

**Production of a Baseline Inventory of Existing and Potential Sustainable Blue Finance Investors to Support the CLME+ Vision
EcoAdvisors, Technical Report**



Catalyzing implementation of the
Strategic Action Programme for the Caribbean and
North Brazil Shelf LME's (2015-2020)



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EXECUTIVE SUMMARY

The Caribbean Sea Large Marine Ecosystem and North Brazil Shelf LMEs directly support the economies of all 23 coastal and small island countries participating in the CLME+ project, where healthy marine and coastal ecosystems are key drivers of the vitally important tourism and fisheries sectors, and are a *sine qua non* for healthy economies. This natural resource has the potential to make a tremendous contribution to poverty reduction and shared prosperity for the CLME+ region's growing population and to increase resilience to climate change.

However, despite the value of the goods and services they provide and their clear connection to economic growth and prosperity, social equity, human health and sustainable development, marine and coastal ecosystems in the CLME+ region have been steadily declining, threatened by habitat change and loss, unsustainable coastal development, land and marine-based pollution (including sedimentation), overfishing, invasive species and climate change.

In this context, the transition to a Sustainable Blue Economy in the CLME+ region represents both a necessity and opportunity. A sustainable blue economy approach can enhance existing sectors of the economy or create and nurture new ones, and it has a compelling upside: some predict a doubling of the value of the global ocean economy by 2030, reaching in excess of US\$3T. Moreover, as governments around the world define how to respond to the shock of the unprecedented global COVID-19 pandemic, the investment of stimulus and recovery funds in sustainable blue economy sectors could help to rebuild economies and set them on a more sustainable, equitable path.

There is considerable evidence of the political will required to build a sustainable blue economy in the CLME+ region, and increasing recognition that business as usual approaches are not sustainable. However, the level of investment remains below its potential, and still very much

in a nascent stage of its development, with encouraging signs of growth and opportunity but also notable barriers and challenges. Of the investment fund managers/investment funds identified in this review, only a very few (12) were actively investing in the sustainable blue economy, and still fewer with a focus on the CLME+ region (9). This is in line with the global trend of underinvestment in the sustainable blue economy / SDG-14 relative to other SDGs. Interest among investors and the supply of capital are likely to continue to grow in step with wider environmental mainstreaming and policy change. Various tools to mitigate or redistribute risk, such as loan guarantees, will help overcome barriers to investment, and the public sector has a key role in putting into place strong governance frameworks.

The most readily available prospects for investment are, predictably, in the established sectors of fisheries, aquaculture, energy, insurance, and tourism. There also is notable activity in the emerging areas of coastal resilience/coastal infrastructure and marine waste management, as well as sustainability trends in the transport sector. At the moment, investment in the sustainable blue economy in the CLME+ region is mostly in the form of blended approaches led by governments and Development Finance Institutions (DFIs), and grants from philanthropic and bilateral and multilateral development agencies that support demonstration projects and other interventions that enhance the enabling environment for investment (e.g., capacity building and development of standards, regulations and policy). This is the case in both established and emergent sustainable blue economy sectors. As significant portions of the growing sustainable blue economy are still in early stages, philanthropic funds and development aid can continue to catalyze new projects, while venture and first time funds will continue to play a crucial role in building markets across target sectors. This review supports the conviction that, as these blue economy sectors continue to mature, their ability to attract growing investment flows from a diversity of sources will increase dramatically in the coming years.



Fig. 1 | Trunk Bay, St. John, USVI credit Josh Duncan, Unsplash

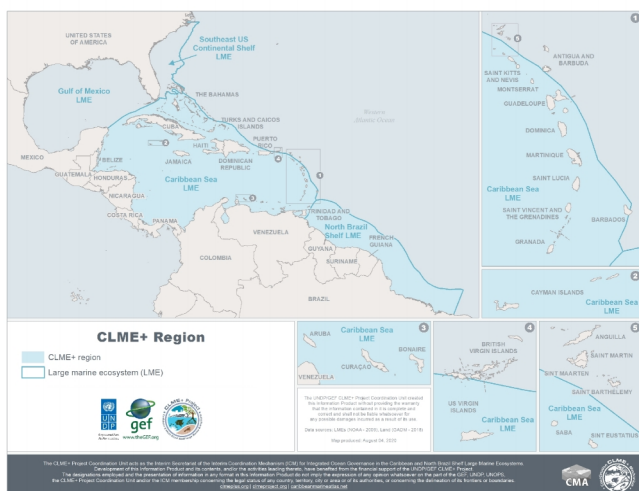
BACKGROUND

The annual economic value of global ocean assets is estimated to be at least US\$2.5 trillion, roughly the same size as the world's 7th largest economy measured by GDP (Hoegh-Guldberg *et al* 2015). Another analysis puts the contribution of ocean economy sectors, including commercial fishing and processing, aquaculture, shipbuilding and repair, offshore oil and gas, port activities, maritime trade, and renewable energy at revenues of 5.2T (OOF 2020). Moreover, the OECD posits that the ocean economy will grow at twice the rate of the conventional economy, offering huge potential for job creation and innovation (OECD 2016).

The world's oceans and seas:

- Supply 15% of humanity's protein needs;
- Support the employment of hundreds of millions and provide sustenance and livelihoods for a great number of the world's poor - 10-12% of the world's population is directly or indirectly employed in the fisheries and aquaculture sectors alone (RI & Credit Suisse 2020);
- Absorb 30% of carbon dioxide emissions and 90% of the excess heat trapped by greenhouse gases; and
- Are the means of transporting 90% of the world's goods.

The CLME+ region directly supports the economies of all 23 coastal and small island countries participating in the CLME+ project, where healthy marine and coastal ecosystems are key drivers of the tourism and fisheries sectors and are a *sine qua non* for healthy economies. This natural resource has the potential to make a tremendous contribution to poverty reduction and shared prosperity for the region's growing population of 40 million and to increase resilience to climate change.



However, despite the value of the goods and services they provide and their clear connection to economic growth and prosperity, social equity, human health and sustainable development, marine and coastal ecosystems in the CLME+ region have been steadily declining, threatened by habitat change and loss, unsustainable coastal development, land and marine-based pollution (including sedimentation), overfishing, invasive species and climate change. One global study quantified the costs of various unsustainable practices¹ to the global economy at US\$350B – 940B per year (GEF n.d.).

In this context, the transition to a Blue Economy or Sustainable Blue Economy in the CLME+ region – for our purposes defined as the sustainable use of ocean resources for economic growth, jobs and social and financial inclusion, emphasizing the preservation and restoration of the health of ocean ecosystems and services – represents both necessity and opportunity. A sustainable blue economy approach can enhance existing sectors of the economy or create and nurture new and emerging economic activities. Box 1 defines the geographic scope of the investigation and summarizes the sectors that comprise – or have the potential to comprise, if prevailing business practices were to change – the Sustainable Blue Economy, distinguishing between established and emerging sectors.

Box 1 | Scope of Investigation

The geographic scope of this research is the Caribbean and North Brazil Shelf Large Marine Ecosystems, jointly referred to as the CLME+ region. The coverage of many of the sources used did not align precisely with this geography. Various data and information sources covered only the Caribbean region or Small Island Development States (SIDS) within the Caribbean region, while others aggregated all of the Latin America and the Caribbean (LAC) region. Although the findings presented are applicable to the entirety of the CLME+ region, where relevant throughout the text we have sought to indicate the geographic scope of sources used.

Established Sectors: Fisheries, aquaculture, shipping/transport, coastal and marine tourism, and infrastructure (these are sectors which largely do not operate sustainably in the region at present), waste management and disposal.

Emerging sectors: Renewable energy, bio-prospecting, natural infrastructure, blue carbon.

Our analysis does not include unsustainable sectors, e.g., the extractive industries; though they could be considered part of a “blue economy” to the extent that they derive value from the marine environment, they do not form part of a “sustainable blue economy.”

¹ Overfishing, coastal hypoxia and eutrophication (the use of toxic fertilizers and other poor upstream land use practices), invasive aquatic species, coastal habitat loss, and acidification.

GLOBAL BLUE ECONOMY OUTLOOK

The outlook for the sustainable blue economy is promising. Some predict a doubling of the value of the global ocean economy by 2030, to over US\$3T, with many industries projected to outpace global economic growth (de Vos & Hart 2020).² At the same time, Environment, Social, and Governance (ESG) funds are demonstrating competitive financial performance; and have been found to be more resilient than their conventional counterparts to the financial impacts of the Covid-19 pandemic (Farmer & Thompson 2020).³ Assets managed by the 75 ESG funds examined by Bloomberg's annual survey of the largest ESG funds with at least a five-year track record grew by 34% to US\$101B in 2019. The same survey showed that this group of funds outperformed the Standard and Poor's 500 index.

« Some predict a doubling of the value of the global ocean economy by 2030, to over US\$3T, with many industries projected to outpace global economic growth. »

As a result, there is considerable interest in the private sector – both among corporates and financial sector investors – as well as increasingly apparent political will to shift investment and production toward more sustainable pathways in accordance with Sustainable Development Goal 14.^{4,5} Nevertheless, globally, investors and corporates have been slow to enter the space (relative to level and progress of investment in other SDGs). According to one rigorous study, only 7% of companies included action on SDG14 in their sustainability reports (OOF 2020). Although prominent sustainability leaders exist, the vast majority of companies do not understand problems affecting ecosystems well enough or have not identified viable pathways to respond to the challenge (OOF 2020). In RI & Credit Suisse (2020), only 21% of investors surveyed said they targeted investments in SDG 14.

Consequently, the bulk of funding continues to derive from public sources, particularly with respect to sectors such as infrastructure, energy and waste management. The public sector primarily relies on three conventional financing mechanisms for such investments: debt financing, cash financing, and grants. Debt is the most commonly used, often through issuance of bonds that are attractive to investors seeking reliable, fixed income streams. Governments increasingly are turning to innovative

methods to attract private capital: (1) green bonds, (2) Pay-For-Success (PFS) models in the form of environmental impact bonds, and (3) public-private partnerships (PPP). Green bonds function in essentially the same way as conventional bonds (public debt finance), but are explicitly positioned to attract investors with an interest in supporting environmental objectives (in addition to governments, multilateral banks and private companies also can issue climate, green, blue and conventional bonds). PFS shifts project risk to private investors, with payout of government funds contingent on meeting well-defined performance targets. In a PPP, joint investment by government and a private company (or group of companies) is structured in a formal contract that allocates responsibility for project implementation aspects (e.g., design, financing, construction, operation, or maintenance) and defines payments to the private sector partner(s), typically funded by a toll, user fee, rate payment or tax revenues, subject to availability.

Such financing models are contributing to a shift in investment trends. RI & Credit Suisse (2020) found that over a third of respondents viewed the blue economy as among the more important topics looking ahead to 2030, and 9 out of 10 expressed interest in such investments. Moreover, governments increasingly are recognizing the connection between healthy marine ecosystems and healthy economies and the costs of “business as usual.” In December 2020, 14 governments known as the “High Level Panel for a Sustainable Ocean Economy” called for a “new ocean action agenda,” pledging to sustainably manage 100% of oceans falling within their jurisdictions by 2025, and to support a global target to protect 30% of the ocean by 2030.⁶ The same group also commissioned a report emphasizing the key role of blue economy investment in global post-COVID-19 sustainable economic recovery (Northrop *et al.* 2020). This should further catalyze trends in the private sector / investing space. Finally, in its annual FDI report, the Economic Commission for Latin America and the Caribbean (ECLAC) identified seven dynamic sectors that have a strategic role to play because they promote a technical shift, create jobs and reduce environmental footprints. These sectors included: renewable energy; the bio-economy, meaning

² Of note: Marine aquaculture, offshore wind, fish processing, and shipbuilding

³ Investors are increasingly considering these non-financial factors in their analyses of risks and opportunities. We mention it here to highlight a trend with respect to how capital is allocated, and to emphasize the point that investing in environmental impact can be profitable.

⁴ Perhaps informed in part by the recognition that public and NGO sector funds are mismatched to the scale of the challenge. The financing gap between the status quo and the level of investment needed to realize the SDGs is an estimated US\$2.5-3 trillion per annum out of a global GDP of approximately \$US 115 trillion (UNSDGs 2018). The private sector will play a crucial role in closing that gap (du Toit *et al.* 2020). According to the UNDP, for SDG 14, and specifically to achieve SDG target 14.5, would require a one-time public

investment of US\$28 billion and about \$21 billion a year thereafter (see <https://www.sdfinance.undp.org/content/sdfinance/en/home/sgd/goal-14--life-below-water.html>).

⁵ Sustainable Development Goal 14 or “SDG14” calls for the conservation and sustainable use of the oceans, seas, and marine resources for sustainable development and includes a range of targets from reducing marine pollution and protecting coastal ecosystems, to ending illegal fishing and addressing the impacts of climate change on the ocean.

⁶ The members of the ocean panel include: Australia, Canada, Chile, Fiji, Ghana, Indonesia, Jamaica, Japan, Kenya, Mexico, Namibia, Norway, Palau and Portugal. See <https://www.oceanpanel.org/>.

sustainability based on biological resources and natural ecosystems; the circular economy; and sustainable tourism.

In the CLME+ region there is considerable evidence of interest in building a sustainable blue economy region as suggested by the number of projects being developed in the space and the number of countries that have blue economy strategies or are actively pursuing them. For example, Grenada has a strategy in place and has developed a Blue Growth Coastal Management Plan. In Barbados, while there is no specific blue economy strategy as yet, the government is explicitly working towards it and has designated a Minister of Maritime Affairs and the Blue Economy. In Antigua, blue economy is explicitly referenced as a policy priority and there is a Ministry of Social Transformation and the Blue Economy. The inventory (Annex 1) contains a survey of blue economy policies in place throughout the CLME+ region. There are also a number of formidable public-private alliances and partnerships committed to working towards the achievement of SDG 14 – the Caribbean Climate Smart Accelerator, among others.

Box 2 | Sustainable Blue Economy Trends in the CLME+ Region & Beyond

The Climate Smart Accelerator aims to facilitate complex transactions by bridging governmental and private sector interests in the following themes: resilient infrastructure; renewable energy and energy efficiency; oceans; and innovative financing. A diverse range of Partners have pledged their support to the initiative, including: the World Bank, Organization of Eastern Caribbean States, the Inter-American Development Bank, the Organization of American States, the University of the West Indies, among others. Similarly, in recent years, a growing number of global coalitions, alliances and platforms have been announced, linked to ambitious goals for mobilizing funds for sustainable development and conservation. The Blue Economy vision for the CLME+ region is well aligned with these initiatives, and therefore may benefit from them to the extent that they result in concrete financing opportunities. For example, in January 2021 the Prince of Wales announced the establishment, under his Sustainable Markets Initiative, of the Natural Capital Investment Alliance; with founding partners HSBC Pollution Climate Asset Management, Lombard Odier and Mirova, this Alliance seeks to mobilize USD 10 billion by 2022. These investment funds are to be directed to 'natural capital themes,' which, though not concretely defined, could easily encompass the Blue Economy. In the terrestrial realm, initiatives such as the Tropical Forest Alliance and the

Alliance for Rainforests also highlight the importance of mobilizing funding. A French government (AFD) call for a coalition for the convergence of climate and biodiversity finance, which could be joined by sustainable development finance sources, similarly emphasizes this theme. However, most of these initiatives do not in and of themselves create new financing opportunities. The founding partners of the Natural Capital Investment Alliance already manage large investment funds that target natural capital themes; the AFD coalition call largely concerns reallocation of existing funds; and many grand alliance and coalition announcements include calls for funding without any concrete commitments of funding. To the degree that they do result in new resources, they typically are accessed through conventional means described elsewhere, with the attendant barriers and challenges: programming by bilateral and multilateral agencies, large scale impact investment, philanthropy, etc. (further described below).

Nevertheless, investment in the sustainable blue economy remains well below potential.

As the CLME+ project approaches its final phase, it seeks to promote the continuity of actions implemented under the project by facilitating the integration of interactive ocean governance for the region through improved multi-stakeholder involvement and creating a baseline for enhancing investment opportunities for marine-based sustainable socio-economic development. In support of that goal, this report summarizes the findings of a desk review of the investment landscape for the sustainable ocean economy in the project's focal countries. From this review we compiled an inventory of investors of different categories, e.g., Development Finance Institutions (DFIs), philanthropic sources, funds and fund managers (see Annex 1). This baseline assessment provides a summary of the findings of that research.



Fig. 2 | Morne Rouge, Grenada credit Hugh Whyte, Unsplash

BASELINE ASSESSMENT OF INVENTORY

The sustainable blue economy is still very much in a nascent stage of its development in the CLME+ region, with encouraging signs of growth and opportunity, but notable barriers.

The Need for Impact Capital in the Region

At the outset, it is useful to frame the scale of the Sustainable Blue Economy or blue economy investment potential in the context of the broader investment landscape. The Latin America and the Caribbean (LAC) region received US\$160.7 billion dollars in Foreign Direct Investment (FDI) in 2019, 7.8% less than in 2018, a decline that is seen intensifying sharply in 2020 when inflows are forecast to drop by between 45% and 55% as a result of the crisis stemming from the COVID-19 pandemic (ECLAC 2020a). In 2019, the five countries that received the most investment were Brazil (43% of the total), Mexico (18%), Colombia (9%), Chile (7%) and Peru (6%). In Central America, FDI inflows only grew in Panama and Guatemala. In the Caribbean, FDI is highest in the Dominican Republic, Bahamas, and Jamaica. Although FDI is not the only source of capital, it accounts for a significant volume of investment potential in the CLME+ focal countries. Total ODA to the entire LAC region, by comparison, was \$8.5B in 2019 (OECD 2020) and the Global Impact Investing Network (GIIN) estimates the impact investing market to be worth ~\$502B (Assets under management - AUM) globally (Mudaliar & Dithrich).⁷ Development Finance Institutions account for just over a quarter of this total. The LAC region accounts for 4% of the impact investment AUM, or ~US\$20B.

Tab. 1 | Selected Sources of Investment in the LAC Region⁸

FDI (LAC)	160.7B
Impact Investments (LAC)	20B
ODA	8.5B

These figures signal a significant gap between sustainability-oriented and conventional investing (represented in the table by FDI, since, per RI & Credit Suisse (2020), few investors have adopted relevant sustainability considerations), and suggest the market potential in the impact investing space in general.

⁷ Per the GIIN: "Impact investments are investments made with the intention to generate positive, measurable social and environmental impact alongside a financial return. Impact investments can be made in both emerging and developed markets, and target a range of returns from below market to market rate, depending on investors' strategic goals. The growing impact investment market provides capital to address the world's most pressing challenges in sectors such as sustainable agriculture, renewable energy, conservation, microfinance, and affordable and accessible basic services including housing, healthcare, and education." This is distinct from applying ESG screens to equity investments, or investing in ESG Funds.

⁸ Consistent data to disaggregate this investment activity in the CLME+ region is not readily available.

Moreover, the funding needed to achieve the SDGs is substantial – see FN 8, *supra* – and unlikely to be filled by traditional overseas development assistance or philanthropy. The deployment of private capital will be critical.

With respect to demand for credit and investment, several factors inhibit the flow of capital to the sustainable blue economy. Barriers include limited supply of investible projects and short track records of sustainable projects, as well as the absence of appropriate policy and institutional frameworks, especially for established blue economy sectors (e.g., fisheries and aquaculture) where there is a need for increased awareness and policies to promote sustainable practices. In many countries in the CLME+ region, capacity to develop project proposals also is limited. The barriers section of this assessment will expand on these and other challenges. We mention them here as a reminder of the equal importance of the demand side of the equation when considering matching capital with impact-generating projects.

Blue Economy Investment Trends Across the CLME+ Focal Countries

There is significant potential for investments in the sustainable blue economy in the CLME+ region driven in part by global trends, policy discourses and their uptake in participating countries, perceptions about opportunities for return-generating opportunities, and a growing recognition of the unsustainability of business as usual approaches.⁹ Interest and the supply of capital are likely to continue to grow in step with wider environmental mainstreaming and policy change. The greatest prospects for investment are, predictably, in the established sectors of fisheries, aquaculture, energy, insurance, and tourism. There is also notable activity in the emerging areas of coastal resilience/coastal infrastructure and marine waste management, as well as sustainability trends in the transport sector.

A wide range of financial instruments are available to match capital to sustainable blue economy activities. Those activities generating competitive returns will be appealing to private investors. For investments generating lower than

⁹ Through the integration of SDGs into national development agendas, for example, and enabled by efforts such as the Sustainable Blue Economy Finance Principles, the "gold standard to invest in the ocean economy. Launched in 2018, they are the world's first global guiding framework for banks, insurers and investors to finance a sustainable blue economy. They promote the implementation of SDG 14 (Life Below Water), and set out ocean-specific standards, allowing the financial industry to mainstream sustainability of ocean-based sectors." See: <https://www.unepfi.org/blue-finance/the-principles/>.

market returns, blended approaches can be deployed to attract investors. Where no returns can be expected, public investment and grants from philanthropic or development partners are required (Sumaila *et al.* 2020).

Tab. 2 | Types of Financial Instrument & Applicability

Type of Capital	Description	Return
Impact only <ul style="list-style-type: none"> Corporate social responsibility investment Public grants Philanthropic grants Public financing Official development assistance 	This is usually long term but small-scale in comparison to larger types of commercial finance. More likely applied to emerging sectors.	Below-market return
Debt <ul style="list-style-type: none"> Loans Bonds 	This is a low-risk, low-reward type of capital. Debt providers do not have the same level of influence over an investment as equity investors. Most applicable in established sectors.	Market return
Equity <ul style="list-style-type: none"> Public equity Equity investment 	Equity is based on taking an ownership stake in an investment; some types of equity (e.g., venture capital) are high risk, high reward. Mostly applicable in established sectors.	Greater-than-market return
Blended finance	This combines official development assistance with other private or public resources in order to 'leverage' additional funds from other actors. Useful in emerging sectors.	Below-market return

Source: Sumaila *et al.* (2020).

Although largely beyond the scope of this analysis, it is important to note that demand for finance is likely to be strongest in the larger economies in the region. Among the SIDS in the CLME, these are: Jamaica, the Bahamas, Trinidad and Tobago, the Dominican Republic and Barbados. For the wider region these include: Mexico, Brazil, Colombia, Costa Rica, and Panama.

The inventory divides investors in the sustainable blue economy into nine categories (see Box below), and places each entry or prospect into one of three color-coded tiers (Tier 1 (green), Tier 2 (blue), and Tier 3 (orange)) according to their alignment with CLME+ geographies and priority

themes. Tier 1 prospects are those whose activities reflect a strong alignment with the CLME+ initiative with respect to *both* a) current focal themes and b) geographic interest/scope of operations, i.e., emphasis on LAR and/or the Caribbean. Tier 1 prospects have a compelling volume of capital to invest. Tier 2 prospects are strong candidates for investing in the CLME+ region, due to the alignment of an entity's a) thematic *or* b) geographic focus with those of the CLME+ initiative. Finally, Tier 3 prospects have a notional/weaker alignment between CLME+ objectives and focal areas and geographies.

Box 3 | Sustainable Blue Economy Investor Categories¹⁰

1. Private Sector: Investment Fund Managers/Investment Funds
2. Private Sector: Incubation/Accelerators/Alliances&Coalitions
3. Private Sector: Banking
4. Development Finance Institutions
5. Philanthropy/Foundations
6. NGOs
7. Multilateral Organizations
8. Bilateral Organizations; and
9. Other

We found a total of 131 blue economy investor prospects across nine investor categories (See Box 2). 51 of these investors we classed as Tier 1 priority; 33 as Tier 2; and 46 as Tier 3. By and large, investment in the sustainable blue economy in the region is in the form of blended approaches led by Development Finance Institutions (DFIs) and governments, and grants from philanthropic and bilateral and multilateral development agencies that support demonstration projects and other interventions that contribute to a healthy enabling environment for investment (e.g., capacity building and development of standards, regulations and policy). This is true in both established and emergent sustainable blue economy sectors. As significant portions of the growing sustainable blue economy are still in early stages, philanthropic funds and development aid can continue to catalyze new projects, while venture and first time funds will continue to play a crucial role in building markets across target sectors. Various tools to mitigate or redistribute risk, such as guarantees, can also help overcome barriers to investment and broaden access to the sustainable blue economy. That said, application of these various blended finance approaches needs to be cognizant of possible challenges (see Table 3 below).

¹⁰ In response to feedback received from the CLME+ team, we have addressed corporate contributions/Corporate Social Responsibility (CSR) investments

supporting healthy marine and coastal areas in a separate section of the inventory. There is also a dedicated section to trends in corporate CSR below.

Tab. 3 | Challenges Associated with Blended Finance

Challenge	How to mitigate the challenge
Imbalance whereby the public sector takes much of the risk and hands the returns to the private sector	A carefully set-up structure
Difficulty of diversifying political risk	Global blended finance structures
Perception of some blended finance as an unnecessary subsidy for private finance Risk of in effect "overpaying" to attract private capital Questions about whether the private sector would have financed the project anyway (additionality) "Crowding out", whereby private-sector funds effectively compete with public-sector funds in project financing, leading to inefficient use of capital	Ensure clarity about the expected impacts and outcomes
Risk of financial losses and poor business models undermining the credibility of both participants and the broader financial instruments being used, especially innovative structures	Technical assistance and effective due diligence
Accusations that with alliances between developing country governments and international private financiers, profits are exported from developing to developed countries	Involve local finance market participants who know the country and the market and can contribute local knowledge
Creation of a dependency risk from access to concessionary capital, whereby businesses become reliant on access to cheap capital rather than becoming fully commercial operations	Clearly defined timelines and business plans for the eventual removal of subsidies

Source: FAO (2020a).

Of the investment fund managers/investment funds identified, only a very few (12) were actively investing in the sustainable blue economy, and still fewer in the sustainable blue economy in the CLME+ region (9). This is in line with the general (global) trend of underinvestment in the sustainable blue economy / SDG-14 relative to other SDGs. Investments were in the aquaculture, fisheries, tourism, marine pollution, insurance, energy, and carbon transition sectors. See Table 4 below. Table 5 describes notable investment activity in sustainable blue economy sectors. The listed investors are either actively seeking opportunities in the CLME+ region or would be good candidates to speak to about investing in the CLME+ region based on their involvement in previous sustainable blue economy-related ventures.

Tab. 4 | Distribution of Entities within the Investment Fund Managers, Investment Funds Category

Blue Economy Investors in the CLME+ Region (9)	Blue Economy Investors Outside the Region (12)	Impact Investors, non-SDG-14-specific (29)	Impact Investors, non-SDG-14-specific (in Region) (4)
Finance in Motion (Eco-Business Fund)	Deliberate Capital	Blue Like an Orange	Performa Investimientos
Mirova-Althellia (Sustainable Ocean Fund)	Blue Oceans Partners	Tiedmann Advisors	Gawa Capital
Global Fund for Coral Reefs*	Rockefeller Asset Mgmt.	Global Environment Fund	Adobe
Eco Enterprises	Cornerstone Capital	Drashta Ventures	Promotora
Encourage Capital*	8F Asset Mgmt.	Veris Wealth Partners	
Insuresilience Investment Fund	Alpha Impact Investment Mgmt.	The ImPact Tribe Impact Capital	
Caribbean Renewable Energy Forum Fund*	AquaSpark	Sonen Capital	
CI Ventures	Circulate Capital	Semilla Capital Partners	
Cuna del Mar	Katapult Ocean	Blue Orchard Impact Investment Fund	
	Ocean 14 Capital	Performa Investimientos	
	Posaidon Capital	Acumen Latin America	
	SeaAhead	KL Felicitas Foundation	
		Developing World Markets	
		Bamboo Capital Partners	
		Pegasus Equity Partners	
		GAWA Capital	
		Adobe	
		Actis	
		AlphaMundi	
		Promotora	
		Mosaico	
		WHEB Group	
		Eden Tree	
		GEF Capital Partners	
		Calvert Impact Capital	
		Meyer Family Enterprises	
		RS Group	
		Resilience Capital Partners	

Sectors targeted: aquaculture, fisheries, tourism, marine pollution, insurance, and renewable energy

Sectors targeted: fisheries, aquaculture, renewable energy, plastic pollution, carbon transition,

*These funds are not yet operational.

Tab. 5 | Notable Investment Activity in Sustainable Blue Economy Sectors

Investor	Sector	Short Description
<i>Althelia Sustainable Ocean Fund</i>	<i>Multiple sectors relevant to the Sustainable Blue Economy</i>	The \$132 million Sustainable Ocean Fund provides growth capital to companies in the sustainable seafood, circular economy and conservation-focused sectors. The fund has a blended structure, with a \$50 million Development Credit Authority facility with USAID. Investors include: the European Investment Bank, Axa Investment Managers, IADB, FMO, and Caprock Group. The geographical focus of the fund will be 30% in Asia and Pacific, 40% Latin America and the Caribbean, and 30% Africa.
<i>The EcoEnterprises Fund</i>	<i>Aquaculture, EcoTourism</i>	The EcoEnterprises Fund utilizes tailored mezzanine, quasi-equity, and long-term debt instruments to drive growth in expanding sectors such as regenerative agriculture, agro-forestry, sustainable aquaculture, ecotourism, certified forestry, and emerging nature-based opportunities. The geographic focus of the fund is Latin America, since the region holds 40% of the world's biological diversity, more than 30% of the earth's available freshwater and almost 50% of the world's tropical forests. EcoEnterprises Fund invests in compelling, scalable small businesses working in the following themes: sustainable agriculture, agro-forestry, sustainable aquaculture, ecotourism, certified forestry, and wild-harvested products
<i>Global Fund for Coral Reefs</i>	<i>Multiple.</i>	The still to be launched GFCR seeks to invest 500 million USD in coral reef conservation over a 10-year window (2020 - 2030). To protect coral reef ecosystems and unleash their potential, the GFCR will serve as a blended finance vehicle leveraging grants, debt and other financial instruments to facilitate private return-based investments for coral reef conservation and resilience. The Fund will support businesses and finance mechanisms that improve the health and sustainability of coral reefs and associated ecosystems, while empowering local communities and enterprises.
<i>Blue Oceans Partners</i>	<i>Fisheries, Aquaculture, Renewable Energy, Plastic Pollution</i>	Established in 2019, Blue Ocean Partners is a specialist blue economy investor targeting companies scaling up innovations that help address the most critical threats to the ocean. Primary focus is on solutions to overfishing and plastic pollution.
<i>Katapult Ocean</i>	<i>Energy, Transportation, Aquaculture, Fishing, Bioprospecting</i>	Provides mentoring and seed investment to companies having a positive impact on the ocean. Since 2018, Katapult Ocean has made 32 investments all over the world (17 countries, 4 continents).
<i>Cuna del Mar</i>	<i>Aquaculture</i>	Invests in early-stage private companies in the aquaculture sector, and in acquiring assets to develop new business opportunities, focus on open ocean aquaculture.
<i>Aqua-Spark</i>	<i>Aquaculture</i>	Specialist sustainable aquaculture investment fund, established in 2013. Aqua-Spark is an open-ended fund specialized in making equity investments in sustainable and innovative aquaculture companies across the globe.
<i>Finance in Motion, Eco.Business Fund</i>	<i>Fisheries, Aquaculture, inter alia</i>	This large (US\$350M+) fund aims to “promote business and consumption practices that contribute to biodiversity conservation, to the sustainable use of natural resources and to mitigate climate change and adapt to its impacts, in Latin America, the Caribbean, and sub-Saharan Africa.” In order to be eligible, producers and companies must have either a) a sustainability certification approved by the eco.business Fund, e.g. MSC (Certified Sustainable Seafood) or b) adhere to a “green list” of good practices and investment guidelines.
<i>InsuResilience Investment Fund</i>		The InsuResilience Investment Fund was set up by KfW, the German Development Bank in 2015. It works in ODA eligible countries to promote the adaptation to climate change by improving access to and the use of insurance in developing countries and thereby reduce the vulnerability of micro, small and medium enterprises (MSME) as well as low-income households to extreme weather events.

Corporate Social Responsibility

Historically, Corporate Social Responsibility (CSR) expenditure in the LAC region has been heavily influenced by guidelines from multinational headquarters. Encouragingly, a 2016 paper on CSR in the Caribbean region by a scholar from the University of Delaware analyzed more than three hundred firms in Barbados, Guyana, Jamaica, St. Lucia, and Trinidad and Tobago, finding that CSR investments are increasing in the region. The paper recommended a shift to sectoral CSR strategies and complementary national policies to align CSR and development goals in order to enhance CSR's impact on sustainable development (Shah 2016).

One complication in this regard is that there is, as yet, no readily available ocean-specific set of targets and indicators for corporations to report against. Instead, voluntary, company-specific targets have been developed in an *ad hoc* fashion by forward-thinking corporations in line with their operations, such as number of days of operation in marine reserves; number of spills prevented; volume of harmful substances released; support to scientific research; adoption of responsible procurement in the fishing sector; reduction in use of single use plastics; and/or increased use of recycled materials (OOF 2020).

Nevertheless, we have found several examples of CSR investments and business practices recognizing the values of marine and coastal natural resources or otherwise promoting the sustainable blue economy in the insular Caribbean. In the tourism sector, hotel companies and resort chains, both multinationals and regional, offer notable examples. This suggests a forward-looking posture with respect to the logical connection between healthy coastal and marine ecosystems and tourism demand. These early movers in the space could be deployed as powerful allies and advocates for policies that promote an enhanced role for the private sector in achieving sustainable blue economy objectives.

Spanish resort company Iberostar recently launched its "Wave of Change" Initiative, under which it has committed to a number of ambitious sustainability goals: to make operations single-use plastic free by 2020, waste free by 2025, and carbon neutral by 2030; for on-site seafood consumption to be 100% responsible by 2025; and for the ecological health of all ecosystems that surround IBEROSTAR properties to "be improving" by 2030, alongside profitable tourism activities, an area the company refers to as "coastal well being." This third programmatic area focuses on restoration and protection of coral reefs and mangrove ecosystems, as well as the promotion of

knowledge and the nurturing of marine life. The firm has created a coral reef nursery at one of its properties in the Dominican Republic. With multiple properties in the Dominican Republic, Jamaica, Cuba, Brazil, and Mexico, this ambitious commitment to sustainable practices offers a compelling model for the sector.

The Grupo Puntacana Foundation (the philanthropic arm of the Dominican Republic-based Grupo Puntacana tourism conglomerate) manages a number of forward-thinking marine and coastal sustainability initiatives. Its Center for Marine Innovation is a state-of-the-art facility dedicated to marine conservation, restoration, and management. Inaugurated in 2018, the Center works with diverse partners to conduct research, environmental education, and active management and restoration projects. The Foundation also has a Center for Sustainability and is a long-standing participant in the Zero Waste Alliance.¹¹ Since 2007, the Puntacana Resort & Club has used this program to minimize the waste it sends to landfill through waste reduction, recycling, reuse, and the transformation of waste into energy and compost.

The philanthropic arm of the Jamaica-based Sandals Resorts chain has a strong environmental CSR program that focuses on educating communities, including fishermen, young students and employees about effective conservation practices. Their Foundation has established the Whitehouse, Bluefields, and Boscobel Nurseries, in partnership with the Coral Restoration Foundation, which aim to restore coral coverage in target areas. These programs engage visitors and guests in coral conservation and restoration techniques. With properties throughout the region – in Antigua, Saint Lucia, Barbados, Grenada, and Barbados – the Foundation has the potential to export this and similar sustainable blue economy friendly CSR investments and make an important contribution to development.

Another initiative, the Saint Lucia Hotel & Tourism Association's Tourism Enhancement Fund (TEF), founded and managed by the industry group, represents a concerted effort by the hotel and tourism sector to mobilize resources for projects that enhance the country's tourism product. The Fund supports projects across a broad range of sectors, but the connection between marine and coastal ecosystem health and the island's tourism product makes environmental projects a particularly compelling target. The mechanism is based on a voluntary donation of EC\$2 per night from guests at participating hotels. The fund has provided financial support to over 250 projects since 2013, including a campaign to raise the awareness of chefs and hotel managers about safe handling and preparation of

¹¹ The Center for Sustainability was created in 1999 to develop solutions for the environmental and social challenges facing the tourism industry in the Caribbean. The Center was originally created through a pioneering alliance between Grupo Puntacana and Cornell University. Since then, it has partnered with national and international institutions including Harvard University, Roger

Williams University, University of Miami, Florida International University, Instituto Tecnológico de Santo Domingo (INTEC), Virginia Tech University, University of Florida, Columbia University, Counterpart International, The Nature Conservancy, and others.

lionfish, an invasive species. The TEF is managed by a mixed (public and private sector) Board of Trustees. The SLHTA provides its own resources to administer to projects so that funds collected from visitors are applied solely to projects. This is a fine example of the private sector tuning its CSR contributions to the development priorities of the country. With appropriate agreements and governance arrangements in place this sort of approach could mobilize substantial resources to protect and restore natural ecosystems linked to the health of the tourism economy.

Other initiatives (globally) worthy of mention include initiatives by Dell and Adidas. Dell has created the first commercial global ocean plastics supply chain, and will reuse plastic collected from beaches, coastal areas and waterways as packaging for its products. Adidas committed to making one million pairs of ocean plastic shoes in 2017, equivalent to 11 million plastic bottles, and five million pairs in 2018; after several years of meeting increasingly ambitious targets, Adidas has set a target of 17 million pairs for 2021.¹²

2020 in Review / Informe 2020

Our 5 long-term commitments
Nuestros 5 compromisos al largo plazo

How can we inspire responsible tourism that protects our oceans? Wave of Change is committed to the oceans that reached the hearts of our 34,000 employees since 2018. In early 2020, we announced our five long-term goals looking to 2030. These goals will help guide us in our goal to continue leading responsible tourism.

¿Cómo podemos inspirar un turismo responsable que proteja nuestros océanos? Wave of Change es un proyecto comprometido con los océanos que lleva anidando en los corazones de nuestros 32.000 empleados desde 2018. A principios de 2020, anunciamos nuestros cinco compromisos a largo plazo con la vista puesta en 2030. Estos objetivos nos ayudarán a alcanzar nuestro objetivo de seguir liderando el turismo responsable y mejorando la vivencia que ofrece Iberostar a sus huéspedes.

- 1** Iberostar's operations are single-use plastic free by 2020, waste free by 2025, and carbon neutral by 2030
Todos los hoteles Iberostar estarán libres de plástico de un solo uso en todas sus áreas a finales de 2020, libres de residuos (destinados a un vertedero) para 2025 y neutrales en emisiones de carbono para 2030
- 2** Iberostar's seafood consumption is 100% responsible by 2025
El consumo de pescado y mariscos en Iberostar será 100% de fuentes responsables para 2025.
- 3** All ecosystems that surround Iberostar properties are improving in ecological health alongside profitable tourism by 2030
Iberostar invertirá en la salud de los ecosistemas en torno a todos sus hoteles comprometiéndose a haberla mejorado en 2030, aumentando la calidad turística de los destinos
- 4** Wave of Change is recognized by 90% of clients in-stay by 2023 and is a major driver for 60% of clients to choose Iberostar by 2025
El 90% de los clientes alojados en Iberostar conocerán el movimiento Wave of Change para 2023 y este supondrá uno de los principales factores para que el 60% de los clientes escojan Iberostar en 2025.
- 5** Iberostar's own certification or verified partner certifications for responsible tourism are adopted by 2x the number of hotels Iberostar manages by 2030
El doble de hoteles que Iberostar tenga en portafolio habrán adoptado la certificación de turismo responsable propia de Iberostar o de partners verificados para 2030.

Fig. 3 | Iberostar's "Wave of Change" initiative, Year in Review 2020

¹² <https://footwearnews.com/2020/business/athletic-outdoor/adidas-sustainable-products-2021-1203088779/>

BARRIERS TO SUSTAINABLE BLUE ECONOMY INVESTMENT IN THE CLME+ TARGET GEOGRAPHIES

While there are a number of important ongoing initiatives to stimulate private sector investment, considerable barriers inhibit the mobilization of private capital into the sustainable blue economy in the CLME+ region.

One set of barriers relates to a general lack of familiarity with the blue economy investment landscape, including a specific lack of expertise among asset managers and investment advisors. Consequently, these financial service providers are unable to present their clients with relevant opportunities (despite growing interest in sustainable blue investment on the part of asset owners, as documented in RI & Credit Suisse (2020)). At the same time, potential investment targets themselves (for example in the fisheries and aquaculture sectors) may have limited technical or marketing awareness of sustainability considerations, and are deterred by high cost of and limited access to financing, such that they are not articulating effective demand for blue finance. Addressing these barriers is complicated by the absence of widely accepted standards or guidelines relating to definition of a sustainable blue economy and measurement of relevant investment-metrics.

These blind spots with respect to blue economy finance in the investment world are at least in part attributable to the dearth of investable projects. Although there may be plenty of thematically relevant projects, few meet investor expectations with respect to size or revenue potential. There is a mismatch in size (in terms of financing need) between many blue interventions versus the minimum scale needed to be of interest to private sector finance; given high transaction costs and uncertainties, private finance does not see value in bite-sized investments. Moreover, there is but a scant track record of successful sustainable blue investments, and with respect to impact investment in particular there is a notable perception of a lack of exits (e.g., strategic sales, buybacks, debt repayments and acquisitions) as a barrier to the growth of impact capital markets (Hume *et al.* 2020). These factors make it difficult to price investments and balance up-front costs with expected revenue and returns, and this barrier is made all the more daunting by the difficulty of quantifying and pricing climate-related risks.

Challenging macro-economic conditions will deter investors (or require high risk premiums). These can include weak growth prospects, inflationary pressures, and currency risk. These conditions further compound structural cost barriers such as high costs of energy and regional transportation, not to mention institutional and regulatory barriers that limit the ease of doing business in many of the CLME+ countries.

Larger shifts in financing trends pose another barrier to investment. One such shift is an expectation that impact investors (and other sources) may prioritize the health sector for the foreseeable future, in the aftermath of the COVID-19 pandemic. Another is declining aid flows, as a consequence of domestic pressures in donor countries and reprioritization of recipient countries. A third is tightening fiscal constraints in CLME+ countries themselves, driven by various factors that include declining prospects for debt finance. Combined, these trends may reduce the prospects for blended finance and strategies to crowd in private sector finance through public funds and concessionary investment.

Box 4 | Main Barriers to Increasing Investment in the Sustainable Blue Economy

- Concerns about ease of doing business
- Lack of exits for investors, meaning transactions by which the investors convert their investment into cash, either because the business is not performing or because profit objectives have been met. Examples include repayment and close-out of a loan, or sale of the investor's equity share in a business.
- Limited internal expertise in the space (asset managers).
- Asset managers do not offer products or raise the topic of sustainable blue investments with potential investors. (As noted in Credit Suisse analysis, this is somewhat surprising, given the interest that has been expressed in the space by respondents to their survey)
- (Post-Covid) concern that impact investors will migrate funds to health sector
- Cost and efficiency of regional transportation
- Mismatch in size (in terms of financing need) between many green interventions versus the minimum scale needed to be of interest to private sector finance (not worth the effort to make bite-sized investments).
- Limited scope for debt finance and restricted fiscal space and declining aid flows
- Cost and access to financing
- Standards and guidelines / taxonomy directly addressing the need for a definition of a sustainable blue economy
- Cost of energy
- Difficult to quantify/price climate-related risks, balance up front costs with potential investment outcomes.
- Limited supply of investible projects, short track record of sustainable projects
- Demand side barriers e.g., policy, institutional frameworks, esp. re: established sectors, e.g., fisheries and aquaculture. There would be a need for increased awareness and policies re: sustainability;
- Currency risk
- Unfavorable macro-economic climate

Source: Authors' synthesis from literature and interviews.

STRATEGIC CONSIDERATIONS FOR CERTAIN PRIORITY SECTORS

The CLME+ region is diverse by many measures: in terms of the size of the economies of the states that share the seascape as measured by GDP, or their development progress as measured by the human development index. The region is home to a variety of legal regimes, languages, and cultures. While the countries and territories participating in the CLME+ project share a vital common resource in the Caribbean Sea, because of this diversity the following strategic considerations necessarily entail certain generalizations. Further research in specific geographies can bring greater precision to the analysis of individual sustainable blue economy sectors. Our research focused on the following sectors: capture fisheries, aquaculture/mariculture, renewable energy, green infrastructure, coastal tourism, waste management, and marine biotechnology. Table 6 summarizes the findings of our investigation. Note that desk research was complemented with a series of interviews with experts in each of the sectors.

Tab. 6 | Summary of Challenges & Opportunities in the Region by Sector

Sector	Barriers/challenges	Opportunities
Capture fisheries	Demand for sustainable products still a small portion of market High transaction/operations costs of centralized oversight and management systems, leads to data gaps and weak enforcement	Engage wholesalers/importers to apply purchasing standards Mainstream sustainability standards among conventional financing sources Co-management and micro-finance to empower small-scale/artisanal segment
Aquaculture/ Mariculture	Vulnerability to extreme weather events Limited resources of borrowers (equity, collateral, and technical know-how) Limited familiarity with sector on the part of investors, difficulty of determining risk/return profiles Lack of well-defined sustainability standards Insufficient R&D budgets, public investment	Public reactions to negative impacts of conventional aquaculture are exerting pressure for adoption of sustainable practices Regulatory intervention (e.g., siting requirements) can reduce risk for investors Technological improvements and cost-savings are pushing the industry towards sustainability
Renewable Energy	Legacy systems heavily reliant on imported fossil fuels Opportunities are evident but not at a sufficient scale (absent aggregation) for conventional investors Limited in-region familiarity with this investment space (risk/return profiles, scaling options) Limited government capacity to design, negotiate and manage PPPs	Well suited to blended finance solutions through PPPs Cost savings over fossil fuel imports Sector is well-positioned for job growth and economic development (high growth multiplier, incl. because of reduced costs in all other sectors) Distributed, off-grid systems based on renewables offer resilience advantages of conventional centralized systems
Green Infrastructure	Regulatory uncertainty (agency mandates; policy emphasis on conventional infrastructure; tenure) Emphasis on built infrastructure in post-disaster reconstruction Technical capacity to manage procurement processes for green infrastructure solutions Capacity with respect to innovative financial arrangements	Public cost savings Innovative models for public finance (green bonds; impact bonds; PPP) Nature-based solutions with multiple co-benefits
Coastal Tourism	Poor management and planning, lack of political commitment and weak sustainability awareness Perception that conventional capital costs are too high to justify sustainability investments / mismatch in size and timing of credit costs and operational cost savings Costs of maintaining certification exceeds benefit (in terms of marketing advantages) for small to mid-size sector (as a specific instance of more general challenge of credit access)	Growing demand for sustainable tourism on part of travelers Sustainability enhancements can yield cost savings (e.g., construction design to reduce water and energy usage)
Waste Management	Weak cost recovery frameworks limit revenue potential to repay investors Environmental and social costs of poor waste management not adequately factored into decision making Legislative and regulatory frameworks lag behind policy advances, in part reflecting limited political will for enforcement. SME sector is too small scale to attract significant investment Country contexts too small to achieve economies of scale, regionalized solutions require difficult multinational coordination	Growing policy recognition of need to improve the sector, e.g., through emphasis on circular economy Priority of existing financing sources (e.g., IDB Invest), including technical support for PPPs Reduced GHG emissions from better management may offer carbon credit revenue Cost savings through nature-based solutions (esp. waste water treatment)
Marine biotechnology	Considered high potential, but is in an early stage of development that precludes most conventional finance	Venture capital and technology investors Role of government is to focus on enabling environment (regulation, standards, intellectual property rights protection, and environmental and social safeguards)

Capture Fisheries

Caribbean fisheries resources are among the most overexploited in the world.¹³ Nevertheless, the overall trend in total marine fish production of the CRFM Member States 2005 to 2016 is one of increasing production (CRFM 2018).¹⁴ This coincides with a dramatic increase in fishing effort over the last thirty years. In the CARICOM countries tens of thousands of people are directly employed in small-scale fisheries and aquaculture, and hundreds of thousands are involved in fish processing, retailing, boat construction, net repairs, etc. (FAO 2014). Because fisheries generate significantly more value when they are sustainably managed, the transition to a more sustainable fisheries sector represents both an ecological necessity in the region and a socio-economic opportunity. The logic goes that while there are considerable upfront costs to transitioning to a sustainable model, these could be recouped through enhanced returns.

Nevertheless, sustainable fisheries management and private sector investment in sustainable practices are far from mainstreamed. While some firms engaged in sustainable sourcing have been able to secure increased market, demand is insufficiently strong to scale the kinds of management practices that comprise a sustainable fishery. Still, advocacy with wholesalers and education of consumers could provide an important sustainability impulse. Likewise, working with traditional sources of finance for fisheries businesses to change their lending requirements to orient them to more sustainable business practices could be useful. Finally, and perhaps most importantly, governments need to take a leading role in driving sustainable management of fisheries resources through the utilization of co-management systems, where ownership interests are conferred on fisherfolk / the fishing industry itself based on compliance with certain sustainability terms.¹⁵ In the Caribbean, and particularly in the SIDS of the region – where the capture fisheries sector is comprised of largely small-scale artisanal fishers – the transaction costs/field costs of a centrally managed system are far too high to be effective.

A conceptual framework for analyzing the readiness of the sustainable fisheries sector for private sector investment integrates the following three core elements: a) the enabling environment; b) drivers of value; and c) well-structured deals (Holmes *et al.* 2014).

¹³ According to FAO (FAO 2014), fifty five percent of commercially harvested fishery stocks are overexploited or depleted and 40 percent of stocks are currently fully exploited.

¹⁴ 2016 is the most recent year of readily available comprehensive statistics. The FAO Global Capture Production database offers two additional years, where 2017 is one of the highest production years since 2000, while 2018 is one of the lowest.

¹⁵ According to one expert we spoke to, even the best-resourced governments have struggled to develop sustainable fisheries management regimes. The most

The enablers of sustainable and profitable fisheries include:

1. Secure tenure aligning the incentives and empowering the fishing industry to pursue sustainable use of the resource
2. Sustainable harvests determining how much fish can be sustainably taken from the fishery and enabling the creation of both management and investment frameworks
3. Robust monitoring and enforcement, which provides assurance that fishers will comply with sustainable management and reduce the likelihood of illegal activity that could undermine the transition.

The drivers of increased fisheries value include:

1. Improving stock health, which leads to a more abundant resource that supports higher long-term yields and makes fish less costly to find and to catch
2. Increasing operational efficiency, which reduces the cost of fishing and delivering fish through the supply chain, improving profit margins and thus improving the returns from fishing as a whole
3. Increasing market value through improved market access, certification, branding and long-term partnerships returns more value to fishers

Finally, in order to attract appropriate investment, project developers must have:

1. A clear business case for the transition that includes a contextual analysis of the project and as well as a bio-economic and financial model of the investment proposition¹⁶
2. Investable entities to act as counterparty to the investment; these can be existing, modified, or newly created entities
3. Mechanisms for capturing return from the beneficiaries of the transition to share the upside of a transitioned fishery with the investor, such as dividends, taxes, or fees
4. Risk management through appropriate identification and articulation of risks, as well as efforts to mitigate or manage risk

In much of the Caribbean, limited resources in the public sector inhibit enforcement of existing regulations and data collection required to enable private investment in both the commercial and artisanal sectors. The sector generally is

effective governance arrangements will be those that put the onus of sustainable fisheries management on the fisherfolk / fishing industry, with appropriate oversight and checks in place. Good examples of where co-management regimes have been utilized include: New Zealand, Scotland, and Spain.

¹⁶ For examples of such business cases see Wilderness Markets (2018a, 2018b).

characterized by minimal formal management, limited data or analysis of fish stocks, and relatively weak enforcement of fishing regulations, suggesting that there is yet considerable work to be done to create an appropriate enabling environment for private investment. Investment in co-management systems could be a way for governments to pass the financial burden of more sustainable management to the private sector.

With respect to key drivers of value, there is widespread recognition in principle of the importance of MPAs as a management tool in the region, as reflected in the substantial investment in legal and policy frameworks to enable the establishment of protected areas. Under the Special Protected Areas and Wildlife (SPAW) Protocol to the Cartagena Convention, signatory countries are obliged to protect, preserve and manage in a sustainable way areas that require protection to safeguard their special value -- establishing protected areas when necessary -- to sustain natural resources. One such special value is the productivity of ecosystems and natural resources that provide economic or social benefits and upon which the welfare of local inhabitants depends. Limited public sector budgets for MPA management and enforcement limit the effectiveness of these measures, although a number of ongoing initiatives aim to assist governments addressing the MPA financing gap (see e.g., Caribbean Challenge Initiative, Caribbean Biodiversity Fund). The Caribbean Biodiversity Fund manages a protected areas endowment of over US\$75M. Income generated through the investment of the endowment capital is distributed to a network of conservation trust funds which in turn disburse grants to eligible NGOs and government agencies in accordance with locally defined strategies.

Conservation International and FAO completed a series of business cases for improving the biological, social and economic performance of tuna and billfish fisheries in Grenada and the Dominican Republic, as well as a comprehensive assessment of the viability of the business case for investing in the Western Central Atlantic Fishery Commission of FAO (WECAFC) with a view to catalyzing pilot investments. These case studies include comprehensive contextual analyses, looking at status of fisheries, data regarding catch and the industry, infrastructure, management and governance, organization capacity market potential, investible entities, etc. These provide a useful model for completing dedicated contextual analyses in other priority geographies in order to promote private sector investment and mainstream sustainable management frameworks.

WWF and Wilderness Markets have proposed Fishery Improvement Projects (FIPs) as a solution to the issue of the unavailability of long-term private sector finance at scale. The idea involves supporting partners to achieve the Marine Stewardship Council (MSC) standard, which is based on core principles of sustainable fish stocks, minimization of environmental impacts, and effective fishery management. To overcome the financing gap, WWF have proposed the use of a blended public and private finance facility, with an initial target of 3 to 5 FIPs within 2 years and a gradual expansion to reach fisheries all over the world.

Similarly, microfinance may be an area to be further explored in the region, given the prevalence, particularly in the region's SIDS, of small-scale artisanal fisher communities. Microfinance can promote resilience and reduce vulnerability among marginalized small-scale fishing communities.

Aquaculture/Mariculture

The value of fish coming from aquaculture, the fastest-growing food production industry on earth, now tops US\$250B per year compared with US\$170B for wild caught product (O'Shea *et al* 2019). As wild capture fisheries decline and global population increases, aquaculture – done correctly – represents a compelling proposition for the Caribbean in terms of food security, marine protection and investment returns, as well as for improving rural income and employment, reducing food import bills, diversifying farm production, and increasing foreign exchange earnings (CRFM 2014a). Scientists at the University of California Santa Barbara estimated that the Caribbean region could produce over 34 million metric tons of seafood per year, more than two orders of magnitude larger than the region's entire current seafood production (Thomas *et al.* 2019).¹⁷ Others have more modest estimates of an increase of 30% within ten years (FAO 2014). At present, Haiti and Belize account for 85% of the region's aquaculture output (CRFM 2018).¹⁸

There is a global trend pushing the industry away from conventional, less sustainable aquaculture, because of public reaction to widely reported negative impacts of the industry and a consequent move towards tighter regulation. Regulatory interventions can improve environmental performance by addressing questions of planning/siting as well as farm management practices, feed, and chemical antibiotic usage. Lower costs of more sustainable technology as well as certain operational incentives (reductions in costs associated with feed, among other things) are also pushing the industry in this direction.

¹⁷ Note that this study focused on the potential of mariculture for a single species (cobia). The study found that the Caribbean could match its current seafood production by farming in just 179 square kilometers, or a mere 0.006 percent, of its marine space.

¹⁸ For CRFM member countries. During the period 2013-2016, the region produced approximately 8,606 mt of fish annually from aquaculture systems. Belize was the largest aquaculture producer over the period, producing approximately 4,796 mt annually followed by Haiti, producing approximately 2,530 mt annually.

The readiness of the sector for private sector investment can be assessed against the following criteria (not exhaustive). Substantial work remains to enable investment at scale in the Caribbean.

1. Enabling Environment
 - a. Policy, a broad vision for the sector, with supporting strategies and plans; laws and regulations
 - b. The availability of affordable credit
 - c. Principles and guidance defining responsible marine aquaculture
 - d. Availability of suitable sites
2. Drivers of Value
 - a. Market demand dynamics and price signals
 - b. Marginal production cost drivers (labor, energy, feed, access to market)
3. Well structured transactions

In the Caribbean, the availability of credit has been identified as a hurdle, due to limited resources of borrowers, and limited knowledge and understanding of traditional lending institutions.

One industry expert we spoke to described the high intensity, big investment of the kind needed for offshore fin-fish aquaculture as being constrained by the region's vulnerability to intense storms which can damage the production equipment and infrastructure. The same expert identified the lack of public investment in R&D needed to build the sector, e.g., to complete the sort of genetic testing to produce commercially viable species in the Caribbean that would be investible; technological transfer; infrastructure, including hatcheries, for example. This is an area in which development finance institutions could play a key catalytic role, as the funding volume needed to cover up front costs of industry start up dwarf what is available through philanthropy and ODA.

In the absence of heavy public investment in the sector of the kind needed to build an offshore aquaculture industry, lower intensity, small scale, low input production might be best suited to the region (for example for seaweed¹⁹ and shellfish). Here the siting problem of conflicting uses for coastal lands becomes a particular challenge for the SIDS of the region, given their small coastal zones, relatively high populations in these areas, and the importance of tourism and tourism infrastructure. Marine spatial planning could help to resolve some of these conflicts. Nevertheless, the challenges of lack of available credit and the prospect of higher-paying jobs in the tourism sector present challenges

¹⁹ The Jeremy and Hannelore Grantham Environmental Trust in partnership with WWF recently invested \$850,000 in Ocean Rainforest, a Faroe Islands-based company that offers a range of seaweed products for food and cosmetic producers.

²⁰ FAO has initiated a process to define a set of "Sustainable Aquaculture Guidelines." These guidelines will provide pathways towards successful implementation of sustainable aquaculture in different regional contexts /

to the growth of the sector in the Caribbean.

Other barriers include:

- Heavy upfront capital expenditures;
- Poor understanding of risk/return characteristics;
- Unclear understanding of sustainability requirements, absence of principles for responsible marine aquaculture investment and industry benchmarking tools;²⁰
- Financing early-stage R&D;
- Financing project development including addressing pilot plant risks;
- Information asymmetry and knowledge barriers in the aquaculture market; and
- Transactional friction of financing new types of assets.

One method proposed for overcoming the access to credit barrier is to work with Credit Unions and Small Farmers Banks for small-scale aquaculture farmers for on-lending with capital originating in the World Bank or other institutions (CRFM 2014b). Microfinance may be an area to further explore.

Substantial investment is required in priority geographies to address barriers and knowledge gaps.

Renewable Energy²¹

The world must transition away from fossil fuels to renewable energy by 2035 to avoid passing a point of no return for addressing climate change. Doing so requires annual increases in renewable energy's share of total power generation of at least two percent per year.

The renewable energy sector is a prime investment target in the CLME+ region, especially in SIDS. Despite ideal conditions for green energy, the Caribbean economy depends almost entirely on imported diesel fuel or natural gas (Trinidad and Tobago is an exception). According to IRENA (2020), although solar photovoltaic, biomass, onshore wind and hydro options all are cost competitive (on average throughout the Latin America and Caribbean region), total generation from renewable sources is only 6% of potential. Abundant sun and wind along with geothermal energy and hydropower could free the Caribbean almost entirely from fossil fuels. Particularly as countries contemplate post-COVID 19 economic recovery plans, the renewable energy sector offers great promise for economic development and job growth (SEforALL 2020).

rationale and attributes of approaches and practices / accomplishments and constraints, See <http://www.fao.org/blogs/blue-growth-blog/towards-sustainable-aquaculture-guidelines/en/>

²¹ Renewable energy can include some investments in the marine environment, but arguably also relates to opportunities beyond the Blue Economy as such. For the purpose of this document, we posit that any renewable energy investment is closely aligned with the aims and vision of a Blue Economy.

A transition to resilient, decentralized, clean energy offers a range of benefits:

- Job growth, yielding additional employment of over 500,000 more people in the energy sector relative to baseline by 2050 in Latin America and the Caribbean (IRENA 2020).
- Enhanced energy security and resilience to the impacts of climate change and extreme weather, as distributed and off-grid systems such as solar-based mini-grids can sustain critical services when centralized systems cannot.
- Reducing energy costs: oil imports cost Caribbean states up to 10% of GDP, and Caribbean countries have some of the highest electricity costs in the world (Vogt 2019); SEforAll (2020) estimates that investing up to 25% of post-COVID stimulus budgets in renewable energy (solar, hydro and wind) could generate annual savings of USD 9 billion in fuel costs if all 31 Caribbean countries move to 90% clean energy by 2030. Renewables plus storage are now cheaper for many Caribbean countries than conventional fossil fuels.
- GDP multiplier effects: SEforAll (2020) reports that every US dollar invested in renewable energy will generate an estimated 93 US cents of additional GDP growth above business as usual; this can yield ~USD 633 million in overall additional GDP in the Caribbean.
- In addition to benefiting local consumers and industries, lower energy costs will improve the overall investment context.
- Of relevance to the blue economy, renewable energy investment can directly benefit the tourism sector from supporting food cold chains to powering establishments to promoting electric mobility, in addition to enhanced competitiveness due to lower energy costs.

Attracting the requisite investment to achieve the full potential of renewable energy will require adoption of key measures by governments in the region. These include:

- Robust policies and institutions in support of renewables and energy efficiency: establish or empower institutions such as regulators and other relevant agencies to foster development of renewables and energy efficiency. New Energy Events (2020) notes the development of Integrated Resource Plans (IRPs) for energy development in Bermuda, Jamaica and Puerto Rico as examples of enabling conditions, providing frameworks for procurement and investment.
- Shifting electricity sector investments to renewable energy plus storage: new investments in renewables are cheaper than new investments in fossil fuels in all major markets today. Adding storage will increase resilience, use locally

produced energy, avoid creating future stranded fossil fuel assets, and reduce negative impacts on public health and ecosystems.

- Invest in energy efficiency: energy efficiency investments save on energy costs, create jobs and are the cheapest route to emissions reductions. For example, tourism and agriculture depend on cold chains, and more energy-efficient cold chain systems would achieve cost savings for businesses and enhance food security.
- Ease of doing business: barriers to blue finance in general also are relevant to renewable energy; these leave room for improvements such as faster approval processes, transparent investment policies (price discovery, reverse auctions etc.), and fiscal incentives (e.g., reducing or eliminating import duties and VAT for new plant and equipment).

Private finance is an increasingly important source for the renewable energy sector. New Energy Events (2020) reports that Solar Engineering, Procurement, and Construction (EPC) companies themselves are offering a diversity of financing solutions to potential commercial and industrial customers. Thus, firms in the sector themselves see the growth and return potential, indicating opportunities for other investment modalities. Another indication noted by industry observers is the strengthening of the business case for Energy Service Companies (ESCOs) as a complement to state utilities, which can attract finance from impact investors and development partners.

However, despite growing private sector investment interest, there remains a large role for blended finance as a driver of the energy transition. While there are many opportunities, "...these opportunities are initially not at the scale, are novel for the [Caribbean] region, or simply not mature enough to attract sufficient private capital at scale or at a viable cost" (New Energy Events 2020). At the same time, relying only on public procurement is unlikely to yield success (Vogt 2019). Therefore, blended finance through Public Private Partnerships (PPP) and/or investment participation of concessional funds (e.g., impact investors), and multilateral banks is needed to crowd in private finance. Vogt (2020) notes the example of Jamaica, which conducted structural reforms to enhance government capacity to participate in PPPs, leading to completion of five projects including three in the renewables sector with a total investment value of approximately US\$ 1.3 billion. More information on PPPs appears in Box 5 below.

Green Infrastructure

Much of the attention to green and green-gray infrastructure is focused on improving quality and availability of water through natural systems (emphasizing Sustainable Development Goal 6 (SDG6), relating to universal access to safe and affordable drinking water, sanitation and

hygiene (WASH) services). Literature on green infrastructure in the LAC region also notes the relevance of Water Funds as a framework to structure governance and incentives for management of green infrastructure – again with a focus on ecosystem services pertaining to water. However, of particular additional relevance to the blue economy, green infrastructure includes nature-based solutions to coastal protection from storm surge and other extreme weather events, with further benefits linked to habitat for species important for local livelihoods; for example, in the case of “Super Storm” Sandy in the United States, wetlands prevented \$625 million in damages (Sarni 2019).²²

Green infrastructure can be anything from a natural and restored native ecosystem to a protected open space or land under productive use. Green infrastructure sustains environmental functions such as groundwater replenishment, storm protection, nutrient retention, and carbon storage. For example, healthy cypress swamps in Florida remove 98% of all nitrogen and 97% of phosphorus from wastewater before water enters the ground reserves (Pooley & Hajda n.d.). EU guidance notes that “A network of healthy ecosystems often provides cost-effective alternatives to traditional ‘grey’ infrastructure ... this is why the EU promotes the use of nature-based green and blue infrastructure solutions.”²³ They go on to provide the following definition:

Green infrastructure is a **strategically planned network of natural and semi-natural areas** with other environmental features designed and managed to deliver a wide range of ecosystem services such as water purification, air quality, space for recreation and climate mitigation and adaptation. This network of green (land) and blue (water) spaces can improve environmental conditions and therefore citizens' health and quality of life. It also supports a green economy, creates job opportunities and enhances biodiversity. ... In many cases, it can reduce dependence on ‘grey’ infrastructure that can be damaging to the environment and biodiversity, and often more expensive to build and maintain.

Engineered solutions (gray infrastructure) require lengthy planning and implementation periods, are expensive to build and maintain and difficult to modify to meet changing conditions, and usually have a finite operational lifespan. In contrast, green infrastructure performs similar functions but can be implemented quickly and cost effectively. It can be designed either to complement existing gray infrastructure or as an independent solution. Green and gray infrastructures are synergistic, but while gray conforms to a

set of specific design criteria, green can adapt to environmental, economic and social changes (Muñoz & Crisman 2019).

Green infrastructure can also provide direct economic benefits in the CLME+ region through local income generation, improved tourism assets, and avoided cost of further environmental deterioration. For example, mangrove restoration in Vietnam saved on the order of US\$7.3 billion per year in dike maintenance (Pooley & Hajda n.d.). Sarni (2019) notes that LAC island nations face numerous water challenges pertaining to green infrastructure, including the loss of coral reefs. Coral restoration is a nature-based solution that addresses several aspects of the water-energy-food nexus. Coral reefs buffer storm surges and provide habitat for marine life; the return of coral reefs offers flood protection, increased food security due to healthy, stable fisheries, and local economic stimulus through the tourism and fishing sectors. In addition to serving as green infrastructure themselves, coral reefs rely on healthy coastal and marine waters, highlighting the importance of water treatment and management of runoff.

The relevance and promise of green infrastructure is recognized through various policy commitments; for example, many CLME+ countries are partners in the Caribbean Climate-Smart Accelerator (<https://www.caribbeanaccelerator.org/>), which includes as a goal “to build low-carbon and resilient infrastructure including nature-based approaches, to better withstand future extreme weather events.” Castillo & Crisman (2019) note that NGOs and multilateral organizations (e.g., UNDP, World Bank) have embraced the fact that green infrastructure can provide, more cheaply, the same or better benefits than gray infrastructure. Globally, recognition of the value of green infrastructure is evidenced by growing annual investment, in 2015 alone approaching \$25 billion spent on restoration and conservation of forests, mangroves, wetlands and grasslands to secure reliable and clean water (Bennet & Rueg 2016).

The potential returns to green infrastructure are significant. A 2014 analysis of 363 floods recorded across the EU estimated total damages at €150 billion; while the cost per flood was €360 million, investing in flood protection could return estimated benefits 6-8 times the costs, with green infrastructure projects potentially delivering significant environmental benefits as well as cost savings. In a LAC-region example, reforestation to reduce runoff and sedimentation in the Cantareira reservoir system, which provides water to 9 million people in São Paulo, Brazil, cost US\$37M; the resulting avoided sedimentation management cost (workforce, energy, chemical product usage, sludge

²² The phrase ‘green infrastructure’ includes but is distinct from ‘nature-based solutions’, as the former could include, for example, greener/lower impact built infrastructure (e.g. road surfaces engineered to reduce erosion caused by runoff). Although nature-based solutions are of primary interest here, we refer to

green infrastructure so as not to exclude other infrastructure investments that are aligned with the blue economy.

²³ https://ec.europa.eu/environment/nature/ecosystems/index_en.htm

removal, anthracite and sand replacement, and machinery) was more than US\$106M (Sarni 2019). The argument for green infrastructure typically rests on cost savings, and this makes for a strong case for public finance commitments, but also suggests investment returns that can attract private sector financing.

The bulk of financing for green infrastructure development continues to derive from public sources. \$23.7 of the \$24.7 billion total spent in 2015 on protecting, restoring or creating new habitat to support healthy watershed function comprised direct subsidy payments from governments to public and private landholders, for example to incentivise sustainable agriculture practices (Bennet & Rueg 2016). Another \$675M came from water users such as cities, companies, or water utilities to safeguard water supplies, with motivations also including environmental and social co-benefits as well as operational and maintenance costs. For the private sector, particularly in the food and beverage sector, reputational and supply chain risks motivate investments, which spent about \$9M in 2015; corporate water stewardship is increasingly attracting commitments from large companies such as Coca-Cola, SAB Miller, and IKEA.

While watershed investments have been increasing by around 10% per year, further growth could be unlocked by addressing key barriers. These include:

- Regulatory uncertainty, including issues related to the large number of agencies with mandates that overlap with green infrastructure; the absence of green infrastructure in policy (compared to considerable emphasis on conventional infrastructure); and issues surrounding tenure over green infrastructure and associated resource rights
- Related to policy gaps, the emphasis on built infrastructure rather than ecosystems in post-disaster reconstruction strategies and plans
- Lack of technical capacity to manage procurement processes for green infrastructure solutions, preparation of technical specifications for contractors, or ability to monitor and evaluate work by contractors
- Lack of capacity within relevant host-country agencies with respect to innovative financial arrangements (e.g., green bonds, environmental impact bonds, PPPs)

EDF & Meister Consultants Group (2017) identifies key areas of focus to enhance investment-readiness and attract private capital for green infrastructure development, including:

- Identify suitable funding models: Robust funding models will require stable revenue streams. In addition to conventional sources such as fees and taxes, the economic, social and environmental values produced by green infrastructure should be monetized where possible, such as through Payments for Ecosystem Services.

- Standardize performance measurement: The measurement of key performance metrics and outcomes produced by green infrastructure are important for structuring investment arrangements, but consistent and comparable metrics have not been developed across the sector. This suggests a potential link to efforts to advance Natural Capital Accounting as part of efforts toward sustainable blue and green economies.
- Manage risks appropriately: Limited long-term performance data and standardization procedures for green infrastructure poses a challenge for assessing and valuing risks; identifying, quantifying, mitigating and distributing risk is critical to attracting private investors.

Waste Management

Waste management is a critical sector for the blue economy, and much in need of investment throughout the CLME+ region. This includes management of solid waste as well as wastewater. One specific need is to continue the ongoing process of closing ageing landfill dumps throughout the LAC region (UNEP 2020). Poorly constructed and managed landfills pose physical infrastructure risks (landslides) as well as health hazards; open burning of garbage in landfills is a major source of particle pollution, and an estimated 330,000 premature deaths per year are attributable to poor air quality in the region. Landfills are also a source of greenhouse gas (GHG) emissions from decomposition and burning that contribute to climate change, and can continue to emit gases even years after closure; this includes significant amounts of methane, which is 84 times more potent than carbon dioxide in the first two decades after release. Under business as usual, landfills may account for as much as 10% of global GHG emissions by 2025. The COVID-19 pandemic highlights another aspect of waste management, given the large increase in medical waste such as masks, gloves and other PPE, all of which includes a risk of contamination. Moreover, infrastructure shortcomings with respect to wastewater collection and treatment are a contributing factor to transmission of COVID-19 in vulnerable populations (Adelodun *et al.* 2020).

More generally, the fact that only about 10% of waste in the LAC region is recycled is at odds with blue economy principles. Indeed, mismanagement of solid waste is responsible for the entry of substantial quantities of plastics into the ocean. The Caribbean region is already one of the most plastic-polluted regions in the world, with three times the global average for beach litter concentrations, and its seas containing up to 1,400 plastic items per square kilometer (UNEP 2019). Plastic and other types of pollution runoff can be especially devastating for reefs, as they smother corals and lower water quality, make corals more susceptible to disease and impede coral growth and reproduction. Estimates suggest that waste generation in the region will increase at least 25% by 2050, driven by

population growth, urban expansion and economic development (UNEP 2018b). Currently, the preponderance of hazardous wastes such as those related to electronics, the medical sector or construction is inadequately handled. At the same time, organic waste constitutes on average 50% of all waste produced, but is the least managed, leading to avoidable GHG emissions and contamination of potentially recyclable material. At current investment levels, LAC will not meet SDG 6 (Ensure availability and sustainable management of water and sanitation for all) until 2100 (Leduc & Mattas 2020).

Growing emphasis on 'circular economy' precepts signals recognition of the need to dramatically improve performance with respect to waste management, in both policy and finance circles, but practical means to advance on this front remain elusive. Development and operation of sustainable water, sanitation and waste management infrastructure will require at least doubling the current level of investment; doing so in turn will require significant private sector participation.²⁴ The leading financing source for improvement projects is the IDB Group and its private sector arm IDB Invest; financing arrangements in excess of US\$ 1 billion per year include leveraged private capital, blended finance, and technical assistance. They also support development, implementation, and operation of public-private partnerships (PPP), and help governments develop regulatory frameworks to facilitate private investment.

PPPs are particularly relevant. Portions of the overall waste management sector necessarily will remain public services, dependent on public budgets. However, segments with revenue potential as well as a variety of service-provision arrangements can attract private sector participation (Leduc & Mattas 2020). IDB Invest argues for pursuit of PPP opportunities, noting that "a balanced risk allocation and ... adequate bankable requirements, have been successful in attracting private capital and developing other sectors: especially transport infrastructures such as ports and highways, but also transmission and renewable energy." They also report that operators and financiers are keenly interested in this market, but find it difficult to find opportunities; this suggests that governments would benefit from concerted efforts to structure more PPP projects. Adapting finance to attract private capital to PPP in the sector can include financing in local currency or longer grace and financing periods, as waste management projects are structured based on longer-term user and usage projections, spanning several investment cycles during the concession period. IDB Invest notes the example of IDB Group financing for about US\$109 million (out of total project cost of US\$ 440 million) with a total term of 20 years to BRK Ambiental, the largest private sanitation company in Brazil, whose majority shareholder is the Canadian Brookfield fund.²⁵

Box 5 | Detail on Public Private Partnerships

As described in UNEP (2018a), PPPs (or private-sector participation, PSP) in the sector can take various forms:

- **Contracting:** Following a competitive procurement process the government awards a fixed term contract to a private firm for the delivery of waste management services. The firm is paid for service delivery by the government.
- **Concession:** The government awards a concession to a private firm to set up a facility that utilizes government-owned resources. The concession is in the form of a long-term contractual agreement, whereby the private firm builds and operates the facility. In some cases, the private firm may maintain ownership indefinitely; in others, the private firm may transfer ownership of the facility to the government after a specified period.
- **Franchise:** Following a competitive procurement process the government awards a fixed-term zonal monopoly (a franchise) to a private firm for the waste management services. The private firm deposits a performance bond with the government and pays a license fee to cover the government's costs for monitoring. The private firm recovers its costs and profit through direct charges to the households and establishments that are served, with government oversight over rates.
- **Open competition:** The government freely allows qualified private firms to compete for service contracts. In open competition, individual households and establishments make private arrangements with individual firms' waste management services. The government's role is to license, monitor and, as needed, sanction private firms. Costs are directly billed by the private firm to their customers.

Longer term service contracts may be further differentiated from each other depending on which combination of components are included in the contract: Design, Finance, Build, Own, Operate and Transfer components. The main types of PPP contracts are described in brief below:

- **Design, Build and Operate (DBO):** The private contractor is responsible for the design, construction and operation of the waste management facility.
- **Design, Build, Finance and Operate (DBFO):** The private partner is responsible for the design, construction, financing and operating of the facility. This is the most complex contractual relationship between a public authority and a private investor.
- **Build, Operate and Own (BOO):** The private partner builds a facility based on a defined design and owns and operates it.
- **Build, Operate, Own and Transfer (BOOT):** Same as BOO with an additional clause for transfer of assets to the public partner at the end of the contract.
- **Rehabilitate, Operate and Transfer (ROT):** The public good created is transferred to the private investor. The investor has the obligation of financing, rehabilitation and operating the public good for a certain period of time.
- **Build, Operate and Renew (BOR):** The private investor assumes the financing, building, and operational costs and the costs of renewing the public good for a certain period of time.

²⁴ See <https://www.idbinvest.org/en/sectors/water-and-sanitation>

²⁵ See <https://www.idbinvest.org/es/medios-y-prensa/bid-invest-y-brk-ambiental-colaboran-para-mejorar-la-infraestructura-de-aguas-en-brasil>

As emphasized in UNEP (2018a), financing is vital for the sustainability of waste management schemes. The most common model in the region is municipal service provision with public funding; ubiquitous weaknesses are that municipalities tend to ignore direct and indirect management costs, investment is insufficient and service charging systems are flawed. Moreover, assessment of waste management costs typically is limited to investment, operation and maintenance costs, ignoring the environmental and social benefits of better waste management; the cost of inaction in terms of health, environmental impact and development may range from five to ten times higher than the cost of sound waste management (UNEP-ISWA 2015, cited in UNEP 2018a). Public delivery of services usually is covered as a municipal tax; service contracts with private providers recover costs through user fees. However, a regional evaluation in 2016 found that only 60% of LAC countries have charging schemes, and few are financially sustainable. In Argentina, fees collected by municipalities on average cover only 18% of total expenditures (World Bank 2015, cited in UNEP 2018a).

Alternatives to direct user charges for cost recovery can include the sale of resources recovered from waste (e.g., recyclable materials, energy or compost), extended producer responsibility (EPR), green taxes and carbon credits. EPR schemes offer several benefits, including resources for waste recovery, incentives to reduce the amount of waste generated, and increased demand for recyclable materials. Environmental regulations that hold generators of waste responsible for ensuring transport, treatment and final disposal services lead to the emergence of private providers of waste management services. However, in much of the LAC region industrial and commercial waste management is left to municipalities. Private sector participation typically takes the form of providing services to the municipality, which can include financing for investments. Financing arrangements are influenced by how four system elements relate to each other: waste generators or municipalities, the operator or service provider, revenues to pay for waste management services, and investments required for infrastructure development.

The waste management sector offers various investment opportunities that may generate returns through cost savings or new revenue. Reduced GHG emissions through better waste management present an obvious carbon credit opportunity, while harnessing methane emissions for electricity generation also can generate revenue. For example, authorities considered installing a biogas plant on the site of Mexico City's largest dump, closed in 2011, which could have generated 250 GWh, capable of powering 35,000 homes; although the plant was not constructed, the site now produces about 90,000 tonnes of compost per year

(UNEP 2020). However, such revenue opportunities may be viewed as too novel or complex for governments, leading to reluctance to take on loans to address waste management needs. Nevertheless, UNEP (2018a) shows that the bulk of investment in the sector in developing countries takes the form of loans to improve waste collection systems and build final disposal infrastructure.

Muñoz Castillo & Crisman (2019) show how green infrastructure can improve performance in waste water treatment. They note that while concrete structures in conventional wastewater treatment plants have a life expectancy of 60-70 years, and their mechanical and electrical components 15-25 years, constructed wetlands can provide services at peak efficiency indefinitely. Construction and operation costs of constructed wetlands can be a fraction – 20-50% - of those for conventional gray treatment infrastructure. Such cost savings clearly are in the interest of public finance.

Potential cost recovery through rates is limited by consumer ability to pay, such that full recovery from users is rare. As a result, countries should explore different possibilities for financing waste management, including investment aids, extended producer responsibility schemes, regulatory incentives, etc. Beyond private sector participation, national and local government budgets and loans and technical cooperation from multilateral agencies will be the most prominent sources.²⁶

Additional barriers and challenges to financing for sustainable waste management solutions include:

- Waste management agencies tend to be quasi-statutory bodies, which rely on government subventions; this may attenuate the drive for innovative solutions, and contribute to reluctance to set targets and indicators.
- Legislative and regulatory frameworks have not kept pace with policy advances, perhaps in part reflecting limited political will to enforce them. At the same time, not all policies are based on the best available science, and coherence between different sectoral policies may be lacking (for example standards and requirements relating to high-value tourism segment compared to those pertaining to domestic agriculture).
- The small- and medium-sized enterprise (SME) sector may be interested in targeted collection and re-use, but have limited business expertise, and are of a scale too small to attract significant investment, thus rely principally on philanthropy.
- Economies of scale could be achieved through regionalized systems of collection and processing, but this requires a degree of multinational coordination that has proven difficult to achieve.

Heavy subsidization of water provision to date means that models involving greater cost recovery (e.g., financing the

²⁶ As noted, IDB is prominent. See also <https://www.caribank.org/our-work/sectors/water-and-sanitation>

costs of treatment infrastructure through consumer fees) face political obstacles.

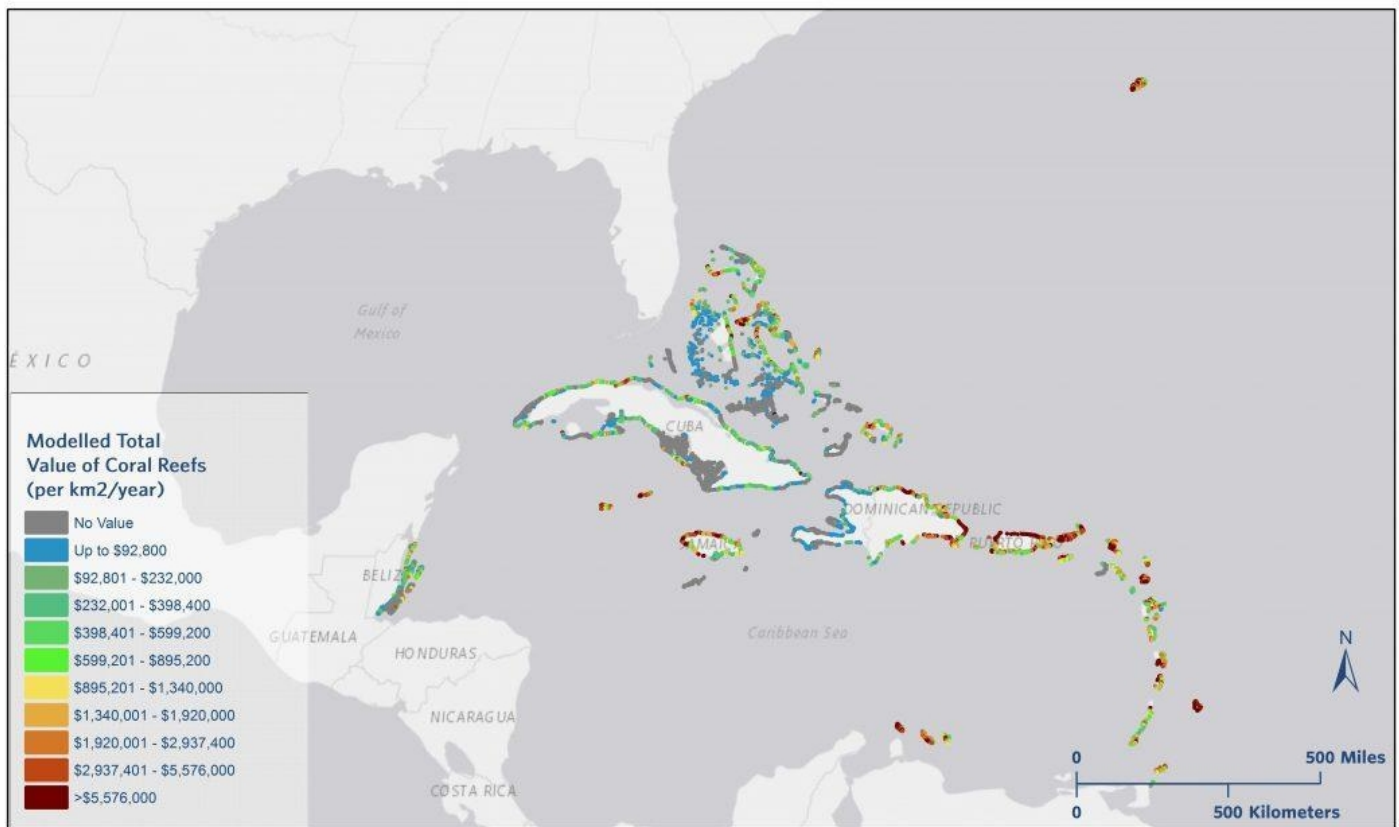
Coastal Tourism

The Caribbean is among the most tourism-dependent regions in the world, and, as a “sea-sand-sun” destination, the Caribbean’s marine and coastal resources—beaches, coral reefs, mangroves, fisheries and wildlife—are indispensable assets for the sector. Spalding *et al.* (2018) estimated the value of reef-adjacent tourism in the region to be more than \$7.9 billion annually, accounting for 23% of all tourism spending and more than 10% of the region’s gross domestic product (see Map 1). The industry is a key generator of foreign exchange, income and employment across the region. The tourism economy, which includes

both tourism and all sectors that depend on it, represented 26% of total GDP in the Caribbean and 10% in Latin America, and 35% of employment in the Caribbean and 10% in Latin America (ECLAC 2020c).

Although sustainability is generally not the main criterion influencing the decisions of travelers, it is an important one. Sustainable tourism demand is on an upward trajectory.²⁷ As this demand increases, more and more actors in the hotel and accommodations sector will have an incentive to respond to consumer preferences by investing in making their operations more sustainable and engaging in environmentally-focused corporate social responsibility initiatives.

Map 1 | Tourism Value of Coral Reefs.



Source: Spalding *et al.* 2018.

²⁷ In terms of volume, according to one study, approximately a third of tourists are interested in sustainable tourism or at least in specific sustainability aspects. “The existing awareness and positive attitudes towards sustainable travel, which have been documented in numerous studies, and also the general

development of lifestyle trends, permit the conclusion that in future sustainability will become increasingly important to travellers.” See Weber (2019).

Coastal development and pollution are major threats to coastal and marine ecosystems in the region, and the tourism sector is a major contributor in both respects. The tourism industry's footprint encompasses clearance of ecosystems for the construction of hotels and other tourism infrastructure; water pollution in the form of wastewater, marine litter and other plastic pollution; dredging waterways for sea transport; and water consumption.

Although the sector comprises a diverse range of sub-sectors and services,²⁸ because of its size (in terms of both level of conventional investment and environmental footprint), sustainability investments in the accommodation sub-sector have the potential to generate significant positive impacts for marine and coastal ecosystems, and is a potentially compelling target for impact capital. Advances with respect to siting, design, and construction; property operations (e.g., in waste management practices, energy usage); technology; and supply chains present feasible opportunities to generate positive impacts for marine and coastal ecosystems. Certification programs like Leadership in Energy and Environmental Design (LEED) (on the design and construction side) and the Global Green Globe program (on the property operations side) offer interesting possible ways forward for the sector, and could be incentivized in a variety of ways.²⁹

The tourism sector-specific Green Globe Certification is the only certification brand recognized by the United Nations World Tourism Organization. The Green Globe Certification focuses on the implementation of standards beyond the design and construction phases that impact sustainability during operations and management.³⁰ The process requires an audit and evaluation based on global guidelines established through the sustainability program. A number of Caribbean hotels have secured the certification.³¹

Benefits to hotels participating in the Green Globe program include:

- Cost savings from operational efficiencies (reduced utility and resource usage)
- Connection to consumers who expect verified green credentials
- Better risk management through regular review of operations processes
- Enhanced reputation

Like the Green Globe program, the LEED green building certification is a globally recognized set of standards for the

design, construction, operation, and maintenance of buildings. Under the LEED standard, projects are allocated points across six credit categories: "Sustainable Sites", "Water Efficiency", "Energy and Atmosphere", "Materials and Resources", "Indoor Environmental Quality", and "Innovation in Design". The number of points scored above a certain threshold determines a building's LEED category (silver, gold or platinum).

IDB Invest recently supplied funding for the Tropicalia hotel project in Miches, Dominican Republic.³² The Project will seek the LEED certification and incorporate numerous features and activities to reduce environmental impact and promote sustainability. The project is expected to achieve 20% water savings and up to 50% energy savings by implementing passive cooling design strategies, such as green roofs and open corridors. Tropicalia uses sustainable site development and destination management to maintain biological integrity, habitat connectivity, and green space.

Anecdotally, the certifications like LEED and Green Globe are felt to be expensive to achieve and maintain. Innovative financial approaches, like blue bonds, in cases where the cost savings from operational efficiencies don't justify the higher costs of securing the certification, could help connect cheaper capital with measurable development impacts. Direct financing and the blending of public and private finance and economic incentives are also useful tools. Triodos Bank – an industry leader in sustainable banking – has a sustainable property division which funds the restoration and construction of innovative and sustainable designs to limit the negative impact of building on the environment and society. In Barbados, enterprises with eco-certifications are eligible for certain tax incentives. The Guyana Tourism Association is a semi-autonomous government organization that seeks to mobilize training and other resources to help enterprises meet sustainability standards. A combination of regulatory and other incentives (support for market access, e.g.) and the referenced financial tools could catalyze substantially greater uptake and impact.

A note on policy

The public sector could incentivize the use of sustainability standards through enhancements in their national laws/policies/regulations with respect to land use and zoning/building standards. Barbados' above-mentioned tax incentive for eco-certification is an example. The mitigation hierarchy could help ensure that development projects

²⁸ Including (not exhaustive): lodging, restaurants, tour operators (incl. dive operators), yachting, sport fishing, transport, attractions, and guiding.

²⁹ The Blue Flag branded certification program comprises series of stringent environmental, educational, safety-related and access-related criteria for marinas. As with the Green Globe certification, it is felt to be very expensive to achieve and maintain. As with certification programs relating to the accommodations sub sector, innovative approaches, like blue bonds, could help connect capital with impact.

³⁰ Standards and criteria for achieving certification fall into four categories: sustainable management, social/economic, cultural heritage, and environmental. Environmental standards include prescribed requirements with respect to: energy consumption, conserving biodiversity, water use, pollution reduction, recycling, among other things. See <https://greenglobe.com/standard/>.

³¹ See <https://greenglobe.com/members/caribbean/>

³² <https://www.idbinvest.org/en/projects/tropicalia-sustainable-tourism>

achieve no overall negative impact on biodiversity or on balance a net gain (also referred to as a No Net Loss and the Net Positive Approach). It is based on a series of essential, sequential steps that must be taken throughout the project's life cycle in order to limit negative impacts on biodiversity (see e.g., Temple et al. 2012). Where avoiding environmental damage is not possible, compensating or offsetting the impacts on biodiversity/coastal ecosystems is an option if appropriate frameworks are in place. This could take the form of a payment. These approaches have been deployed in a number of places, including Brazil and Colombia. A system of national and state laws, referred to as the "National System of Conservation Units" (SNUC) in Brazil requires private enterprises whose projects will have a significant environmental impact to compensate for those impacts by paying "no less than 0.5%" of the total anticipated investment costs. The exact sum will be fixed by the competent environmental authority, based on the degree of environmental impact the development project will cause.

In some cases, airlines bundle conservation taxes into their airline ticket prices at point of sale in order to comply with government prescriptions. This represents one way governments could theoretically raise funds for specified purposes. For example, Belize has a conservation fee that to date has yielded over \$15M to support conservation projects.³³

Barriers to Sustainability (in the wider tourism industry)

- Poor management and planning, lack of political commitment and weak sustainability awareness;
- Lack of financing instruments as well as few incentives, subsidies and supportive policies and regulations.
- Limited financing opportunities for business expansion and development, especially for SMEs in the industry (Wilson *et al.* 2014).

Marine Biotechnology

The marine biotechnology sector is attracting increasing interest in the CMLE+ region, but remains in an early stage of development worldwide. Nonetheless, there is a widespread conviction that marine-based biotechnology has enormous potential for a range of applications. Technology that harnesses properties of macro- and micro-algae, bacteria, and other marine organisms is believed to hold promise for solutions relating to climate change (carbon sequestration), energy security (algae-based oil production), food security (niche foods and food product constitutions), bio-industrial and life science inputs (enzymes and polymers), and health (pharmaceutical, nutritional, cosmetic and wellness products).

With respect to financing solutions, needs in the marine biotechnology sector mainly relate to early stages of technology development: basic R&D, initial proof of concept, and scaling. Potential financing sources to support these stages include the various sources discussed for other sectors. However, given widespread commercial potential, the most appropriate sources of capital may include conventional venture capital, technology investors, and credit. Although governments and development institutions can in principle co-invest in these technologies, arguably these types of funding resources are best applied to reinforcing enabling conditions for investment, such as by refining relevant regulatory frameworks, ensuring due consideration for social and environmental impacts, protecting intellectual property rights, improving infrastructure, and the like. This perspective regarding finance for marine biotechnology development may also apply to other commercial sectors in the blue economy, such as marine transport and tourism.

Case Studies

To further illustrate potential financing solutions, this exercise included the preparation of a set of brief case studies. The case studies, provided in Annex 2, are:

- i. Payment for Ecosystem Services and Blue Carbon
- ii. Seychelles Debt-for-Nature Swap and Blue Bond
- iii. Cruise & Yachting Industry-facing Mechanisms
- iv. Tourism Enhancement Fund (Saint Lucia)

³³ See <https://www.pactbelize.org/funding/>

CONCLUSIONS

- As significant portions of the growing sustainable blue economy are still very much in a nascent stage, philanthropic and development aid can continue to catalyze new projects, and venture capital and first time funds continue to play a crucial role in building new markets across a number of blue economy sectors. Blended finance will continue to be an important approach, although it may be a less attractive option for countries that are not eligible for ODA and concessional loans.
- By and large, investment in the sustainable blue economy in the CLME+ region is in the form of blended approaches led by Development Finance Institutions (DFIs) and governments, and grants from philanthropic and bilateral and multilateral development agencies that support demonstration projects and other interventions that contribute to a healthy enabling environment for investment (e.g., capacity building and development of standards, regulations and policy). This is true in both established and emergent sustainable blue economy sectors. Various tools to mitigate or redistribute risk, such as loan guarantees, can also help overcome barriers to investment and broaden access to the sustainable blue economy.
- Of the investment fund managers/investment funds identified, only a very few (12) were actively investing in the sustainable blue economy, and still fewer in the sustainable blue economy in the CLME+ region (9). This is in line with the general (global) trend of underinvestment in the sustainable blue economy / SDG-14 relative to other SDGs. Current investment flows primarily to aquaculture, fisheries, tourism, marine pollution, insurance, energy, and carbon transition sectors.
- Early engagement with the private sector will help develop the right financial products for the blue economy and capture new synergies. This will help identify ways to strategically channel resources such as grants from philanthropic sources, NGO support, and technical assistance from DFIs into creating the enabling conditions for new investments.
- There is a need for blue economy investment guidelines across sectors, such that potential investors can rely on clear, transparent sustainability standards. This includes a lead role for the public sector in sending signals to the market by creating policy, legislative and regulatory frameworks that promote sustainable economic activities. Forward thinking corporate / private sector actors can inform the development of such frameworks and act as advocates for policies and practices that promote the sustainable blue economy.
- Standardisation of due diligence processes and best practices can help to accelerate mainstreaming of scalable ocean products. Improved data will be critical to help improve valuation of conservation and ecosystem services and calculate risk. Most importantly, platforms and investors working on these issues need to work together to identify synergies and share lessons learned to amplify impact, develop best practices, and avoid duplication.

REFERENCES

- Adelodun, B., F. Ajibade, R. Ibrahim, H. Bakare & K. Choi. 2020. "Snowballing transmission of COVID-19 (SARS-CoV-2) through wastewater: Any sustainable preventive measures to curtail the scourge in low-income countries?" *Science of the Total Environment*. 742:10.
- Arlaud, M., T. Cumming, I. Dickie, M. Flores, O. van den Heuvel, D. Meyers, M. Riva, A. Seidl, & A. Trinidad. 2018. *The Biodiversity Finance Initiative: An Approach to Identify and Implement Biodiversity-Centered Finance Solutions for Sustainable Development. Towards a Sustainable Bioeconomy: Principles, Challenges, and Perspectives*. Springer. New York, NY, USA.
- LAVCA. 2020. *The Latin American Private Equity Deal Book and ESG Cases*. Association for Private Capital Investment in Latin America. New York, NY, USA.
- Beck, M. W., N. Heck, S. Narayan, P. Menéndez, S. Torres-Ortega, I. J. Losada, M. Way, M. Rogers & L. McFarlane- Connelly. 2020. *Reducing Caribbean Risk: Opportunities for Cost-Effective Mangrove Restoration and Insurance*. The Nature Conservancy. Arlington, VA, USA
- Bennett, G. & F. Rueg. 2016. *Alliances for Green Infrastructure: State of Watershed Investment 2016*. Ecosystem Market Place/Forest Trends. Washington, DC.
- Bremer, L., D. Auerbach, J. Goldstein *et al.* 2016. "One size does not fit all: Natural infrastructure investments within the Latin American Water Funds Partnership." *Ecosystem Services*. 17: 217-236.
- CDB. 2018. *Financing the Blue Economy: A Caribbean Development Opportunity*. Caribbean Development Bank. Bridgetown, Barbados.
- Convergence. 2017. *Seychelles Debt Conversion for Marine Conservation and Climate Adaptation*. Available at: <https://www.convergence.finance/resource/3p1S3pSTVKQYYC2ecwaeik/view>
- CRFM. 2014a. "Aquaculture as Gateway to "Blue Economy" for CRFM States". *CRFM Communications*. Caribbean Regional Fisheries Mechanism. Available at: http://www.crfm.int/index.php?option=com_k2&view=item&id=364:caribbean-states-look-at-aquaculture-as-gateway-to-blue-economy&Itemid=179.
- CRFM. 2014b. *Study on the Potential of Fish Farming in the Caribbean*. Caribbean Regional Fisheries Mechanism. CRFM Technical & Advisory Document No. 2014 / 2. P78.
- CRFM. 2018. *Caribbean Regional Fisheries Mechanism (CRFM) Statistics Report for 2016*. CRFM Secretariat. Belize City, Belize.
- de Koning, F., M. Aguiñaga, M. Bravo, M. Chiu, M. Lascano, T. Lozada, L. Suarez. 2011. "Bridging the gap between forest Conservation and poverty alleviation: the Ecuadorian Socio Bosque program." *Environmental Science & Policy* 14:531–542.
- de Vos, K. & B. Hart. 2020. *The Ocean Finance Handbook: Increasing Finance for a Healthy Ocean*. Friends of Ocean Action Secretariat.
- du Toit, H., A. Shah, & M. Wilson. 2020. *Ideas for Action for a Long-term and Sustainable Financial System*. Business and Sustainable Development Commission.
- ECLAC. 2020a. *Caribbean in Brief: An Information Document for Caribbean SIDS*. United Nations Economic Commission for Latin America and the Caribbean. Santiago, Chile.
- ECLAC. 2020b. "Main challenges for cruise industry in the Caribbean." Available at: <https://www.cepal.org/en/events/main-challenges-cruise-industry-caribbean>.
- ECLAC. 2020c. *Recovery Measures for the Tourism Sector in Latin America and the Caribbean Present an Opportunity to Promote Sustainability and Resilience: A Covid-19 Report*. United Nations Economic Commission for Latin America and the Caribbean. Santiago, Chile.
- EDF & Meister Consultants Group. 2017. *Unlocking Private Capital to Finance Sustainable Infrastructure*. Environmental Defense Fund. New York.
- EIU. 2015. *The Blue Economy: Growth, Opportunity and a Sustainable Ocean Economy*. Economist Intelligence Unit.
- EKO & TNC. 2014. *Investing in Conservation: A Landscape Assessment of an Emerging Market*. EKO Asset Management and The Nature Conservancy. Arlington, VA, USA.
- FAO. 2014. *The Sustainable Intensification of Fisheries and Aquaculture*. Food and Agriculture Organization of the United Nations. Rome, Italy.
- FAO. 2020a. *Blue Finance Guidance Notes: Blended Finance*. Food and Agriculture Organization of the United Nations. Rome, Italy.
- FAO. 2020b. *Blue Finance Guidance Notes: Microfinance for Small Scale Fisheries*. Food and Agriculture Organization of the United Nations. Rome, Italy.
- Farmer, A. & S. Thompson. 2020. "The Ripple Effect of EU Taxonomy for Sustainable Investments in the US Financial Sector." Harvard Law School Forum on Corporate Governance. Boston, MA, USA

- GEF. (no date). *From Source to Sea Protecting Our Oceans through Partnership and Investments*. Global Environment Facility, IW Learn, United Nations Environment Programme, Global Programme of Action for the Protection of the Marine Environment from Land-based Activities. Available at: <https://iwlearn.net/resolveuid/34e1b16d-3b9d-4b92-b3d0-3266b7863dfd>.
- GlobeScan. 2020. *GlobeScan Sustainability Survey: Sustainability Leaders*. GlobeScan.
- Government of Seychelles. 2014. *Seychelles Biodiversity Strategy and Action Plan 2015-2020*.
- Herr, D., T. Agardy, D. Benzaken, F. Hicks, J. Howard, E. Landis, A. Soles and T. Vegh. 2015. *Coastal "blue" carbon. A revised guide to supporting coastal wetland programs and projects using climate finance and other financial mechanisms*. IUCN. Gland, Switzerland.
- Hoegh-Guldberg, O. et al. 2015. *Reviving the Ocean Economy: the case for action - 2015*. WWF International. Gland, Switzerland.
- Hoegh-Guldberg, O. et al. 2019. *The Ocean as a Solution to Climate Change: Five Opportunities for Action*. World Resources Institute. Washington DC, USA.
- Holmes, L., C. Strauss, K. de Vos & K. Bonzon. 2014. *Towards investment in sustainable fisheries: A framework for financing the transition*. Environmental Defense Fund and The Prince of Wales's International Sustainability Unit.
- Hume, V., A. Davidson, & M. Guttentag. 2020. *Impact Investing in Latin America: Trends 2018-2019*. 2020. Aspen Institute. Washington DC, USA.
- IPCC. 2007. *Climate Change 2007: Synthesis Report. Contribution of Working Groups I, II and III to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change*. [Core Writing Team, Pachauri, R.K and Reisinger, A. (eds.)]. IPCC. Geneva, Switzerland.
- IRENA. 2020. *Global Renewables Outlook: Energy transformation 2050*. (Edition: 2020). International Renewable Energy Agency. Abu Dhabi, United Arab Emirates.
- IUCN. 2020. *Blue Natural Capital Financing Facility: A new facility to advance financially viable coastal climate resilience projects with clear ecosystem service benefits*. International Union for the Conservation of Nature. Gland, Switzerland.
- James, C. 1993. "Caribbean nations agree to tax cruise ship passengers." Available at: https://www.joc.com/maritime-news/caribbean-nations-agree-tax-cruise-ship-passengers_19930722.html.
- Kennedy, M. 2018. "Seychelles Finds A Novel Way To Swap Its Debt For Marine Protections." National Public Radio. Available at: <https://www.npr.org/sections/thetwo-way/2018/02/23/588273709/seychelles-finds-a-novel-way-to-swap-its-debt-for-marine-protections>
- Leduc, D. & R. Mattas. 2020. "Private Investment, a Solution to Water & Sanitation Challenges in Latin America & the Caribbean." Available at: <https://idbinvest.org/en/blog/development-impact/private-investment-solution-water-sanitation-challenges-latin-america>.
- MacLellan, R. 2019. "A call for Caribbean governments to tax cruise sector more and tax air passengers less." Available at: <https://eturbonews.com/257439/a-call-for-caribbean-governments-to-tax-cruise-sector-more-and-tax-air-passengers-less/>
- Meyers, D., J. Bohorquez, T. Cumming, L. Emerton, O. v.d. Heuvel, M. Riva & R. Victorine. 2020. *Conservation Finance: A Framework*. Conservation Finance Alliance.
- Monge, C. 2018. "Colombia puts a tax on carbon." Conservation Finance Alliance. Available at: <https://www.conservationfinancenetwork.org/2018/11/27/colombia-puts-tax-on-carbon>.
- Mudaliar, A. & H. Dithrich. 2019. *Sizing the Impact Investing Market*. Global Impact Investing Network.
- Muñoz Castillo, R. & Crisman, T. 2019. *The role of Green Infrastructure in Water, Energy and Food Security in Latin America and the Caribbean: Experiences, Opportunities and Challenges*. IDB Discussion Paper 693: IDB Water and Sanitation Division, Inter-American Development Bank. Washington, DC.
- Myvett, G., M. Haughton & P. Murray. 2014. *Study on the Potential of Fish Farming in the Caribbean. Caribbean Regional Fisheries Mechanism*. Belize City, Belize.
- New Energy Events. 2020. "Nine Caribbean Renewable Energy Trends to Watch in 2020." Available at: <https://newenergyevents.com/nine-caribbean-renewable-energy-trends-to-watch-in-2020/>
- Nielsen, E. and H. Gjertsen. 2010. *Case Studies of Three Economic Incentive Approaches in Marine Conservation*. Conservation International: Washington DC. Available at: https://www.ncei.noaa.gov/data/oceans/coris/library/NOAA/Non-CRCP/Corals/Case_Studies_Economic_Incentives_Approaches_Marine_Conservation.pdf
- Northrop, E., M. Konar, N. Frost & E. Hollaway. 2020. *A Sustainable and Equitable Blue Recovery to the COVID-19 Crisis*. World Resources Institute. Washington, DC.
- OECD. 2016. *The Ocean Economy in 2030: The Ocean as a Sustainable Source of Economic Growth*. Organization for Economic Cooperation and Development. Paris, France.

OECD. 2020. Organization for Economic Cooperation and Development Statistical Database. Available at: <https://stats.oecd.org/>.

OOF. 2020. *Business for Ocean Sustainability*. (Second Edition). One Ocean Foundation.

O'Shea, T., R. Jones, A. Markham, E. Norell, J. Scott, S. Theuerkauf & T. Waters. 2019. *Towards a Blue Revolution: Catalyzing Private Investment in Sustainable Aquaculture Production Systems*. The Nature Conservancy and Encourage Capital, Arlington, Virginia, USA.

Pagiola, S. 2008. "Payments for environmental services in Costa Rica." *Ecological Economics* 65:712-724.

Patil, P., J. Virdin, S. Diez, J. Roberts & A. Singh. 2016. *Toward A Blue Economy: A Promise for Sustainable Growth in the Caribbean; An Overview*. The World Bank. Washington D.C.

Pfaff, A., J.A. Robalino, and G.A. Sanchez-Azofeifa. 2008. *Payments for Environmental Services: Empirical analysis for Costa Rica*. Terry Sanford Institute of Public Policy Working Papers Series SAN08-05. Duke University, Durham, NC.

Phillips, W. 2014. *Towards the Diversification of the Tourism Sector: A Recreational Demand Study of Yachting and Marina Services in the Caribbean*. United Nations Economic Commission for Latin America and the Caribbean. Santiago, Chile.

Pooley, T. & A. Hajda. (no date). "Green Infrastructure, Ecosystem services and Climate-Smart Growth in the Caribbean." Available at: <https://www.esinc.cc/blog/item/30-green-infrastructure-ecosystem-services-and-climate-smart-growth-in-the-caribbean>.

RI & Credit Suisse. 2020. *Investors and the Blue Economy*. Responsible Investor – Research and Credit Suisse. Zurich, Switzerland.

Sarni, W. 2019. *The case for green infrastructure in LAC: conclusions from Stockholm World Water Week 2018*. IDB Policy Brief. 318: Inter-American Development Bank. Washington, DC.

Schuhmann, P., R. Skeete, R. Waite, T. Lorde, P. Bangwayo-Skeete, H. Oxenford, D. Gill, W. Moore & F. Spencer. 2019. "Visitors' willingness to pay marine conservation fees in Barbados." *Tourism Management*. v71: 315-326.

Shah, K., S. Arjoon & M. Rambocas. 2016. "Aligning Corporate Social Responsibility with Green Economy Development Pathways in Developing Countries." *Sustainable Development Journal*. pp. 237-253.

SEforALL. 2020. *The Recover Better with Sustainable Energy Guide for Caribbean Countries*. Sustainable Energy for All. Vienna, Austria.

Smith, J., R. Tingey & H. Sims. 2020. *Seychelles Marine Spatial Plan Atlas (Developed by The Nature Conservancy for the Seychelles MSP Initiative)*. Unpublished maps accessed at www.seymsp.com

Spalding, M., K. Longley-Wood, M. Acosta-Morel, A. Cole, S. Wood, C. Haberland & Z. Ferdana. 2018. *Estimating Reef-Adjacent Tourism Value in the Caribbean*. The Nature Conservancy. Washington, DC.

Sumaila, R., M. Walsh, K. Hoareau, A. Cox, et al. 2020. *Ocean Finance: Financing the Transition to a Sustainable Ocean Economy*. World Resources Institute. Washington DC, USA.

TEEB. 2009. *TEEB – The Economics of Ecosystems and Biodiversity for National and International Policy Makers*.

Temple, H., S. Anstee, J. Ekstrom, J. Pilgrim, J. Rabenantoandro, J. Ramanamanjato, F. Randriatafika, F. & M. Vincelette, M. 2012. *Forecasting the Path towards a Net Positive Impact on biodiversity for Rio Tinto QMM*. IUCN. Gland, Switzerland.

Thomas, L., T. Clavelle, D. Klinger & S. Lester. 2019. "The ecological and economic potential for offshore mariculture in the Caribbean." *Nature Sustainability*. v2: 62–70.

Tonazzini, D., J. Fosse, E. Morales, A. González, S. Klarwein, K. Moukaddem, O. Louveau. 2019. *Blue Tourism. Towards a sustainable coastal and maritime tourism in world marine regions*. Edited by eco-union. Barcelona.

UNEP. 2018a. *Waste Management Outlook for Latin America and the Caribbean*. United Nations Environment Programme, Latin America and the Caribbean Office. Panama City, Panama.

UNEP. 2018b. "A third of urban waste ends up in open dumpsites or environment in Latin America and the Caribbean." Available at: <https://www.unep.org/news-and-stories/press-release/third-urban-waste-ends-open-dumpsites-or-environment-latin-america>

UNEP. 2019. *Status of Styrofoam and Plastic Bag Bans In the Wider Caribbean Region*. United Nations Environment Programme/Caribbean Environment Programme.

UNEP. 2020. "In Latin America and the Caribbean, the closure of ageing dumps is helping to clear the air". Available at: <https://www.unep.org/news-and-stories/story/latin-america-and-caribbean-closure-ageing-dumps-helping-clear-air>.

UNSD. 1997. *Glossary of Environment Statistics*. United Nations Department for Economic and Social Information and Policy Analysis, Statistics Division. Studies in Methods, Series F, No. 67. New York.

UNSDGs. 2018. *United Nations Secretary-General's Roadmap for Financing the 2030 Agenda for Sustainable Development 2019 – 2021*. United Nations Sustainable Development Goals. New York.

Vogt, M. 2019. "The Caribbean's Untapped Renewable Energy Potential." Available at: <https://www.renewableenergyworld.com/storage/the-caribbeans-untapped-renewable-energy-potential/>.

Weber F. 2019. "Demand for Sustainable Tourism." In: Lund-Durlacher D., Dinica V., Reiser D., Fifka M. (eds). *Corporate Sustainability and Responsibility in Tourism*. Springer. New York.

Wenhai, L., C. Cusack, M. Baker, W. Tao, C. Mingbao, K. Paige, Z. Xiaofan, L. Levin, E. Escobar, D. Amon, Y. Yue, A. Reitz, A. Neves, E. O'Rourke, G. Mannarini, J. Pearlman, J. Tinker, K. Horsburgh, P. Lehodey, S. Pouliquen, T. Dale, Z. Peng & Y. Yufeng. 2019. "Successful Blue Economy Examples: With an Emphasis on International Perspectives." *Frontiers in Marine Science*. 6:261.

WFW. 2011. Working for Water. <http://www.dwaf.gov.za/wfw/>

Wilderness Markets 2018a. *Investing in Grenada's Yellowfin Tuna Exports*. Conservation International. Arlington, VA, USA.

Wilderness Markets. 2018b. *Investing in Sustainable Fisheries in the Dominican Republic*. Conservation International. Arlington, VA, USA.

Wilson, S., I. Sagewan-Alli & A. Calatayud. 2014. *The Ecotourism Industry in the Caribbean: A Value Chain Analysis*. IDB Group. Washington DC, USA.

World Bank. 2018. "Seychelles launches World's First Sovereign Blue Bond." Available at: <https://www.worldbank.org/en/news/press-release/2018/10/29/seychelles-launches-worlds-first-sovereign-blue-bond>

World Bank. 2020a. *Cabo Verde: Blue Bond Note*. World Bank Group. Washington DC, USA.

World Bank. 2020b. *Mobilizing Private Finance for Nature*. World Bank Group. Washington DC, USA.

World Bank. 2020c. *ProBlue 2020 Annual Report*. World Bank Group. Washington DC, USA.

World Bank & UNDESA. 2017. *The Potential of the Blue Economy: Increasing Long-term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries*. United Nations Department of Economic and Social Affairs and World Bank. Washington DC.

Wunder, S. 2005. *Payments for environmental services: some nuts and bolts*. Occasional Paper No. 42. CIFOR. Bogor, Indonesia.

Annex 1: Inventory of Financing Sources

Key

Tier 1 Prospect	Tier 2 Prospect	Tier 3 Prospect
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Private Sector: Investment Funds/Managers

Bamboo Capital Partners http://www.bamboocp.com/
Deliberate Capital https://www.deliberatecapital.com/ (Meloy Fund)
Acumen Latin America https://acumen.org/latin-america/
Pegasus Equity Partners https://www.pcalp.com/
Finance in Motion (Investment Fund Manager): eco.business Fund https://www.ecobusiness.fund/en/
GAWA Capital
Global Fund for Coral Reefs* https://www.icriforum.org/global-fund-for-coral-reefs/
EcoEnterprises Fund
Adobe Capital https://adobecapital.org/en/home-en/
Actis https://www.act.is/
AlphaMundi https://www.alphamundi.ch/
Performa Investimentos https://www.performainvestimentos.com/esg-impact
Rockefeller Asset Management https://rcm.rockco.com/rockefeller-asset-management/
Blue Like an Orange Sustainable Capital / BlueOrange Capital https://bluelikeanorangecapital.com/
Cornerstone Capital https://cornerstonecapinc.com/sdg-14/ (Investment Advisors)
8F Asset Management
Encourage Capital http://encouragecapital.com/our-firm/who-we-are/
Developing World Markets
Alpha Impact Investment Management (AiiM) https://aiimparters.com/
Althelia (Sustainable Ocean Fund)
Aqua Spark
Promotora https://www.psm.org.mx/
Blue Oceans Partners https://www.blueoceanspartners.com/
Blue Orchard Impact Investment Fund https://www.blueorchard.com/impact-investing/climate/
KfW: InsuResilience Investment Fund
Caribbean Renewable Energy Forum Fund* (not yet finalized)
Circulate Capital (Investment Fund Managers): Circulate Capital Ocean Fund https://www.circulatecapital.com/
CI-Ventures
Mosaico http://www.mosaicmanagement.com/about

Katapult Ocean
WHEB https://www.whebgroup.com/
Ocean 14 Capital https://www.ocean14capital.com/
Mirova
Mirova (Nature + Accelerator Fund)
Posaidon Capital
SeaAhead https://sea-ahead.com/
Althelia Ecosphere / Mirova-Althelia Althelia.com (Investment Fund Manager)
EdenTree
GEF Capital Partners (Investment Fund Manager)
KL Felicitas Foundation (Investment Fund Manager)
Sonen Capital
Meyer Family Enterprises
RS Group
Resilience Capital Ventures (Investment Advisor)
Semilla Capital Partners (Financial Advisory Firm)
Calvert Impact Capital (Investment Fund Manager)
Cuna del Mar (Investment Fund Manager) cunadelmar.com
ImPact (The) (75+ Families) https://www.theimpact.org/
Tribe Impact Capital https://tribeimpactcapital.com
Tiedmann Advisors (merged with Threshold Group)
Drashta Ventures https://www.drashtaimpact.com/about
Veris Wealth Partners (Investment Advisory Firm) veriswp.com
Global Environment Fund http://www.globalenvironmentfund.com/

Private Sector: Incubation/Accelerators/Coalitions & Alliances

Alimentos Ventures
Lightsmith Group, Adaptation SME Accelerator
Sustainable Ocean Alliance
Ocean Unite / Ocean Unite
Barbados & OECS Blue Economy Accelerator Lab
Coalition for Private Investment in Conservation
Caribbean Climate Smart Accelerator https://www.caribbeanaccelerator.org/our-work
Global Resilience Partnership https://www.globalresiliencepartnership.org/
Ocean Risk and Resilience Action Alliance https://www.oceanriskalliance.org

Alliance for Investing in Natural Capital
<https://www.lombardodier.com/contents/corporate-news/media-releases/2021/january/hsbc-pollination-climate-asset-m.html>

Natural Capital Finance Alliance

Blue Prosperity Coalition (See also, Waitt Foundation)

<https://www.blueprosperity.org/>

Private Sector: Banking

BNP Paribas

Triodos Bank

Development Finance Institutions

World Bank

Climate Investment Fund (World Bank)

KfW : InsuResilience Investment Fund

KfW: EcoBusiness Fund (See Finance in Motion above)

KfW : Sustainable Ocean Fund

IDB Natural Capital Lab

IDB "Compete Caribbean Partnership Facility"

BNDES

CABEI

Blue Carbon Fund (UK funds, managed by IDB)(Blue Carbon Resilience Credit)

IDB Invest

IDB Sustainable Islands Platform Facility.

Caribbean Development Bank

European Investment Bank (EIB)

Agence Francais de Developpment (Afd)

CAF

Philanthropy

The David & Lucile Packard Foundation

Grantham Foundation

Grantham Environmental Trust

Waitt Foundation / Waitt Institute

Planet Heritage Foundation

Vibrant Oceans

Oak Foundation

Paul G. Allen Family Foundation

Prince of Wales Charitable Foundation

Pew Charitable Trust

Minderoo Foundation

Gordon & Betty Moore Foundation

Bertarelli Foundation

Quadrivium Foundation

Vulcan

The Schmidt Family Foundation

Skoll Foundation

IC Foundation

Blue Marine Foundation
Walton Family Foundation
Ford Foundation
Revolution Ocean Foundation
Blue Action Fund
Fundacao Grupo Boticario
Dalio Philanthropies
1 Ocean Foundation
Santo Domingo Foundation
Carlos Slim Foundation
John D. & Catherine T. MacArthur Foundation

Non-Governmental Organizations

Naturevest TNC
WWF
Munich Climate Insurance Mechanism (MCII)
RedLAC Blue Lab
International Union for the Conservation of Nature, "Blue Natural Capital Financing Facility" https://bluenaturalcapital.org/
Marine Stewardship Council (MSC) Ocean Stewardship Fund
Rare

Multilateral Agencies

IFAD
FAO
Global Environment Facility
Green Climate Fund

Bilateral Agencies

United States Agency for International Development (USAID)
Development Finance Corporation (formerly the Overseas Private Investment Corporation (OPIC)) https://www.dfc.gov/
Belgian Investment Company for Developing Countries
Dutch Good Growth Fund
Government of Canada
UAE-Caribbean Energy Fund

Country	Is there a Blue Economy Strategy in place?	Links/references
Antigua and Barbuda	No specific strategy document, but explicitly referenced as a policy priority; refers to national maritime strategy; there is a Ministry of Social Transformation and the Blue Economy; announced establishment of Centre of Excellence for Oceanography and the Blue Economy at the University of the West Indies; included in World Bank-commissioned consultancy for blue economy assessments.	https://www.abregistry.ag/wp-content/uploads/2015/06/Newsletter-May.pdf https://ab.gov.ag/detail_page.php?page=21 https://www.fenews.co.uk/press-releases/57045-government-of-antigua-and-barbuda-to-support-the-establishment-of-a-centre-of-excellence-for-oceanography-and-the-blue-economy-at-the-university-of-the-west-indies-five-islands-campus https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/
Barbados	No specific strategy, but explicitly working towards it; a focus UN Joint SDG Fund support; have completed with UNDP support a Blue Economy Scoping Study; have a Minister of Maritime Affairs and the Blue Economy; noting IDB support; addressed in recently posted consultancy from UNDP	https://joinsdgifund.org/programme/harnessing-blue-economy-finance-sids-recovery-and-sustainable-development https://www.bb.undp.org/content/barbados/en/home/library/undp_publications/barbados-blue-economy-scoping-study.html https://www.barbadosadvocate.com/news/blue-economy-has-potential https://procurement-notices.undp.org/view_notice.cfm?notice_id=73939
Belize	No specific strategy document or instrument; has a Ministry of Blue Economy and Civil Aviation; along with the other Commonwealth nations in the CLME+ group, is a signatory of the Commonwealth Blue Charter, which has embedded within it a Blue Economy vision and commitment	https://www.sanpedrosun.com/politics-and-government/2020/11/29/belize-has-a-blue-economy-ministry-where-did-it-emerge-from-and-what-is-it-about/#:~:text=Blue%20Economy%20is%20an%20emerging,which%20Belize%20is%20a%20member.&text=Commonwealth%20Clean%20Ocean%20Alliance,Coral%20Reef%20Protection%20and%20Restoration https://bluecharter.thecommonwealth.org/
Brazil	no explicit strategy; there is a coastal zone plan; much of the attention appears focused on MPAs; attention to marine spatial planning and blue economy;	https://www.marinha.mil.br/secirm/sites/www.marinha.mil.br/secirm/files/publicacoes/gerco/IVPAFZC.pdf https://www.earthssystemgovernance.net/oceans/?p=632 http://www.mspglobal2030.org/brazilian-and-uruguayan-experts-advance-recommendations-for-msp-and-sustainable-blue-economy/

Colombia	no blue economy strategy, but blue economy mentioned as part of 'Circular Economy' strategy, in National Policy for the Ocean and Coastal Spaces	https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2020/mtg1/S2_4_CE_SEEA_DANE_Colombia.pdf https://unece.org/fileadmin/DAM/stats/documents/ece/ces/ge.33/2020/mtg1/S2_4_CE_SEEA_DANE_Colombia.pdf
Costa Rica	has developed Oceans strategy with sustainability emphasis (focused on commercial fisheries); part of relevant regional (Central America) GEF project, but focused on Pacific;	https://unctad.org/news/costa-rica-course-vibrant-and-inclusive-blue-economy#:~:text=%E2%80%8BCountry%20seeks%20to%20optimize,big%20pelagics%20and%20coastal%20fish. https://unctad.org/system/files/official-document/ditctedinf2020d3_en.pdf https://unctad.org/system/files/official-document/ditc-ted-30102019-CostaRica-OETS-report-comment.pdf https://www.thegef.org/news/gef-announces-new-investment-central-americas-blue-economy
Dominica	No specific strategy, but has prepared a Blue Economy Scoping Study as a step; National Resilience Development Strategy includes emphasis on blue economy elements; included in World Bank-commissioned consultancy for blue economy assessments.	https://clmeplus.org/app/uploads/2019/12/Blue-Economy-Scoping-Study-for-Dominica.pdf https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Dominica%202030The%20National%20Resilience%20Development%20Strategy.pdf https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/
Dominican Republic	No specific strategy; a National Action Plan for Protection of the Marine Environment; limited attention to blue economy considerations in NBSAP; included in World Bank-commissioned consultancy for blue economy assessments.	https://www.cbd.int/doc/world/do/donbsap-01-es.pdf https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/
Grenada	Yes: Blue Growth Coastal Management Plan; included in World Bank-commissioned consultancy for blue economy assessments; addressed in recently posted consultancy from UNDP; a focus of UN Joint SDG Fund support	https://clmeplus.org/doculibrary/grenada-blue-growth-coastal-master-plan/ https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/ https://procurement-notices.undp.org/view_notice.cfm?notice_id=73939 https://jointsdgfund.org/programme/harnessing-blue-economy-finance-sids-recovery-and-sustainable-development
Guatemala	no explicit strategy; part of relevant regional (Central America) GEF project, but focused on Pacific ; hosted online training on Marine Spatial Planning and Sustainable Blue Economy in October 2020;	https://www.thegef.org/news/gef-announces-new-investment-central-americas-blue-economy

Guyana	No; some coverage of relevant sectors in Green State Development Strategy; Integrated Coastal Zone Management plan dates to 2000.	https://www.doe.gov.gy/published/document/5cd1d69fe5569929a69b35b0
Haiti	no explicit strategy; very little mention, other than in lists of countries in regional programs; IDB project supports blue economy plans for coastal communities.	https://www.iadb.org/en/news/idb-announces-innovative-solution-address-ocean-plastic-pollution-haiti
Honduras	no explicit strategy; high level policy emphasis; part of relevant regional (Central America) GEF project, but focused on Pacific; mangrove and artisanal/small-scale fishery work is framed as blue economy work;	https://presidencia.gob.hn/index.php/gob/el-presidente/5905-honduras-liderara-iniciativa-economia-azul-contra-cambio-climatico-en-proximos-dos-anos https://www.thegef.org/news/gef-announces-new-investment-central-americas-blue-economy https://www.ndf.fi/project/resilience-blue-economy-and-coastal-ecosystem-northern-honduras%E2%80%94mipescan-ndf-c61 https://resiliencenexus.org/2020/01/30/goal-mipescan-project-is-benefitting-small-scale-fishermen-on-the-north-coast-of-honduras/
Jamaica	No specific strategy; policy emphasis; included as an objective in National Development Plan; Jamaica used for an interesting case study of how to construct Satellite Account to measure blue economy contribution	https://jis.gov.jm/govt-implementing-laws-to-support-blue-economy/ https://www.hellenicshippingnews.com/blue-economy-in-focus-as-jamaica-hosts-high-level-imo-meeting/ https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/Jamaica_Vision_2030_Jamaica_NDP_Full_No_Cover_web.pdf https://www.caribank.org/sites/default/files/publication-resources/Measuring%20the%20Blue%20Economy.pdf
Mexico	part of relevant regional (Central America) GEF project, but focused on Pacific ; participated in online training for marine spatial planning and blue economy in Oct 2020; hosted World Ocean Summit 2018 with significant blue economy emphasis; member of high-level panel on Building a Sustainable Ocean Economy; emphasis seems to be on small-scale fisheries, certification, and aquaculture (with tourism taken as obvious/given)	https://www.thegef.org/news/gef-announces-new-investment-central-americas-blue-economy https://events.economist.com/events-conferences/americas/world-ocean-summit-2018 https://www.wri.org/news/2020/12/release-14-world-leaders-commit-100-sustainable-ocean-management-solve-global https://mexico.edf.org/prensa/sector-pesquero-convertir-mexico-en-lider-en-economia-azul-es-tarea-de-todos

Panama	no explicit strategy, and not many mentions in policy docs or news items; Panama comes up in regional initiatives; site for training event on marine spatial planning and blue economy; part of relevant regional (Central America) GEF project, but focused on Pacific	http://www.mspglobal2030.org/supporting-the-development-of-sustainable-blue-economy-in-panama-through-ecosystem-based-strategies/ https://www.thegef.org/news/gef-announces-new-investment-central-americas-blue-economy
St. Kitts and Nevis	no explicit strategy; included in World Bank-commissioned consultancy for blue economy assessments; projects working toward National Ocean Policy, Marine Spatial Plan, and Coastal Master Plan	https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/
St. Lucia	no explicit strategy; included in World Bank-commissioned consultancy for blue economy assessments; has been in process of finalizing National Ocean Policy, Marine Spatial Plan, and Coastal Master Plan; blue economy is aligned with St. Lucia's participation in Commonwealth Marine Economies Programme	https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/ http://www.govt.lc/news/saint-lucia-finalizes-national-ocean-policy https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/769190/Commonwealth_Marine_Economies_Programme_-_St_Lucia_Country_Plan.pdf
St. Vincent and the Grenadines	included in World Bank-commissioned consultancy for blue economy assessments; blue economy is aligned with St. Vincent and the Grenadines' participation in Commonwealth Marine Economies Programme; relevant elements in National Economic and Social Development Plan; an emphasis of World Bank programming; addressed in recently posted consultancy from UNDP; a focus of UN Joint SDG Fund support	https://nl4worldbank.org/2020/04/14/ec2-blue-economy-assessments/ https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/769188/Commonwealth_Marine_Economies_Programme_-_Saint_Vincent_and_the_Grenadines_Country_review.pdf https://observatorioplanificacion.cepal.org/sites/default/files/plan/files/SanVicenylasgranadinascompleto.pdf https://www.worldbank.org/en/news/press-release/2019/06/06/world-bank-supports-fiscal-and-climate-resilience-in-saint-vincent-and-the-grenadines https://procurement-notices.undp.org/view_notice.cfm?notice_id=73939 https://jointsdgfund.org/programme/harnessing-blue-economy-finance-sids-recovery-and-sustainable-development
Suriname	No explicit strategy; virtually no mentions found in policy docs or news items, beyond listing in some regional programs like GEF-funding for CLME+	

Trinidad and Tobago	no explicit strategy; linking marine spatial planning to blue economy; some relevant content in national development strategy	http://www.mspglobal2030.org/wp-content/uploads/2020/11/MSProadmap_Presentation_TT_20201105.pdf https://www.planning.gov.tt/sites/default/files/Vision%202030-%20The%20National%20Development%20Strategy%20of%20Trinidad%20and%20Tobago%202016-2030.pdf
United States of America	no explicit strategy, but has announced significant govt resources for blue economy; NOAA quite active; can also consider state-level plans (e.g. Florida)	https://www.state.gov/u-s-announces-1-21-billion-to-support-blue-economy-commitment-strengthens-sustainability-of-ocean-economy-enhances-health-of-planet-and-advances-global-economic-security/ https://www.noaa.gov/sites/default/files/atoms/files/Leadership%20in%20Powering%20the%20American%20Blue%20Economy%20May%202020_0.pdf http://www.floridaoceanalliance.org/wp-content/uploads/2020/07/FOA-Strategic-Policy-Plan_063020a.pdf
Other Items of Interest <ul style="list-style-type: none"> • BVI Blue Economy Road Map: https://www.bb.undp.org/content/barbados/en/home/library/undp_publications/british-virgin-islands-strategic-blue-economy-roadmap-.html • Green Economy Barometer (Eastern Caribbean): https://www.greeneconomycoalition.org/assets/reports/Barometers-2018/East-Caribbean-GE-Barometer-2018-WEB.pdf • WB developing "Unleashing the Blue Economy of the Eastern Caribbean' (UBEEC)": https://blogs.worldbank.org/latinamerica/unleashing-blue-economy-economic-recovery-and-resilience-eastern-caribbean • OECS work on green-blue economy strategy and action plan: https://www.oecs.org/en/the-oecs-green-blue-economy-strategy-and-action-plan 		

Annex 2: Case Studies

This section examines examples of mechanisms that have been deployed around the world to increase investments in marine and coastal protection and the sustainable use of marine resources and biodiversity.

Case Study 1: Payment for Ecosystem Services and Blue Carbon Introduction

The proliferation of Payments for Ecosystem Services (PES) schemes of various kinds around the world fuels interest in their potential application in the blue economy space in the CLME+ region. For example, the Water Funds model promoted at a growing number of sites in Latin America by The Nature Conservancy (TNC) motivates a search for analogous applications. For context, a brief outline of the basic PES logic will be useful, along with some points drawn from the Water Funds example, before offering reflections on possible relevance for the CLME+.

Following Wunder (2005) PES can be defined as:

- a) a *voluntary* transaction in which
- b) a *well-defined* environmental service (ES) or land use likely to secure that service
- c) is 'bought' by a service *buyer*
- d) from a service *provider*
- e) if and only if the service provider secures the provision of the environmental service (*conditionality*)

PES thus serves as a means to create markets linking those involved in supplying ecosystem services with beneficiaries, allowing otherwise non-marketed environmental benefits to compete with habitat conversion or unsustainable resource use.

Mechanism Description

PES programs include both those in which ES users pay directly, and those in which the government pays providers on behalf of its citizens. At the international scale, attempts to generate international payments to developing countries for Reduced Emissions from Deforestation and Degradation (REDD+) are especially noteworthy. At the national scale, a growing number of countries (e.g., Australia, China, Costa Rica, Ecuador, Germany, Mexico, USA, and Vietnam) have launched PES programs, most commonly for water, biodiversity protection, and/or carbon sequestration.

For example, Ecuador's Socio Bosque (Forest Partners) program was launched in 2008, with the objective of combining ecosystem conservation with poverty alleviation. The program offers direct incentives to local landowners and communities in exchange for 20-year conservation agreements (de Koning et al. 2011). Indigenous peoples and local communities use payments under the program to support conservation activities such as demarcation and surveillance of their forests, improve

their education and health care systems, increase the sustainability of productive activities such as ecotourism and agro-forestry, and strengthen local institutions.

An interesting variation on this theme is found in South Africa, where invasive exotic plant species cause billions of dollars of damage to the economy by reducing water availability, intensifying the impact of fires and floods, increasing soil erosion, and reducing the productivity and profitability of fisheries and tourism sectors. Part of the government's response is the Working for Water program, which annually employs approximately 20,000 people from among the most marginalized sectors of society to manage invasive species. The program has cleared more than one million hectares of invasive alien plants, thus restoring valuable ecosystem services (WFW 2011). The return on this investment to the South African economy is between 2:1 and 7:1 (calculations derived from TEEB 2009).

Challenges also exist. Among them is the issue of targeting. For instance, Costa Rica's national PES program has enrolled nearly 300,000 hectares in voluntary conservation agreements. However, an evaluation of the program's impact between 1997 and 2000 revealed that it had not significantly reduced the deforestation rate (Pfaff et al. 2008). Lack of impact was not due to evidence of clearing; areas enrolled in the program remain almost 100% intact. Lack of impact was due to the fact that the majority of enrolled parcels would not have been deforested anyway (Pagiola 2008). Possible means to address such problems include explicit targeting of areas at risk for deforestation, differentiated prices according to risk of clearing and alternative land uses, and making payments depend on clear demonstration of how delivery of the ES in question was improved ("additionality"). In the case of REDD, for instance, additionality may be demonstrated by showing that deforestation diverged from an expected trend and was not displaced to neighboring areas; for water, it might be demonstrated by comparing sediment flows with and without a particular change in land management practices.

PES schemes seek to mimic important aspects of market dynamics, particularly by connecting buyers to sellers, making benefits contingent on conservation performance, and scaling benefits to outweigh the opportunity cost of conservation (the financial returns from alternative resource uses). Challenges arise from the fact that the ES in question typically are public goods. A variety of funding sources – individuals, foundations, companies – recognize the importance of biodiversity, and local resource owners are in

a position to offer biodiversity conservation services. However, public goods characteristics of biodiversity preclude the emergence of markets to connect these two parties, requiring government or its surrogates (civil society actors like NGOs) to connect global willingness-to-pay for conservation with local resource owners and communities whose actions determine the fate of biodiversity in many places.

Two defining characteristics of public goods lead to market failure: First, they are “non-excludable” in that people can’t be kept from enjoying them regardless of whether or not they pay anything. Second, they are “non-rival” in that one person’s enjoyment doesn’t diminish the amount of the good or service available for others to enjoy. Goods with these characteristics present challenges for a system that determines what is produced through buying and selling. When people can’t be kept from benefiting from something regardless of whether or not they pay, they usually choose not to pay, giving rise to the “free-rider” problem. Also, when the availability of a good or service is not decreased by people’s use of it, it makes no sense to take the time and expense necessary to exclude people. These factors combine to generate very little incentive for private actors to voluntarily provide or pay for public goods at a meaningful level. Lighthouses, fireworks displays, national defense, and even autopsies are goods in this category; many environmental problems are rooted in these same characteristics, and financing for sustainable resource management and conservation is challenged by the public goods nature of many ecosystem services.

Applications of the Mechanism

Water Funds

TNC’s Water Fund model emerged as a mechanism to promote collective action by a broad set of partners and stakeholders in response to water shortages in a given geographic context. The shared objective of sustaining and improving water quality and availability serves to align water user interests in pursuit of synergies in water conservation efforts. Recognizing the continuous need for alignment and coordination, Water Fund initiatives involve institutional development to put in place long-term or permanent arrangements. Although each initiative is adapted to locally specific conditions, several common themes run throughout TNC’s Water Fund portfolio: they are geographically organized by water basin, involve a diversity of users committed to holistic natural resource management, emphasize long-term financial sustainability, rely on transparent monitoring, and explicitly consider the linkages between water, people and biodiversity. Within these commonalities, Water Funds can vary considerably in terms of specific objectives (managing sedimentation, improving water quality, enhancing water flows, etc.), types of users,

applicable legal and financial mechanisms, institutional design, and numerous other factors. The types of investments and conservation actions supported by a Water Fund also vary in response to local context, with examples that include establishment of protected areas and conservation set-asides, management of livestock movements, environmental education, and alternative income projects with communities.³⁴

A near-universal feature throughout TNC’s portfolio of Water Fund initiatives is some form of compensation to or investment in upstream landowners and/or resource users, for behavior change that maintains or enhances watershed services accruing to downstream beneficiaries. Though not all are explicitly articulated as Payments for Ecosystem Services, they nonetheless generally do conform to the Wunder (2005) definition provided above (Bremer *et al.* 2016):

- The buyer is the Water Fund itself, an institutional creation that convenes stakeholders and directs funding. The financing vision for many Water Funds includes revenue provided by municipal water management authorities, potentially recovered by passing the costs to end-users through standard water charges. The bulk of Water Fund finance has relied on public sources including utilities, oil and gas royalties, and taxes, followed by philanthropic contributions.
- The providers are upstream landowners and resource users, who commit to actions that enhance water quality and quantity such as maintaining forest cover, managing agricultural runoff, solid waste management, etc.
- Compensation, payments, or investments in social goods for upstream providers in many cases are subject to verification of compliance with agreed-upon commitments, which can be articulated in contracts or less formal conservation agreements. This places great importance on monitoring, not only of water service indicators but also of provider compliance.

Blue Carbon

Blue carbon ecosystems –mangroves, tidal saltmarshes and seagrasses– account for significant amounts of carbon in biomass and sediments; carbon sequestered in soil is particularly significant and can be stored for hundreds to thousands of years. Mangroves and coastal wetlands can store as much as 10 times the amount of carbon per unit area relative to terrestrial ecosystems. They are some of the most carbon-rich ecosystems on Earth, but also are among the most threatened; the historical range of mangroves has been reduced by nearly half. Mangrove loss accounts for up to 10% of annual global emissions from deforestation, despite covering only 0.7% of land surface.

³⁴ For a comprehensive presentation of TNC’s Water Fund program, please see <https://waterfundstoolbox.org/>.

On the order of 1 billion metric tons of CO₂ are being released annually from degraded coastal ecosystems, comparable to the total annual emissions from cars, buses, aircraft and boats in the US.

Blue carbon is a relatively new concept, and has yet to be integrated into national or global regulatory carbon markets. Existing methods of measuring and monitoring carbon offsets are geared towards terrestrial ecosystems. Therefore, blue carbon opportunities for the time being are concentrated in pilot and demonstration projects, including refinement of measurement and monitoring approaches to develop better methods to account for and trade blue carbon credits.

Colombia offers a blue carbon example within the wider Caribbean region.³⁵ The mouth of the Sinú River in Cispatá comprises a rich mangrove ecosystem at the northern edge of Colombia's Caribbean coast.

These mangroves provide coastal protection, fisheries habitat and a wealth of biodiversity, as well as storing a large amount of carbon. About 12,000 people rely on this resource for food, firewood and livelihoods. However, the mangroves are threatened by agricultural expansion, unsustainable tourism infrastructure development, and increased logging. Conservation International (CI) is working with local research institute INVEMAR, Colombian NGO Omacha, the regional government and local communities to conserve and restore 11,000 hectares of mangrove forest, which over the life of the project will remove the equivalent of an estimated 1 million tons of CO₂ from the atmosphere. Revenue generated through the sale of carbon offset credits will contribute to long-term financing for sustainable development in the region, supporting conservation management as well as investment in ecotourism and sustainable fishing practices. Additional anticipated benefits include more secure employment as well as food security, natural water purification, and coastal protection against storm surge.

Current funding for the initiative is derived through a partnership with the Apple corporation that began in 2018,³⁶ which also includes support for enhancing technical approaches to measuring the full carbon value of mangrove ecosystems; importantly, this will include better capturing the amount of carbon stored in soils, which is substantially greater than the amount in above-ground biomass. The company will benefit in the form of a voluntary offset with a goal of reducing emissions by at least 17,000 tons of CO₂, in the first two years of the project, equivalent to the entire emissions of the fleet of vehicles updating Apple Maps over a decade. In 2018 the company announced that it had reached a goal of powering all of its operations with 100%

renewable electricity, and it has secured commitments to work towards the same goal from more than 40 of its suppliers.³⁷ Nonetheless, it continues to invest in additional contributions to reducing global emissions, such as through the blue carbon project in Colombia.

An important part of the context for this project is that Colombia implemented a national carbon tax in 2017 (Monge 2018). Colombian companies are able to reduce their carbon tax burden by purchasing carbon offset credits; the Cispatá project aims to certify its emissions reductions for sale to these companies.

Observations (*enabling factors; lessons for application*)

With respect to TNC's Water Fund model as an example of PES, a key feature is that the principal financing source is the government, typically through local water utilities. Thus, in a sense the government serves to aggregate the beneficiaries of improved watershed services. This is typical of successful responses to the public goods problem described above, where beneficiaries do not organically result in a well-defined source of market demand. The government may pass costs on to ultimate beneficiaries (i.e., through water bills), but not necessarily; there is a strong public finance rationale for using general public funds (such as those generated through oil and gas revenues) to invest in watershed services, when this results in public benefit and generates other savings (for example in the health sector).

Private sector finance for models like Water Funds can readily be imagined; beverage companies, for example, may have a strong interest in contributing. However, to date direct financial support for Water Funds from the private sector has been relatively limited.

In the blue economy space, there are not many obvious contexts in which ecosystem services create a clear basis for identifying potential buyers and providers. In many instances, providers (e.g., a local community that can help protect coastal habitat) are the same as the beneficiaries (e.g., local fishermen who depend on stocks sustained by that habitat). Some exceptions that might be noted include:

- In settings where government a) prioritizes a range of ecosystem services and b) has the financial resources to compensate local resource owners and/or users for behaviors required to maintain those services, transaction-based conservation may be an option, but this does not generate new financing; instead, it amounts to persuading government to using some of its limited resources in a particular way. Ecuador's extension of the

³⁵ See <https://www.conservation.org/stories/critical-investment-in-blue-carbon>

³⁶ <https://www.apple.com/newsroom/2019/04/conserving-mangroves-a-lifeline-for-the-world/>

³⁷ <https://www.fastcompany.com/90338108/inside-apples-plan-to-protect-a-27000-acre-forest-in-colombia>

above-mentioned Socio Bosque program to Socio Manglares, to incentivize community-based mangrove conservation, is an example.

- Tourism operations can compensate communities to forego (some) resource use to help preserve tourism assets. These are forms of PES, with the tourism operators as buyers and communities as providers, to maintain coral health and fish stocks in a defined area, for example.
- In the Namena Reserve in Fiji, payments are based on dive tag fees paid by scuba divers; at the Misool Eco Resort in West Papua (Indonesia), payments are formalized in a lease (Niesten & Gjertsen 2010).
- Markets for credits for reductions in carbon emissions can provide access to a global demand for ecosystem services. For the blue economy, carbon sequestration in marine ecosystems – blue carbon - is therefore of great interest; more on this below.

The Apple Corporation's support for the Colombia blue carbon project is motivated in part by the community-based nature of the intervention. This illustrates how blue carbon, and especially mangroves, are a particularly attractive offset investment to the private sector, facilitating differentiation from other carbon offset options. High biodiversity and significant other ecosystem services (i.e., coastal protection), and critical roles in sustaining local communities, make blue carbon derived from mangrove protection and restoration especially marketable.

Coastal wetlands provide adaptation and coastal protection benefits by absorbing incoming wave energy, providing coastal and storm surge protection, and preventing erosion. Coastal wetlands may keep pace with sea level rise and offer a more cost-effective green infrastructure option relative to artificial infrastructure such as seawalls. Healthy coastal ecosystems also support other benefits such as spawning grounds and nurseries for commercial species, water purification and local livelihoods. Restoration and protection of coastal blue carbon ecosystems therefore is prioritized by several countries in commitments related to climate change mitigation and adaptation: countries in the region that have defined relevant measures in their Nationally Determined Contributions (NDCs) and national adaptation strategies include: Antigua and Barbuda; Bahamas; Belize; Cuba; Grenada; Guyana; Haiti; Jamaica; Saint Lucia; Saint Vincent and the Grenadines; and Suriname.³⁸

The preponderance of attention to blue carbon as a financing solution has focused on mangroves and coastal wetlands. For the CLME+ region, seagrass also may be highly relevant, potentially justifying investment in advancing frameworks for carbon accounting and trade for these systems. Although they cover less than 0.2% of ocean floor, seagrasses store about 10% of the carbon buried in the oceans each year. Figure 1 below indicates that CLME+ region is of great global significance with respect to blue carbon, especially for mangroves and seagrass.

Fig. 1 |
Global Distribution of Blue Carbon Ecosystems



Source: <https://www.thebluecarboninitiative.org/>

³⁸ See <http://bluesolutions.org/dev/wp-content/uploads/Blue-Carbon-NDC-Appendix.pdf>

Thus, the potential is encouraging, but in the near term blue carbon remains limited as a revenue source. Financing primarily is project-based, available for pilot and demonstration initiatives and technical/legal work on policies and regulatory frameworks, mainly from conventional sources such as UNFCCC financing mechanisms and philanthropy (Herr *et al.* 2015).

A case in point from the CLME+ Blue Economy Investments Inventory is the Blue Carbon Fund, financed by the UK government's Department for Environment, Food and Rural Affairs and managed by IDB.³⁹ Planned for operation from December 2018 to December 2024, this GBP 12,950,000 Fund promotes the sustainable management, conservation and restoration of mangrove habitats by developing and embedding operational blue carbon markets across the Caribbean and Latin America. The objectives are to provide local communities with a sustainable income and help low-income countries pursue low-emission, climate-resilient development. Notably, the business case developed for the Fund states that:⁴⁰

“... the programme will be used to accelerate the development of the Blue Economy of key countries in Latin America and the Caribbean (LAC) by catalysing and mobilising strategic public and private sector investments in Blue Carbon sector and closely linked thematic areas such as sustainable fisheries, sustainable aquaculture, coastal zone management, payment for ecosystem services and eco-tourism. The program will target

the main drivers of degradation and barriers to the conservation and sustainable management of mangrove forests in both the public and private sectors.”

Much of the Fund's resources already are programmed. In Jamaica, the project will restore mangrove ecosystems along the south coast of Jamaica. The interventions are expected to improve the sequestration capacity to store blue carbon and improve climate change resilience. In Panama, the project will support science to establish a blue carbon baseline; conduct economic valuation of ecosystem services; build knowledge, awareness and engagement with key stakeholders; and support and strengthen policies to incentivize mangrove conservation and reforestation. The Fund design also budgeted £2.3m for an Innovation Competition for Caribbean Developing States, comprising a competitive grant scheme to support innovative post-concept pre-commercial businesses/technological models which offer solutions for reforestation, sustainable use, conservation or monitoring of mangroves. If businesses are successful, the grant funding is converted to an equity stake.

With enough investments like those supported by the Blue Carbon Fund, blue carbon may be anticipated ultimately to become a significant market opportunity within the blue economy, but this will require continued evolution in technical models and policy contexts.

³⁹ See <https://devtracker.fcdo.gov.uk/projects/GB-GOV-7-ICF-PO008-UKBLUECARBONFUND>

⁴⁰ ICF Business Case 2018 – GB-GOV-7-ICF-PO008-UKBLUECARBONFUND

Case Study 2: Seychelles Debt-for-Nature Swap and Blue Bond Introduction⁴¹

The set of transactions the Government of the Seychelles entered into in 2015 and 2018 represents two mechanisms of interest, both of which merit consideration on their own as well as in combination. The two mechanisms are a Debt-for-Nature Swap (DNS) and a Blue Bond.

The coastal environment of the Seychelles is central to economic development. White sand beaches and tropical blue waters are the foundation of the tourism industry; tourism and fishing together account for about one-third of all employment. The wider Mahé plateau is vital for artisanal fisheries that provide food security, employment and high value trade commodities. Economically important species include around 100 types of demersal fish as well as sea cucumber, lobster and octopus. The Republic's vast marine Exclusive Economic Zone (EEZ) of approximately 1.4 million km² sustains industrial fishing, particularly for tuna following the establishment of a tuna cannery in Port Victoria in the mid-1980s; fisheries are the country's primary source of foreign exchange.

Management of fishery resources is an ongoing challenge, though vital for economic development and food security; overfishing of various stocks is of great concern, as is ongoing degradation of habitats through anthropogenic stressors including climate change. Artisanal fishery catches have declined steadily since the early 1990s, indicating that demersal stocks have been heavily overfished. Climate change, ocean warming and acidification have seen Seychelles experience several severe and extensive coral bleaching and death episodes since the 1990s, resulting in some 90% and 50% loss of live coral cover in the central archipelago and outer islands respectively. Changing currents and shifts in seasonal weather patterns may affect occurrence and distribution of species in ways that undermine conservation and sustainable resource use. Ongoing oil exploration poses risks attending potential future exploitation for biodiversity on the Mahé plateau and elsewhere in the EEZ.

Mechanism Description

Debt-for-Nature Swap

The basic idea of a DNS is to reduce a nation's foreign debt in exchange for investment in conservation. This is a voluntary transaction in which hard-currency debt owed by a debtor country government is cancelled or reduced (i.e., discounted) by a creditor, in exchange for financial commitments to conservation -- in local currency -- by the

debtor. A DNS can ease a country's debt burden; generate funding for conservation; advance government and partners' agendas for conservation and sustainable development; and build institutional capacity for conservation finance. The transacted debt can be *bilateral* (government to government), typically requiring creditor government agreement on a debt restructuring plan, or *commercial* (government to private bank), which can be transacted on secondary markets at discounted rates. Core DNS components include the amount and type of debt converted or cancelled; redemption price and/or discount rate; payment schedule for conservation commitments; and utilization of proceeds, including accountability and compliance provisions. DNS proceeds often are allocated to environmental trust funds for disbursement to projects and/or protected areas. While true win-wins may be rare in the real world, a DNS may be one of those rare instances where creditors, debtors, local stakeholders and the environment each stand to gain.

Factors to Consider in Feasibility Assessment for a DNS

- political support from key ministries within debtor government
- eligibility/alignment with debtor country debt management policy/guidelines
- foreign public debt outstanding and ongoing debt relief operations with other creditors
- fiscal capacity to adhere to new repayment schedule
- economic and political stability
- potential for DNS to attract additional conservation funds
- existence of environmental trust fund
- absorptive capacity for conservation funds
- mechanisms to manage inflation risk
- policy linkage between debt and conservation in creditor country or countries
- availability of technical assistance for design of DNS and conservation investment program

Blue Bond

There is no real distinction between blue bonds, green bonds or climate bonds aside from what the bond issuer commits to with respect to use of funds. As a financial instrument, blue bonds operate the same way as any other bonds. They are a way of raising capital by issuing debt or, in other words, borrowing money from investors by providing an IOU with well-defined repayment terms. Thus, the tool boils down to a tradeable loan instrument with terms that specify repayment period and interest rate (called the coupon rate in case of bonds). When an entity (the issuer) offers bonds to investors, the issuer promises to repay the principal (the loan amount) at a specified date in the future (the maturity date), and, typically, interest payments at

⁴¹ This case study synthesizes the following sources: Convergence (2017), Government of Seychelles (2014), Kennedy (2018), Smith *et al.* (2020), World Bank (2018), World Bank (2020a).

regular intervals at a rate that may be fixed or indexed. In essence, a government or corporation issues a form of promissory note to investors; this means that the issuer must be able to convince would-be investors of its ability to repay. Support such as guarantees, as provided by the World Bank in the Seychelles example, lowers risk and increases investor confidence, and thereby enables the issuer to offer lower coupon rates. The high degree of predictability in returns on bond investments makes them a fixed income instrument. Most bonds are negotiable, meaning that an investor who acquires a bond can sell it on to someone else. The only difference between a blue bond and a conventional bond is that the money raised is used for environmentally friendly projects. Typically, the intended environmental use of the bond proceeds will be validated by a third party, to reassure investors that they are contributing to positive environmental impact.

Most environmental (green, climate or blue) bond issuers identify purchasers (investors) before the issue; these buyers (in some instances a single buyer) may acquire all the bonds or serve as an anchor, providing a critical mass of initial investment in advance of other buyers. Thus, many such bond issues reflect a significant amount of communication between issuer and investors to tailor the bond to investor appetite.

Application of the Mechanism

The Seychelles example includes a DNS and a Blue Bond. Although bond issuance is not a necessary component of a DNS, it provides a means for participation by private investors which reduces the burden of raising funds from philanthropic or public sources.

In 2010, TNC and the government of the Seychelles initiated work on a debt-for-nature-swap that ultimately was concluded in 2015; as part of the deal, the government committed 30% of its sea area to marine protection by 2020, ten years ahead of the United Nations 2030 target (Sustainable Development Goal no. 14). A marine spatial planning process initiated in 2014 identified three zones, two of which are designated for marine protection to achieve the 30% target. The remaining 70% is available for various economic activities. The transaction created the world's second largest marine protected area, expanding Seychelles marine protection from less than 1% to more than 30% of the EEZ, about 400,000 km².

The government of Seychelles with partners initiated a marine spatial planning process in 2014. The evolving plan identifies three zones, two of which are designated for marine protection to achieve the 30% target, with 15 percent under no-take zones. One Marine Protected Area under high biodiversity protection covers 177,000 km²

around the UNESCO World Heritage Site Aldabra Atoll. A second Marine Protected Area under medium marine protection and open to sustainable economic activities covers 173,000 km² between Amirantes Isles and Fortune Bank. The remaining 70% not under protection remains available to various economic activities, which in addition to fisheries and marine tourism include sand mining and oil exploration.

For this deal, TNC's NatureVest facility raised US\$5 million in grant funding from foundations and individuals and a US\$14.2 million loan from TNC, and negotiated a discount from creditors on the original debt. These funds were transferred to the Seychelles Conservation & Climate Adaptation Trust (SeyCCAT), created by the government to facilitate the swap; SeyCCAT issued loans at 3% interest to the government, and uses the government's debt payments to repay initial capital, support marine conservation and climate adaptation work (disbursing about US\$280 thousand in local currency per year, over 20 years), and build up an endowment to support future work (US\$150 thousand per year, over 20 years; at 7% compounding interest this ultimately is expected to result in an endowment of US\$6.6 million).

NatureVest was the transaction lead, with pro-bono legal support from Ropes & Gray, and support on sovereign finance from White Oak Advisory. Original debt holders were key participants in the transaction. These consisted of the governments of Belgium, France, Italy and the United Kingdom, under the aegis of the Paris Club.⁴² Other collaborators on the initiative included the government of South Africa, and the United Nations Development Program, Global Environment Facility, and Global Island Partnership.

The establishment of SeyCCAT was critical to the transactions. Its roles include: receiving grant and loan funding raised by NatureVest; issuing loans to the Seychelles government; receiving loan payments from the government; making loan payments to TNC; issuing grants for conservation activities; and directing funds to a growing endowment. The details of the DNS are as follows:

- NatureVest raised grant and loan capital to finance the debt conversion:
 - o US\$ 5 million in grant funding (from foundations and individuals including the Leonardo DiCaprio Foundation, Waitt Foundation, Oak Foundation, Oceans 5, TNC's China Global Conservation Fund, Jeremy and Hannelore Grantham Environmental Trust, Turnbull Burnstein Family Charitable Fund and Lyda Hill)
 - o US\$ 14.2 million in loan capital from TNC

⁴² The Paris Club convenes officials from major creditor countries to jointly seek sustainable solutions to payment difficulties experienced by debtor countries

- US\$ 1.4 million discount on US\$ 21.5 million debt (~6.5%)
- SeyCCAT received this grant and loan capital and issued loans to the government of Seychelles in two parts:
 - 15.2 million at 3% over 10 years
 - 6.4 million at 3% over 20 years
- The trust uses the debt payments (annual payments of US\$ 480 thousand, up to 68.5% of which is paid in local currency) to:
 - Repay initial capital (TNC loan repaid over 10 years at 3%, so basically a pass-through from government to TNC)
 - Support marine conservation and climate adaptation work (disburse about US\$280 thousand in local currency per year, over 20 years)
 - Build up an endowment to support future marine conservation and climate adaptation efforts (US\$150 thousand per year, over 20 years; at 7% compounding interest this ultimately is expected to result in an endowment of US\$6.6 million)

As the recipient of credit to purchase US\$ 21.6 million of sovereign debt, the Government of Seychelles is the central stakeholder in the DNS. They benefit from improved terms governing the debt payments, namely that 1) They are spread over a longer period (average of 13 years versus 8 years), and 2) The debt is partially converted to local currency. The government also benefited from a discount on the acquired debt, at a rate of 93.5 cents to the dollar, yielding an immediate debt reduction of US\$ 1.4 million.

After four years of work initiated with support from the HRH Prince of Wales' Charity International Sustainability Unit, in 2018 the Government of the Seychelles issued a sovereign blue bond with a face value of US\$15 million, a 10-year tenor, and a coupon rate of 6.5%. The rate paid by the Government is only 2.8% thanks to a US\$5 million concessional (i.e. below market interest rate) loan from the Global Environment Facility (GEF); investor confidence is bolstered by a US\$5 million guarantee from the World Bank (World Bank 2018). (By issuing a loan guarantee, the World Bank essentially committed to taking on the debt in the event of default by the Government of the Seychelles.) The main investors are Calvert Impact Capital, Nuveen, and U.S.-headquartered Prudential Financial (World Bank 2018). Funds raised by selling the bonds support grants from the SeyCCAT-managed Blue Grants Fund and loans from the Blue Investment Fund managed by the Development Bank of the Seychelles. These grants and loans are directed to conservation and sustainable management of marine resources (principally fishing).

Funding from SeyCCAT for conservation activities goes to support: Marine management of new marine protected areas; coral reef and mangrove restoration; economic diversification; sustainable tourism and fisheries; and

improvement of related policies. SeyCCAT is governed by a Board of Directors, composed to represent a diverse stakeholder group as follows:

- TNC
- Two local conservation NGOs
- Seychelles Minister of Finance
- Seychelles Minister of Natural Resources
- Seychelles Minister of Environment
- CEO of the Seychelles Island Development Corporation
- Seychelles Hospitality and Tourism Association
- Seychelles Chamber of Commerce & Industry

Observations

The key enabling factor for issuing a bond is a credible ability to repay. An interesting recent development is that of established endowed trust funds contemplating bond issues to increase funding available for disbursement in the near term against repayment from endowment yields in the longer term; this hinges on financial projections that suggest that the coupon rate needed to attract bond investors now is lower than anticipated returns on endowment capital over time. This is possible in a low interest context that makes bonds attractive to fixed income investors, and strong credit ratings for long-standing foundations. In the case of sovereign bond issues like that of the Seychelles, ability to repay rests on anticipated government revenue; when a bond is issued to cover payments in a DNS, it essentially trades one form of debt for another (though with more favorable terms). Private companies issue bonds to raise capital, predicated on future profitability. (A company might choose to issue a bond rather than seek a loan because bonds typically have lower interest rates and preserve more operating flexibility for the company.) Thus, for applications to conservation financing, the essential element for a solution involving bonds is a source of future revenue.

Outcomes of the Seychelles transaction include:

- The creation of the world's second largest marine protected area, expanding Seychelles marine protection from less than 1% to more than 30% of the EEZ. This amounts to about 400,000 km², or the size of Germany. Half of the marine protected areas will be designated as 'no-take' zones to protect tuna feeding grounds, breeding zones for other fish species, and other priority areas for biodiversity conservation.
- Funding for local NGOs and other bodies to undertake marine conservation and climate change adaptation work, including coral reef and mangrove restoration.
- In the long-term, a permanent endowment of more than US\$ 6.5 million to continue support for

conservation, adaptation and sustainable resource management.

Though they represent an enormous advance for sustainable financing of conservation and climate change adaptation in the Seychelles, the funds secured through the debt transaction are not enough to cover all costs of protection. SeyCCAT estimates that managing the full MPA network requires on the order of US\$75 to US\$106 per km² per year, or up to an annual total of US\$42 million. For perspective, an endowment of US\$6.6 million might be expected to generate about \$350,000 per year.

The government is exploring various avenues for increasing available financing. To this end, they are establishing a new body, the Seychelles Ocean Authority, to coordinate the multiple agencies involved in overseeing the MPA network. One measure being contemplated is an environmental levy of \$10 on tourists; at recent (pre-pandemic) tourism levels, this might generate on the order of US\$3.5 million per year.

The main challenge to future conservation may be socioeconomic needs of local communities. Some of the people involved in the fishing sector are skeptical and fearful of potential restrictions on their livelihoods for the sake of marine conservation. Another challenge would be posed by discovery of significant oil deposits, as exploitation would be accompanied by risk of accidents with severe consequences for biodiversity and the economic mainstays of tourism and fisheries.

Key enabling factors included:

- Government recognition of the importance of marine conservation and climate change adaptation, given the dependencies and vulnerabilities of the Seychelles as a small island developing nation, with significant leadership by a local champion.
- Government appetite for exploring innovative solutions following debt payment difficulties arising from 2008 global financial crisis. Total public debt of the Seychelles reached more than 150% of GDP; nearly two thirds of this comprised external public debt to Belgium, France, Germany, Italy, Japan, and the United Kingdom, and a large proportion was in arrears.
- Several creditor governments were favorably disposed to exploring alternatives as a result of the Seychelles government efforts under an International Monetary Fund (IMF)-backed economic reform programme to reduce external public debt.
- TNC and NatureVest recently had developed the outlines of a comparable initiative in Belize; although that transaction did not take place, it

provided a model for adaptation in the Seychelles case.

- The potential for a 'big win' to attract support from a large coalition of funders, plus the willingness of some funders to make early commitments to establish credibility of the initiative in the eyes of the Seychelles government.
- A broad-based, consultative approach to marine spatial planning to secure buy-in from a wide range of national stakeholders.

Lessons for other areas

The Seychelles example suggests that there is significant potential for debt-based transactions to support conservation for small island and coastal countries with substantial levels of sovereign debt; Cabo Verde is an example of a SIDS considering replication of the Seychelles approach (World Bank 2020a). The Seychelles deal marks the first Paris Club debt-buy back arrangement for the benefit of the environment, and the first debt deal to benefit marine conservation, possibly signaling a significant expansion in the range of possible applications of this approach around the world. However, while debt conversion is conceptually straightforward, navigating the various legal, financial and technical details requires highly specialized expertise. In this case, the initiative benefited from external legal services and expertise relating to sovereign financial management.

Although a DNS may be conceptually straightforward, they are complex political transactions that require a high degree of coordination and negotiation across stakeholder groups. These processes do not always come to fruition, as was the case for the TNC work with Belize. Governments may walk away from negotiations due to a perception that executing a debt for nature transaction would harm their sovereign credit rating. Changes in the credit market can negate the margin between the nominal value of the original debt and a discounted purchase price, undermining the transaction. The various government ministries and agencies involved may be unable to align positions with respect to the transaction, stalling negotiations. Thus, considerable effort is needed to successfully close a DNS deal, and not every initiative will succeed.

Pursuing debt-based solutions requires careful analysis of a country's debt structure, and particularly of appetite on the part of creditors. In the Seychelles case, initial ambitions were for up to US\$80 million in debt. However, Germany and Japan chose not to participate in the transaction, and France excluded a portion of the debt it held that already had been restructured on concessionary terms – the end-result of these negotiations was a transaction for US\$21.6 million rather than US\$80 million. This also points to the importance of managing expectations.

The debt was transacted at a discounted rate of 93.5 cents on the dollar. The discount in a debt transaction is a key factor, where something of a perverse incentive is at work. TNC and the government initially anticipated a larger discount of around 75 cents on the dollar. However, strong performance with respect to reforms and restructuring on the part of the Seychelles government as of 2009 led to economic recovery and effective debt management, reducing the available discount. Thus, effective government makes for a desirable deal partner, but it also narrows the margin of debt discounts.

A compelling feature of the Seychelles debt deal is that the Trust revenue stream (in the form of debt repayments) permits a financing formula that builds an endowment while supporting ongoing work. Although governments in developing countries may struggle to provide large upfront contributions needed to capitalize endowments, this alternative enables such governments to build endowments through more modest annual outlays while reducing debt burdens. This also sends a positive signal on the part of government policy commitments and prioritization of conservation and sustainable management that can attract complementary funding from other sources.

One lesson from the Seychelles example relates to the importance of flexible catalytic funding. The early commitment of US\$1 million from one of the grant donors helped secure government participation in the design process. Strategic deployment of such funding commitments can be crucial to persuading governments (both host countries and creditor countries, in this instance) that a creative approach is worth pursuing.

In principle, the enabling environment in the CLME+ should not present a barrier to the use of these tools in the region. The prevalence of IDB and World Bank lending throughout the region suggests a degree of creditworthiness which, when combined with considerable existing government debt, signals possible margins to accommodate DNS initiatives in deals with IFI backing. The same conditions warrant a scan for Blue Bond opportunities. Various organizations such as TNC, WWF and CI are active in the region, and can serve as potential facilitators for negotiation and deal design processes. Indeed, positioning the blue economy for post-pandemic support for recovery efforts may benefit from emphasis on these types of mechanisms in the context of investment in wider resilience. The key enabling factor will be political will on the part of host country governments.

Case Study 3: Cruise & Yachting Industry-facing Mechanisms

Introduction

Some 27 million passengers cruised through the Caribbean in 2017 (Tonazzini *et al.* 2019). In some SIDS of the region, cruise passengers account for over a half of all international arrivals. In Dominica and Saint Kitts and Nevis, cruises respectively represent 88%, 79% and 75% of total arrivals. Rising global incomes and aging populations augur well for the future of the industry in the region. Nevertheless, there is a widespread perception that the benefits of the cruise industry are not equitably distributed; that it is not contributing as much as it could to the sustainable economic development of destinations in the region. Assets tend to be foreign owned and the overall contribution to local economies is limited (Tonazzini *et al.* 2019). In an open letter written in 2019 to Caribbean leaders calling for a realignment in the relationship between the industry and the countries of the region, one industry expert submits that over 80% of a cruise ship passenger's discretionary spending is on board, due in part to the industry taking large commissions on off ship excursions (McLellan 2019), creating a disincentive for land-based excursion companies to work with the ships. Concerns about the environmental impact of the industry in port regions (e.g., emissions, underwater noise, pollution) and growing demand overstressing the capacities of ports and tourist attractions have invited questions about whether the current level of port taxes adequately compensate the costs (ECLAC 2020b; MacLellan 2019). As so many visitors choose the Caribbean for its natural beauty – sun, sea, and beaches – linking a tax or other type of fee to the management and restoration of coastal and marine habitats, potentially through a conservation trust fund, presents an intuitive rationale.

Regional Cruise Passenger Head Tax

Some notable efforts over the years have sought to address this issue at a regional level without success, such as proposals from CARICOM for a \$10 minimum head tax in 1993, or a \$20 head tax in 2003/2004 from the Caribbean Tourism Organization, which would have gone into an environmental and infrastructure fund. Both efforts were met with strong industry opposition.

Box 1. 1993 CARICOM Regional Head Tax

In 1993, a CARICOM-wide minimum head tax of \$10 on cruise passengers was agreed by governments but never implemented. The plan did not prescribe a timeline for the implementation of the fees, which ultimately contributed to its demise by creating a strong disincentive for countries to adopt them. When individual countries try to increase port taxes, they are threatened with being dropped from cruise itineraries. This is particularly problematic in the Caribbean where experiences in individual destinations may be seen as interchangeable (James 1993).

Today, head taxes in the Caribbean range as follows:

Tab. 1 | Cruise Passenger Head Taxes (USD)*

Country	Price
The Bahamas, BVI	\$18
Jamaica	\$15
Puerto Rico	\$13.25
Belize	\$7.00
Saint Kitts	\$6.00
Saint Lucia	\$5.00
Grenada	\$4.50
Dominican Republic	\$1.50

* These monies flow into government consolidated funds.

As a point of reference, taxes per airline passenger in the region are substantially higher, from US\$144 (Kingston, Jamaica) to \$59 (George Town, Bahamas).⁴³

The state of global discourse with respect to blue economy and the green recovery from the COVID-19 global pandemic, as well as increasing demand and level of sophistication among customers with respect to environmentally-friendly offerings may present an opportunity for the region to revisit efforts to engage the cruise industry to enhance its contributions to sustainable development, and direct revenues to dedicated funding mechanisms that support environmental sustainability. Joint action would enhance the bargaining power of the region's countries in negotiations and resolve the concerted action challenge that hindered earlier efforts. The Caribbean Biodiversity Fund, a regional environmental fund that manages a variety of individual funds (e.g., an endowment for protected areas; a sinking fund for ecosystem-based adaptation) and its network of partner Conservation Trust Funds (CTFs) in each of 11 SIDS in the region could be a natural conduit for directing regional head tax revenue to marine and coastal resource management. That said, Caribbean governments may be reluctant to explore this sort of mechanism under current macroeconomic conditions (linked to the global pandemic), out of a concern that it may be seen as further depressing tourism demand. It is also conceivable that governments may be reluctant to route revenues so generated through legally independent CTFs.

The Belize Cruise Ship Passenger Act

Belize has succeeded in directing taxes collected from cruise passengers into a dedicated conservation trust fund. In 2015, the country passed the Cruise Ship Passenger Tax Act⁴⁴, prescribing a head tax for each manifested passenger entering Belizean waters. The amount of the tax is set by regulation, and collected by the Belize Tourism

⁴³ See <https://www.airfarewatchdog.com/blog/50058021/which-caribbean-airports-have-the-lowest-and-highest-ticket-taxes/>

⁴⁴ The Act is available here: <https://www.nationalassembly.gov.bz/wp-content/uploads/2016/09/Act-No.-7-of-2015-Cruise-Ship-Passenger-Tax-Act-2015.pdf>

Board. The Belize Protected Areas Conservation Trust (PACT)⁴⁵ successfully negotiated with government to receive a 15% commission from the passenger head tax. In both FY 2018-19 and FY 2019-20, the Cruise Ship Commission generated approximately BZ\$2.4M (US\$1.2M) per annum. These Funds are used to advance PACT's mission, and may be allocated in support of:

- i. Capital expenditure of government agencies and NGOs for “green-oriented” infrastructure projects within PAs consistent with approved management plans;
- ii. Protected Areas Management and Conservation;
- iii. Protected Areas Promotion and Development;
- iv. Environmental Education and Awareness/Outreach; and
- v. Community Development around Protected Areas.

The example of Belize signals how a well-designed conservation trust fund, separate from governmental accounts and budgetary rules, could be an important mechanism for ensuring that the resources are dedicated to natural resources management, support for tourism infrastructure and other related initiatives.

Voluntary Yachting-sector Mechanism⁴⁶

Styled as the “Blue Waters Conservation Program” under the aegis of a World Bank funded, TNC-implemented GEF project in the Eastern Caribbean,⁴⁷ this revenue generation concept for supporting coastal and marine ecosystem management was developed based on stakeholder consultations in Saint Lucia, but could be adapted wherever there is a vibrant yachting community/sector or yacht charter operations. The concept is anchored on a partnership between commercial marinas and yachters who may be willing to make a small, voluntary donation (~\$1-2/night) to support the management and restoration of local waters they care so much about.

The program would require participating marinas to integrate an invitation to donate into their websites and reservation systems, which would calculate a donation amount based upon the number of nights a guest was staying. The donation would be included in the reservation confirmation along with assurance that people could opt-out from the program at check out. Promotional materials would promote the merits of the program, highlight investments enabled by the donations, etc. Proceeds would be managed by a local conservation trust fund.

Because a) it generates financial resources that can help to protect and manage natural resources that the yachting community cares about; and b) revenues would not be remitted to a consolidated government fund, but to a conservation trust fund, the yachting community is

expected to be willing in principle to make such donations. The sustainability of this sort of initiative would rest with its ability to demonstrate meaningful impact. The program has the added advantage of being relatively easy to implement, as it would only require a memorandum of understanding or other contractual arrangement between the beneficiary conservation trust fund and a participating marina. For marinas, the program represents an opportunity to demonstrate their social and environmental responsibility. One could envision ways in which the program could be structured so as to enable revenues generated by the program to support a range of investments which could be decided by both the conservation fund and the participating marina.

Phillips (2014) describes the scale of the industry (and therefore suggests the revenue generation potential of the program). Sint Maarten has the largest number of marinas and berths, with 1,020 berths for rent to visiting yachters. Other large berth providers include the Bahamas (845); the Dominican Republic (878); the United States Virgin Islands (842); and Cuba (786). The same study notes that occupancy rates between July and December tend to be around 70-100%.

Recommendations / Observations

Regional Head Tax

- Engaging with the cruise industry to discuss the possibility of Caribbean-wide regional passenger tax would be politically fraught and extremely challenging in the best of times. The impact of the global pandemic on the tourism industry adds another layer of complexity. However, there are other trends that make it worthy of consideration, namely that there is increased focus globally on the blue economy and an increasingly sophisticated base of customers for whom the environment is an important issue.

Marina / Yachting Mechanism

- Visitors are likely to be willing to pay a nominal fee to support environmental conservation efforts, particularly if they are assured that revenues generated will remain separate from consolidated funds. With appropriate agreements and governance arrangements in place, this sort of approach could mobilize substantial resources to protect and restore marine and coastal ecosystems linked to the health of the tourism economy.
- The program would be simple to implement, and based on the size of the yacht tourism sector, has the potential to mobilize substantial volumes of funding.

⁴⁵ <https://www.pactbelize.org/>

⁴⁶ Note: this mechanism is conceptual. It has not yet been piloted.

⁴⁷ “Sustainable Financing and Management of Eastern Caribbean Marine Ecosystems” project, see: <https://projects.worldbank.org/en/projects-operations/project-detail/P103470>

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- There must be transparency with respect to accounting for and use of funds.

Case Study 4: Tourism Enhancement Fund (Saint Lucia)

Introduction

The Caribbean is among the most tourism-dependent regions in the world. Most tourism is in the coastal zone, centered on the hospitality sector (hotels, other accommodations). Tourism is a key generator of foreign exchange, income and employment across the region. The tourism economy, which includes both tourism and all sectors that depend on it, represented 26% of total GDP in the Caribbean and 10% in Latin America. The industry accounted for 35% of employment in the Caribbean and 10% in Latin America (CEPAL 2020). Tourism in Saint Lucia -- and all sectors depending on it -- is linked to ~40% of GDP and over 70% of employment, figures which are high even for the Caribbean. The Caribbean's marine/coastal resources—beaches, coral reefs, mangroves, fisheries and wildlife—are indispensable assets for the sector.

The Saint Lucia Hotel & Tourism Association's (SLHTA's) Tourism Enhancement Fund (TEF), founded and managed by the industry group, a non-profit charitable organization, represents a concerted effort of the hotel and tourism sector to mobilize resources for projects that enhance the country's tourism product. It provides a compelling example of the private sector tuning its CSR contributions to the development priorities of the country. Although the Fund supports projects across a broad range of sectors, the connection between marine and coastal ecosystem health and the island's tourism product makes environmental projects an especially compelling target. The Fund makes explicit reference to "marine and terrestrial conservation projects that impact directly on the tourism industry" as among its focal interests.

Funding Generated

The mechanism is based on an EC\$2/night voluntary donation from guests at participating hotels. In the first year of its operation, it was reported that the Fund generated EC\$1.7M or US\$629,129.⁴⁸ Although we were unable to find a statement of the amount of funding the program has generated on an annual basis in subsequent years, some simple calculations are illustrative. Saint Lucia had 347,872 stayover visitors in 2016; 386,127 in 2017; 394,780 in 2018; and 423,736 in 2019, for an average over the four-year period between 2016 and 2020 of approx. 388,000 stayover visitors per year.⁴⁹ According to the SLHTA's website the program enjoys a "high degree" of compliance among its membership. Assuming conservatively that all of those visitors were members of a family of four and stayed for an

average of 4 nights; and furthermore that 50% of accommodations on the island participated in the program and 90% of visitors opted in; then the revenue generated by a \$2/night collection would equal approximately US\$350,000/year.

Management

The TEF is managed by a mixed (public and private sector) Board of Trustees to ensure that projects have a strong development impact. The SLHTA provides its own resources to administer to projects so that funds collected from visitors are applied solely to projects.

The objectives of the TEF are to:

- support activities of the Saint Lucia Tourism Authority,
- undertake local product development projects
- support private sector initiatives designed to strengthen Saint Lucia's tourism product and strengthen the economic environment needed for the local tourism private sector to thrive

The TEF supports innovative and effective capacity-building projects and activities in selected areas of focus, in particular:

- human resource development of tourism industry employees and potential employees
- socio-economic projects that positively impact the livelihoods of individuals in community-based settings
- marine and terrestrial conservation projects that impact directly on the tourism industry
- community awareness about tourism related issues

Projects Supported

The fund has provided financial support to over 250 projects since 2013. Projects range from beautification to infrastructural and educational projects, including a campaign to raise the awareness of chefs and hotel managers about safe handling and preparation of lionfish, an invasive species. Also notable is the SLHTA's recent Memorandum of Understanding with the Saint Lucia Air and Sea Ports Authority, which has agreed to make an annual donation to the TEF which would be matched by the TEF to support agreed projects. The TEF is also considering the launch of an Enterprise Development Fund, a loan guarantee facility to help entrepreneurs in Saint Lucia to access capital.

⁴⁸ See <http://www.saintluciatef.com/tef-has-raised-over-ec-1-7-million-dollars/>

⁴⁹ See <https://www.caribjournal.com/2020/01/20/saint-lucia-tourism-milestone-new/>, <https://www.caribbeantravel.com/blog/hot-news/saint-lucia-records-over-12-million-visitors-in-2018>

A Note on Willingness to Pay

While each country or territory in the region is unique, to the extent that a tourism destination draws visitors because of their interest in coastal and marine activities, visitors are likely to be willing to pay to support coastal and marine protection. A recent study analyzed visitors' willingness to pay for marine and coastal resource management in Barbados. The study found that most visitors are willing to pay a nominal fee to help fund conservation of coastal and marine resources in Barbados; that willingness to pay is a function of the fee amount, country of origin, and prior Caribbean travel and snorkeling experience. A tourist fee of US\$10.00 per visit could generate over US\$5 million to be used for coastal and marine conservation (Schuhmann et al. 2019).

Recommendations / Observations

- An innovative, home-grown solution.
- Particularly relevant in economies heavily dependent on tourism from outside visitors. This carries a downside, as the potential for revenue generation requires steady visitation numbers.
- Visitors are likely to be willing to pay a nominal fee to support environmental preservation.
- With appropriate agreements and governance arrangements in place, this sort of approach could

mobilize substantial resources to protect and restore marine and coastal ecosystems linked to the health of the tourism economy.

- An awareness raising campaign targeting potential participants emphasizing the linkage between health of coastal and marine ecosystems and the tourism market could enhance the argument that a greater share of resources generated be directed to measures in and affecting marine and coastal areas.
- Unless secured through a contractual arrangement, there is no guarantee of the volume of funds that would flow to measures positively impacting coastal and marine ecosystems.
- An entirely private-sector oriented mechanism that relies on the agreement of private sector entities to be put into place.
- Represents an innovative corporate-led program to mobilize resources in support of national development agendas.
- Unlikely to be interesting in the short term, while the industry is reeling from the dramatic down turn in arrivals (projected to fall between 58 and 78% in 2020 due to the global COVID-19 pandemic (ECLAC 2020c).
- There must be transparency with respect to accounting for and use of funds.

LIST OF IMPORTANT TERMS

Term	Definition ⁵⁰
Accelerator, <i>see also</i> Incubator	Accelerators help to grow companies with an idea and business model in place (compare with Incubators which help fledgling businesses nurture ideas, develop business models to facilitate entry to market). They may provide access to key investors and other influencers to help accelerate the growth of their business.
Assets Under Management (AUM)	The total market value of investments that a person or entity manages on behalf of clients.
Biodiversity Finance	The CBD's definition of biological diversity (or biodiversity) is "the variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems" (Article 2 Convention on Biological Diversity). Biodiversity finance includes mechanisms and strategies that generate, manage, and deploy financial resources and align incentives to achieve nature conservation outcomes. Conservation finance and biodiversity finance are used interchangeably and can be considered alternative names for the same concept.
Blended Finance	Blended finance is the combination of public and/or private development finance flows (e.g., concessional finance and philanthropic resources) with other public or private capital to enhance resources for investment. Concessional finance can be utilized in a number of ways, e.g., technical assistance, underwriting risk, market incentives, insurance against catastrophic events, provision of incentives for performance. The aim is to make investments more viable or profitable by the private sector.
Climate Finance	A subgroup of green finance, which overlaps with conservation finance. Climate finance follows similar principles to conservation finance but focuses on impacts and risks relevant to climate change. Climate change has been identified as one of the greatest threats to nature and biodiversity, and thus climate finance is a major, and growing, source of support for nature conservation. While it is not included separately, many of the financial mechanisms embedded within our taxonomy (e.g., green bonds, carbon offsets) frequently serve as forms of climate finance.
Conservation	The use of the term "conservation" seeks to include a broad concept under what can be considered "nature conservation." Nature conservation as defined by the IUCN is: "the protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence". This definition of nature conservation encapsulates the three objectives of the CBD – "the conservation of biological diversity, the sustainable use of its components, and the fair and equitable sharing of the benefits arising out of the utilization of genetic resources."
Development Bank / Development Finance Institution	A financial institution that provides risk capital (i.e. funds allocated to speculative activity and used for high-risk, high-reward investments) for economic development projects on a non-commercial basis.
Environmental, Social and Governance investing	ESG investing is an umbrella term for investments that seek positive returns and positive long-term impact on society, environment and the performance of the business.
"Exit"	A strategy for disposing of an investment.
Finance Instruments	Finance instruments are defined by the UNDP's Biodiversity Finance Initiative (BIOFIN) as tools used to mobilize, collect, manage and disburse funding and we use this term interchangeably with "tools", "mechanisms", "measures", etc. BIOFIN made a distinction between "instruments" and "solutions" (defined above) and in parallel, there is a general distinction between "mechanisms" and "strategies" in that there can be multiple instruments (and mechanisms) in a solution (or strategy).
Finance Solution	BIOFIN (Arlaud <i>et al.</i> 2018) defined a Finance Solution as an integrated approach to solve a specific problem or challenge by the context-specific use of finance and economic instruments. Specifically, a finance solution is characterized and described by: <ul style="list-style-type: none"> - Finance Source - sources of finance the solution relies upon. - Intermediary - lead agent or intermediaries tasked to manage the operationalization of the solution.

⁵⁰ Several terms and definitions are drawn from Meyers *et al.* (2020).

	<ul style="list-style-type: none"> - Beneficiaries - or principal stakeholders that either receive the financing or are the targets of the instrument. - Instruments - used to mobilize, collect, manage and disburse the funding. They can be strictly financial instruments like bonds or equities, or fiscal and regulatory reforms. - Results or Outcomes - the desired biodiversity finance outcomes the solution aims to achieve.
Funding Sources	<p>Most relevant or immediate source of financial capital for a finance solution or instrument. The following list provides some categories of funding sources:</p> <ul style="list-style-type: none"> - Federal Government - State Government - Local Government - Private Company or Project Developer - National/Local Non-Government Organization (NGO) - International NGO - National Financial Institutions - International Financial Institutions - Private Institutional Investors - Private Foundations - Bilateral Donor - Multilateral Donor - Other Donor - Community Based Organizations - Households
Finance vs. Funding	<p>The term “finance” can be used as both a noun – as in the finance industry – and as a verb – such as, “to finance a project.” The term “funding” although similar in that it can be both noun and verb, tends to refer mostly to the flow of capital to projects or programs rather than private investments. For example, an NGO is more likely to seek “funding” rather than “finance” and an investment bank will provide finance rather than funding to a company.</p>
Foreign Direct Investment (FDI)	<p>Foreign direct investment (FDI) is an investment made by a firm or individual in one country into business interests located in another country. Generally, FDI involves establishing foreign business operations or acquiring business assets in a foreign company. FDI is distinguished from portfolio investments in which an investor just purchases equities of foreign-based companies.</p>
Green Finance	<p>Green finance is a broader category under which conservation finance is one element. According to Bloomberg, green finance is now \$31 trillion US and growing but the definition used is not clear. Green finance can be defined as follows.</p> <ul style="list-style-type: none"> - “Green finance comprises: - The financing of public and private green investments (including preparatory and capital costs) in the following areas: - Environmental goods and services (such as water management or protection of biodiversity and landscapes) - Prevention, minimization and compensation of damages to the environment and to the climate (such as energy efficiency or dams) - The financing of public policies (including operational costs) that encourage the implementation of environmental and environmental-damage mitigation or adaptation projects and initiatives (for example feed-in-tariffs for renewable energies) - Components of the financial system that deal specifically with green investments, such as the Green Climate Fund or financial instruments for green investments (e.g., green bonds and structured green funds), including their specific legal, economic and institutional framework conditions.”
Impact Investor	<p>For the purposes of this report, impact investors are defined as those that: make direct investments in companies; have positive social or environmental impact as an explicit objective; have an expectation of a financial return or at least capital preservation; and invest using any instrument, including debt, equity, quasi-equity, guarantees, or other.</p>
Incubator	<p>Incubators support startups to build their companies, to develop their ideas and business models to facilitate entry into the marketplace.</p>
Innovative economic, fiscal and investment instruments	<p>Economic instruments: By definition, economic instruments include “fiscal and other economic incentives and disincentives to incorporate environmental costs and benefits into the budgets of households and enterprises” (UNSD 1997). These may include:</p>

	<p>1) Environmentally-Related Taxes, where the intent is to increase the costs of environmentally-unfriendly practices and thus disincentivize them. Example: “the Irish Government began imposing a 0.15 euro charge on plastic bags which was raised to 0.22 euro in 2007. The tax has simultaneously reduced plastic bag pollution (from 5% to just 0.13% of all litter) and also raised hundreds of millions in euros for environmental projects.”</p> <p>2) Fees or Charges, e.g., fishing licenses, protected areas entrance fees.</p> <p>3) Tradable Resource Use Permits. For example, “Encourage Capital bought quotas from a fishery in Chile without the intention of fulfilling them (i.e., catching fish) in order to reduce pressure on the fish stock and support its recovery. Ideally, those quotas could then be resold, potentially at a profit, if quotas have increased in value either due to increased fishing profitability or improved long term outlook for the fishery (including if the stock has recovered).”</p> <p>4) Fines and Penalties; and</p> <p>5) Compensation and Offsets. Generally, compensation is a payment for some loss or service; an equivalent to make good the lack of something else. It can involve something (such as money) given or received as payment or reparation (as for a service or loss or injury). According to the Business and Biodiversity Offsets Program (BBOP), biodiversity offsets – one kind of offset mechanism – are ‘measurable conservation outcomes of actions designed to compensate for significant residual adverse biodiversity impacts arising from project development after appropriate prevention and mitigation measures have been taken. The goal of biodiversity offsets is to achieve no net loss and preferably a net gain of biodiversity on the ground with respect to species composition, habitat structure, ecosystem function and people’s use and cultural values associated with biodiversity’.⁵¹</p> <p>Fiscal instruments: A wide range of actions can improve finance for nature through the public planning and budgeting process as well as through effective disbursement and implementation of annual work plans at public and quasi-public agencies and departments (also see financial efficiency). These include: mainstreaming environmental concerns into budgeting and planning, fiscal transfers, grants.</p> <p>Investment instruments: Return-based investments include a range of finance strategies and mechanisms that seek both positive environmental impacts as well as financial returns to a business owner or investor. For example, the Café Selva Norte project provides micro-credit and technical assistance to six established, high-performing coffee cooperatives in two departments in the Peruvian Amazon for changing land use among their membership to sustainable productive coffee agroforestry systems, forest protection, and large-scale tree planting activities. The project addresses the problem of migratory agriculture and associated deforestation, and will result in significant contribution to climate change mitigation goals and substantial co-benefits, including reduction in soil erosion, improvement in water quantity/quality, and protection of biodiversity. Premium prices at market will allow smallholder farmers and cooperatives to repay investors.⁵²</p> <p><i>(Specific instruments such as payments for ecosystem services, Trust Funds, blended finance (PPP) agreement, insurance instruments, Blue Carbon and Blue Bonds to be defined in report deliverables)</i></p>
International Financial Institutions	<p>An institution, created by a group of countries, that provides financing and professional advising for the purpose of development. IFIs have large memberships including both developed donor countries and developing borrower countries. IFIs finance projects in the form of long-term loans at market rates, very-long-term loans (also known as credits) below market rates, and through grants.</p> <p>Examples include: the Inter-American Development Bank, European Investment Bank, the World Bank.</p> <p>See also “Development Finance Institutions”</p>

⁵¹ See <https://www.forest-trends.org/bbop/bbop-key-concepts/biodiversity-offsets/>

⁵² See <https://www.arboday.org/carbon/project-ecotierra.cfm>

Investment Bank	A financial institution that assists companies and other entities to access capital markets – e.g., stock and bond markets – in order to raise money to support their operations or otherwise advance their goals. Examples include: Citibank, JP Morgan Chase, Goldman Sachs. Illustrative example, if Company X wished to sell US\$10 billion worth of bonds to build new widget factories, an investment bank and its lawyers and accountants would help it find buyers for the bonds and handle the paperwork. The Conservation Fund’s Working Forest Fund provides an example in the environmental sector. Goldman Sachs assisted the Conservation Fund to issue a US\$150 million bond to purchase at risk forest lands. Purchased lands will be managed in accordance with certain standards in order to mitigate the effects of climate change, strengthen rural economies and protect natural ecosystems.
Private sector entities	The part of the economy that is run by individuals and companies for profit and is not state controlled. ⁵³
Resilience	The United Nations Framework Convention on Climate Change defines resilience as “the ability of a social or ecological system to absorb disturbances while retaining the same basic structure and ways of functioning, the capacity for self-organization and the capacity to adapt to stress and change.” (IPCC 2007)

⁵³See <https://www.investopedia.com/terms/p/private-sector.asp>