Institute (PFI). Building upon the success of DBC-1, a second public-private partnership was created to develop the second phase of the project (DBC-2). This partnership with the Government of Sindh is a strong differentiator and risk mitigant for DBC across multiple areas, including policy and political risk. In addition to direct government support through the Sindh Forest Department, DBC has obtained a letter of authorisation letter from the Government of Pakistan, allowing the sale of credits in international markets until 2043.

Figure 6 – Delta Blue Carbon financial structure[97]



[97] Pollination

CASE STUDY 2 – MIROVA/TASA LOAN

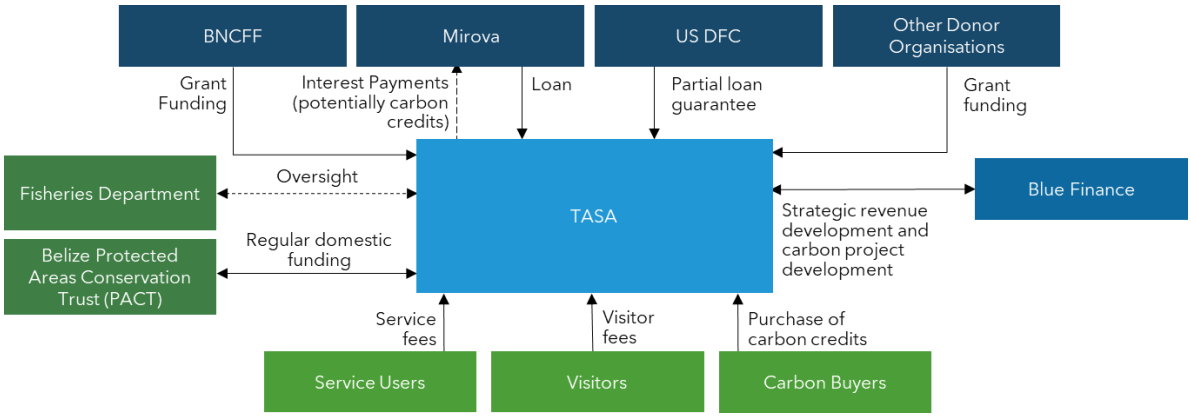
Loan for Enterprise Development: In 2021, Mirova's Sustainable Ocean Fund and the International Union for Conservation of Nature's (IUCN) Blue Natural Capital Financing Facility (BNCFF) partnered to create a new blended finance facility to enhance the financial sustainability of the Turneffe Atoll Sustainability Association (TASA), a Belize-based not-for-profit tasked with the conservation of the Turneffe Atoll Marine Reserve.[98] TASA possessed an exclusive mandate to charge fees to visitors to the Atoll but had not fully implemented appropriate fee collection and management systems, as available funding was not sufficient to cover more than core operational expenses. The loan allowed TASA to collect on these levies and move towards a self-financing model. Alongside the debt financing, TASA partnered with Blue Finance to design and implement innovative business models to capitalise on new revenue streams around nature-based tourism, including the exploration of a potential blue carbon project in the reserve.

Financing: The blended finance structure included a grant tranche from IUCN's BNCFF, as well as a commercial loan from impact investor Mirova, worth a total of (USD) $1.2 million.[99] The loan was disbursed in two tranches after years 1 and 2 and included a two-year repayment holiday. Beyond interest payments on the loan, Mirova also retains the right to purchase carbon credits from the potential future carbon project.

Funding: The use of proceeds of the financing was for the enhancement of tourist infrastructure, the expansion of monitoring and surveillance in the area, and the exploration of other revenue streams. These improvements allowed for the expanded collection of visitor and service fees (which doubled in the year after investment) and the facilitation of a new blue carbon revenue stream, if the carbon project begins implementation following a feasibility study. Ultimately, it is expected that more than 80% of TASA's annual budget will be covered by annual revenues, with continued grant income pushing the organisation into a position of financial strength. TASA expects to break even in year 3 and then generate surplus revenues which can be spent in local communities thereafter.

Innovation and Scalability: Despite the project's small size and high transaction costs, it is envisaged that aggregating projects in similar Marine Protected Areas (MPAs) will help overcome these barriers. NGOs such as Blue Finance may play an important role in aggregating such MPAs, to streamline due diligence and transaction structuring processes, as well as by reducing investment risk through diversification, allowing for the rapid expansion of investor participation in the conservation of these areas.

Figure 7 – Mirova/TASA loan financial structure[100]



[98] Mirova (2022), Sustainable Ocean Fund: Impact Report 2022

[99] Mirova (2021), Mirova, IUCN, TASA, Blue Finance and ministry of Blue Economy of Belize announce their partnership in an innovative blended finance facility to improve the management of Belize's marine protected areas & contribute to its blue economy

[100] BNCFF (2021), Nature-Based Tourism-Funded Marine Protected Area Management: Using Blended Finance To Tap Into The Potential

CASE STUDY 3 – GABON DEBT CONVERSION

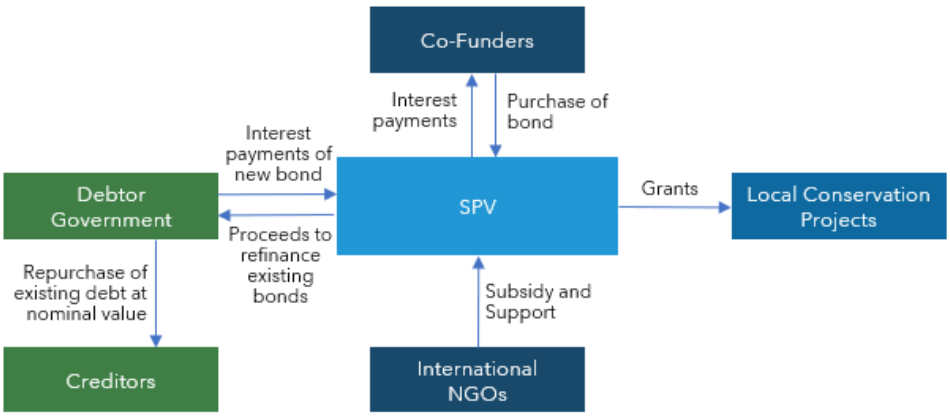
Debt-for-Nature Conversion: In August 2023, Gabon announced the execution of a debt-for-nature conversion transaction, which saw the issuance of a (USD) $500 million bond to refinance more expensive sovereign debt, generating (USD) $125 million for nature and ocean conservation.[101] In exchange, the country committed to spend this amount, including (USD) $5 million per year in interest rate payment reductions over 15 years, to expand the area of protected marine area to 30% of its total lands, freshwater systems and ocean by 2030. Also included in the agreement is the funding of an independent conservation fund, which is expected to reach (USD) $88 million in size by 2038 and is designed to continue financing conservation work after the maturity of the bond.

Financing: The Government of Gabon repurchased three bonds, two with maturity dates in 2025 and one in 2031, with a total nominal value of (USD) $500 million, accounting for approximately 4% of Gabon's national debt.[102] The bond purchase was financed by the issuance of a (USD) $500 million bond, with a maturity date of 2038. Bank of America acted as the Sole Initial Purchaser, Structuring Agent, and Bookrunner for the issuance. Bank of America also acted as Sole Dealer Manager for the refinancing tender offer using the proceeds raised by the new bond.

Funding: The new bond was issued with a coupon rate of 6.097%, lower than the refinanced bonds which had coupons of between 6.625-7%, generating cost savings. This was partially facilitated by political risk insurance for the principal of the bond from the US International Development Finance Corporation (DFC),[103] which saw the bond attain an Aa2 credit rating, significantly improved from Gabon's Caa1/B- sovereign rating.

Innovation and Scalability: The Gabon debt-for-nature conversion is the fourth arranged by TNC, and the largest transaction in Africa following similar deals in Seychelles, Belize, and Barbados, and is also the second largest to date. Notably the Gabon transaction is the first debt for nature conversion to be completed in the public markets, highlighting investor comfort with the greater transparency and a growing maturity in the markets. The structuring and placement of the issuances of these transactions is complex and require the involvement of resource-rich and technically able NGOs. In high-interest rate environments, debt-stressed sovereigns may seek similar forms of debt relief from developed market creditors and debt-for-nature conversions may provide a proven method to allow this, while achieving conservation ambitions. Labelling these transactions as 'green' or 'blue' bonds raises greenwashing risks if the use of proceeds of the bond issuance are not used fully for environmental projects; therefore alternative labels may be more appropriate.

Figure 8 – Generic debt-for-nature conversion financial structure



[101] Bank of America (2023), Bank of America Refinances Gabon Sovereign Debt for Nature and Ocean Conservation
[102] Wall Street Journal (2023), Gabon Joins Blue Bond Wave With $500 Million Debt Refinancing
[103] Fidelity International (2023), Gabon shows how to make blue bonds work

CASE STUDY 4 – GALAPAGOS ISLANDS DEBT CONVERSION

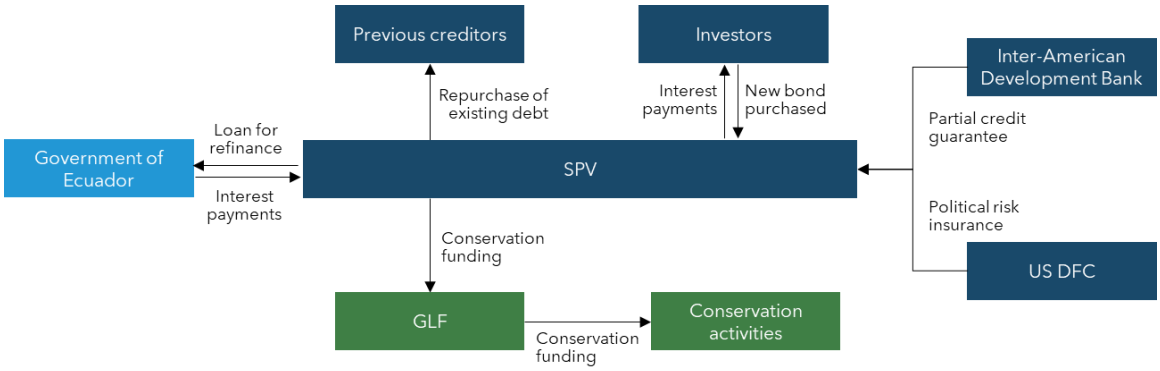
Debt-for-Nature Conversion: In May 2023, Ecuador announced the execution of the largest debt-for-nature conversion transaction to date, which saw the refinancing of (USD) $1.63 billion in Ecuadorian government international bonds with a (USD) $656 million loan financed by a bond issued by a Special Purpose Vehicle (GPS Blue Financing DAC) arranged by Credit Suisse. Developed with support from the Pew Bertarelli Ocean Legacy Project and Oceans Finance Company, the deal is expected to generate savings of (USD) $1.13 billion in the period to 2041. From the annual savings, approximately (USD) $12 million will be spent directly on conservation activities, and an additional (USD) $5 million will be used to seed a permanent endowment. This will mean that by the year 2041, an estimated (USD) $323 million will have been allocated towards conservation in the Galapagos Islands.[104]

Financing: The (USD) $656 million bond has a 5.645% coupon, matures in November 2041 and has a weighted average life of 13 years. It benefits from political risk insurance provided by US DFC for the full value of the bond, as well as a (USD) $85 million credit guarantee from the Inter-American Development Bank[105], resulting in a rating of Aa2 by Moody's. In addition, a group of 11 private insurers provided more than 50% reinsurance to facilitate the transaction. The proceeds of the bond were used to buy back Ecuadorian sovereign debt for discounts between 35.5% and 53.25% of face value.[106] Structuring and advisory support was provided by the Global Green Growth Institute and Climate Fund Managers, which provided (USD) $2 million in development capital through the Oceans Finance Company.

Funding: Funding decisions will be made by the Galapagos Life Fund (GLF), established as part of the transaction. Among other activities, the funding allocated to conservation will be used to protect the 60,000km^2 Hermandad Marine Reserve (HMR). Announced at COP26, the HMR is an extension of the existing 138,000km^2 of protected area and will act as a protected corridor for marine life to travel safely between the Galapagos Islands and Cocos Island, part of Costa Rica.[107] This funding will allow for the physical protection of the reserve, including the expansion of patrolling capabilities to include drone and satellite monitoring technology. As well as this, funding will be allocated to community development activities on the islands, supporting sustainable livelihoods, women's economic empowerment and sustainable waste management.

Innovation and Scalability: The same considerations as the Gabon debt-for-nature conversation also apply to this transaction.

Figure 9 - Galapagos Islands debt conversion financial structure



[104] US International Development Finance Corporation (2023), Financial Close Reached in Largest Debt Conversion for Marine Conservation to Protect the Galápagos

[105] Reuters (2023), Ecuador seals record debt-for-nature swap with Galapagos bond

[106] DW (2023) Credit Suisse buys Ecuador bonds for Galapagos conservation

[107] Global Environment Facility (2022) Ecuador announces creation of Hermandad Marine Reserve off Galapagos

Glossary

Definitions

Term	Definition
Blue bonds	Green bond issuances that finance 100% blue projects, i.e. those with the objective of emphasising the importance of the sustainable use of maritime resources and of the promotion of related sustainable economic activities.[108]
Blue Infrastructure	Green infrastructure types which are related to water, rivers, or oceans.
Ecosystem services	The direct and indirect contributions that ecosystems provide for human wellbeing and quality of life. The four types of ecosystem services are provisioning services, regulating services, cultural services, and supporting services.[109]
Green bonds	A bond instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance, in part or in full, new and/or existing eligible Green Projects.[110]
Green Infrastructure	Natural systems including forests, floodplains, wetlands, and soils that provide additional benefits for human well-being, such as flood protection and climate regulation.[111]
Grey infrastructure	Engineered assets that provide one or multiple services required by society, such as transportation or wastewater treatment.[112]
Mitigation hierarchy	The prioritisation structure used to determine in what order actions should be taken. With respect to the potential negative impacts of an action, the hierarchy outlines the steps of: 1) avoidance, 2) minimisation, and 3) remediation on-site, and then if any residual impacts remain after the implementation of the first three steps, 4) off-site remediation.[113]
Natural capital	The world's stocks of natural assets which include geology, soil, air, water, and all living things.[114]

[108] International Capital Markets Association (2023), Bonds To Finance The Sustainable Blue Economy

[109] European Parliament (2015), Ecosystem Services: Valuing our natural capital

[110] International Capital Markets Association (2021), Green Bond Principles

[111] Conservation International (2023), Green-Gray Infrastructure

[112] International Institute for Sustainable Development (2023), What Is Grey Infrastructure?

[113] Convention on Biological Diversity (2021), The Conservation Hierarchy: Underpinning the Post-2020 Biodiversity Framework

[114] Convention on Biological Diversity (2021), Natural Capital

Abbreviations

Term	Definition
ACCU	Australian Carbon Credit Unit
BSM	Benefit sharing mechanism
CAM	Climate Asset Management
CapEx	Capital expenditure
DBC	Delta Blue Carbon
DNSH	Do No Significant Harm
FPIC	Free, prior, and informed consent
FSTF	Financial Services Task Force
IFC	International Finance Corporation
IPLC	Indigenous People and Local Communities
IUCN	International Union for Conservation of Nature
LNG	Liquefied natural gas
MRV	Monitoring, reporting and verification
NbS	Nature-based Solutions
NDC	Nationally Determined Contribution
ODA	Official development assistance
OpEx	Operating expenditure
ORRAA	Ocean Risk and Resilience Action Alliance
PDD	Project Design Document
PFI	Pakistan Forest Institute
PPP	Public-private partnership
REDD+	Reducing Emissions from Deforestation and forest Degradation, and the role of conservation, sustainable management of forests, and enhancement of forest carbon stocks
SLB	Sustainability-linked bonds
SMI	Sustainable Markets Initiative
SPT	Sustainability performance targets
TNC	The Nature Conservancy
TNFD	Taskforce on Nature-related Financial Disclosures
WEF	World Economic Forum
WWF	World Wide Fund for Nature
WRI	World Resources Institute

Disclaimer

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