Private Sector Investment in Conservation and Coastal Resilience in the Caribbean

2024 Capstone Project

Client:
United States International Development Finance Corporation (DFC)

About the Capstone Project

The Capstone Project Workshop is a hallmark of graduate education at Columbia University's School of International and Public Affairs (SIPA) serving as an avenue for students to put their learning into practice by tackling real-world challenges. The primary objective is to deliver innovative analysis and actionable recommendations to clients, while simultaneously offering SIPA students valuable experiential learning opportunities.

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Disclaimer

Acronyms

ASOFER	Association for the Promotion of Renewable Energies
CEBSE	Center for the Conservation and Ecological Development of the Bay of Samana and its Surroundings
CEPM	Consorcio Energético Punta Cana – Macao S.A., Punta Cana- Macao S.A. Energy Consortium
CIFs	Climate Investment Funds
CODOPESCA	Dominican Council of Fisheries and Aquaculture
DFC	United States International Development Finance Corporation
DFI	Development Finance Institution
DR	Dominican Republic
EbA	Ecosystem-based Adaptation
ECORED	National Entrepreneurial Network for Environmental Protection
EU	European Union
FUNDEMAR	Fundación Dominicana de Estudios Marinos, Dominican Foundation for Marine Studies
GEF	Global Environment Facility
IDB	Inter-American Development Bank (IDB)
IFC	International Finance Corporation
INTEC	Instituto Tecnológico de Santo Domingo
LCM	Littoral Collection Module
MDBs	Multilateral Development Bank
NAMA	Nationally Appropriate Mitigation Action
ODA	Official Development Assistance
SIDS	Small Island Developing States
TNC	The Nature Conservancy
UNFCCC	United Nations Framework Convention on Climate Change

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1. Executive Summary

Solutions to coastal ecosystem-based challenges must shift from managing individual sectors to an integrated perspective of interconnected ecological and socio-political systems. The Caribbean region and the Dominican Republic (DR) in particular are vulnerable to the adverse impacts of climate change. The DR's extended coastlines, conservation, and adaptation efforts experience a large funding gap, providing an opportunity for private sector players to step in. This report aims to inform the U.S. International Development Finance Corporation (DFC) on major climate change impacts, which continue to endanger the DR's natural resources, infrastructure, and coastal communities. These impacts affect livelihoods and economic development in the country. The report examines the potential for private sector investment projects in conservation and building coastal resilience in the DR. The report focuses on identifying possible entry points that DFC can leverage to advance its portfolio by exploring existing or potential private sector opportunities to conserve, protect, and advance resilience, biodiversity, habitats, and coastal communities in the country. Key climate-sensitive sectors identified are tourism, energy, biodiversity/marine ecosystem, and fisheries.

The report emphasizes the diverse and interconnected nature of conservation and coastal resilience efforts in the country. Some of the key projects currently underway include managing sargassum influxes, waste management, and biodiversity conservation. The overall objective is to preserve the country's marine and terrestrial ecosystems, including coral reefs, mangroves, and endangered species while remaining business ready to ensure livelihoods are not impacted. To achieve this, collaborative projects and protective measures are being implemented. The tourism sector also plays a role in raising awareness about conservation and promoting sustainable practices. Furthermore, the country is embracing renewable energy sources as part of its energy transition initiatives, which can help reduce greenhouse gas emissions and enhance climate adaptation.

Based on field visits, engagement with stakeholders, and literature review, we have identified that there is a gap between the supply and demand for private sector investment in conservation and coastal resilience, along with obstacles to implementing these solutions. As a result, we recommend exploring blended finance models within the scope of the DFC to address this gap and promote coastal resilience.

Therefore, DFC can leverage the country's strong business ecosystem and existing partnerships to invest in the DR. For large-scale projects, DFC can facilitate their development through mechanisms like loans and guarantees, which have the potential to generate significant economic and social benefits for the country. For smaller-scale projects, DFC may provide support through partnerships with other financial institutions. These partnerships will assist projects currently in the development stage to create future market opportunities.

While the report aims to identify potential avenues of entry, we recognize that the landscape is constantly changing, and regulatory and financial circumstances evolve. The overall recommendation is for DFC to start building partnerships and connections on ground with stakeholders in the DR, such that as soon as a favorable opportunity meets the requisite scope, the team can step in with investment.

2. Problem Statement

"We are living through climate collapse in real time – and the impact is devastating."

- UN Secretary-General António Guterres, November 2023

Climate change encompasses long-term alterations in temperatures and weather patterns. These shifts can arise naturally from variations in the sun's activity or significant volcanic eruptions. However, since the 1800s, human activities have emerged as the main catalyst for climate change, primarily attributed to the combustion of fossil fuels such as coal, oil, and gas.[1] As of 2022, 50 billion metric tons of plant-heating gases were emitted with China being the largest polluter, contributing to nearly 30 percent of global emissions.

On the other end of the spectrum, despite emissions being comparatively low, Small Island Developing States (SIDS) have consistently advocated that their distinct circumstances, marked by small populations and geographic locations, render them exceptionally vulnerable to a myriad of climate impacts. The impacts of climate change pose significant challenges for coastal communities, leading to more flooding, erosion, pollution, and damage to infrastructure. With a large portion of the global population expected to live in coastal regions by 2025, it is crucial for communities to be resilient in the face of predicted climate changes and their consequences.[2]

Unfortunately, this vulnerability is barely accounted for in the allocation of development or climate finance, and only partially discussed in international organizations such as the UN system, World Bank, and World Trade Organization. The total amount of resilience finance allocated to SIDS is comparatively lower than that allocated to other groups of developing countries. Specifically, they receive seven times less finance than least developed countries, eleven times less than lower-middle-income countries and five times less than upper-middle-income countries, indicating a disconnect between the allocation of climate finance and the levels of vulnerability faced by SIDS. Due to this, climate change and disaster impacts will drive debt levels higher,

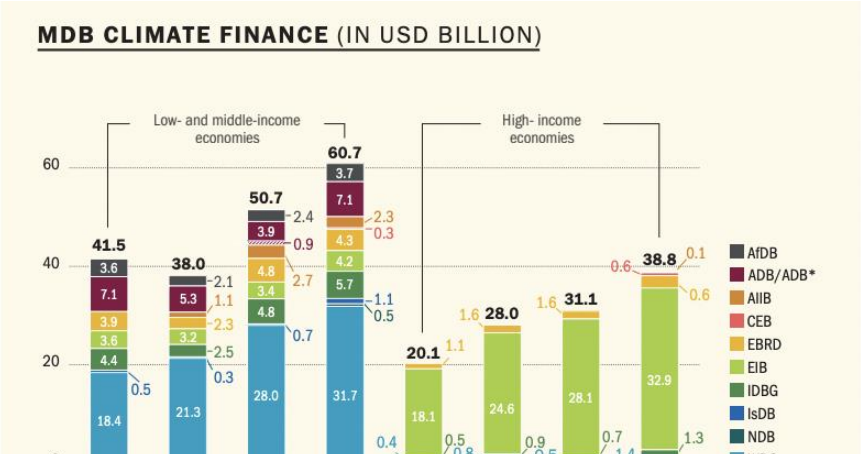

Figure 1 Key figures from the 2022 Joint Report on Multilateral Development Banks' Climate Finance

[1] https://www.un.org/en/climatechange/what-is-climate-change
[2] https://researchoutreach.org/articles/climate-change-caribbean-enhancing-coastal-resilience/

undermining the resilience and adaptation potential of the countries.[3]

Realizing this, in 2022, a group of MDBs allocated a total of US$60.7 billion to low and middle-income economies towards climate finance, of which, Latin America and the Caribbean (LAC) received US$14.4 million. Additionally, there was US$348 million earmarked for coastal and riverine infrastructure while agriculture, forestry, land use, and fisheries received US$2.3 million.[4] However, despite the available investments from international development finance institutions, a gap remains between finance and coastal resilience that must be bridged through private sector investment and partnerships.

In December 2023, United States Development Finance Corporation (DFC) Chief Executive Officer Scott Nathan completed a visit to LAC with stops in Jamaica and the Dominican Republic. He was joined by Dominican Republic's President Luis Abinader and USAID Deputy Administrator Isobel Coleman at the Presidential Palace in Santo Domingo as he announced a US$200 million loan to Banco Popular Dominicano to support the financing of loans to small businesses, as well as DFC's plan to open a new office in Santo Domingo, primarily focused on increasing regional investment. [5]

What is Coastal Resilience?

The Nature Conservancy notes, "The Coastal Resilience niche is in identifying nature-based or green infrastructure solutions, where coastal communities can increase their resilience by effectively protecting, restoring and sustainably managing their natural resources while strengthening local capacity for climate adaptation."[6]

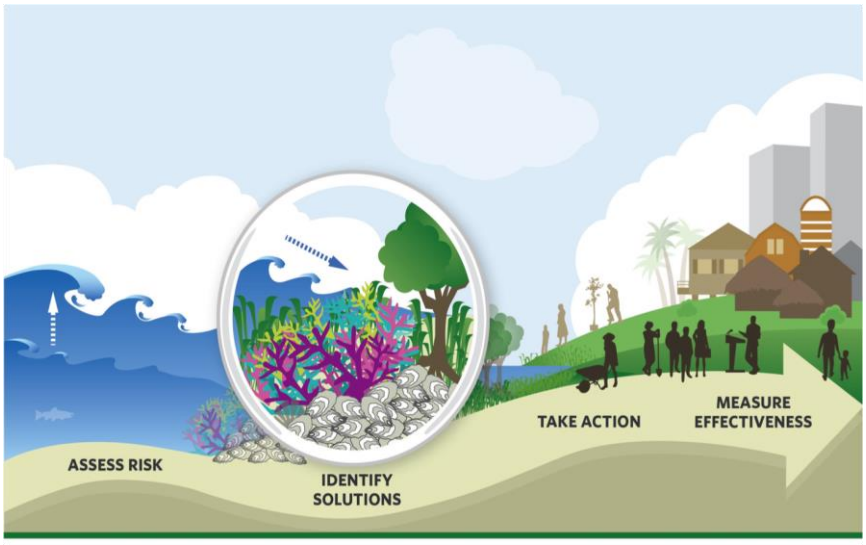

Figure 2 Coastal Resilience – The Nature Conservancy

Coastal areas are heavily utilized by humans, supporting various activities and industries. However, this extensive human presence often harms the natural coastal environment, leading to degradation or even destruction. The key challenge in coastal management is to find a sustainable balance between the needs of human societies and the preservation of natural coastal systems, both now and in the

[3] https://odi.cdn.ngo/media/documents/A_fair_share_of_resilience_finance_2023-ODI.pdf
[4] https://www.isdb.org/sites/default/files/media/documents/2023-10/2023-0129_MDB%20Key%20Figures-V8.pdf
[5] https://www.dfc.gov/media/press-releases/dfc-accelerates-engagement-caribbean-appeal-new-and-existing-partners.
[6] https://coastalresilience.org/about/

future. Coastal resilience has become a crucial concept in management discussions, particularly in the implementation of strategies that aim to mitigate coastal risks and minimize environmental damage.[7]

Apart from the general importance of preserving the biosphere and specifically, the ocean, there is a strong economic argument for investing in coastal ecosystems. When coastal habitats are restored and safeguarded, they serve as vital natural defenses against sea-level rise and storm surges. This plays a crucial role in enhancing the resilience of coastal communities worldwide and mitigating coastal risks. Continuing with current practices poses significant economic risks, with potential costs estimated to reach as high as US$8.4 trillion over the next 15 years.[8]

As part of this project, the graduate consulting team adopts an ecosystem perspective on coastal resilience, emphasizing not only the direct protection of coastal areas but also the consideration of surrounding livelihoods and strategies to alleviate pressure on these vital ecosystems. The team has conducted intensive interviews with stakeholders across the wider landscape of investing and conservation in the Dominican Republic and has disaggregated the analysis into sectors which are most relevant for DFC's investment context. The report aims to posit investing in coastal resilience as a demand-supply problem with a cross sector partnership between public and private entities needed to bridge the gap.

[7] https://www.mdpi.com/2073-4441/11/12/2587
[8] https://climatechampions.unfccc.int/a-guide-to-private-sector-investment-in-coastal-resilience/

3. Country Selection

The selection of the country of focus was not merely incidental but a critical aspect of the project, serving as the cornerstone for focused analysis on enhancing coastal resilience across the Caribbean region. In our selection, several pivotal factors shaped our decision. First, the contribution of tourism to the country's gross domestic product (GDP) served as a key indicator of economic dependence on coastal areas, highlighting the incentive for investment in resilience. Understanding the percentage of the population vulnerable to sea level rise was essential for prioritizing measures to protect communities. Additionally, membership in development banks like the World Bank and IDB provided avenues for financial support and expertise. Lastly, considering the primary language spoken facilitated effective communication and stakeholder engagement. These considerations collectively informed our selection process, ensuring that our efforts align with the unique needs and challenges of the chosen country. Considering these factors and insights gained from stakeholder consultations, the Dominican Republic (DR) emerged as a compelling choice.

	Dominica	Dominican Republic	Grenada	Jamaica	Mexico	Saint Lucia	St Vincent & the Grenadines	Suriname
Primary language	ENG	SPA	ENG	ENG	SPA	ENG	ENG	DUT
GDP per capita (USD)	8,415	10,121	10,016	6,047	11,091	11,482	9,125	5,858
Tourism (% GDP)	26.8%	15.9%	43.6%	29.1%	8.7%	59.8%	40.5%	
Women Business and the Law index score	62.5	86.3	80.6	74.4	88.8	83.8	68.1	73.8
Electricity generation from fossil fuels	74.8%	93.4%	98.3%	87.5%	75.7%	99.1%	73.5%	40.5%
Coastline-to-land ratio	19.7%	2.7%	35.6%	9.4%	0.5%	25.9%	21.5%	0.2%
% land flooded if 2m increase of sea level	0.4%	3.0%	1.9%	2.8%	/	2.8%	1.8%	5.3%
% pop impacted if 2m increase of sea level	4.5%	2.4%	4.5%	2.6%	/	14.0%	3.5%	65.5%
Central government public debt (% GDP)	100.4%	59.8%	72.9%	98.2%	46.3%	87.0%	95.1%	121.8%
Foreign Direct Investment (% GDP)	4.6%	3.5%	12.7%	1.9%	2.8%	3.2%	9.1%	-0.3%
USAID office	ESC Regional Office	Yes	ESC Regional Office	ESC Regional Office	Yes	ESC Regional Office	ESC Regional Office	ESC Regional Office
Development Banks' member countries	IFC	IFC BCIE IDB	IFC	IFC IDB	IFC BCIE IDB	IFC		IFC IDB

Figure 3 Country Selection Criteria

Figure 4 Geographic Location of the Dominican Republic

The DR occupies the eastern two-thirds of the island of Hispaniola, the second largest island in the Caribbean, which it shares with Haiti. The DR's territory (48,380 square kilometers in total) is mountainous terrain interspersed with fertile valleys and a total coastline of 1,288km, of which 21% (337 km) are sandy beaches and semi-tropical climate.

In 2021, the Dominican Republic was identified as the 50th most vulnerable nation to climate change, highlighting the urgency of addressing its environmental challenges. In the northeast, recurrent floods, storms, and mudslides pose significant threats to local communities. Concurrently, the northwest grapples with escalating temperatures and protracted droughts, adversely affecting agricultural productivity.[9]

Climate change adaptation and mitigation stand as constitutional priorities and guiding principles in the DR's future planning. Aligned with its long-term vision for sustainable development, as outlined in the 2030 roadmap and the National Development Strategy (NDS) spanning from 2010 to 2030, the Dominican Republic demonstrates a proactive stance towards building a resilient society. Concrete internal policies and strategies, such as the National Policy on Climate Change, the Climate Compatible Development Plan (CCDP), and the National Adaptation Plan of Action (NAPA-DR), underscore this commitment.

Moreover, the participation of Santiago de los Caballeros, one of the country's major cities, in the 100 Resilient Cities network, serves as a testament to the government's dedication to enhancing resilience at both local and national levels. By actively engaging in initiatives aimed at addressing various challenges, the Dominican Republic demonstrates readiness to collaborate and implement effective measures for coastal resilience at local and national levels.

[9] https://www.afd.fr/en/actualites/strenghtening-climate-action-dominican-republic#:~:text=The%20Dominican%20Republic%20was%20ranked%20the%2050th,temperatures%20and%20prolonged%20droughts%2C%20affecting%20agricultural%20production.

4. Causes of Climate Change & Implications on Coastal Resilience

4.1 Causes of Climate Change in the DR

Despite minimal contributions to global warming, the DR's geographical location and insular status renders it vulnerable to climate change. In 2015, the country's total greenhouse gas (GHG) emissions were estimated at 35.49 million metric tons of CO2 equivalent (CO2e), representing less than 0.1% of global emissions. Between 2010 and 2015, the Dominican Republic witnessed an 18.9% increase in total GHG emissions, with the energy sector being the primary contributor, accounting for 62.8% of emissions in 2015, driven by escalating energy consumption. Other sectors such as agriculture, industrial processes, and waste also contribute to the country's GHG emissions.[10]

The DR is the primary tourist destination in the Caribbean and ranks fourth in Latin America. However, the booming tourism industry challenges environmental sustainability. Between 2015 and 2019, the sector experienced substantial growth, averaging 4.5% annually and becoming a crucial contributor to the economy, representing 25.2% of foreign direct investment and 22.7% of foreign exchange inflows by 2021. Despite its economic benefits, tourism imposes significant burdens on the water and waste sectors. Each tourist consumes up to three times more water than the average Dominican, exacerbating the strain on local water resource availability. Moreover, the sector accounts for 43% of commercial energy consumption and contributes approximately 40% of the country's total waste production. These figures underscore the urgent need for sustainable practices within the tourism sector to mitigate its environmental impact and ensure long-term viability.

4.2 Consequences of Climate Change in the DR

The DR is facing significant challenges due to climate change, particularly in its coastal regions. Erosion, property loss, flooding, and saltwater intrusion are among the key issues exacerbated by the depletion of marine species. Additionally, coral bleaching, invasive species proliferation, and the loss of coastal wetlands contribute to the expansion of marine dead zones. Looking ahead, the DR expects a rise in climate-related natural disasters, and an increase in the frequency of tropical storms. Climate projections indicate intensified wind speeds, storm surges, and flooding, highlighting the urgent need for adaptive measures.[11] These projections also suggest a continued warming trend, with increased rainfall during the rainy season and potential exacerbation of dry spells by 2050 and 2070.[12]

Substantial climate shifts have already occurred, resulting in exacerbated coastal flooding and erosion from rising sea levels and intensified tropical storms, leading to more frequent and severe floods. Northern regions are experiencing prolonged dry spells, impacting groundwater recharge and quality in the Yaque del Norte river basin, thereby affecting water availability for residential, agricultural, and tourism purposes. Extreme weather events like floods and droughts heavily influence agricultural output and produce costs.

[10] https://openknowledge.worldbank.org/server/api/core/bitstreams/89f67367-f915-4369-8f30-9afbc6d89741/content
[11] World Bank Group. 2023. Dominican Republic Country Climate and Development Report. CCDR Series
[12] https://climateknowledgeportal.worldbank.org/country/dominican-republic

The degradation of quality in Dominican water bodies, coupled with the shortened lifespan of reservoirs due to unsustainable agricultural practices, threatens food security. Additionally, anticipated exposure to extreme bioclimatic conditions places ecosystem biodiversity at risk.

The **tourism industry** relies heavily on coastal ecosystems for its appeal. Sun-soaked beaches and vibrant experiences draw tourists to popular destinations like Bávaro-Punta Cana, Las Terrenas, and Puerto Plata-Sosúa-Cabarete. However, these destinations are anticipated to face the consequences of climate change in the near future due to increased frequency and intensity of extreme weather events. Compared to baseline conditions, climate change is projected to diminish tourism revenues by an estimated 7 to 16% by 2050.[13] Moreover, the DR experiences increasing influxes of sargassum with approximately 2.8 million tons accumulating in 2022 alone. Sargassum, a floating seaweed originating from the Sargasso Sea in the North Atlantic, has seen a significant surge in its presence along the Dominican coasts due to global warming, shifts in ocean currents, and pollution. Sargassum can accumulate in large quantities on beaches, negatively affecting the aesthetics and quality of the water. Additionally, it also leads to heavy metal accumulation, marine animal mortality, and the release of toxic gases, negatively affecting the tourism industry overall.

Agriculture, a vital sector for food security, is threatened by deforestation and changes in weather patterns. Deforestation stands out as a primary environmental concern in the DR, as areas stripped of trees become more susceptible to desertification and drought. Land use changes and fires worsen the decline of cloud forests, vital habitats for numerous endemic species. The cost of produce heavily relies on weather conditions and is negatively impacted by extreme weather events like floods and droughts. These events render agricultural producers vulnerable to instability. Furthermore, such events increase the incidence of pests, adding to the challenges faced by farmers. This vulnerability extends to consumers, as reduced purchasing power and limited access to food become prevalent. The deteriorating water quality in Dominican water bodies, coupled with the shortened lifespan of reservoirs due to land degradation stemming from unsustainable agricultural practices, further jeopardizes food security.

Public health is increasingly at risk as climate change creates conditions conducive to the spread of diseases such as zika, dengue fever, cholera, and other diarrheal diseases. In addition, climate shifts may contribute to the spread of other infectious diseases like hantavirus and rotavirus, posing significant challenges to the DR's public health system.[14]

Communities across the DR face multifaceted challenges from climate change. Worsening floods wreak havoc by destroying buildings and property, displacing entire communities, and imposing significant financial and emotional burdens. Thirteen provinces, including Pedernales, Baoruco, Barahona, Elías Piña, El Seibo, Santo Domingo, La Altagracia, San Pedro de Macorís, Monte Plata, Peravia, Monte Cristi, and Valverde, are particularly vulnerable due to their exposure and sensitivity to hydrometeorological events, coupled with low adaptive capacities and land degradation. Marginalized communities, such as those in urban areas like Los Mina, Hoyo de Puchula, Fracatán, La Esperanza, and El Hoyo de Elías, as well as small-scale farmers, withstand the worst of floods, droughts, landslides, and other hazards.

[13] https://openknowledge.worldbank.org/server/api/core/bitstreams/89f67367-f915-4369-8f30-9afbc6d89741/content
[14] https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health

5 Explaining the Demand-Supply Gap

Adaptation financing is largely concentrated on agriculture, water and sanitation, and disaster risk reduction. Despite the substantial financing need for long-term, impact-driven coastal conservation and resilience activities in the DR, investors are often unaware of existing actors involved in spearheading bankable climate-resilience projects. Moreover, there is a mismatch between the financial need and capacity of small-scale project operations and the large-scale financing issued by financial institutions. Research helped identify the local and international stakeholders involved in coastal conservation and resilience while also highlighting trends in funding distributions and financing gaps.

5.1 Reasons for the Demand-Supply Gap

To understand the enabling environment for private sector investment in the DR, various government agencies, educational institutions, and non-governmental organizations were consulted. DR currently has a stable political climate and a favorable business environment, with an ease of doing business rank of 115 and score of 60 globally.[15] Investment incentives exist for the tourism, energy, and construction sectors, all of which are central to coastal conservation and resilience. With reference to the tourism sector, Law No. 158-01 grants tax exemptions for fifteen years for projects that include hotels and resorts; utility infrastructure such as treatment plants, environmental cleaning, and waste removal; and small to medium-sized tourism businesses. In the renewable energy sector, Law No. 57-08 grants investors incentives that include the removal of customs duties on the import of equipment for the production, transmission, and interconnection of renewable energy as well as no income tax on the generation and sale of electricity or biofuels from renewable energy sources. In 2020, the government launched the Dirección General de Alianzas Público Privadas (DGAPP) which governs regulations for public-private partnerships directed towards infrastructure projects.[16]

Despite climate change concerns rapidly gaining momentum in public and private sector initiatives, challenges inhibit the catalyzation of climate-focused projects. Obtaining science-based information for land-use planning enables effective coastal management and resilience policymaking. Mapping key findings from research institutions with business activities is limited by the time-intensive process of translating scientific research into information supporting coastal ecosystem planning and restoration. Academic institutions have expressed interest in coordinating with the public sector, but these stakeholders operate on a short-term basis whereas coastal zone land-use planning requires medium to long-term planning efforts. Non-governmental organizations such as FUNDEMAR and CEBSE have the potential to fill the gap between academic research and policymaking due to their proximity and integration within local communities.

Public sector implementing organizations have also expressed that their program priorities and impact measurement processes misalign with the private sector. Implementing organizations may be burdened with significant administrative costs and a lack of flexibility associated with monitoring and evaluation reporting for development agencies. While development agencies and financial institutions require sophisticated

[15] https://archive.doingbusiness.org/content/dam/doingBusiness/country/d/dominican-republic/DOM.pdf
[16] https://dgapp.gob.do/en/about/

metrics to demonstrate progress and impact, these metrics may be difficult to track since environmental and social impact are often long-term objectives.

5.2 Demand Side: Impacted Sectors

In light of the consequences of climate change in the DR, key economic sectors that are focused on addressing climate impacts and bolstering coastal resilience include energy, tourism, biodiversity, and marine conservation, sargassum and waste management, and fisheries. This section highlights the insights obtained from each sector, providing a concise ecosystem analysis along with specific relevant companies that the consulting team met within each sector.

5.2.1 Energy

The DR relies on fossil fuels for approximately 85% of its total energy supply, with the remaining 15% coming from renewable energy. Of this 15%, bioenergy comprises the vast majority with 73%, while hydropower, wind, and solar comprise the other 27%.[17] The country's goal is to achieve 25% of its electricity from renewables by 2025.[18] One of the major challenges faced in the country includes a demand-supply mismatch, where the electricity demand has been surging, but there is an insufficient electric grid that has storage and stability issues. The distribution and transmission of electricity are both state-owned in the Dominican Republic, while generation is a mix of private and public ownership. The Association for the Promotion of Renewable Energy (ASOFER) explained that to address these challenges, the government should take the first step in creating a regulatory framework that enables utility-scale projects with battery storage. The association emphasized that there is plenty of financing interest, but there needs to be an appropriate regulatory landscape. The energy sector is a critical component of climate resilience[19], as the consistent and reliable supply of electricity is essential for the economy and daily life.

One of the leading players in this realm is The Consorcio Energético Punta Cana-Macao (CEPM) a private utility company serving the region of Punta Cana-Bávaro and Bayahíbe, with an available installed capacity of 315 MW and an additional 1.7 GW under development. CEPM is currently prioritizing investment in battery storage and e-mobility. The CEPM Zero initiative aims to make CEPM 100% net-zero emissions by 2030. CEPM clients encompass hotels, residences, and micro, small, and medium enterprises (MSMEs).

An example of a successful private sector investment is the partnership between Brookfield Renewable, Stonepeak, and InterEnergy Group (CEPM's parent company), which provides US$1 billion in financing for the next four years.[20] CEPM secured a green loan from Bank of America and IDB Invest to support CEPM Zero.[21] The success of this deal may partially be attributed to the large project size and stability of CEPM via InterEnergy Group.

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[17] https://www.irena.org/-/media/Files/IRENA/Agency/Statistics/Statistical_Profiles/Central-America-and-the-Caribbean/Dominican-Republic_Central-America-and-the-Caribbean_RE_SP.pdf?rev=208c3df74d9d441ea04bb48c055964a5

[18] https://ecpamericas.org/newsletters/dominican-republic-a-major-leap-in-renewables/

[19] https://www.iea.org/reports/climate-resilience

[20] https://interenergy.com/news/interenergy-announces-partnership-with-brookfield-and-stonepeak-to-accelerate-the-net-zero-transition/

[21] https://www.prnewswire.com/news-releases/consorcio-energetico-punta-cana-macao-cepm-an-interenergy-company-to-secure-a-green-loan-from-bank-of-america-and-a-multilateral-development-bank-to-advance-its-ambition-to-achieve-net-zero-by-2030-301669770.html

5.2.2 Tourism

The consulting team met with several stakeholders associated with the tourism industry in the DR. These included organizations engaged in academia, financing institutions, and leading hospitality players.

One of the notable players working in the tourism sector is the Instituto Tecnológico de Santo Domingo (INTEC), a private university located in Santo Domingo, has undertaken a comprehensive approach to assess the economic viability of Samaná Bay as an investment destination. Samaná Bay is the largest semi-enclosed bay in the Caribbean with extensive mangroves and shrimp fisheries. The region's rich biodiversity and pristine coastal environments offer a unique investment proposition, combining economic potential with environmental conservation. Through the application of the Travel Cost Method of analysis, INTEC is seeking to monetize the economic contributions of several tourism activities, such as whale watching, to the local economy of Samaná Bay.

Figure 5 Whale Watching at Samaná Bay

These future findings will underscore the potential for lucrative investment opportunities in the region's tourism sector. They are also exploring the Contingent Valuation Approach to reveal the willingness among stakeholders to invest in the preservation and restoration of Samaná Bay's mangrove ecosystems. Recognizing its economic value will only be enhanced by maintaining its ecological integrity and positions Samaná Bay as an attractive destination for socially responsible investments.

INTEC scholars recommend diverting eco-tourism development away from the coast and redirecting attention inwards to mountainous regions or agricultural sectors to address the pressure of the growing tourism sector on Samaná's coastal ecosystems. For instance, the Río Blanco Eco Tourism Complex offers cultural, hiking, and adventure tourism excursions around the Blanco River in Bonao, a city located in the center of the country.[22] Fundación Banco Popular, the National Institute of Technical Vocational Training (Infotep), and the Federation of Farmers towards Progress signed a collaboration agreement to offer technical vocational training to the local population. This initiative seeks to equip residents in the area with the necessary skills for future opportunities. Similarly, CEBSE engages in a cooperative agreement with Grupo Piñero, a Spanish hotel chain with 25 hotels globally and four hotels in Samaná under the Bahía Príncipe brand. Focused on regenerative tourism efforts, Grupo Piñero operates the Eco-Bahía Foundation, which collaborates with local communities to restore a whale watching viewpoint near Samaná, deliver waste separation containers to schools and lead environmental education campaigns.[23]

[22] https://es.godominicanrepublic.com/listing/complejo-ecotur%C3%ADstico-rio-blanco/1959/

[23] https://dominicantoday.com/dr/tourism/2023/05/06/grupo-pineros-eco-bahia-foundation-arrives-in-dominican-republic/

Further, as rapid infrastructure development to expand Samaná Bay's potential as a tourism destination poses a risk to the sustainability of coastal ecosystems, informed decision-making and strategic investments in sustainable practices are crucial to secure the continued viability of Samaná Bay as an investment opportunity.

5.2.3 Marine Conservation

Figure 6 Ecotourism of Mangroves at Samaná

The Dominican Foundation for Marine Studies (FUNDEMAR) is a non-governmental organization actively working with local communities and the private sector in Bayahíbe and Arrecifes Del Sureste Marine Sanctuary to promote the preservation and sustainable use of coastal marine ecosystems through research, education, and technical support for conservation projects. FUNDEMAR was initially created to protect humpback whales but expanded to protect other marine ecosystem components such as mangroves, seagrass, and manatees, and conduct monitoring and restoration of coral reefs.

FUNDEMAR received funding from USAID and The Nature Conservancy from 2011 to 2013 to examine the health status of local reefs and strengthen the reproduction of the Acropora cervicornis coral species, which suffered from the destructive white band disease, as well as increasing thermal stress in the ocean, hurricanes, and pollution. Following the end of the USAID-TNC grant-funded project, FUNDEMAR successfully continued its coral restoration efforts by establishing alliances within the local community and partnerships with the local tourism sector. Hotels in the La Romana-Bayahíbe area contribute monthly to coral restoration programs in return for access to coral gardens where divers can visit for recreational purposes. Similarly, diving centers in the La Romana-Bayahíbe area help to maintain the coral nurseries, with each diving center assuming responsibility for one nursery. FUNDEMAR also works alongside Fundación Grupo Puntacana and the Ministry of Environment to co-manage a marine sanctuary.

Over time, FUNDEMAR has established alliances across the local community, receiving financial support in the form of in-kind donations from private players, grant funding from foundations and international

organizations, and funding from partnerships with national brands. To reduce operating costs, FUNDEMAR receives boats and dive equipment from local dive centers as well as free electricity, Wi-Fi, and gas from CEPM and Total Energies. To catalyze new projects or scale up existing efforts, FUNDEMAR applies for grants from development agencies in the United States and Europe, but has stated that the formal application, administrative, and monitoring processes associated with grants are often time-consuming and burdensome for a short-staffed NGO. FUNDEMAR partners with national companies such as Planeta Azul which manufactures and sells eco-friendly water bottles, with a small percentage of funding directed towards a Manatee census along the coast. FUNDEMAR also partners with Helados Bon, a Dominican ice cream company that sells marine-themed flavored ice cream and sends a percentage of proceeds to FUNDEMAR.

Despite garnering enough financial support to stay self-financed for at least three years, FUNDEMAR has identified several gaps that can be filled through further partnerships with local private sector actors. FUNDEMAR recommended further collaboration with tourism actors seeking to conduct excursions of Catalina Island, citing this area as one in need of further conservation. To scale existing programs, FUNDEMAR is currently partnering with Fundación Grupo Puntacana to develop a trust designated for marine conservation.

Conversations with stakeholders suggest that funding ecotourism ventures centered around coral reef conservation, such as eco-friendly resorts, dive centers, and guided tour operations can offer substantive opportunities for revenue generation while promoting environmental awareness and conservation efforts. Supporting technology and innovation aimed at enhancing reef conservation efforts, such as research into new monitoring and restoration techniques and supporting startups in this space, can position investors at the forefront of sustainable conservation practices.

5.2.4 Biodiversity Conservation

Established in 1991, the Center for the Conservation and Ecological Development of the Bay of Samaná and its Surroundings (CEBSE) is a Dominican civil society organization (CSO) working towards the conservation of biodiversity and protected areas, climate adaptation and mitigation, and engagement with local communities and provincial and municipal governments. CEBSE operates programs in Miches and Samaná focused on mangrove restoration, humpback whale monitoring, and coral reef restoration, using grant funding from the Caribbean Biodiversity Fund, German Agency for International Cooperation (GIZ), the Nature Conservancy, and Global Biodiversity Fund.

Through a public-private partnership between CEBSE, The Nature Conservancy (TNC), and USAID, CEBSE oversaw the Caribbean Marine Biodiversity Program, which aims to reduce threats to marine biodiversity in Samaná Bay. CEBSE developed a strong partnership with TNC, and TNC facilitates the continuation of funding even after the programs end to ensure that CEBSE is able to continue its conservation efforts.

There is considerable potential to generate financial value from mangrove ecosystems due to their capacity to store five times more carbon than a terrestrial forest area of the same size. Carbon sequestration and storage in mangrove and seagrass ecosystems have been valued by the World Bank to be worth up to US$190 billion per year.[24] In the DR, mangroves account for approximately 21,215 hectares, with the largest mangrove area in Monte Cristi Province. Counterpart International, a non-profit organization that

[24] https://www.worldbank.org/en/news/feature/2023/11/21/what-you-need-to-know-about-blue-carbon

supports the upliftment of local communities, has previously supported efforts to quantify the carbon sink capacity of mangroves to understand the potential to generate carbon emission allowances and CO2 compensation certificates.[25] In 2015, the DR government registered the first Nationally Appropriate Mitigation Action (NAMA) for blue carbon with the UNFCCC, but the government is currently seeking support from bilateral and multilateral funding partners for NAMA implementation. However, the collective understanding of leveraging carbon credits through mangrove restoration is still fairly limited among private and public sector stakeholders, hence, the blue carbon market remains untapped.

The Red Nacional de Apoyo Empresarial a la Protección Ambiental (ECORED)[26] (National Entrepreneurial Network for Environmental Protection) is an umbrella organization that brings together many representatives of the Dominican Republic's private sector who are working to promote sustainable practices and social responsibility efforts. Network members are convinced that sound sustainable practices, along with social responsibility, contribute significantly to the profitability of their respective companies. ECORED encourages projects such as the Inclusive Recycling Program, which adds value to the country's recycling chain process. Through this particular initiative, ECORED has improved the working conditions of the informal recyclers by providing them with technical assistance and training.

5.2.5 Waste and Sargassum Management

The DR grapples with a significant waste management challenge, producing over 11,000 metric tons of waste daily, which includes more than 2,000 metric tons of plastic.[27] This substantial volume of waste, coupled with improper disposal methods, exacerbates environmental pollution. Common repercussions include contaminated waterways, soil degradation, and air pollution. In addressing this challenge, wastewater management and recycling facilities are key to preserving water resources and minimizing environmental damage.

Cilpen Global Business stands as the DR's premier wastewater management and recycling company. Through strategic collaborations with small and medium-sized enterprises, Cilpen facilitates their participation in sustainable waste management practices. These partnerships involve the procurement of plastic waste collected by these entities at agreed market rates. However, there is ample opportunity for these businesses to expand their operations through private investment, facilitating the acquisition of specialized equipment, fleet vehicles, and an expanded workforce. Such investments would catalyze operational efficiency enhancements and boost collection capacities.

The partnership between FUNDEMAR and Planeta Azul presents another opportunity for innovative waste management and recycling. This collaboration aims to introduce an innovative water bottle made from eco-friendly materials, highlighting a growing market for sustainable products. This initiative not only reduces plastic waste but also promotes sustainability and a true circular economy. Leveraging similar partnerships, private entities can harness revenue streams derived from recycled product sales, capitalizing on the increasing consumer demand for sustainable alternatives. In addition to recycling efforts, there are initiatives like the collaboration between Parley Recycling Company and CEBSE. This partnership engages local fishermen to collect garbage from water bodies, which is then re-purposed for other uses. Through projects like these, businesses can offer waste collection and processing services to municipalities, and

[25] https://www.blueforestsolutions.org/dominican-republic
[26] https://www.dominicanaonline.org/en/ecored-ejemplo-de-alianza-que-promueve-la-sostenibilidad/
[27] https://www.climatelinks.org/countries/dominican-republic

other government agencies. Monetized waste collection services generate revenue while simultaneously contributing to environmental cleanup efforts.

Specific to the geographical landscape, sargassum presents significant challenges to coastal communities, affecting beach erosion, coral health, as well as human well-being. However, international funding initiatives in the DR, such as Japan's donation of US$1.5 million,[28] underscore the global recognition of the importance of addressing these challenges. SOS Carbon, a spinoff organization from MIT's Mechanical Engineering department, specializes in addressing the problem of sargassum accumulation in the ocean. They have developed innovative technology to mitigate these challenges by transforming sargassum into valuable resources, including organic fertilizer and raw material in the manufacturing of cosmetic products. Central to their approach is the development of the Littoral Collection Module (LCM), a highly efficient and low-impact solution for harvesting this seaweed directly from the ocean, producing valuable resources such as organic fertilizers and raw material for the manufacturing of cosmetic products.

One of the key benefits of SOS Carbon's intervention in this segment is the creation of direct employment opportunities for local communities. By using hardware on artisanal boats, SOS Carbon collects substantial amounts of fresh seaweed, providing meaningful employment to individuals who are already involved in its collection and processing. Currently, hotels and power plants are some of SOS' Carbon's main clients domestically. Power plants are vital for electricity supply, but sargassum accumulation in the water intake systems disrupts their operations. Similarly, beachfront hotels aim to maintain clean beaches for their guests, but sargassum deposits diminish their appeal. SOS Carbon's efforts towards management of this issue helps these industries. In addition, SOS Carbon's impact extends far beyond local shores, with the exportation of seaweed to more than 10 countries. This global market has not only diversified revenue streams but has also drawn attention to the growing market demand for sargassum-based products, positioning SOS Carbon as a leader in the industry.

Figure 7 Sargassum seaweeds on the ocean beach in Bavaro, Punta Cana

The commitment of SOS Carbon to economic sustainability is evident in its bootstrapped funding approach, using its own resources to ensure the viability of their initiatives. Additionally, SOS Carbon has successfully secured grants from institutions such as Massachusetts Institute of Technology (MIT) and The Development Bank UK. These grants serve as a testament to the credibility and potential impact of SOS Carbon's sargassum management efforts. Investments towards the adequate management of sargassum provide an opportunity to create a positive impact on coastal communities while getting a return on financial investment.

[28] https://dominicantoday.com/dr/tourism/2023/12/16/japan-donates-us1-4-million-to-the-dominican-republic-to-address-the-spread-of-sargasso/

5.2.6 Fisheries

The fisheries sector in the DR is primarily composed of artisanal fishermen, with approximately 10,000 fishermen operating with a fleet of 3,750 boats.[29] The fishing sector is primarily informal, and fishermen experience high fluctuations, as well as limited access to social security and protection services. However, exporters, importers, and supermarkets in San Pedro de Macorís, Boca de Yuma, Santo Domingo, and Santiago de los Caballeros offer formal employment opportunities.[30] Potential illegal, unreported and unregulated (IUU) fishing as well as overfishing lead to the degradation of marine habitats in the country's coastal zone.

The Dominican Council of Fisheries and Aquaculture (CODOPESCA), under the Ministry of Agriculture, works to promote sustainable fishing and agriculture through the regulation of fishing activities, designation of areas for aquaculture development, and dissemination of fishing permits. CODOPESCA also serves as the coordinating body for its members, offering capacity training and management of shared fishing equipment to support fishermen livelihoods. Given small-scale fishing operations, fishermen often sell their catch directly to local market consumers which include supermarkets and hotels, with very limited exports to international markets. Cooperative members in Las Galeras, Samaná expressed challenges associated with an absence of storage facilities, strict restrictions on the amount of time allotted for fishing, and encroachment by external large-scale fishing entities in their fishing territory. Artisanal fishermen in Las Galeras also demonstrated a desire to leverage the cooperative to build a fishing shop with cold storage facilities that would reduce waste, enable consistent supply, and improve their economic livelihoods. Other organizations that support fishermen's livelihoods include SOS Carbon which provides formal employment opportunities to fishermen, offering them a salary and healthcare benefits in exchange for sargassum collection.

A fieldwork study conducted by FISH4ACP found the breakdown of fishing sector financing to be 56% loans from private banks, 20% from moneylenders, 9% from cooperatives, 8% from Banco Agrícola, and

[29] https://aquadocs.org/bitstream/handle/1834/29558/gcfi_55-9.pdf?sequence=1&isAllowed=y
[30] https://www.fao.org/3/cc7686en/cc7686en.pdf

Figure 8 Small scale fishing in Samaná.

3% from the Special Fund for Agricultural Development.[31] Notable private sector investments aimed at strengthening sustainable fisheries in the Dominican Republic include a trust mechanism developed by Wilderness Markets for Conservation International and the Food and Agricultural Organization of the United Nations (FAO).[32] Wilderness Markets proposed the development of a Billfish Conservation Trust Mechanism which would secure a marine managed area to protect billfish spawning grounds and improve fish aggregating device management. The proposed investment included a US$500,000 loan and US$500,000 grant with projected annual financial returns of 6%. This trust would support the conservation and recovery of billfish while also improving the economic livelihoods of 500 fishermen in the DR.

5.3 Supply Side: Financial Services Providers

Investments related to coastal resilience and climate change in DR stem from stakeholder groups, which include development-focused public sector agencies, non-governmental organizations, and commercial investors. Climate finance can be provided in many ways, including through project-type interventions, basket or pooled funding vehicles, debt relief, technical assistance, budget support, and contributions to programs and funds for specific purposes, among others. Among the private sector players, most of the funding is in the form of grants and loans from national governments as well as blended finance tools from MDBs and International Organizations.

5.3.1 Public Sector

Financing from Multilateral Development Banks, Governments, Development Finance Institutions, and other development agencies constitutes a majority of financing. The GIZ and European Union partner on Euroclima[33]- promoting green and just transition in LAC. The World Bank has joined hands with Ministry of Economy, Planning and Development (MEPyD) Project Implementation Unit (PIU) for emergency response and recovery project with respect to strengthen institutional capacity to manage risks posed by

[31] https://www.fao.org/3/cc7686en/cc7686en.pdf
[32] https://www.wildernessmarkets.com/wp-content/uploads/WM-CI-OPP-FAO-Dom-Rep-Trust-Brochure-.pdf
[33] https://www.giz.de/en/worldwide/137264.html

natural hazards.[34] Climate Investment Funds (CIF) have supported climate resilience efforts, including adaptation projects in vulnerable coastal communities. The Nature Conservancy (TNC)'s project 'Resilient Islands', works with communities and governments to design decision-support tools, train local leaders, integrate ecosystem-based adaptation strategies into national policies and implement ecosystem restoration projects in vulnerable coastal areas.[35] To achieve climate resilience, USAID partners with local, national, and regional organizations on information management, land use planning, and implementation of small-scale climate adaptation projects.[36] GEF is working to develop technical and logistical capacities for creation and operation of and integrated monitoring system of climate change.[37] CAF, the Development Bank of Latin America and the Caribbean, recently announced a US$200 million loan to the Dominican Republic for climate action in public sector management and resilience.[38]

5.3.2 Private Sector

Private sector financing in the DR also plays a significant role in funding a wide array of development projects beyond climate change initiatives. Leading banks such as Banreservas, Banco Popular Dominicano, and Banco BHD are pivotal players in this landscape. Banreservas, as the largest commercial bank in the country, provides financing for various sectors, including infrastructure, energy, and agriculture, contributing to overall economic development.[39] Similarly, Banco Popular Dominicano, with its extensive network and diverse financial products, supports small and medium-sized enterprises (SMEs)[40], housing projects, and innovation initiatives, fostering socio-economic growth across communities. Banco BHD, known for its innovative banking solutions, offers financing for tourism development[41], real estate projects, and international trade, driving progress in key sectors of the economy.

Banco Popular Solar Project

In December 2023, Banco Popular Dominicano and Cotoperí Solar FV, led by the Spanish energy company Acciona Energía and Cotosolar Holding, announced the signing of a loan contract for up to US$100 million to finance the construction of the Cotoperí Solar Photovoltaic Park I, II, III, promoted as the largest solar park in Central America and the Caribbean. This energy project is already under construction in Guaymate and La Romana. The solar park will have a total installed capacity of 162.6 MWp, distributed in three photovoltaic power generation facilities of 54.20 MWp each. In a press release[42], the bank assures that Acciona Energía, the majority shareholder of the project, is currently the world's largest operator of 100% renewable energy without a fossil legacy. It will go hand in hand with Cotosolar Holding, S.A., which includes the JMMB Sustainable Energy Fund (FES), managed by JMMB Funds, Grupo Pais, and other minority investors.

[34] https://projects.worldbank.org/en/projects-operations/project-detail/P180163
[35]https://www.nature.org/en-us/about-us/where-we-work/caribbean/stories-in-caribbean/caribbean-resilient-islands-program/
[36]https://www.usaid.gov/dominican-republic/our-work/climate-change
[37]https://www.thegef.org/projects-operations/projects/9869
[38]https://www.caf.com/en/currently/news/2024/03/caf-approves-usd-200-million-to-boost-climate-action-in-the-dominican-republic/
[39]https://read.nxtbook.com/latinfinance/magazine/2023_q4/infrastruct_bank_of_the_year_.html
[40]https://www.dfc.gov/sites/default/files/media/documents/Banco%20Popular%20Dominicano%2C%20S.A.%20PIS.pdf
[41] https://dominicantoday.com/dr/economy/2024/04/30/bank-bhd-commits-over-us500-million-to-tourism-development/
[42]https://www.diariolibre.com/economia/energia/2023/12/17/banco-popular-dominicano-y-acciona-energia-financian-parque-solar/2553744

6 Barriers to Private Sector Solutions

Private sector investment is crucial to addressing climate challenges. However, there exist numerous barriers inhibiting the implementation of private sector solutions to address coastal conservation and resilience. The key barriers include limited financial capacity in the public and private sectors, the small and informal fisheries sector, the complexity of innovative finance solutions, weak regulatory enforcement, mismatch between the current financing options and scale of disaster, constraints to financial viability, climate solutions, and data limitations.

- **Limited financial capacity in public and private sectors**

Despite the Dominican Republic's vulnerability to climate change and its impacts, the country has experienced rapid economic growth. This can be attributed to a combination of market-oriented reforms implemented in the early 1990s and external funding sources from development partners. Partnerships between local private foundations such as Fundación Grupo Puntacana and non-governmental organizations like FUNDEMAR have supported economic growth while working to strengthen the country's climate resilience.

However, both the public and private sectors struggle to afford locally trained professionals, resulting in a shortage of trained personnel for critical climate-related projects. This factor hampers the country's ability to effectively utilize development aid and climate finance. In addition, long-term impacts of the high inflation rate of 8.8% in 2022[43] put pressure on the country's human resources, making it difficult to access quality basic goods and services such as education, healthcare, water, and electricity, which in turn limits economic opportunities and increases vulnerability.

- **Small and informal fisheries sector**

Industrial fishing is underdeveloped in major fishing provinces such as Puerto Plata and Banco De La Plata y de la Navidad. The low local production and profitability can be attributed to inadequate market organization and fragmentation within fishing communities. Consequently, this has created opportunities for fishermen to engage in illegal fishing practices.[44] The fisheries industry is currently facing various challenges that are negatively impacting its sustainability and economic benefits for coastal communities. High prevalence of illegal, unreported, and unregulated fishing practices as well as unsustainable fishing methods are major issues that have led to a decline in fishing biodiversity, causing significant losses for the industry.

- **Complexity of innovative finance solutions**

Innovative financing solutions such as green bonds, blue bonds, blended finance, and debt-swap opportunities are contemporary financial instruments that could potentially be developed in the Dominican Republic to promote climate action and conservation. However, these options are still being explored. Building variable business models that provide both environmental and financial returns remains a difficult

[43] Dominican Republic - Investment Climate Statement (trade.gov)
[44] https://www.seafoodsource.com/news/supply-trade/low-production-illegal-fishing-haunt-dominican-republic-s-fisheries-sector

task in the DR and public and private support is needed for such models to be considered profitable investments. Innovative financing tools also require support from institutions that can provide loan guarantees, and the process to secure this financing involves complex negotiations that can take years, potentially hindering adoption, and implementation.[45] As a result, there are often delays in disbursement and consequently project execution.

- **Weak regulatory and policy enforcement**

The Dominican Republic grapples with systemic issues such as a lack of well-defined regulatory and enforcement guidelines. Transparency poses a significant obstacle, impeding the country's capacity to effectively compete and enforce relevant regulations and laws.[46] The government system is overly centralized, characterized by decision-making structures that operate from the top down. Additionally, there are weak measures in place to protect intellectual property rights and bureaucratic obstacles that hinder private sector investments.[47] Prospective private investors perceive the government's administrative and decision-making procedures as inconsistent, opaque, and tedious. Investors acknowledge the inadequate implementation of existing laws as a concern.[48]

- **Mismatch between current financing options and scale of disaster risks**

Capital market investments generally do not consider disaster risk. The current largest challenge lies in the fact that current financing does not match the scale of existing and future disaster risks. Most funding for disasters is allocated to response and recovery, rather than prevention or risk mitigation.[49] This ad-hoc approach to recovery funding, indicates an imbalance in financing for climate action and conservation.

While there are several climate action funds deployed in the country, such as USAID and the Adaptation Fund, there is a need for a greater variety of funds that focus on building adaptation and resilience. The lack of integration of initiatives, and inappropriate indicators hinder the ability to holistically measure project impact. The current approach to funding climate disaster risk reduction clearly lags behind the rapid rate and increasing complexity of disaster risk.

- **Constraints to the financial viability of climate solutions**

Commercially oriented investors, in particular, often lack concrete incentives and hesitate to consider environmental impacts unless they can see clear financial benefits from implementing ESG (environmental, social and governance) and climate-aligned strategies In the Dominican Republic, the private sector's involvement in climate initiatives mainly consists of small foundations, small and medium-sized enterprises (SMEs), and associations with limited resources and capacity to attract both domestic and international funding.[50] These internal structural factors, combined with the challenges of managing existing debt and meeting creditor requirements, increase the vulnerability of the private sector to external shocks such as environmental and economic crises.

[45] https://www.state.gov/reports/2021-investment-climate-statements/dominican-republic/
[46] https://www.trade.gov/knowledge-product/dominican-republic-market-challenges
[47] https://dominicantoday.com/dr/economy/2023/10/04/the-three-main-challenges-of-the-dominican-private-sector-according-to-the-world-bank/
[48] dominican-republic-country-private-sector-diagnostic-en.pdf (ifc.org)
[49] https://www.afd.fr/en/actualites/strenghtening-climate-action-dominican-republic
[50] https://www.oecd.org/dac/capacity-development-climate-change-SIDS.pdf

Additionally, the process of obtaining accreditation for climate funds is rigorous, time-consuming, and a missed opportunity to build capacity and expertise, particularly for smaller entities that have not undergone such processes earlier. As a result, the current climate finance landscape is complex and fragmented, and there is still limited coordination among multinational funds, making it difficult for the private sector to access different sources of climate finance.

- **Data limitations**

The private sector in the Dominican Republic experiences significant challenges related to data when structuring investments and developing project proposals for climate funds.[51] In particular, adaptation projects require a significant amount of evidence to demonstrate climate vulnerability. However, SMEs, foundations, and associations often lack the necessary historical climatological, environmental, and socio-economic data, as well as downscaled models to analyze climate trends. Furthermore, the lack of sufficient numbers, coupled with the absence of ratings, indices, and listings, hinders the implementation of innovative climate finance instruments such as green bonds and weather-indexed insurance.[52]

Another obstacle in developing feasibility assessments and securing funding for projects is the limited human resources within private institutions. These institutions often lack the competence to analyze and interpret data, as well as select and justify appropriate interventions, which are collectively referred to as the project's climate rationale. This lack of expertise makes it difficult to convince funders to approve projects.

[51] https://unfccc.int/sites/default/files/resource/UNFCCC_NBF_TA_DRepublic_2022_1.pdf
[52] https://www.oecd.org/dac/capacity-development-climate-change-SIDS.pdf

7 Existing Funding Mechanisms to Strengthen Coastal Resilience

This section highlights various existing funding mechanisms crucial for enhancing coastal resilience and addressing the impacts of climate change. These mechanisms are essential tools in the global effort to mitigate the effects of environmental challenges on coastal communities and ecosystems. Through parametric insurance schemes, grants, dedicated funds, public-private partnerships, and innovative mechanisms, stakeholders worldwide can access vital resources to implement projects aimed at strengthening coastal resilience.

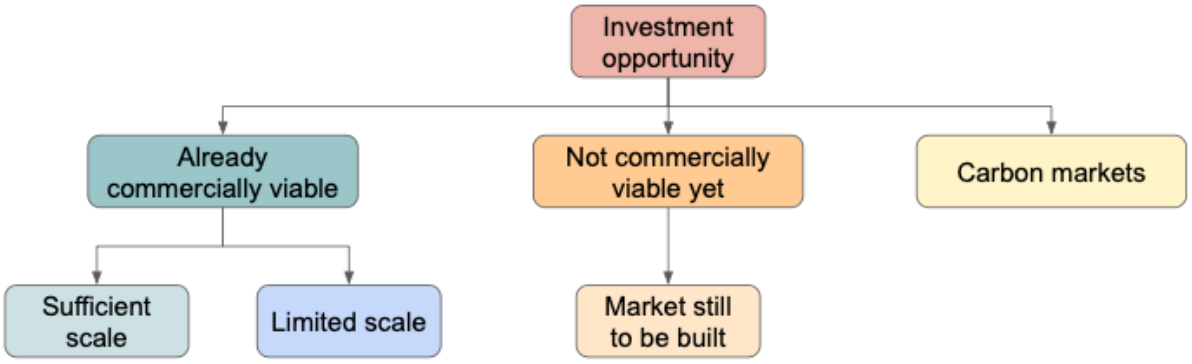
Financing Mechanism	Significance	Existing Projects	Target Partners
Insurance and Risk Transfer Mechanisms	**Coral Reef Catastrophe Insurance** quickly allocates financial resources for the restoration of coral reefs devastated by catastrophic events, providing vital support for coastal stakeholders.	Quintana Roo Reef Protection, Mexico[53]	Hotel chains, cruise ship companies, real estate developers, tourism operators, beachfront businesses, coastal infrastructure developers.
	Fisheries Insurance Delivers essential funds to fishing communities in the event of adverse weather events.	Caribbean Oceans and Aquaculture Sustainability Facility (COAST)[54]	Fishing cooperatives, fishing communities, marine conservation organizations.
International and Regional Climate Funds	Dedicated funds offer resources to climate mitigation and adaptation projects without stringent repayment terms, empowering initiatives to explore novel strategies for addressing climate change.	- Green Climate Fund[55] - Global Environment Facility[56] - Caribbean Biodiversity[57] Fund[58]	Governments, international organizations, NGOs, private sector entities, local communities, environmental conservation groups.

[53] https://www.greenfinanceinstitute.com/gfihive/case-studies/quintana-roo-reef-protection-parametric-insurance/
[54]https://www.ccrif.org/projects/coast/caribbean-ocean-and-aquaculture-sustainability-facility?language_content_entity=en
[55] https://www.greenclimate.fund/project/fp013
[56] https://www.thegef.org/projects-operations/projects/4536
[57] https://caribbeanbiodiversityfund.org/projects/reef-resilience-and-risk-financing-in-the-greater-caribbean/
[58] Ibid.

Bilateral Aid and Donor Agencies	Bilateral aid agencies from the United States and Germany provide funding for climate resilience projects through development assistance programs. Additionally, donor agencies often support coastal resilience initiatives through grants, technical assistance, and capacity building.	US Agency for International Development (USAID) German Corporation for International Cooperation (GIZ)	Governments, international organizations, NGOs
Public Private Partnerships	Collaborative efforts between public and private sectors are crucial for achieving solutions that ensure long-term ecological sustainability, leveraging the resources, innovation, and expertise of the private sector.	Collaboration among Blue Finance, Ministries of Environment and Natural Resources and Fundación Grupo Puntacana	Government agencies, private sector investors, marine conservation organizations, tourism industry stakeholders
Payment For Climate Adaptation	The African Development Bank's Adaptation Benefit Mechanism facilitates payments for adaptation initiatives, offering income generation opportunities for climate-focused businesses by certifying their benefits, incentivizing investment in climate resilience.	African Development Bank's Adaptation Benefit Mechanism[59]	Businesses focused on climate adaptation, governments, NGOs, international organizations, investors interested in climate resilience projects.

[59]https://www.afdb.org/en/topics-and-sectors/initiatives-partnerships/adaptation-benefit-mechanism-abm.

8 Scope for DFC Involvement

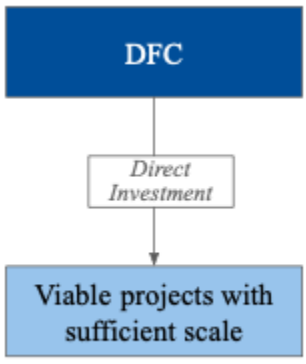


Given the mandate of Development Finance Institutions ("DFIs") to target both impactful and profitable investments, commercial viability is a primary consideration for this analysis. The goal of this approach is not to exclude investment opportunities that are unprofitable in the short-term, but rather provide a sequential path to enter the coastal resilience market in the DR. It is worth noting that the team has not analyzed the financial statements of the entities mentioned below and it is not our intention to vouch for the profitability of identified entities/transactions. Our aim is to provide a potential list of opportunities (both currently and in the future pipeline) which DFC can take note of, should it want to make investments in coastal resilience in the DR. This section will cover investment opportunities that are already commercially viable, then elaborate on how opportunities that are not yet commercially viable can receive support through a blended finance model. We reference the Climate Investor One and Two framework in the appendix and build on our conversations on the ground to outline the three stages of the investment pipeline below.

8.1 Currently Commercially Viable

8.1.1 Existing Sufficient Scale

Some sectors such as sustainable tourism, infrastructure, and energy exhibit sufficient scalability, demonstrating the potential to address broader challenges and mobilize significant investment in the coastal resilience space. Direct investments, whether through equity or debt, leverage market dynamics, established frameworks, and proven models to drive impactful interventions across various scales.



SOS Carbon has developed cutting-edge technology to mitigate coastal pollution challenges by transforming sargassum into valuable resources, including organic fertilizer and raw material in the manufacturing of cosmetic products. The company is on track to expand regionally and target clients globally, showing a high growth potential while already financing research and development with its profits.

CEPM has demonstrated commercial viability through its existing green loan from Bank of America and IDB Invest for the construction and operation of renewable energy assets. Other renewable energy developers

may provide opportunities for future investment. For example, Ege Haina, owned by Trelia, already generates more than 20% of its energy from renewable sources. It plans to expand its renewable energy production by 500MW by 2026, which would require US$650 million in financing[60].

Similarly bankable projects related to coastal resilience in the Dominican Republic span a wide range of risk profiles, with sectors like renewable energy and tourism providing lower-risk investment opportunities than waste management or fisheries. A notable example in the tourism sector would be:

IDB Invest/Tropicalia

IDB Invest and Cisneros Real Estate are financing the Four Seasons Resort and Residences, part of the Tropicalia[61] sustainable resort in the Dominican Republic, with a total of US$135 million. This includes US$49 million from IDB Invest and US$86 million from local and international banks. The project, valued at US$212.4 million, is expected to create over 2,000 jobs during construction and 400 jobs during operation. It emphasizes local sourcing, aiming for 70% of produce and services to come from local businesses, supporting the region's economy. IDB Invest's financing involves collaboration with local banks such as BPD and international institutions such as DEG and ILX Management. Located in Miches, an emerging beach destination on the southern shores of Samaná Bay, the Tropicalia complex, managed by Four Seasons, will include a 95-room hotel, 25 branded residences, and amenities. Tropicalia prioritizes sustainable practices, including environmental and social management systems, guided by Fundación Tropicalia's community-focused initiatives in agriculture, gender equality, education, and microfinance.

8.1.2 Limited Current Scale

At the time of writing this report, DFC is investing in the DR through direct investments and on-lending after the signing of the agreement with BPD in December 2023. While the ticket size of its direct investment is higher than US$1 million, smaller investments can also be made indirectly through the loan provided to BPD. Guarantees to financial intermediaries can also support smaller investments. Many small businesses do not meet the size criteria for a direct investment from DFC and are only covered by the on-lending from BPD. Those projects can also require technical assistance from international players like DFC, especially with the implementation of financial management and fiduciary systems.

In the context of coastal resilience financing in the Dominican Republic, certain projects exhibit limited scalability due to various factors such as market size, regulatory constraints, and project complexities. Despite their potential to address specific challenges, these projects often encounter barriers in achieving widespread applicability and impact. Impact investment funds play a crucial role in aggregating capital from investors interested in both financial returns and social or environmental impact. In the DR, particularly in coastal regions, community-based initiatives are vital for resilience building. However, the scalability of impact funds in this context is constrained by the fragmented nature of coastal communities,

[60] https://www.fitchratings.com/research/corporate-finance/fitch-affirms-ege-haina-ratings-at-bb-outlook-stable-16-10-2023

[61] https://idbinvest.org/en/news-media/idb-invest-supports-four-seasons-resort-residences-tropicalia-promote-sustainable-tourism

diverse project needs, and the challenge of standardizing investment criteria. The recent DFC investment in Regenera Ventures, a women led US$20-30 million fund focused on companies that contribute to the restoration of marine and coastal ecosystems in Mexico, is a good example of a financial structure that can aggregate small size, impactful projects for coastal resilience.

IDB's One Caribbean program[62] is a new regional flagship program that aims to promote the sustainable development of the Caribbean with a sharpened focus on high-impact initiatives. During the 2023 United Nations Climate Change Conference (COP28), IDB presented "One Caribbean," with the goal of promoting integration and resilience across the region through the support of projects and partnerships that can have a regional impact. The program proposes establishing a Project Preparation Facility (PPF) along with a strategy for partnerships and resource mobilization with financial innovation at its core. With One Caribbean, the IDB is putting forward a regional program that aims to support the Caribbean in becoming a more resilient and competitive region that can overcome the challenges posed by climate change. Such partnerships can be developed similar to the recently announced IDB Invest-DFC Americas Partnership Platform[63]

8.2 Not Commercially Viable Yet

8.2.1 Market still to be built

Ecotourism represents a promising avenue for sustainable coastal development in the Dominican Republic, yet its full potential remains largely untapped. While the country boasts diverse ecosystems, including pristine beaches, mangrove forests, and coral reefs, the ecotourism sector is still in its nascent stages, presenting opportunities for market development and investment.

We spoke with the public sector and philanthropic arms of large entities in DR, such as Fundación Grupo Puntacana and Fundación Popular. These organizations work with grassroot communities to manage the adverse effects of tourism while keeping local livelihood intact. They also act as aggregators for smaller scale projects and can serve as an intermediary between private sector players, who need a minimum ticket size for investment, and local beneficiaries, who need loans, but their individual footprint is too small to reach out to commercial lenders. These markets will take time to develop - as the government works with the private sector to support an enabling environment, a large section of the informal economy will be brought to the fore and eventually lead to commercial success.

Some opportunities that are not yet commercially viable should be closely monitored in the short term given their ability to turn profitable with the appropriate framework. This would enable DFC to not only act as a market taker but also as a market maker when there is strong future potential for impact and commercial viability. Concessional financing and grants provided by development agencies like USAID can be deployed to de-risk these opportunities, creating a more comfortable investment environment for development finance institutions and ultimately the private sector. Using a blended finance model to

[62] https://www.iadb.org/en/news/idb-presents-one-caribbean-program-boost-climate-resilience-and-promote-integration
[63] https://www.dfc.gov/media/press-releases/dfc-and-idb-invest-expand-americas-partnership-platform-creating-new-co

mobilize investment and prepare opportunities for development, this section can reach commercial viability in the long term.

Climate Investor One and Two Blended Finance Model

This model serves as an example of a structure that utilizes key philanthropic funds and development grant funding to catalyze investment from DFIs and MDBs, aiming to grow markets for bankable projects that address climate change and coastal resilience in the Caribbean. Details about each stage are included in the Appendix. We have adapted the stages from the Climate Investor One and Two model to fit the stages of project development in the DR, giving new names to each stage to contextualize the progression of projects.

Nascent Stage

The purpose of this stage is to act as a proprietary deal pipeline for the construction and operations stages. Comprised of concessional financing, this stage mitigates risks that arise from the early stages of developing projects through concessional development loans. This structure fits well for the DR because loans do not exceed US$1.5M million per project, providing sufficient capital for small projects while allowing for a large, diversified portfolio of early-stage projects across sectors.

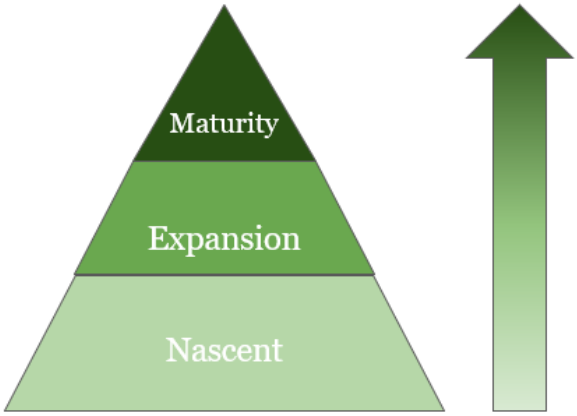


Figure 9 Adapted version of the Climate Investor One and Two Blended Finance Model

Expansion Stage

This stage uses three tranches: First-loss equity, subordinated equity, and senior equity. DFC has the opportunity to enter at the second tranche along with MDBs, to ensure risk is allocated proportionately and financial additionality can be ensured.

Maturity/Scale Stage

The third tranche of the construction stage, composed of institutional investors with limited experience in coastal resilience and/or the Caribbean, is the long-term objective of this structure: to incorporate the private sector which otherwise would not be involved. Examples of participating investors include green/blue bond markets, pension funds, impact investors, and wealth funds. The purpose of this stage is to provide long-term senior debt to projects in operation. The operation fund will be composed of private investors, similar to the senior equity tranche of the construction equity fund.

8.3 Development of Carbon Markets

Carbon markets facilitate the trading of carbon credits, providing financial incentives for projects that reduce greenhouse gas emissions or enhance carbon sequestration. Coastal ecosystems, including mangroves, seagrasses, and coral reefs, play a vital role in carbon sequestration and climate regulation, presenting a unique opportunity to leverage their conservation and restoration for carbon market participation. While not yet fully commercially viable, the utilization of carbon markets presents an intriguing opportunity for financing coastal resilience projects in the Dominican Republic.

Revenue generated from blue carbon offsetting can be reinvested in coastal resilience projects, such as mangrove rehabilitation, shoreline stabilization, and community-based adaptation initiatives. Collaboration with international organizations, carbon market platforms, and certification bodies can facilitate the integration of coastal resilience projects into carbon market mechanisms. Ecosystem-based adaptation

(EbA) projects that enhance the resilience of coastal ecosystems to climate change impacts can generate co-benefits for carbon sequestration and storage. To prepare and engage stakeholders, a Carbon Market simulation training was prepared by the UNFCCC and hosted by the DR Presidency. The results indicated an uptick in interest in VCM and ETS and future growth potential.

Latin America & the Caribbean are the second largest provider of carbon credits in the voluntary markets[64]

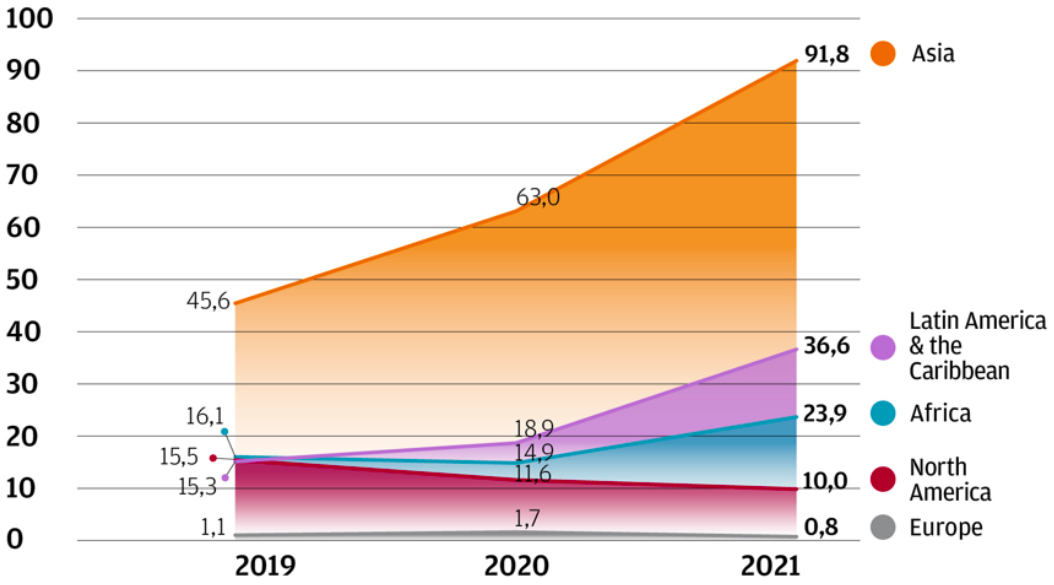


Figure 10 Transacted voluntary carbon offset volume by project region, 2019-Aug 2021 (MtCO2e)

IDB Lab and Latimpacto have signed an agreement to support solutions with social and environmental impact that contribute to the reduction of greenhouse gas emissions in Latin America and the Caribbean (LAC). With initial funding of US$3.8 million,[65] to which contributions from private and strategic partners are expected to be added, this partnership aims to reduce or avoid about 6.2 million tons of carbon dioxide by its fifth year and provide support to between 400 and 500 entrepreneurs and startups that are generating decarbonization solutions in LAC or that can benefit from them.

Specifically in the DR, IDB Lab is working on a pilot project alongside the Ministries of Environment and Finance, to develop a Voluntary Market of Nature-Based Credits. The project's three main components consist of structuring the protocol and technological development for financing conservation projects in the country, assisting in developing a pipeline of conservation projects, and developing a marketing, growth, and impact strategy for the market. IDB Lab will serve as the primary financial provider, with TNC and the Ministry of Environment acting as key strategic technical partners. Additionally, Yaque del Norte Water Fund (FAYN) and the Santo Domingo Water Fund (SDWF) will play pivotal roles as implementing partners. The initial project cost is estimated at US$1.9 million, 51% funded by IDB Lab and the Adaptation Fund, and 49% funded by the water funds.

[64] https://privatebank.jpmorgan.com/latam/en/insights/markets-and-investing/the-climate-opportunity-getting-ahead-of-latin-americas-net-zero-transition
[65] https://privatebank.jpmorgan.com/latam/en/insights/markets-and-investing/the-climate-opportunity-getting-ahead-of-latin-americas-net-zero-transition

9 Conclusion

Having considered the economic landscape in the DR, this report expanded upon specific sectors ripe for private sector investment while building coastal resilience. Utilizing an ecosystem-based approach, the report is supported by input from various local stakeholders with the goal of identifying potential opportunities which balance financial returns with community benefits and coastal conservation. The key takeaway is that there are several partnerships in sectors such as tourism, fisheries, renewable energy, and waste management which DFC can look to participate in and should continue engaging with as the market develops. While investment scale and return horizons differ across opportunities, the idea is clear: balancing conservation and commercialization in the DR needs immense private sector investment, and DFC can help address this demand-supply gap.

To conclude, the team would like to thank all the interviewees we spoke with over the past five months, both in person in the DR and online from New York City. It has been an enriching journey of learning about the climate change challenges faced by the country, the indigenous solutions being built and supported in the different sectors and the various partnerships thriving across public/private/international and nonprofit entities. We recognize that this research may not be exhaustive and is in no way intended to be financial advice, however, we hope the team at DFC can glean valuable insights on the current and potential pipeline opportunities for investment in coastal resilience in the DR.

"...if there is one country that should be taking this [climate change] seriously it should be the DR, and we should be looking at these innovative financing mechanisms."

- Shaney Peña Gómez, Director of the Planning and Projects Department at the DR's Ministry of Tourism, April 2024

10 Appendix

Supply Side Players: Examples from Public Sector Entities

Caribbean Climate Smart Fund (CCSF)

The CCSF aims to become a $15 million Project Preparation and Development Facility (PPDF) led by RMI Islands and a $150 million investment fund, with an initial target of $75M, led by an investment fund manager. The PPDF systemically de-risks and prepares energy projects across Caribbean nations for investment. It does so by creating certainty around the financial and technical feasibility of projects—supporting utilities and project developers in securing commercial financing and bringing projects online, while building their capacity to scale this work independently in the future. Canada's government announced its multi-million-dollar support for the PPDF, progressing the reach and impact of these efforts. The investment fund will include a diversified portfolio of utility-scale renewable energy projects, distributed microgrids (often supporting critical facilities), and energy efficiency projects. The CCSF will evaluate projects — for project preparation support and potential investment — based on five critical criteria: financial sustainability, equity, resilience, emissions reductions, and alignment with island priorities.

Yaque del Norte Water Fund (FAYN)

The FAYN is a public-private partnership designed to channel investment resources for the preservation of ecosystem water supply services in the Yaque del Norte river basin in order to contribute to the water security of the city of Santiago, Dominican Republic. The FAYN is an entity created at the initiative of the Latin American Alliance of Water Funds under the framework for regulation and promotion of non-profit associations in the Dominican Republic. The FAYN was founded on February 23, 2015 by the Ministry of Environment and Natural Resources, Aqueduct and Sewerage Company of Santiago (CORAASAN), Association for Development (APEDI), The Nature Conservancy (TNC), ISA University, Plan Yaque, Plan Sierra Inc., Dominican Agricultural Business Council (JAD), San José Cooperative, Propagas Foundation, Bermúdez Foundation, Aquiles Bermúdez, Manuel José Cabral and Juan Manuel Ureña. In 2017, 5 new organizations were integrated: Fundación Popular, Cooperativa La Altagracia, Universidad Católica Madre y Maestra Pontificia, Corporación de Zona Franca Santiago and FONDESA. In 2019, the FAYN welcomed Ecological Bananas of the Northwest Line (BANELINO) and in 2021 the Grupo M Foundation.

Fundación Grupo Punta Cana (currently live ventures in coastal conservation)

Co-Management of Southeast Reef Marine Sanctuary: This public-private coalition works on the conservation and restoration of marine biodiversity in an area of almost 8,000 km2, making it one of the largest marine protected areas in the Caribbean. It also improves tourist attractions, creates new jobs and opportunities in the fishing and eco-tourism sectors, and increases coastal resilience Coral Conservation and Restoration Program: In partnership with Counterpart International and the University of Miami, this program involves collecting coral fragments from various coral species, nurturing them in underwater nurseries, and transplanting them back onto the reef. It explores different methodologies, conducts workshops and research, and advocates for coral gardening worldwide.

Sea Turtle Conservation: In collaboration with several other organizations, there is organized beach surveillance, identification and proactive interventions of turtle nests, and release of tens of thousands of

baby turtles. Modifications to the coastal lighting and planting of native flora near local beaches is done to protect the nests.

Existing Funding Mechanisms to Strengthen Coastal Resilience

Disaster Risk Financing - Parametric Insurance

Parametric insurance operates on a unique principle: instead of relying on traditional claims adjustment processes, it triggers payouts when a predefined event, such as a natural disaster or adverse weather condition, reaches a certain threshold. Upon reaching this threshold, the policyholder receives a payout automatically. The key advantage of parametric insurance lies in its speed of payment. As businesses and individuals seek more responsive and reliable risk mitigation solutions, parametric insurance presents an attractive option, driving market growth and potential returns for investors.

Coral Reef Catastrophe Insurance

Natural ecosystems such as mangroves and coral reefs play an important role in sustaining livelihoods and enhancing the resilience of coastal areas. These ecosystems serve as barriers against coastal hazards, absorbing wave energy and mitigating beach erosion. This presents an opportune moment to implement nature-based insurance mechanisms, providing immediate financial resources for restoration efforts following destructive events. Restoring and maintaining reefs often proves to be a cost-effective strategy compared to traditional coastal protection infrastructure.

Implementing nature-based insurance mechanisms presents a strategic opportunity for various coastal stakeholders, including hotel chains, cruise ship companies, real estate developers, tourism operators, beachfront businesses, and coastal infrastructure developers. For hotel chains and resorts, safeguarding coastal ecosystems ensures the continued allure of their locations while mitigating risks from coastal hazards. Cruise ship companies benefit from sustainable tourism practices and reduced liabilities associated with potential damage to fragile ecosystems. Real estate developers can protect their coastal investments by supporting restoration efforts that enhance the resilience of nearby ecosystems. Tourism operators reliant on coastal attractions secure their long-term viability by preserving the health and beauty of these environments. Similarly, beachfront businesses ensure their sustainability by safeguarding against damage from coastal hazards. Lastly, coastal infrastructure developers and operators can mitigate risks to their assets by investing in the protection and restoration of coastal ecosystems, reducing vulnerability to natural disasters. Nature-based insurance thus offers a multifaceted approach to risk management, simultaneously enhancing environmental resilience and supporting the economic interests of coastal stakeholders.

Implementation of the Quintana Roo Reef Protection, Mexico

In 2018, Quintana Roo, Mexico, witnessed a milestone in environmental protection with the launch of the world's first insurance solution aimed at safeguarding a natural ecosystem. Spearheaded by Swiss Re, one of the globe's largest reinsurance providers, and conceived by The Nature Conservancy (TNC), this groundbreaking initiative utilizes a parametric mechanism to activate claim payments when hurricane winds reach a predetermined threshold. This mechanism enables swift repairs to the region's coral reef, critical for preserving its marine biodiversity. The project's implementation involves a strategic partnership between Swiss Re, TNC, and local stakeholders. Initially, vital coral reef systems are identified based on their efficacy in protecting coastal communities and infrastructure. Collaborative efforts assess the interest of private enterprises and public entities in insuring these reefs, recognizing their economic value to the region. Customized insurance products are then tailored to meet the unique needs of Quintana Roo's coral reefs, while ensuring compliance with local legal and financial requirements.

Fisheries Insurance

In 2019, Saint Lucia and Grenada became pioneers in the implementation of a novel insurance scheme aimed at safeguarding Caribbean fisheries. The Caribbean Oceans and Aquaculture Sustainability Facility (COAST), supported by the U.S. State Department, is a parametric insurance product meticulously designed to address the specific needs of vulnerable fishing communities in the region. Led by the World Bank and CCRIF SPC (formerly the Caribbean Catastrophe Risk Insurance Facility), COAST represents a collaborative effort to drive sustainable finance for Caribbean fisheries. COAST provides a lifeline to fishing stakeholders in the aftermath of adverse weather events, such as storms or hurricanes, by releasing funds directly to compensate for lost income and damaged equipment. In the Dominican Republic, fishing cooperatives like CODOPESCA emerge as ideal targets for leveraging COAST's financing mechanism. By operating collectively through these cooperatives, fishermen can access insurance coverage and secure vital financial support in the event of income loss due to adverse weather conditions.

Opportunities

- Rapid payouts: Parametric insurance enables swift response and funding for restoration efforts.
- Cost-Effectiveness: Compared to traditional coastal protection infrastructure, restoring, and maintaining reefs through nature-based insurance mechanisms can prove to be a cost-effective strategy in the long run.
- Private Sector Engagement: This approach encourages private sector engagement by aligning financial incentives with environmental conservation, attracting investments from businesses interested in sustainable practices
- Stakeholder Collaboration: The initiative fosters collaboration among various stakeholders, including reinsurance providers, environmental organizations, and local communities, to address coastal resilience challenges comprehensively.

Challenges

- Data Accuracy and Availability: Parametric insurance relies on precise and timely data, posing challenges in remote regions where monitoring is limited.
- Threshold Determination: Establishing accurate triggers for payouts requires complex scientific assessment, navigating uncertainties.
- Regulatory and Legal Frameworks: Implementing parametric insurance involves navigating complex regulations and obtaining necessary permits.
- Capacity Building: Strengthening technical expertise among stakeholders is essential for effective implementation and monitoring.

Grants

The Inter-American Development Bank Group (IDB Group), in partnership with the Green Climate Fund (GCF), is spearheading the E-mobility Program for Sustainable Cities in Latin America and the Caribbean. The program's aim is to aid the transition in the region’s cities towards lower carbon emissions and resilient public transportation. This will be achieved by accelerating the use of electric and hydrogen-based public transportation. IDB Invest is financing the region's first electric station, equipped with 28 advanced chargers powered by solar energy. This initiative, coupled with a 3 million euro grant from the European Union, aims to implement an electromobility pilot project in the Dominican Republic. The project will establish the country's first public electric transport route, enhancing mobility within Santo Domingo. With a capacity to transport 31,000 people monthly, this pilot project is a significant step towards sustainable transportation. Additionally, IDB Lab is supporting a public-private program to replace combustion motorcycles with electric ones for in-home delivery services. The program, initially launched in the Greater Santo Domingo

area with 2,000 units, is set to expand nationwide with support from the private sector. This is an opportune time for private sector players to enter the space supported by sustainable grant funding.

Opportunities:

- Financial Resources: Grant financing provides immediate financial resources for coastal resilience
- Innovation Stimulus: Grants encourage innovation in coastal resilience strategies by funding research and development initiatives aimed at identifying and implementing effective solutions.
- Capacity Building: Grant-funded programs often include capacity-building components, providing training and technical assistance to local communities, governments, and organizations involved in coastal resilience efforts.
- Community Engagement: Grant-funded projects often prioritize community engagement and participation, empowering local residents to take an active role in decision-making processes and implementation efforts.

Challenges:

- Competitive Process: Grant funding for coastal resilience projects can be highly competitive, requiring significant time and resources for proposal development and submission.
- Complex Application Process: The application process for grant funding may be complex and bureaucratic, requiring applicants to navigate through extensive paperwork and meet stringent eligibility criteria.
- Short-Term Funding Cycles: Grant funding for coastal resilience projects may be subject to short-term funding cycles, leading to uncertainties regarding the availability of resources for long-term projects and initiatives.

Dedicated Funds

Green Climate Fund

The Green Climate Fund (GCF) operates using a multifaceted financing mechanism designed to address the urgent challenges posed by climate change. The fund utilized a diverse range of financial instruments including grants, equity, guarantees, concessional loans and results-based finance, offering a flexible and innovative approach to climate finance. Through the blending of these financial tools, the Green Climate Fund aims to leverage additional private sector investment and maximize the impact of climate interventions, by allowing for the creation of tailored financing packages that address specific barriers to climate investment and unlock high-impact climate projects. In 2023, the GCF funded the Mobilizing International Climate Finance and Private Investments for Low-Carbon Development project in the Dominican Republic. This initiative aims to achieve low-carbon development in the country and increase public and private sector financing for climate action. The project will be delivered by the Global Green Growth Institute with support from the Ministry of the Environment and Natural Resources of the Dominican Republic. By facilitating collaboration between government agencies, international organizations, and the private sector, this project represents a significant step towards achieving climate resilience and sustainability in the Dominican Republic.

Global Environment Facility

The Global Environment Facility (GEF) specializes in providing grants to developing nations for initiatives that safeguard the environment. The GEF has demonstrated a successful track record over the past two decades in employing blended finance models. These models have played a crucial role in pioneering and expanding the financing of innovative technologies and as a result, there has been a notable surge in private

sector engagement in funding initiatives dedicated to tackling climate change. The GEF has allocated $1.4 million to support coastal resilience projects in the Dominican Republic, supplemented by an additional $7.5 million in co-financing. One notable project facilitated by the GEF is the Integrated Landscape Management in Dominican Republic Watersheds project. This initiative aims to elevate watershed management practices across various regions of the Dominican Republic, with a multifaceted approach encompassing strategies such as land use planning, ecosystem restoration, and the promotion of sustainable rice cultivation in the Yaque and Yuna regions. Critical to the success of the watershed project is the collaboration with key implementing agencies like the World Bank, with execution overseen by the Ministry of Environment and Natural Resources.

Caribbean Biodiversity Fund

The Caribbean Biodiversity Fund (CBF) stands as a crucial regional environmental initiative, employing a flexible framework to enact innovative solutions and consolidate financial resources throughout the Caribbean. The CBF aims at providing sustainable funding to bolster protected areas, especially focusing on marine managed areas. Through a network of independent National Conservation Trust Funds (NCTFs), the CBF distributes annual endowment payments. These payments are then utilized by the NCTFs to award grants for marine and coastal conservation activities, prioritizing key sites within marine managed areas.

Opportunities:

- Financial Flexibility: Funds offer a diverse range of financial instruments providing flexibility to tailor financing packages to specific climate projects.
- Innovative Approaches: This mechanism encourages innovative approaches to climate finance, fostering the creation of tailored financing packages that address specific barriers to climate investment.
- Partnership Development: Funds foster partnerships between government agencies, international organizations, NGOs, and the private sector, facilitating collaboration to tackle climate challenges effectively.

Challenges:

- Complexity of Application Process: Applications can be complex and time-consuming.
- Long-Term Sustainability: Ensuring the long-term sustainability of GCF-funded projects requires ongoing monitoring and evaluation, as well as commitments from governments and other stakeholders to maintain project outcomes.
- Capacity Constraints: Projects implementation may require building technical capacity among stakeholders, which can pose challenges in resource-constrained environments.

<u>Public Private Partnerships</u>

Blue Finance, a social enterprise dedicated to marine conservation and climate change initiatives in the Dominican Republic, is at the forefront of developing impactful investment solutions. In February 2018, a groundbreaking Public-Private Partnership was established to jointly manage the country's second-largest Protected Area, encompassing 8000 km2 of vital coral reef ecosystems. This collaborative effort aims to generate social, environmental, and economic benefits by creating job opportunities within the Blue Economy sector, preserving invaluable ecosystems, and ensuring financial sustainability through support from international impact investors. The Sustainable Ocean Fund, managed by Althelia, will provide crucial initial capital expenditures, streamlining the project's execution. This innovative approach represents a significant shift in impact investment, with investors prioritizing conservation efforts and local livelihood enhancement alongside economic returns. Collaboration among Blue Finance and key stakeholders,

including the Minister of Environment and Natural Resources and Fundación Grupo Punta Cana, has been instrumental in driving the project's success. Looking ahead, Blue Finance will spearhead the establishment of financial arrangements and a project management office within the co-management company, ensuring adherence to the highest standards in Marine Protected Area practice, tourism development, community engagement, and overall management excellence.

Opportunities:

- Re-allocation of risk and capital: PPPs shift risk to the private sector, potentially lowering long-term project costs and improving service quality. They can eliminate the need for upfront capital from governments, making projects feasible in cash-strapped environments.

Challenges:

- Administrative burden: Coordination among multiple authorities for large-scale projects can be challenging. PPP contracts require substantial negotiation expertise, potentially posing administrative challenges, especially for smaller jurisdictions.

Leveraging Debt Financing through Project Bundling

Project bundling is the aggregation of several individual projects, geographically or thematically related, into a single investment product. Project bundling presents a valuable opportunity for smaller-scale coastal resilience projects like fisheries and fishing cooperatives in the Dominican Republic. This mechanism enables better risk management for lenders. Instead of financing individual projects with inherent risks, lenders can spread their exposure across a diversified portfolio of bundled projects. This risk diversification lowers the overall risk profile of the investment, making it more attractive for lenders and increasing access to debt financing for fisheries and fishing cooperatives.

Bundling projects also increases the overall size of the investment opportunity. By aggregating multiple smaller projects, the financial viability of the bundled projects increases and improves projects''ability to attract debt financing from institutional investors and financial institutions. Furthermore, project bundling streamlines the financing process for smaller-scale projects. Instead of navigating complex financing arrangements individually, fisheries and fishing cooperatives can benefit from a simplified and standardized financing structure provided through bundling. This simplification reduces administrative burdens, lowers transaction costs, and facilitates access to debt financing for smaller projects that may lack the resources or expertise to pursue financing independently.

Opportunities

- Risk Diversification: Project bundling reduces overall project risk and makes investment opportunities more appealing to investors.
- Enhanced Financial Viability: Larger ticket sizes can enhance the financial viability of projects, making them more attractive to investors.
- Streamlined Investment Process: Bundling projects simplifies the investment process for investors, as they can invest in a single package rather than evaluating and managing multiple individual projects separately.

Challenges:

- Complexity: Managing a bundle of projects can be more complex and challenging than managing individual projects, requiring sophisticated risk management strategies and coordination among stakeholders.

- Potential Concentration of Risk: While project bundling diversifies risks across multiple projects, it may also lead to a concentration of risk if the bundled projects are closely related or affected by similar external factors.

Payment For Climate Adaptation

Launched in March 2019 by the African Development Bank, the pilot phase of the Adaptation Benefit Mechanism (ABM) aims to assess adaptation initiatives and facilitate payments to projects aligned with the adaptation and sustainable development priorities of host countries. This mechanism seeks to mitigate the risks associated with adaptation projects while encouraging investment from both public and private sectors. The ABM provides opportunities for business models focused on climate adaptation by enabling them to generate income through the sale of certified adaptation benefits and secure financing for future adaptation activities. By certifying the social, economic, and environmental benefits derived from adaptation activities, the ABM enhances project value and attractiveness to potential investors or lenders. Verified certificates issued by reputable international organizations further bolster the credibility of adaptation activities, ensuring their appeal to financiers.

This approach is replicable in the Caribbean, where similar adaptation challenges exist. By adopting the ABM framework, the country can assess and certify adaptation initiatives, attracting investment from both domestic and international sources. This can lead to the development of sustainable adaptation projects that address the country's climate resilience needs while promoting economic growth and environmental conservation.

Opportunities:

- Income Generation: The mechanism allows businesses focused on climate adaptation to generate income through the sale of certified adaptation benefits, creating economic opportunities in the adaptation sector.
- Enhanced Credibility: Certification of adaptation benefits by reputable international organizations enhances the credibility of adaptation activities, increasing their attractiveness to potential investors or lenders.

Challenges

- Dependency on Certification: Projects may become overly reliant on certification of adaptation benefits from international organizations, which could delay financing and implementation if certification processes are prolonged or disputed.

Blended Finance Model Example: Climate Investor One and Two[66]

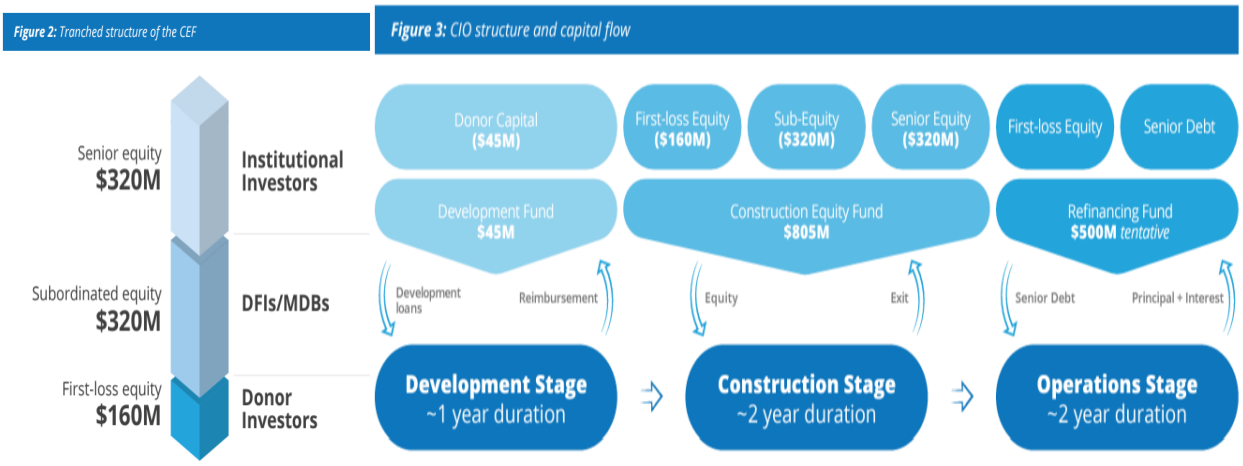


Figure 11 Climate Investor One structure diagram

The Green Climate Fund, in collaboration with FMO and Climate Fund Managers, has developed two funds with a three-stage structure. The first stage is a development fund, funded by philanthropic capital and donor contributions. The second stage is a construction fund, funded by DFIs and MDBs. The third stage, a refinancing fund, brings in institutional investors with lower risk appetites.
This model serves as an example of a structure that utilizes key philanthropic funds and development grant funding to catalyze investment from DFIs and MDBs, aiming to grow markets for bankable projects that address climate change and coastal resilience in the Caribbean.

Development Stage (Nascent Stage): Below are examples of organizations that could contribute to this stage:

Fundación Grupo Punta Cana
Punta Cana Group's Foundation works on sustainability goals that are not only revolutionizing how responsible tourism is practiced but also impacting the entire Punta Cana area and the neighboring communities of Verón and Higüey. They have achieved significant progress through joint efforts with the Dominican Government, international private companies, and non-profit organizations in improving multiple aspects of tourism and the quality of life of local communities, whilst protecting the environment.

Caribbean Biodiversity Fund
CBF works with several other organizations listed in this section, including Fundación Grupo Puntacana, GEF, and USAID. CBF has committed approximately $475,900 across 3 projects in the Dominican Republic.

Fondos de Agua
The Yaque del Norte Water Fund and Santo Domingo Water fund serve as a public-private platform channeling investment towards preserving ecosystem services for water provision in the Yaque del Norte River basin and Santo Domingo.

[66] https://www.convergence.finance/resource/climate-investor-one-(cio)-case-study/view

Global Environment Facility

Local foundations can play a crucial role in growing a market for projects that are not yet commercially viable because they can leverage connections to bridge the gap between small local organizations and financial institutions. These foundations are already connected with local actors across important sectors such as tourism and fisheries, as well as private sector investors who can contribute additional capital. Many local foundations need technical assistance, which can reduce the burden of administrative costs and reduce bottlenecks in early-stage development. The GEF's Small Grants Program, of which the eighth operational phase is currently in the approval process, provides grant financing and technical assistance to local businesses and targets biodiversity, climate change, and land degradation.

USAID

USAID plays a crucial role in the development stage through several existing programs, including the U.S.-Caribbean Partnership to Address the Climate Crisis 2030 (PACC 2030). Within this partnership, the Caribbean Climate Investment Program (CCIP) and the Caribbean Resilience Economies and Sectors Activity support the development of climate adaptation projects for future private sector investment. CCIP addresses the purpose of the development stage directly, with the three prongs of CCIP (project preparation facility, grants mechanism, and on-demand technical assistance) all working in tandem to grow projects to be commercially viable. CCIP's project preparation facility (PPF) supports renewable energy and climate adaptation projects that are commercially and technically viable and have a capital expenditure value of $10 million or less. Implementing partners include the Private Finance Advisory Network - Latin American and the Caribbean (PFAN-LAC), the Renewable Energy Efficiency Partnership (REEEP), and Innovación Social y Ambiental (ISA). This facility is targeting a minimum of 40 entrepreneurs, helping at least seven become commercially viable.

Construction Stage (Expansion Stage): The Climate Investor One/Two model capitalizes the construction equity fund through three tranches. A similar structure may be useful for this case due to the variety of sectors and wide range of commercial viability. GCF and GEF can channel new and existing funds into the first tranche, absorbing initial losses and providing coverage to senior investors.

The second tranche can comprise MDBs such as IDB and IFC, given their existing involvement in the region and familiarity with local challenges.