

EXECUTIVE SUMMARY

Conservation Finance for Coral Reefs

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Coral reefs face threats from climate change and local pressures, but many initiatives designed to deliver conservation outcomes for them and the social-economic systems they support are limited by sustainable finance and the availability of funds over the long term. Conservation finance is viewed as part of a holistic approach to coral reef conservation that integrates science-based biodiversity, social, and economic solutions tailored to local socio-cultural, environmental, and economic conditions to ensure their effective design and implementation. Specifically, conservation finance is defined as the “mechanisms and strategies that generate, manage, and deploy financial resources and align incentives to achieve nature conservation outcomes” (Meyers et al. 2020). Increasingly, there are diverse finance solutions that could support coral reef conservation and associated community wellbeing.

This whitepaper reviews a broad range of finance solutions related to coral reef conservation, including conservation trust funds, blended finance, small and medium-sized enterprises, blue carbon, blue bonds, environmental impact bonds, debt for nature swaps, insurance products and biodiversity offsets. We highlight opportunities and solutions for both well-documented successful finance solutions and a range of innovative approaches that are currently being piloted. We also provide guidance on how governments, reef managers, and conservation stakeholders can identify, prioritize and implement a portfolio of finance mechanisms to achieve their desired conservation outcomes. We highlight a practical approach to conservation finance that requires an understanding of the objectives of conservation and resilience initiatives, the threats facing coral reef social-ecological systems, the actors who either benefit from the ecosystems or impact them, and how capital and incentives can be used to mitigate threats and improve equitable social and ecological outcomes. In its most simplistic terms, we suggest conservation finance solutions can be broken down into the following four interrelated approaches: discourage harmful actions; incentivize positive actions; optimize cost efficiencies; and increase capital for conservation. While most finance solutions for coral reefs focus on increasing the funds available for conservation, all four approaches are needed since some actions - especially those that reduce harm or optimize costs - can be extremely cost efficient and rapidly implemented to great effect. Additionally, achieving coral conservation and resilience outcomes requires a combination of finance solutions and management approaches as a portfolio of solutions. Successfully financing coral reef conservation will require a mix of funding sources, finance mechanisms, and partnerships. Funding sources will include governments, institutional investors, foundations, companies, donors, financing institutions, NGOs and individuals. Success will require expanding and enhancing existing finance mechanisms and sources, developing and testing new programs and ensuring that resources are deployed effectively. As well, it is essential to ensure that measures to improve reef conservation are not canceled out by capital investments and public finance flows that degrade the environment or put greater pressures on reef resources.

Here, we explore how diverse conservation finance mechanisms can be used to provide effective and sustainable finance for coral reef protection and management and better align the financial and economic incentives of governments, companies, and individuals towards ensuring reef conservation and resilience. Ultimately, the ability of conservation finance to scale up requires that available funds can reach programs on the ground that are typically characterized by limited project pipelines, low absorptive capacity of local groups, and complex mechanisms for deploying capital. Finally, we address the potential risks that exist for local communities engaging with the various financing mechanisms, and highlight the ongoing need for equitable and effective coral reef finance in the blue economy (Bennett et al. 2021). We conclude with the following key recommendations:

- **Strong collaboration between the public and private sectors, and greater inclusion of the informal sector to strengthen local economies;**
- **Adequate planning for the long-term financing needs that build on the demonstrated successes of blended finance models, debt swaps, blue bonds, trust funds, and insurance products;**
- **High quality safeguards to minimize unintended social and environmental impacts from market interventions;**
- **Mainstream coral reef protection into investment decisions to avoid and reduce coastal ecosystem harm;**
- **Support regional development banks to mobilize resources for coral reef conservation and leverage support from multilateral and bilateral donors and impact investors;**
- **Address climate change with blue carbon projects at jurisdictional scales.**

CONSERVATION FINANCE FOR CORAL REEFS

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Introduction

Warm water, shallow coral reefs are some of the most diverse and valuable ecosystems on earth, covering less than 0.1% of the ocean floor yet supporting over 25% of marine species (Hoegh-Guldberg et al, 2017). They provide a wealth of benefits to people and nature, providing some \$36 billion in annual tourism spending (Spalding et al. 2017), supporting global fisheries worth billions of dollars per year (Conservation International, 2018), and avoiding \$272 billion annually in storm related flood damages around the world (Beck et al., 2018). Climate change driven increasing storm intensity makes the coastal protection services of reefs and related ecosystems (i.e., mangroves) even more valuable. Despite this well documented value, coral reefs are under significant global and local degradation pressures. Greenhouse gas emissions and associated climate change impacts including intense storms, warming and ocean acidification are grave threats to coral reefs. Studies predict losses of 70-90% of reef-building corals by mid-century (1.5°C projection) and up to 99% of corals ultimately being lost if global warming exceeds 2.0°C above pre-industrial temperatures (Hoegh-Guldberg et al. 2017, 2018). These global stressors are exacerbated by local drivers of degradation including harmful fishing practices, coastal development, poor waste management, agricultural runoff, and sedimentation (Andrello et al., 2022).

Financing coral reef conservation and resilience is essential. Despite extreme climate change threats and the important role of reefs in climate adaptation, the amount of climate finance in support of coral reef conservation represents only 0.15% of historical climate investment (Hoegh-Guldberg et al 2018). Marine protected areas (MPAs) are one of the main tools to protect coral ecosystems by regulating fishing and other local stressors, but even those are largely underfunded. Reports indicate that over 60% of MPAs have inadequate funding to provide even basic services, and with efforts to increase MPA coverage as part of global conservation objectives, the challenge of providing adequate sustainable funding will greatly increase (Asian Development Bank, 2021). Securing and deploying capital equitably, effectively and efficiently is critical to support the management and protection of coral reefs.

Coral reefs are however complex social-ecological systems. Simply increasing funding for traditional conservation actions such as MPAs is nowhere near sufficient to assure conservation and resilience outcomes with co-benefits to biodiversity and communities. Instead, a holistic approach is required that includes social, scientific, and economic solutions that are tailored to local sociocultural, environmental, and economic conditions and effectively designed and implemented. A key set of tools to achieve this holistic approach is included in the field of “conservation finance,” defined as “mechanisms and strategies that generate, manage, and deploy financial resources and align incentives to achieve nature conservation outcomes” (Meyers et al. 2020).

Financing for effective coral reef management is an integral part of the “blue economy” - a concept that seeks to ensure the sustainable use of ocean resources for the improvement of human livelihoods, economic diversification, social equity, and climate mitigation, while reducing environmental risks. A sustainable blue economy agenda is particularly important now, during, and following the COVID-19 pandemic. For example, tourism-dependent economies and communities have been especially impacted by the pandemic, with a global loss of tourism-related Gross Domestic Product (GDP) of more than \$4 trillion for the years 2020 and 2021 (UNCTAD 2021). These losses emphasize the need for economic

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diversification and identification of sustainable sources of revenue for communities near coral reefs. COVID-19 has also exacerbated debt challenges in many countries, especially SIDS. Many smaller countries face growing liquidity and solvency challenges as a result of both official and “off-the-radar” debt, the latter often provided by China (Piemonte, 2021).

Adequate financial and management planning is the starting point for any area-based conservation or economic development program. This includes appropriate outreach, consultation, and deep engagement with key stakeholders - especially local communities and others having close association with, or dependence on, coral reefs and related ecosystems (Iyer et al. 2019), to ensure that programs and investments are in accordance with the principles of free and prior informed consent (FPIC) and social safeguards. As finance solutions can have unintended consequences on stakeholders, inclusive approaches and rigorous safeguards are essential in both design and implementation.

Financing solutions will also need to consider equity issues and foster and formalize small-scale businesses within the blue economy conditional upon their environmental and social performance. Households and small businesses often do not have a financial safety net or social protections to recover from shocks, without taking on large debt burdens from the value chain or informal lenders. This can leave households with crippling inter-generational debt and unable to consider long term conservation outcomes because of the immediate short term needs to support the household and repay loans. For conservation benefits to be relevant to the lives and livelihoods of resource dependent communities, households and businesses need support to be able to make multiple year plans and have financial mechanisms in place to smooth out the inherent income unpredictability and to absorb potential economic shocks.

Underlying many of these mechanisms is the important role governments must play in the sustainable financing of coral reefs. As governments tend to be generally responsible for public wellbeing, and ecosystems are generally shared public resources, it is unsurprising that the majority of funding for nature comes from government sources, and that government policies create and enable numerous finance solutions. Examples of government initiatives include: creating regulations and economic instruments that are designed to align incentives and influence market prices; enabling private investment in conservation that ensure rights, tenure, ownership and liabilities for nature and ecosystem services; creating public-private partnerships; and borrowing from public markets to make green and blue investments. Notably, 57% of funding for nature is derived from government budgets and tax policy (Deutz et al. 2020; Figure 1) and 20% of spending on natural infrastructure is enabled by government incentives and regulation. In total, governments contribute as much as 88% of the 133 billion USD spent annually on biodiversity. However, most governments have competing demands on their limited tax revenues (e.g., security, education, infrastructure, health, etc.) and, as such, complementing government finance with other sustainable financing streams and incentives is crucial to leveraging the resources necessary to achieve conservation outcomes.

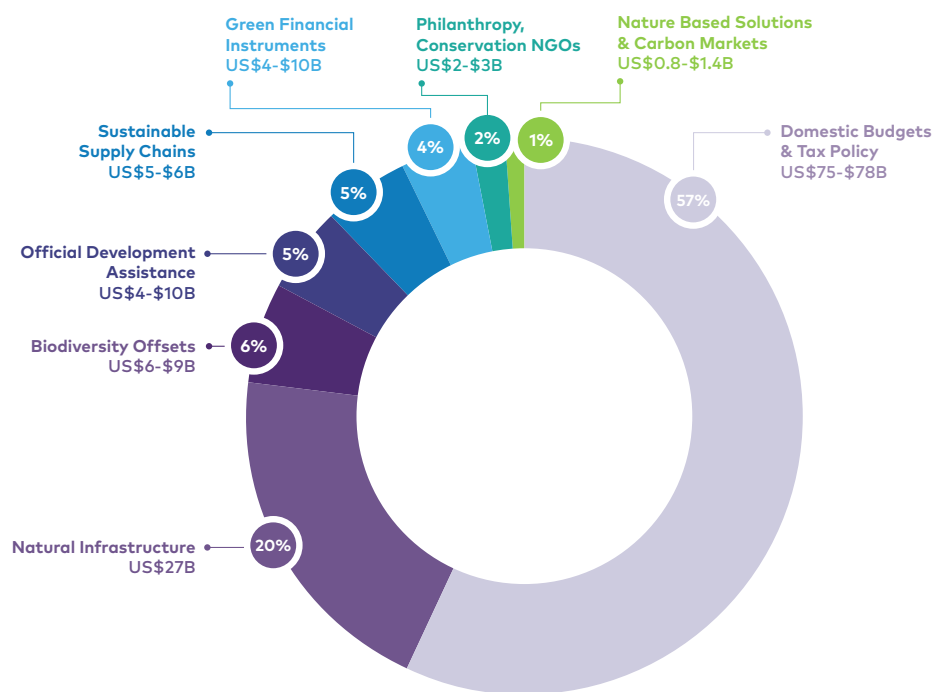


Figure 1. Governments are a major funder of conservation finance, contributing up to 88% of the 133 billion USD spent annually on biodiversity. For example, 57% of funding for nature is derived from government budgets and tax policy and 20% of spending on natural infrastructure is enabled by government incentives and regulation. Source: Deutz et al. 2020.

Governments, NGOs, philanthropies, development banks and private companies are mobilizing funds to help meet proposed global objectives of protecting at least 30% of land and sea by 2030, and currently over 100 countries now support the ocean 30x30 objective. In addition, private funders have launched the “Protecting Our Planet Challenge” that pledged USD\$5 billion to protect and conserve 30% of the planet by 2030 through supporting protected areas and Indigenous territorial stewardship. This funding can significantly increase the potential of countries to prioritize, establish and provide effective management of MPAs. This objective, as with the previous Aichi Targets, can set priorities for MPA funding aimed at conserving the most important biodiversity, such as coral reefs.

Mobilizing Financing for Coral Reefs

As discussed in the previous section, there is a [diversity of finance solutions](#) that could support coral reef conservation and associated community wellbeing and these need to be considered as part of the project portfolio assessment. This section reviews a broad range of mechanisms that be employed to mobilize financing to achieve coral reef conservation. The opportunities and solutions highlighted in this section demonstrate both well-documented successful finance solutions and a range of innovative approaches that are currently being piloted. It provides some guidance on how a reef manager or conservation actor might go about identifying, prioritizing and implementing a portfolio of finance mechanisms to achieve their desired conservation outcomes. A glossary of terms is provided in [Appendix 1](#).

CONSERVATION TRUST FUNDS

Conservation trust funds (CTFs) are private, legally independent institutions that raise, manage, and deploy funding for biodiversity conservation (Bath et al. 2020). CTFs can operate at a local, national, regional (e.g., Caribbean Biodiversity Fund, Coral Triangle Fund under development – see Box 1), or global level (e.g., Blue Action Fund, Legacy Landscapes Fund) depending on their mission. For example, the international Blue Action Fund CTF provides grants globally for marine conservation projects that are implemented by NGOs to conserve the ocean and improve the livelihoods of coastal communities in low- and middle-income countries.

Over the past decade, CTFs have raised around one billion USD for conservation projects and they offer a great opportunity to channel funding for the conservation of MPAs, climate mitigation and adaptation, and community livelihoods. CTFs have established endowments that generate annual revenue flows that are directed to achieve conservation outcomes; these endowments are managed to exist in perpetuity. As third-party independent organizations, CTFs can attract both long-term and project-related funding unavailable to governments and can complement government funding toward meeting national conservation objectives. Currently, over 45% of CTFs raise and invest funds in marine

and coastal systems in recognition of the increasing urgency to protect our oceans (Bath et al. 2020). Many provide direct support for MPAs, attracting diverse sources of funding for successful MPA management and marine conservation. (Bladon et al (2014). Also, CTFs are actively involved in managing diverse and innovative conservation finance instruments such as payments for ecosystem services (PES), insurance instruments, biodiversity offsets, blended finance, and impact investing, and thus can have a significant role in sustainable financing for coral reef conservation. Two marine focused funds created as a result of debt swaps and blue bond issuances include SEYCCAT in Seychelles,

and a soon to be launched CTF in Belize. Other CTFs are leveraging climate finance effectively, including several CTFs which have been accredited by the Green Climate Fund (e.g., Micronesia Conservation Trust, PROFONANPE in Peru, Fondo Accion in Colombia) and the Caribbean Biodiversity Fund that manages an Ecosystem-based Adaptation fund. Box 1 presents an emerging trust fund from the Coral Triangle Initiative (CTI) as one sustainable financing for the CTI's marine biodiversity conservation efforts.



Box 1. Developing a Regional Conservation Trust Fund with the Coral Triangle Initiative

The Coral Triangle is home to some of the most important and resilient coral reefs ecosystems in the world. The Coral Triangle Initiative on Coral Reefs, Fisheries and Food Security (CTI-CFF) is a multilateral partnership of six countries (Indonesia, Malaysia, Philippines, Papua New Guinea, Solomon Islands, Timor-Leste) working together to sustain these extraordinary marine and coastal resources by addressing crucial issues around food security, climate change and marine biodiversity. One of the main CTI-CFF goals is to establish a fully functioning and effectively managed region-wide Coral Triangle Marine Protected Area System (CTMPAS). Effective marine protected and conserved areas require adequate levels of sustained financial flows to achieve their objectives. With this objective in mind, and with overall guidance of the CTI-CFF's Senior Officials and working groups, the CTI-CFF and its strategic partners are currently [designing a regional conservation trust fund](#) with the mission to, "support the sustainable and effective management of a regional network of Marine Protected and Conserved Areas benefiting nature and communities in the Coral Triangle." To develop the sustainable financing for this vision, a technical team from the Wildlife Conservation Society and Conservation Finance Alliance, funded by the German Development Bank, KfW (Kreditanstalt für Wiederaufbau) and the European Union, is working closely with the CTI-CFF Regional Secretariat and a technical advisory committee of representatives from the six countries to design, formalize, and launch the regional Fund.

BLENDING FINANCE

Blended finance is an approach which employs a variety of different mechanisms that “de-risk” blue investments, by ensuring that investments are less risky or less likely to involve a financial loss. Blended finance can include loan guarantees, reimbursable grants, first loss capital, and other measures that provide both an incentive and expand opportunities for private investment. Blended finance involves “the use of catalytic capital from public or philanthropic sources to increase private sector investment in sustainable development” ([Convergence Finance](#)) and strategically employs grants, technical assistance, debt and equity to achieve desired outcomes. This approach allows organizations with different objectives to work together to meet a combination of goals, such as financial return, social benefits, and environmental objectives, which is attractive to impact investors who are looking for financial and social/environmental returns. Blended finance approaches are becoming more popular to finance conservation, including MPAs, and a variety of blended financing facilities exist or are under development. The [Seychelles sovereign Blue Bond](#) is an example of a blended financing mechanism that brought together funding from the Global Environment Fund and the World Bank to de-risk the bond for return seeking investors (see Blue Bond section below). Similarly, the [Global Fund for Coral Reefs](#) is the first and only global blended finance instrument dedicated to coral reefs, and the first UN fund dedicated to SDG 14, ‘Life Below Water’, and is a blended finance approach to expand the funding landscape for coral reef conservation by offering grants to incubate and unlock reef-positive blue economy projects for private investment.

While blended finance tools can offer positive opportunities for the private sector to finance coral reef conservation, these efforts require close management to avoid unrealistic expectations and to ensure that the mechanisms achieve their environmental and social outcomes. For example, the Global Fund for Coral Reefs recently established a [Scientific and Technical Advisory Group](#) composed of independent international experts in coral reef conservation, management, restoration, social science, conservation finance and sustainability to provide recommendations and advice to the GFCR Secretariat and key partners to ensure investments are achieving their desired impacts. Attention must be paid to avoid transferring risk to the public sector and profits to the private sector without mutual gain. It is important that the push for financial benefits does not outweigh the need to achieve conservation outcomes. (Christiansen, J. 2021; Attridge et al. 2019; Dempsey et al. 2016).

Given the increasing popularity of blended finance initiatives, we demonstrate different approaches to blended finance by profiling four organizations and programs that employ blended finance to meet reef conservation objectives:

Blue Finance

[Blue Finance](#) works with NGOs, governments and investors to establish blended financing approaches for the management and protection of MPAs through development of public-private partnerships (PPP) and co-management agreements (Pascal et al. 2021, Fig. 2). Blue Finance secures funds for MPA management through grants and loans that are combined into a Special Purpose Entity (SPE) often including an NGO and local community groups that undertake the management of the MPA. The SPE uses philanthropic money to support program establishment and to de-risk loans received from the private sector. Loans are repaid to the investors from revenue generated through ecotourism and other sources. Government management agreements can take different forms including 1) a management lease that entrusts the SPE with full management responsibilities, 2) a co-management agreement where management could be shared between government and the SPE, or 3) a technical assistance agreement where the SPE has some responsibilities but no decision-making authority. Community management as part of the SPE represents a key structural factor for successful coral reef conservation programs.

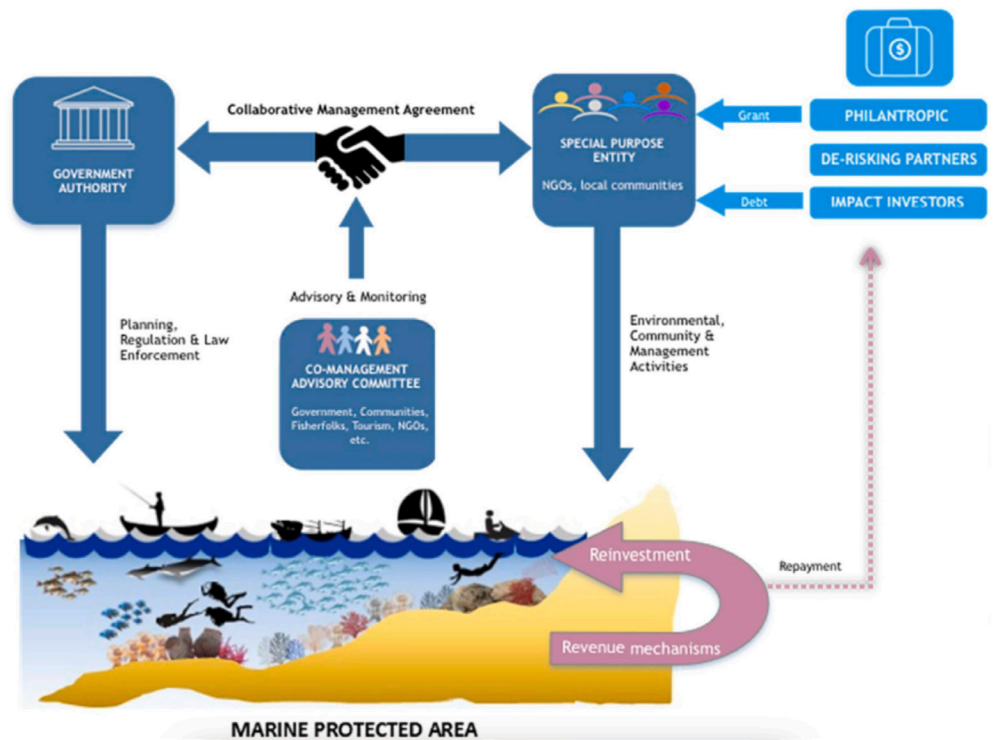


Figure 2. A summary of collaborative management and blended finance solution for the MPA “Arrecifes del Sureste” in the Dominican Republic, an ~8000 km² management area covering approximately 100 km coast and encompassing coral reefs, mangroves and seagrass ecosystems, several major urban centers and two of the country’s primary tourism centers that receive > 3 million visitors annually. Source: Pascal et al. 2021.

2

Kiwa Initiative

The [Kiwa Initiative](#) aims to strengthen climate change resilience in Pacific Island ecosystems, communities and economies through Nature-Based Solutions (NbS) which protect, sustainably manage, and restore biodiversity. In this case, grant funding leverages resources from government and the private sector to generate sustainable funding opportunities to support conservation actions and provide health benefits to local communities. WCS is working with the Kiwa Initiative to sustainably finance programs that protect watersheds, generate safe, potable water and improved sanitation for local communities, and reduce the pollution and sedimentation from the land to the sea. Launching in 2022, the project will build on experiences in establishing water funds and partnerships with conservation trust funds including working with the newly established CTF in Papua New Guinea, the PNG Biodiversity and Climate Fund.

3

Asian Development Bank

As part of its Healthy Oceans and Blue Economies Initiative the [Asian Development Bank](#) (ADB) is seeking to allocate \$5 billion in blue economy investment by 2024. The blended finance initiative provides funding for investments that contribute to (i) marine and coastal ecosystem management and restoration (such as management, sustainable fisheries, and sustainable aquaculture), (ii) pollution control for marine and coastal environments, including for rivers that drain to the ocean (such as management of solid waste, non-point source pollution, and wastewater), and/or (iii) sustainable coastal and marine development (such as sustainable ports and shipping, and marine renewable energy). In Indonesia, ADB established the Blue SEA (Southeast Asia) Finance Hub which identifies, accelerates and matches projects to blended finance with a target of target of creating bankable projects worth \$300m by 2024.

4

Global Fund for Coral Reefs

The most ambitious blended finance initiative for coral reef conservation is the [Global Fund for Coral Reefs](#) (GFCR). The GFCR is designed as a 10-year, \$625 million blended finance vehicle that supports interventions for coral reef conservation and associated community resilience. (Meyers et al. 2021, Fig. 3) The fund provides a combination of grants, concessional finance & loan guarantees that will be paired with a private equity fund and other co-investments. Convening agents are engaged to build the enabling conditions and to identify and incubate companies, finance mechanisms, and community initiatives to achieve the fund's desired outcomes. A rigorous monitoring program will measure results and a knowledge management system will seek to amplify the demonstration function of the fund to achieve broad impacts for reefs globally. The GFCR has approved projects in several countries, including Fiji, the Philippines, Papua New Guinea, The Bahamas, Kenya and Tanzania.

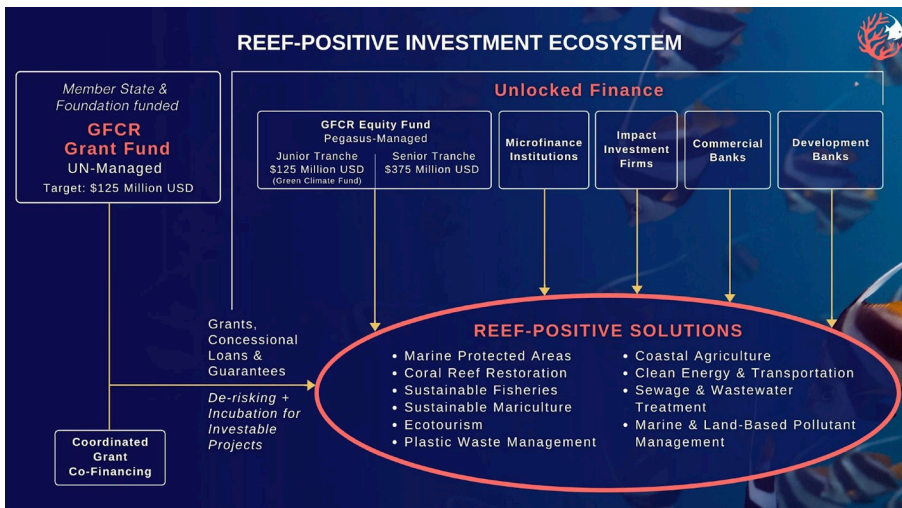


Figure 3. The GFCR is being implemented through a range of financing and implementing partners, including the UN Multi-Partner Trust Fund Office, the United Nations Environment Programme (UNEP), the United Nations Development Programme (UNDP), the UN Capital Development Fund, Paul G. Allen Family Foundation, the Prince Albert II of Monaco Foundation, BNP Paribas, and Pegasus Capital Advisors. The GFCR represents an excellent example of multiple types of parties uniting around a shared vision to provide a range of financial products and offerings capable of addressing the complex range of drivers of degradation, and responding to return-based opportunities that are also “reef-positive.” Grant financing from philanthropic and bilateral donors (\$125 million) is complemented by a \$500 million equity fund run by Pegasus, including \$125 million from the Green Climate Fund. The strategy is to focus investments on climate-resilient reefs and reducing the drivers of their degradation. Source: Global Fund for Coral Reefs.

FEES, LEVIES, AND PENALTIES

Fees, levies, and penalties are mechanisms by which a government or a management authority can capture part of the value of an ecosystem service, such as recreation value (tourism) or waste absorption (waste emissions), or charge a company or other actor for economic and ecological damages. They are a means to implement the “user pays” or “polluter pays” principles. Their impact on coral reef conservation can be in the form of better environmental management – i.e., limiting the number of tourists or fishing effort – or by generating revenue that can be used for positive conservation actions. For the latter, it is essential that policies allow MPAs or management authorities to retain revenues for on-site management. User

fees can come in various forms and can include a type of visitor tax, as is the case for national systems in Belize and Palau. The [Palau Pristine Paradise Environmental Fee](#) is applied system-wide and all international arrivals are charged a \$100 tourism tax that is used for a range of objectives including: \$10 for the Fisheries Protection Trust Fund, \$12.50 to State Governments, \$25 to meet security and maintenance costs for the international airport and/or to support the Civil Service Pension Plan, a \$30 Green Fee (\$15 Protected Area Network, \$15 Water and Sewer), and \$22.50 to the National Treasury. In Belize, the majority of revenue for the [Protected Area Conservation Trust \(PACT\)](#) comes from a Conservation Fee of US\$3.75 paid by visitors departing the country and a fifteen percent share of a cruise ship passenger head tax.

CONSERVATION FOCUSED SMALL AND MEDIUM-SIZED ENTERPRISES

The United Nations Environment Programme Finance Initiative's (UNEP FI) [Sustainable Blue Economy Finance Principles](#), among other sources, emphasize the importance of small and medium-sized enterprises (SMEs) in sustainable resilient coastal communities. The World Bank reports that [SMEs account for the majority of businesses worldwide](#) and are important contributors to job creation and global economic development, representing ~90% of businesses and >50% of employment worldwide. Yet SMEs are less likely to have access to bank loans or financing, providing an opportunity for supporting the development of nature positive SMEs for coral reefs. SMEs can play an important role in supporting coral reef conservation if appropriately-sized loan programs can be integrated with grants and technical assistance opportunities (e.g. blended finance) linked to coral reef outcomes, and alongside the establishment of enabling conditions to ensure people have access to needed finance for nature positive businesses.

There are multiple challenges to successful development of conservation-focused SMEs including:

- Predominance of fishers and fish buyers as well as other local economy actors working in the informal sector
- Limited business management capacity at the local level
- Lack of access to capital, insurance, and business support services
- Incompatibility between small financial needs and large target investment sizes (opportunities are small scale and there is limited absorptive capacity)
- Poor capacity to monitor social and environmental impacts
- Predatory lending and pricing by intermediaries, and
- Lack of premiums for and knowledge about sustainable approaches.

Well-designed SME programs and small business incubators need to address the challenges cited above to create an appropriate enabling environment for small scale and community-based entrepreneurs. Establishing and financing incubators can be an important strategy for building the type of SME's needed to ensure effective coral reef conservation. They would help community groups to professionalize to increase access to banking services and meet investors' minimum project size. They also would focus on moving these SMEs from extralegal to legal status. Legal recognition and formalization is a critical component for access to capital and unlocking financing to these underserved sectors. Financing and technical assistance need to reach the communities that depend directly upon natural resources for their livelihoods – particularly Indigenous communities and those involved in small-holder agriculture and small-scale fisheries. Creating a more inclusive market may also require investment in infrastructure that allows communities to take advantage of the benefits of the formal economy with minimal environmental impacts. Nature-based solutions such as reefs, mangroves, and seagrass protect coastal areas from storm impacts and form essential blue infrastructure that should also receive adequate investment (Rare 2020).

Various approaches to formalizing fishers' business activities and governance are being piloted across the globe. For example, a key piece of Rare's strategy to build financial resilience is to support fishing communities in establishing and monitoring savings clubs following the Village Savings and Loan Association (VSLA) methodology. The savings clubs are formally organized groups of 10-25 community members who meet weekly to collectively save money. At the end of each cycle, the accumulated savings plus interest earned from club fees and loans are shared among the members in proportion to the amount each person has saved. A built-in emergency fund is available to support members with unforeseen expenses, such as an illness in the family, sudden loss of work, or repairs following events like floods, storms, or fire. Savings clubs have even been on the frontlines of communities' response to the COVID-19 pandemic, banding together to purchase and distribute food staples and providing access to savings and small loans to supplement income when fishers struggle to sell to their usual buyers at usual prices. Since 2016, Rare has supported the establishment of over 500 savings clubs with over 10,000 members (over 60% women), with these groups saving collectively over USD \$3 million.



[GreenFi](#) associates environmental microfinance and community savings and loans (eco-credit) with environmental performance, incorporating environmental criteria into credit scores and cost of capital as part of coastal “village savings and loans” in Zanzibar and elsewhere. These types of clubs provide important additional benefits beyond the financial service of saving. They often include an important social safety net, by offering an emergency fund to their members. This reduces the reliance on buyers or informal lenders for covering emergency costs, like medical expenses.

BLUE CARBON

There is significant ecological and economic interaction between coral reefs and other ecosystems including mangroves and seagrass beds. Mangroves protect seagrass beds and coral reefs from landward discharges and sedimentation, while the coral reefs also protect the other systems by buffering ocean currents and dissipating wave action. Mangroves and seagrass beds are also critical habitats for young or juvenile reef fish. The successful connectivity between the three ecosystems is vital for fishery resources, nutrient balance and mitigation of climate change (Kathiresan et al., 2011).

Mangroves and seagrass ecosystems also store significant amounts of carbon from the atmosphere and ocean and are increasingly recognized for their role in mitigating climate change. Although these combined ecosystems currently cover less than 2% of total ocean area, they account for [almost 50% of the total carbon stored in ocean sediments](#). Actions to capture or retain carbon in marine and coastal ecosystems falls under the term “blue carbon,” which offers an opportunity for generating climate finance that can contribute to coral reef conservation through registering and selling carbon offsets. Other

opportunities to integrate blue and green carbon could be feasible if a [jurisdictional approach \(sub-national/landscape\) is taken](#), e.g., defined as government-led comprehensive approaches to natural resource use across one or more legally defined territories. In addition, since coral reefs and associated ecosystems provide enormous value in coastal protection and livelihoods, climate adaptation financing is also an important potential source of capital.



In 2020, Verra, a carbon standard developer and registry for carbon projects, released the first blue carbon conservation methodology. It adds blue carbon conservation and restoration activities as an eligible project type for REDD+ projects verified under the [Verified Carbon Standard](#) (VCS). In 2021, Verra registered its first blue carbon project. The project in the Gulf of Morrosquillo in Colombia was developed by Conservation International and South Pole, and it is expected to contribute to reductions of 1,221,717 tCO₂e over 30 years in an area covering 7,561 hectares. Funding received from the carbon sales will provide direct support for coastal management and protection and provide financing to strengthen local community management.

The [Plan Vivo](#) system, with its own standard similar to Verra, has certified three community-based mangrove carbon projects under its standard, two in Kenya and one in Madagascar. These projects focus on mangrove conservation and restoration and work with small-holders who benefit directly from the sale of carbon offsets. The projects work through local organizations and benefit more than 2,300 households. The Plan Vivo system is a carbon credit system specifically designed to support community livelihoods and shows promise for supporting blue carbon projects at a community or more localized scale.

The [Green Climate Fund](#) (GCF) is the world’s largest climate fund, publicly mandated and financed to support low- and middle-income countries raise and realize their Nationally Determined Contributions (NDC) ambitions towards low-emissions, climate-resilient pathways. Part of the GCF’s goal is to mainstream climate risks and opportunities into investment decision-making to align finance with sustainable development. The GCF recently approved a preparatory phase project, the Melanesia - Coastal and Marine Ecosystem Resilience Programme (M-CMERP), to support longer-term funding to build resilience in the face of climate change in Papua New Guinea, Solomon Islands and Vanuatu. The project calls for \$40 million in GCF funding and will include the creation of a Blue Impact Facility to provide grants and other finance for projects with concrete impacts. Planned projects include: restoring priority mangroves, seagrass, coral reef and marine ecosystems; establishing or extending marine protected or managed areas including community managed areas, as part of a climate resilience strategy; implementing natural resource management enforcement mechanisms; and building a cohort of expertise in resiliency across all the participating countries.

Good quality blue carbon projects in coral areas could be quite lucrative and provide valuable co-benefits for biodiversity and livelihoods. The potential exists to link green carbon coming from watershed protection or restoration to blue finance if projects are integrated via a jurisdictional approach and projects could reduce sedimentation and pollution flowing into reef systems. With increasing demand in the voluntary carbon market, average prices are projected to rise to between \$20 and \$50 USD/tCO₂e by 2030, and potentially higher as demand grows (Trove Research, 2021). Given the important co-benefits to biodiversity and livelihoods, blue carbon is expected to command prices at the higher end of the price range.

Blue carbon initiatives are relatively new, meaning there is relatively little research on the social and ecological impacts of blue carbon projects (Thomas, 2014). The design of blue carbon projects needs to safeguard the rights of local communities (Beymer-Farris and Bassett, 2012), especially control of their land and resources. People in communities need to benefit from the carbon financing if blue carbon projects are to successfully deliver the desired multiple benefits.

BLUE BONDS

Bonds are investment securities where an investor lends money to a company or a government for a set period of time, in exchange for a predictable “fixed” return on that investment. A blue bond is a relatively new debt instrument that is issued to support blue economy investments, with significant potential to provide much needed financing. Like other bonds, blue bonds can be issued by governments, banks, or corporations. Bonds can fund single projects or a portfolio of projects, and due to high costs of development and issuance, bond sizes tend to be relatively large (often \$50 million or more), but there are exceptions. Seychelles issued a 10-year, \$15 million sovereign blue bond - the first using this term – in 2018 with de-risking from the World Bank (a \$5 million guarantee, in addition to a concessional loan from the Global Environment Facility - GEF). Proceeds from the issuance were divided between the Seychelles Development Bank for loans to coastal fishers, and a conservation trust fund, the [Seychelles Conservation and Climate Adaptation Trust \(SEYCCAT\)](#) to support the expansion of marine protected areas, improved governance of priority fisheries and the development of the Seychelles’ blue economy.

In another example, Fiji has announced its plans to [offer a \\$50 million blue bond in 2022](#) that will help finance marine protected areas, sustainable fisheries and other nature based solutions. As an example of a development bank using this mechanism, the [World Bank issued a \\$10 million Sustainable Development Bond](#) in 2019, with the use of proceeds focused on efforts to reduce waste and promote the sustainable use of marine resources in low and middle income countries, including support for scientific research, and regulatory reform. In addition, the [Asian Development Bank launched its first blue bond](#) in September 2021 worth \$300 million, and is now developing a Blue Bond Incubator to support the development of sovereign and corporate blue bonds.

ENVIRONMENTAL IMPACT BONDS

Impact bonds are instruments also called “Pay for Success” or “Pay for Performance” contracts. Here, investors pay the up-front costs for implementing a project with specific measurable outcomes, and a public agency or private institution that benefits from these solutions repays investors an amount linked to achievement of those agreed-upon outcomes. The impact “bond” has a fixed term but does not offer a fixed rate of return to the investor. Instead, the repayment often is tied to the success of the project. If successful, the investors get paid back, and if not, they may not receive anything or receive only their initial payment and no financial returns - thus making it a risky investment for investors. Funds to pay back the investors can come from donors, philanthropic organizations, or the government; funds can also come from internally generated resources (e.g. user fees). The mechanism is designed to transfer the risks and up-front financing needs away from a government or agency, or what is called the “outcome buyer”, to the private investor. In some cases, the bond issuer, the agency or outcome buyer has the potential to repay the bond from a specific revenue source, either directly or indirectly linked to the project.

Impact bonds have been developed to support investment in green infrastructure and nature-based solutions. One of the [first environmental impact bonds](#) was developed by Washington DC Water to test and apply green infrastructure to manage storm-water run-off and improve water quality in rivers. The company who implemented the mechanism, Quantum Ventures, acted as the financial intermediary and provided technical guidance to DC Water to structure and execute a \$25 million Environmental Impact Bond (EIB). The goal was to investigate the potential benefits of using less expensive, green infrastructure to achieve the same results as would be achieved with costly grey infrastructure.

Under the deal, the funding from the bond would allow DC Water to create a pilot project to test the effectiveness of green infrastructure on 20 acres (e.g. permeable pavement, green roofs, landscape retention facilities) to capture 650,000 gallons of water annually. If successful, DC Water would use the EIB proceeds to expand the green

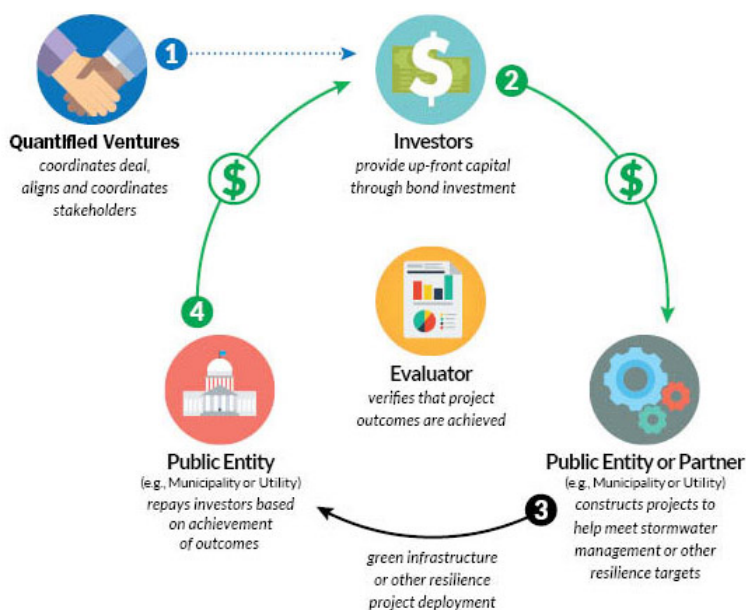


Figure 4. Environmental impact bonds attract impact investors who are seeking financial, social, and environmental returns on their investments. An environmental impact bond model matches impact investors with municipalities planning environmental resilience projects, such as green infrastructure. Investors provide up-front capital and share the project risk. Source: [Chesapeake Bay Foundation](#).

infrastructure to 345 acres and avoid the cost of constructing a new pipeline. Three different scenarios for the EIB structure were proposed. If the project performed as planned, allowing the building of the additional green infrastructure, the bond would be paid back to the investors as planned. If the project underperformed, investors would be required to pay back a sum of \$3.3 million to DC Water, with the opposite occurring with overperformance – DC Water would make an additional payment of \$3.3 million to the investors if results exceeded the planned outcomes. In this case, the system’s ability to control the volume of stormwater through the sewers during peak storms was the selected metric to determine the pay-out, given that it was easy and inexpensive to measure. DC Water was able to confirm the effectiveness of the green infrastructure investment and repaid investors in 2021.

The success of impact bonds depends on two key elements: a standardized metric against which to measure outcomes and inform payments to investors, and a source of outcome payments. In the case of DC Water, that source of payment came from DC Water ratepayers. Third parties such as donors, foundations or others can also contribute to supporting the repayment of the EIB; finding the source of repayment to the investors is key to the success of these impact bonds. A variety of impact bonds are under design and in the development stage, including for coastal restoration in the US State of Louisiana. (Hererra et al. 2019)

DEBT FOR NATURE SWAPS

Debt conversion (or debt for nature swaps) has been used for conservation for over 30 years, with many conversions leading to the creation of conservation trust funds. The practice allows debtor countries to receive substantial discounts on the debt owed to its creditors in exchange for investments towards conservation and enacting environmental protection measures. The US government’s [Tropical Forest and Coral Reefs Conservation Act](#) offers eligible developing countries options to relieve certain official debt owed the U.S. Government while generating funds in local currency to support tropical forest or coral reef conservation activities. The Nature Conservancy (TNC) has developed the [Blue Bonds for Ocean Conservation](#) program that works with countries to refinance a portion of their national debt with the goal of generating both debt relief and long-term financing for marine conservation.

The Seychelles, with support from TNC concluded a debt-swap transaction to support marine conservation in 2015. As part of the debt reduction, the Seychelles government debt burden was reduced from \$21.6 million to \$20.2 million through a combination of a \$5 million grant and a \$15.2 million low-interest loan from The Nature Conservancy. As a result of the bond and debt swap transaction, the government will provide SEYCCAT with \$280,000 per year in funding for marine conservation activities, as well as pay into an endowment that is expected to have a value of over \$6 million after 10 years. Key additional results from the Seychelles debt-for-nature swap include the following:

- MPAs - The Seychelles has increased its marine protected areas from 1% of its territorial waters to 30% - approximately 400,000 square kilometers – completed in 2020
- No fishing zones - Around 200,000 square kilometers of the protected areas have been classified as no-take zones to help protect and increase fish stocks
- Coastal Protection - The country will restore coral reefs and mangroves to provide greater protection from storms and climate change.

Another debt-swap program linked to a blue bond issuance was developed in Belize (Fig. 4). Due to its high debt load (debt to GDP ratio of 125%), Belize debt was trading at a discount (55 cents on the dollar), thereby making a debt swap attractive. With the help of TNC, the [Belize government raised \\$364 million](#) from a blue bond issuance to buy back an outstanding bond debt of \$553 million. With that transaction, the country’s debt burden was reduced by around 10% and the country committed to invest the savings to fund a \$23m endowment for a new marine conservation trust fund to support future marine-conservation projects and promised to protect 30% of its waters by 2026 – up from a current 15.9%. The bond is repayable in 19 years.

These projects exemplify a model financial arrangement which could be replicated in other countries, given the level of debt that many ocean economies face. These debt relief structured mechanisms, supported with blue bond financing, and integrating funding for a conservation trust fund, have important potential for raising significant funding and directing it to achieve important conservation outcomes for reef systems.

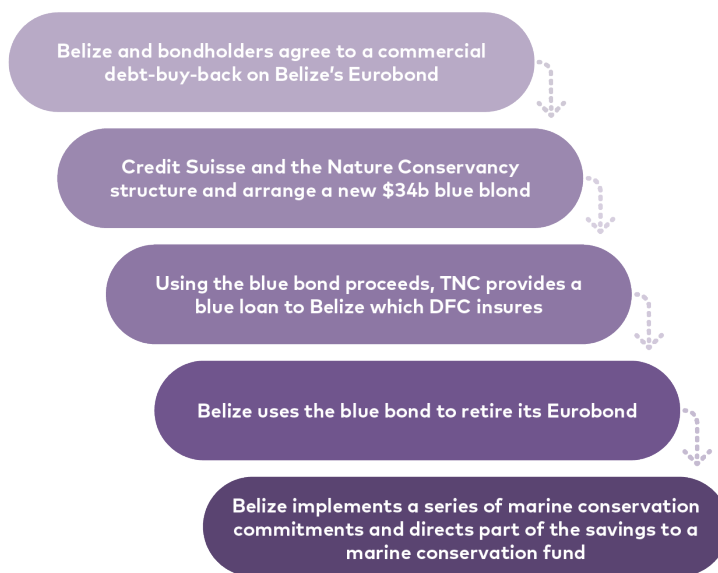


Figure 5. An example of a debt for marine conservation swap in Belize. Source: Landers and Lee 2021.

INSURANCE PRODUCTS

Another finance solution being deployed to mitigate risk and support funding of coastal and reef conservation and resilience is parametric insurance. Parametric insurance guarantees a pay out based on the occurrence of a triggering event or factor, rather than being measured by the actual loss suffered. A triggering event is measured against a pre-agreed parameter such as wind speed such as those occurring during a hurricane. Once a predetermined parameter threshold has been met, the payment is triggered to the insured. Parametric insurance provides a cash injection to the insured within a short time frame after the triggering event occurs, thereby providing the necessary financial means to rapidly mitigate losses without needing to wait for the completion of a damage assessment.

The Quintana Roo Government in Mexico [set up a reef insurance policy](#), working with TNC and Swiss Re that pays out if winds reach a specific velocity known to damage reefs. That occurred when high winds from Hurricane Delta in 2020 reached the specified threshold. Reaching that trigger point allowed for the release of \$800,000 in insurance payouts for reef repair/restoration. The funds were paid to the Coastal Zone Management Trust, which was created by government and civil society to collect and manage funds from beach-front property owners and other sources for reef management and repair. These regular collections by the Trust are used to pay the insurance premium.

Following the Quintana Roo experience, a variety of parametric insurance mechanisms are under development. The Mesoamerican Reef Fund (MAR Fund), together with Willis Towers Watson, as part of their Global Ecosystem Resilience Facility (GERF), has announced a parametric insurance product through AXA Climate to protect four key reef areas through the [MAR Reef Insurance Program](#). The Asian Development Bank (ADB) and a diversity of other organizations are exploring the application of a similar insurance model to be adapted and replicated in Indonesia, Philippines, Solomon Islands and Fiji with support from the Global Environment Facility (GEF) and the [Asia-Pacific Climate Finance Fund](#) (ACliff). The project will form part of a larger regional technical assistance initiative on “Building Coastal Resilience through Nature-Based and Integrated Solutions”. The main objectives of the GEF-ACliff funded components are to work at identified sites to: (i) support climate risk modeling using probabilistic open-source multi-hazard tools; (ii) conduct a suite of regulatory, biophysical, economic, demographic and ecosystems valuation assessments; (iii) build capacity for post-disaster risk management and response; (iv) establish legally operational and sustainable financing mechanisms for the management of risks and maintenance of coral reef ecosystems; (v) develop and implement risk transfer mechanisms, including coral reef insurance, to strengthen coastal resilience; and (vi) mobilize additional technical and financial resources through a multi-stakeholder coalition.

Box 2. Insurance to Support the Small-Scale Fisheries Sector

In 2020, Rare’s coastal fisheries program, Fish Forever, secured funding from the Ocean Risk and Resilience Action Alliance (ORRAA) to pilot an [insurance program](#) for the Philippines’ small-scale fishing sector. The program provides fishing dependent families with insurance literacy training and creates an access point for coverage enrollment through savings clubs. The pilot featured basic livelihood coverages including life, health, and property insurance.

Through this pilot, Rare successfully delivered insurance literacy trainings to 2,760 participants in the Philippines and enrolled over 4,000 fisheries-dependent individuals in insurance programs. This achievement exceeded project targets eight-fold, despite disruptions to the insurance enrollment process caused by COVID-19 pandemic spikes and resulting operational restrictions. The pilot demonstrated that fishers have both a demand and a willingness to pay for insurance.

Rare estimates that the livelihood protection offered by the insurance program will benefit some 12,500 fisheries-dependent people in the Philippines, over 6,000 of whom will be children. Of the program participants, 57% were female. Women’s fisheries-related work earnings depend on unpredictable harvests and inconsistent market prices, making insurance an important tool to secure their families’ income and well-being. With additional funding from ORRAA, Rare is expanding this pilot in the Philippines and introducing the program at its Fish Forever sites in Indonesia.



Photo right: Residents of the Bindoy municipality in the Philippines pose for a photo after signing up for insurance. Source: “Insuring the Ensurers”, Rare 2021.

In addition to insuring natural assets, providing accessible insurance products to people or entities in underserved sectors, like rural communities, is also a growing area of focus. These programs reduce the vulnerability of communities by insuring against catastrophic loss and they connect directly to conservation outcomes by reducing the need to over-exploit following a catastrophe. In addition, if there is no long-term security in income and the risk of total loss is high, the pressure is to maximize daily extraction rates, to stockpile against uncertainty. Reducing financial uncertainty, can be an important mechanism to shape human behavior in an ecosystem context, including providing incentives in reduced premiums for specific environmentally beneficial behaviors. There is a need to create understanding within communities about the types of insurance products that exist, while working with insurance providers to tailor products and offer incentives for environmental stewardship. Development of insurance products is an important growth area for conservation finance (see Box 2).

BIODIVERSITY OFFSETS

Mainstreaming coral reef health into large development and infrastructure projects represents an important way that finance can contribute to reef conservation. The scale of money going into large infrastructure projects overshadows the amount of funding that can be mobilized by many of the conservation finance solutions presented above. Governments can establish policies and regulations to both limit the negative impacts of investment on nature, while ensuring compensation for unavoidable impacts. Government regulations, along with lending policies establishing a [mitigation hierarchy](#) approach will require both public and private investors to avoid and minimize impacts, thereby reducing the destruction and degradation of coastal resources and reef systems. Impacts that cannot be prevented can be compensated with funding directed at achieving specific conservation outcomes. Effectively executed off policies can ensure impact avoidance on priority areas for fisheries, coastal protection and tourism, while requiring that project developers provide long-term financing, preferably in perpetuity, to offset any residual impacts. These offset funding requirements create an incentive for project developers to minimize impacts, thereby reducing offset requirements. However, most development projects will have residual impacts and require offsets. These offsets will generate financing that can support conservation and restoration programs and can even lead to innovative market-based financing approaches.

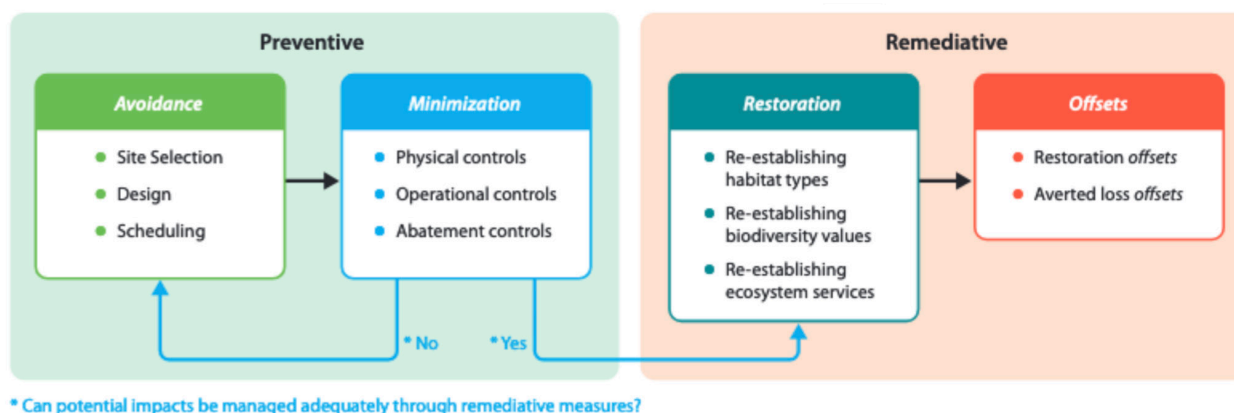


Figure 6. Schematic diagram showing the implementation of the mitigation hierarchy. Source: Ekstrom et al. 2015.

In Australia, a [reef credit scheme](#) was developed to provide payments to landowners who employ practices that reduce sediment runoff into the Great Barrier Reef. This type of regulated market for ecosystem services is similar to wetland, habitat, and nutrient banking in the US and other countries. Offset systems, including environmental banking, could have a significant impact on funding for MPAs and other conservation areas. For example, estimates based on specific levels of future investment and on projected levels of global development estimate potential offset financing valued between USD\$162-168 billion/year (Deutz et al. 2020), which is at the level estimated to be required to meet protected areas finance needs by 2030. Several countries with important coral reefs including Colombia, and Mozambique have policy frameworks for marine biodiversity offsets (Niner et al. 2017) . These countries are experimenting with the creation of habitat banks and in the development of a type of offset credit that could be applied for offsetting in protected areas. A new offsets policy is pending in Papua New Guinea (Dutson et al. 2020) with expectations of legislation to be passed in 2022. The policy includes specific mechanisms to calculate impacts and required offsets for reefs. In these countries, some offsets will be implemented in existing, under-funded protected areas, as well as new terrestrial and marine PAs. Regulations requiring the implementation of the mitigation hierarchy can reduce impacts and result in important conservation financing. Unfortunately, few countries have adequate regulations, and even when they exist, they are seldom enforced adequately (Bohorquez et al. 2022, Deutz 2020). By adopting and implementing mitigation policies, countries can achieve a reduction of impacts and generate additional revenue to ensure protection of priority ecosystems.

IDENTIFYING A PORTFOLIO OF FINANCE SOLUTIONS

Given the wide range of conservation finance options for coral reef and associated ecosystems, coral reef stakeholders, managers and governance institutions face increasingly diverse and complex choices when choosing to implement mechanisms

towards sustainable finance. As no one solution is likely to be sufficient, a portfolio approach can help reef stakeholders prioritize a small set of finance solutions to evaluate feasibility and subsequently implement with local partners.

This section describes a systematic approach to identifying and prioritizing appropriate “finance solutions”, defined as actions that blend finance sources, mechanisms, and actors to achieve specific outcomes (i.e., the operationalization of a finance mechanism). This methodology derives from the work of the Biodiversity Finance Initiative ([BIOFIN](#)) developing national [Biodiversity Finance Plans](#) that is being adapted for site based work by the [Conservation Finance Alliance’s Marine and Coastal Finance Working Group](#). The approach presented here is based on the following four filters through which to assess the choice of options: 1) discourage harmful actions, 2) incentivize positive actions, 3) optimize cost efficiencies, and 4) increase capital for conservation.

By systematically considering each element to identify and prioritize potential finance solutions, a portfolio of prioritized finance mechanisms can be identified. It is recommended to build on existing mechanisms and sources of funding as the implementing organization has the knowledge and capacity for those mechanisms. Innovative or complex mechanisms can also be implemented if they lead to large predicted positive impacts with the assistance of specialist consultants or partners. The following four steps can be used when developing a portfolio of top-ranked finance solutions for coral reefs.



Step 1. Establish a baseline

Clearly articulate the desired conservation outcomes and engage with the principal community, experts, institutional and governance actors who will be seeking to implement the conservation actions and site management. The [Open Standards for Conservation](#) provide detailed approaches for this baseline strategy. Describe the financial needs and baseline financial flows available for these outcomes and the main challenges and opportunities to their achievement. Specify shared assumptions and define your criteria for success.

Step 2. Review finance solutions

Filter A: Optimize cost efficiencies

Identify actions being financed to achieve each outcome. For each action, list options for cost efficiencies such as outsourcing, partnerships, institutional restructuring, and alternative actions that might result in the same conservation outcome (for example, for surveillance, alternatives could include technology solutions, community engagement, citizen science, etc.) Determine viability of each idea and revise your workplan and budget accordingly. For additional guidance, review the category “Financial Efficiency” and “Risk Management” in the conservation finance taxonomy (Meyers et al. 2020).

Filter B. Discourage harmful actions

Financing needs for coral reef and other natural ecosystems are almost entirely driven by global to local pressures on those sites. Identify the primary 2-3 drivers of degradation or outcome barriers. Some key local drivers are wastewater runoff, sedimentation, harmful fishing, unmanaged tourism, and coastal development. As an example, assuming unmanaged tourism is the main driver of high management costs, identify actions that could better manage tourist activity – entrance fees to limit number of visitors, mooring buoys to reduce anchor damage, diver training, etc. A wide range of finance solutions are designed to discourage harmful actions and align incentives usually based on the user pays or polluter pays principles. Economic instruments such as fees for use of nature as well as taxes, fines, and penalties for activities that harm biodiversity are an excellent starting point for consideration (Meyers et al 2020). Other approaches could include advocating for the redirection of harmful public subsidies (e.g., fisheries, fossil fuels, among others) towards conservation (Dempsey et al., 2020) or putting in place mitigation policies and biodiversity offsets.

Filter C. Incentivize positive actions

Identify key stakeholders that have neutral or positive impacts on the ecosystems in question including beneficiaries of ecosystem services such as local communities, small-scale fishers, hotels, restaurants, tour companies, dive shops, etc. Identify mechanisms that could better align these actor’s incentives with your outcomes including certification approaches (ecotourism, sustainable fisheries / aquaculture), access to capital, access to markets, etc. What low-cost ways to either finance good actions (government subsidies, microfinance) or encourage positive behavior are possible? These are likely extremely cost efficient, produce co-benefits, and increase the legitimacy of conservation programs (Bennet and Dearden 2014; Gurney et al. 2021)

Filter D. Increase capital for conservation

Document all existing capital flows relevant to your conservation outcomes. For each existing combination of finance source and mechanism (i.e. a specific donor giving a “grant”) consider opportunities for scaling or replicating. Research finance mechanisms and sources in adjacent sites or areas that are similar. Consider potential finance sources and mechanisms based on principal beneficiaries of the main ecosystem services provided – this could include tourists, restaurants, fishers, exporters, aquaculture producers, etc. who might have a willingness and ability to pay to support these services. Who may be harming those services through pollution, overuse, and direct impacts. Consider user pays or polluter pays principles. Finally, if additional ideas are desired, review the BIOFIN finance solution catalog. Write out each proposed finance solution in active terms, being very specific, and include finance sources. For example, “Increase tourism diving fees by 25% in 2022” or “Design and sell a \$20 million sovereign blue bond with the Ministry of Finance for release in 2023 to finance tourism infrastructure.”

Step 3. Prioritize finance solutions

Combine all potential realistic finance solutions and mechanisms into a single list and go through the two-level prioritization exercise in the BIOFIN workbook (see [Appendix 2](#)). The first level requires rapid scoring on 4 criteria for the finance solution’s potential: impact on nature, financial impact, social impact, and likelihood of success. After scoring, prioritize the top-scoring potential finance mechanisms and conduct a detailed assessment, which can be guided by asking the 20 questions for each mechanism listed in the [BIOFIN workbook](#). Additional background research may be needed to answer many questions but expert opinion should be adequate. Ideally, the top 3-5 mechanisms can be further evaluated by conducting an in-depth feasibility assessment (see step 4).

Step 4. Conduct feasibility assessments and implement

Construct a portfolio of the top 3-5 finance solutions based on timing, budget, potential impact, and current capacity. Conduct a feasibility study on each mechanism in the portfolio followed by an implementation and fundraising plan (where needed). Use adaptive management principles during implementation as flexibility will be essential, especially for new finance mechanisms.

Challenges to sustainable finance for coral reefs

There is clear recognition that coral reefs and their dependent human communities are under multiple pressures and that a range of interventions will be required to address the drivers of degradation. As a result, support for sustainable financing options for coral reef conservation has increased significantly over the past several years. Due to the complexity and interactions among ecology, governance, community, and profit, an increase in the amount of funding alone will not solve the problems; a holistic systems approach will be necessary. The following represent some of the challenges that will need to be overcome (Bohorquez 2022).

- **Economic challenges/barriers:** Coral reef conservation involves working with pooled or shared resources, which are part of complex ecosystems and involve diverse stakeholders with a multitude of different interests and needs. There is a potential tragedy of commons effect that can be addressed through: clear attribution of boundaries, locally appropriate rules, participation, legitimacy, monitoring, sanctions, dispute resolution, and nested responsibility (Dr Elinor Ostrom’s [principles for managing the commons](#); Andrachuk et al. 2022). Another economic barrier is associated with externalities, where negative impacts on resources are not included in the cost of doing business. These can be corrected by regulations, taxes, subsidies and other instruments but if not, responsible companies are penalized for their good behavior.
- **Investment challenges/barriers:** The amount of funding available for investment in development and infrastructure activities far surpasses the amount available for conservation. If those investments degrade coral reefs and coastal ecosystems, with no efforts to mitigate or compensate impacts, that gap will at worst increase or at best stay the same. Conservation Finance cannot be effective unless investment policies and approaches are aligned with best practices and commitments to reduce impacts.
- **Institutional challenges/barriers:** Sound governance of natural resources requires strong, effective, and well financed institutions to assure that policies, regulations, and economic instruments are effective. Successful conservation finance will require identification of key institutions, building their governance and legitimacy, and identifying sustainable financing tools to assure their longevity and impact. This will also create a supportive environment for private sector investment in coral positive businesses.
- **Informational and participatory challenges/barriers:** These arise from a lack of awareness, knowledge, capacity, and effective communication that are essential for identifying, executing, and scaling investments in the coral reef



conservation space. Successful finance will require building awareness among stakeholders; communicating clear policy and establishing regulatory support; developing and sharing examples of effective solutions; and building technical capacity of stakeholders to implement effective solutions.

- **Financial challenges/barriers:** There is a disconnect between the supply and demand for different types of funding. Targeted actions are required to connect effective projects with willing donors and an investable deal pipeline with investors. Prospective investors in marine conservation frequently state that there is a limited deal pipeline. Yet, many local entrepreneurs struggle to find the capital necessary to finance their companies. Part of this disconnect is because most investors seek larger scale or more profitable investment opportunities than are available. Making smaller-scale projects more attractive to investment represents an important role for blended finance facilities and may require exploring aggregating small projects into larger programs. Another challenge is that even larger projects face a constraint of relatively low returns on investment compared to risk which may deter many investors.

Conclusions and Recommendations

Marine conservation finance is evolving rapidly, with many new models currently being developed and piloted. With expanding options, the landscape has become more complex and it is more important than ever to have a clear understanding of the various finance mechanisms and guidance on how to determine a portfolio of practical solutions that are suitable for a given context. As shown above, many emerging mechanisms require strong collaboration between the public and private sectors for their successful development and implementation. This white paper has highlighted the variety of finance solutions that governments and conservation practitioners can employ alone or in an integrated fashion, to support coral reef conservation. Based on our review, we make the following key recommendations for funders and coral reef stakeholders arising from this analysis.



1. **Governments play an essential role in coral reef financing.** Not only do they provide significant funding but they create the enabling conditions through regulations, budgetary authority, planning and incentives to attract private sector investment, and enable the effective participation of civil society. Strong collaboration between the public and private sectors is essential to develop sustainable financing, while support for greater inclusion of the informal sector can help build strong local economies.
2. **Adequate planning for the long-term financing needs for MPAs and for support of livelihoods is essential to retain conservation and resilience gains.** There is a need to take advantage of initiatives such as 30x30 to secure donor funding and then employ them to build on the demonstrated successes of blended finance models, debt swaps, blue bonds, and insurance products either as stand-alone solutions or as part of a diversified finance package.
3. **Conservation trust funds represent a tried and true mechanism for managing and disbursing long-term financing.** They can play a key role in managing a variety of revenue sources. They are a useful institutional solution to promote a more equitable and transparent distribution of financial resources.
4. **Governments, lenders and companies need to apply high quality safeguards to minimize unintended negative social and environmental impacts from financing.** Mainstreaming the protection of coral reefs into investment decisions can avoid and reduce harm to coastal ecosystems, reduce expenditures required to address degradation issues, and result in positive economic and environmental benefits. Long-term financing of biodiversity offsets to achieve conservation outcomes may be required when impacts cannot be avoided. To achieve the targets of a Post-2020 Global Biodiversity Framework, countries will need support to adopt and implement effective mitigation policies and regulations to protect reef ecosystems while increasing investment in important areas for biodiversity.
5. **Strengthen community rights and tenure to foster and formalize small-scale businesses and community enterprises within the blue economy, conditional upon their environmental and social performance.**
6. **Post-COVID financing needs to stimulate local economies, while avoiding negative impacts on reef systems.** Use of recovery funds must consider their impacts on coral reefs and coastal ecosystems.

- 7. **Regional development banks need to mobilize resources for coral reef conservation through their own financing mechanisms and through leveraging support from multilateral and bilateral donors and impact investors, to implement many of these financing solutions.**
- 8. **The effects of climate change require rapid attention and need to be mitigated via the application of nature based solutions, which offer important climate finance opportunities.** Blue carbon projects along with forest carbon projects undertaken at a jurisdictional scale to capture upstream and downstream benefits, can support conservation of reefs, while contributing to improved livelihoods for local people.
- 9. **The ability to operate at scale is a significant constraint to financing.** Challenges such as how funds can best reach programs with limited project pipelines, the low absorptive capacity of local groups and the existence of complex mechanisms for deploying capital remain as key constraints. The small-scale nature of reef conservation programs, especially those working with fisher communities in low- or middle-income countries is less attractive for private sector investment. As part of this effort, there is a need to transition the informal microbusinesses and workers from extralegal to legally recognized status. Up-front grants deployed in parallel with technical support, as part of a blended finance approach, will be necessary prior to providing loans or equity financing.
- 10. **Potential risks exist for local communities associated with the various financing mechanisms.** Equitable and effective coral reef finance must:
 - recognize and protect the tenure and rights of Indigenous and local communities;
 - safeguard local livelihoods;
 - maintain access to marine resources needed for food security and well-being;
 - develop policies and mechanisms to ensure equitable distribution of economic benefits
 - promote the participation of women; and,
 - support inclusive and participatory marine conservation planning and governance (Bennett et al. 2021).

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Photos by: Björn Svensson, Emily Darling, The Ocean Image Bank, Erika Piñeros, Rare, Alissa Everett, Mike Markovina | Design by: Haley Williams



Appendices

APPENDIX 1. GLOSSARY

- **Blended Finance**
Strategic use of development funds, such as those from government aid and philanthropic sources, to mobilize private capital for social and environment result.
- **Bonds**
Also known as fixed income instruments— bonds are used by governments or companies to raise money by borrowing from investors. Bonds are typically issued to raise funds for specific projects. In return, the bond issuer promises to pay back the investment, with interest, over a certain period of time. Sovereign bonds. A sovereign bond is issued by a national government to raise money for financing government programs, or addressing other spending needs; a blue bond is a debt instrument issued by governments, development banks or others to raise capital from impact investors to finance marine and ocean-based projects that have positive environmental, economic and climate benefits.
- **Concessional finance**
Financing (such as loans) that is extended on terms substantially more generous than market loans. The concessionality is achieved either through interest rates below those available on the market or by grace periods, or a combination of these. Concessional loans typically have long grace periods.
- **Conservation finance**
Mechanisms and strategies that generate, manage, and deploy financial resources and align incentives to achieve nature conservation outcomes.
- **Debt for Nature swap**
Debt-for-nature swaps are financial mechanisms that allow portions of a developing country’s foreign debt to be forgiven, in exchange for commitments to invest in biodiversity conservation and environmental policy measures.
- **Debt finance**
Debt finance involves borrowing money either by taking out a bank loan or issuing debt securities (issuing a bond).
- **Equity finance**
Equity finance, also known as equity financing, is a way of raising funds for business – raising capital – by selling partial or complete ownership of the company’s equity for money.
- **Incubator**
An organization designed to assist start-up companies and business, generally with respect to providing mentoring, technical assistance, seed funding, and potentially access to investors.
- **Jurisdictional REDD+**
Refers to a government-led, comprehensive approach to forest and land use across one or more legally defined territories as part of reduced carbon emissions program.
- **Loan guarantee**
A promise by one party to assume the debt obligation of a borrower if that borrower defaults. A guarantee can be limited or unlimited, making the guarantor liable for only a portion or all of the debt. A loan guarantee lowers risk of the lender.
- **Nature-based Solutions**
Refer to the sustainable management and use of nature for tackling societal challenges such as climate change, water security, food security, human health, and disaster risk management.
- **Off the radar debt**
Liabilities that are outside the standard parameters of public debt statistics and do not therefore get reported
- **Parametric insurance**
Type of insurance contract that insures a policyholder against the occurrence of a specific event by paying a set amount based on the magnitude of the event (i.e. a triggering event), as opposed to the magnitude of the losses in a traditional indemnity policy.
- **Payments for Ecosystem Services (PES)**
Payments made to providers of services and benefits derived from the natural environment (e.g. payments for carbon sequestration).
- **Public Private Partnerships**
Long-term contract between a private party and a government entity, for providing a public asset or service, in which the private party bears significant risk and management responsibility, and remuneration is linked to performance
- **REDD +**
Program focused on reducing emissions from deforestation and forest degradation, and foster conservation, sustainable management of forests, and enhancement of forest carbon stocks.
- **Reimbursable grant**
A grant that is paid back to the issuer – plays a similar role as a no-interest loan.
- **Special purpose entity (vehicle)**
A subsidiary created by a parent company to isolate financial risk.

APPENDIX 2. RAPID PRIORITY SCREENING GUIDANCE (ADAPTED FROM BIOFIN) TO HELP DEVELOP A PORTFOLIO OF TOP-RATED CONSERVATION FINANCE SOLUTIONS.

CRITERIA	SCORING GUIDANCE
Impact on biodiversity	<p>(4) Very high impact on threatened / endangered species and habitats (biodiversity) and critical ecosystem services.</p> <p>(3) High impact on biodiversity and ecosystem services.</p> <p>(2) Moderate impact on biodiversity and ecosystem services.</p> <p>(1) Low impact or high uncertainty about the same.</p> <p>(0) No or insignificant impact.</p>
Financial impact	<p>(4) Potential to mobilize or save a very high <u>amount</u> of resources. A significant impact on the biodiversity finance agenda.</p> <p>(3) Potential to mobilize or save a high <u>amount</u> of resources. Indicatively about 5-15 per cent of current expenditure or financing needs.</p> <p>(2) Potential to mobilize or save a moderate <u>amount</u> of resources. Indicatively between 1-5 per cent of current expenditure or needs.</p> <p>(1) Potential to mobilize or save a low <u>amount</u> of resources. Indicatively under 1 per cent of current expenditure or needs.</p> <p>(0) Minimal scale of resources mobilized or saved compared to current expenditures or needs.</p>
Social Impact	<p>(4) Very high likelihood of positive social impact on key stakeholders including benefits across gender, socio-economic status, ethnicities, and with attention to Indigenous people and local communities.</p> <p>(3) High likelihood of positive social impact on key stakeholders including benefits across gender, socio-economic status, ethnicities, and with attention to Indigenous people and local communities.</p> <p>(2) Moderate likelihood of positive social impact</p> <p>(1) Low likelihood or high uncertainty of positive social impact on key stakeholders</p> <p>(0) Potential risks to local communities, vulnerable populations, and indigenous peoples.</p>
Likelihood of success	<p>(4) Very high likelihood of success. Broad based political and social support and sound commercial viability (if relevant). No operational challenges known. Strong record or expectation of success, replicability or scalability in comparable contexts.</p> <p>(3) High likelihood of success. Sufficient political and social support. Commercially viable (if relevant). Operational challenges are manageable. Relevant record of success, replicability or scalability in comparable contexts.</p> <p>(2) Moderate likelihood of success due to limited political and social support or known operational or technical barriers. Limited commercial viability (if relevant). Limited record of success, replicability or scalability in comparable contexts.</p> <p>(1) Low likelihood of success due to high political and social resistance or major operational or technical barriers. Limited commercial viability (if relevant).</p> <p>(0) Virtually no chance of success under current conditions. Commercially unviable (if relevant).</p>

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