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MOZAMBIQUE

A **BLUE CARBON READINESS** ASSESSMENT

2024

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The findings, interpretations, and conclusions expressed in this document are those of the authors and do not necessarily reflect the view of the Executive Directors of the World Bank, the governments they represent, or the counterparts consulted during the study process. Any factual errors are the responsibility of the team.

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ABBREVIATIONS LIST

ANAC	National Administration for Conservation Areas
AFOLU	Agriculture, Forestry, and Other Land-Use Sectors
AGB	Aboveground Biomass
BANP	Bazaruto Archipelago National Park
BCEs	Blue Carbon Ecosystems
BCRF	World Bank's "Blue Carbon Readiness Framework," also known as "Unlocking Blue Carbon Development: Investment Readiness Framework for Governments"
BGB	Belowground Biomass
BIOFUND	Foundation for the Conservation of Biodiversity
BUR	Biennial Update Report
CBD	Convention on Biological Diversity
CCP	Community Fisheries Council
CBD	Convention on Biological Diversity
CLCR	Coastal Livelihoods and Climate Resilience Project
CMAP	Carbon Market Activation Plan
CTV	Centro Terra Viva
DINAF	National Directorate of Forests
DMC	National Directorate on Climate Change
DUAT	"Direito de Uso e Aproveitamento de Terra" / Right to Use the Land
EBSA	Ecologically or Biologically Significant Marine Area
ECOR	National Strategy for the Management and Conservation of Coral Reefs
EEZ	Exclusive Economic Zone
EDEA	Mozambique's Blue Economy Strategy
ER	Emission Reduction
ESG	Environment, Social, and Governance
FCPF	Forest Carbon Partnership Facility
FNDS	National Fund for Sustainable Development
FREL	Forest Reference Emission Level
GEAPP	Global Energy Alliance for People and Planet
GMW	Global Mangrove Watch
GNR	Gilé National Park project
GHG	Greenhouse Gases
InOM	Oceanographic Institute of Mozambique
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
LULUCF	Land Use, Land-Use Change, And Forestry
MADER	Ministry of Agriculture and Rural Development
MCC	Millennium Challenge Corporation
MEF	Ministry of Economy and Finance
MIMAIP	Ministry of Sea, Inland Waters, and Fisheries
MICULTUR	Ministry of Culture and Tourism
MIREME	Ministry of Mineral Resources and Energy
MNR	Marromeu National Reserve
MOU	Memorandum of Understanding
MPA	Marine Protected Area
MRV Unit	Monitoring, Report and Verification for REDD+
MTA	Ministry of Land and Environment
NDC	Nationally Determined Contribution
OECM	Other Effective Area-based Conservation Measure
PES	Payment for Ecosystem Services
POEM	Mozambique's Marine Spatial Plan
PNQ	Quirimbas National Park
PPP	Public-Private Partnership
PRN	Pomene National Reserve
ProAzul	Blue Economy Development Fund for Mozambique
PSEPA	Primary and Secondary Environmental Protection Area or APAIP ("Área de Protecção Ambiental das Ilhas Primeiras e Segundas")
REDD+	Reducing Emissions from Deforestation and Forest Degradation
REPMAR	Maritime Fisheries Regulation
RJUEM	Regulation on the Maritime National Space
SEforALL	Sustainable Energy for All
SOC	Soil Organic Carbon
TUPEM	"Título de Utilização Privativa do Espaço Marítimo"/ Use rights over maritime spaces
UEM	Eduardo Mondlane University
USAID	United States Agency for International Development
WS13	2013 Supplement to the 2006 IPCC Guidelines for National Greenhouse Gas Inventories: Wetlands (Wetlands Supplement)
ZILMP	Zambézia Integrated Landscape Management Program

I.

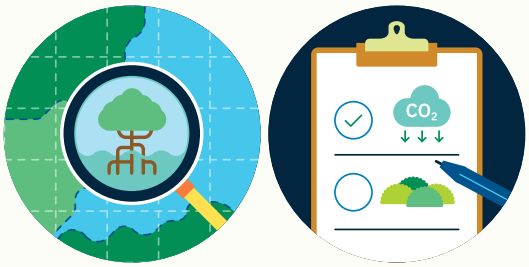
EXECUTIVE SUMMARY

PHOTO BY JULIANA CASTAÑO-ISAZA

The world has a pressing need to accelerate climate mitigation, enhance climate resilience, and transition to a more productive and resilient "Blue Economy."

Blue Carbon ecosystems, as powerful carbon sinks, can play a vital role in this change by supporting economies, jobs, and livelihoods. For these reasons, the World Bank Group prepared the flagship report "Coastal Blue Carbon Opportunities for Blue Economy Development," which aims to support government readiness to scale up public and private sector investments in Blue Carbon. This report, "Mozambique: Blue Carbon Readiness Assessment," applies the global Blue Carbon readiness framework to the Mozambique context.[1]

Mozambique has high potential for Blue Carbon development. Multiple factors underlie this positive prospect: the country's wealth in blue natural capital, its considerable progress to date toward a Blue Economy, and the substantial groundwork already laid for scaling investment. Bottlenecks that exist can be overcome. The Blue Carbon Readiness Framework provides a harmonized pathway for Mozambique to tap its Blue Carbon potential by jointly addressing technical, institutional, regulatory, and financial challenges. The framework is based on three intervention pillars to promote and scale Blue Carbon action:



PILLAR 1

DATA AND ANALYTICS

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PILLAR 3

FINANCE

The assessment includes a readiness grading exercise that is intended more as shorthand for the overall findings on the specific section and less as a firm and final ranking on the readiness scale. None of the grades identified are meant to be read as supporting any binary judgment on readiness (ready *versus* not ready). The assessment uses the following definitions in assessing grades, with the amplitudes in each case indicating a spectrum:

L M H **"LOW"**

Means that relevant data, policy, and finance benchmarks and elements are not yet met or not yet in place.

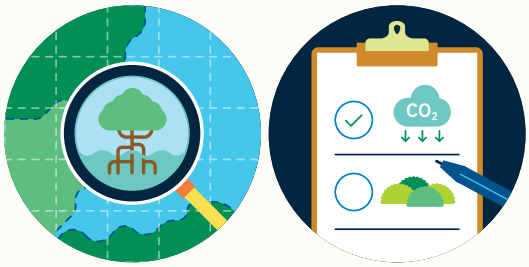
L **M** H **"MODERATE"**

Means that several core benchmarks and readiness elements are met or that there is a clear pathway to meeting them.

L M **H** **"HIGH"**

Means that across data, policy, and finance points, relevant benchmarks and elements are met or in place.

1 See World Bank 2023.



PILLAR 1:

DATA AND ANALYTICS

All three established Blue Carbon ecosystems – mangroves,[2] salt marshes,[3] and seagrass beds[4,5]– are found in Mozambique's coastal zone.

2 Mangroves are a type of tropical forest, found at the edge of land and sea and flooded regularly by tidal water. They are among the most carbon-rich forests in the tropics. It is estimated that the annual carbon sequestration rate for mangroves averages between 6 and 8 Mg CO_2e/ha (tons of CO_2 equivalent per hectare). These rates are about two to four times greater than global rates observed in mature tropical forests. See https://www.thebluecarboninitiative.org/about-blue-carbon.

3 Tidal marshes are coastal wetlands with deep soils that build up through the accumulation of mineral sediment and organic material and are flooded with salty water brought in by the tides. Almost all of the carbon in tidal marsh ecosystems is found in the soil, which can be several meters deep. Estimates suggest that the annual carbon sequestration rate for tidal marshes averages between 6 and 8 Mg CO_2e/ha (Mg of CO_2 equivalent per hectare). These rates are about two to four times greater than those in mature tropical forests. See https://www.thebluecarboninitiative.org/about-blue-carbon.

4 Seagrasses are submerged flowering plants with deep roots that are found in meadows along the shore of every continent except Antarctica. Carbon accumulates in seagrasses over time and is stored almost entirely in the soils, which have been measured at up to four meters deep. Although seagrass beds account for less than 0.2% of the world's ocean area, they sequester approximately 10% of the carbon buried in ocean sediment annually (27.4Tg per year). Per hectare, seagrasses can store up to twice as much carbon as terrestrial forests. The global organic carbon pool of the seagrass ecosystem could be as high as 19.9 billion metric tons. See https://www.thebluecarboninitiative.org/about-blue-carbon.

5 Mangroves, seagrass beds, and coastal wetlands are Blue Carbon ecosystems that are part of the established wetlands inventory category for reporting requirements to the United Nations Framework Convention on Climate Change (UNFCCC) and are eligible for Blue Carbon credit schemes. Some marine ecosystems, such as kelp beds and mudflats, are progressing towards becoming actionable for reporting to the UNFCCC, ultimately within a carbon credit scheme. Others, such as coral reefs, oyster reefs, and marine fauna, are currently considered non-actionable. A lack of scientific information on these BCEs is limiting and constraining their actionability and inclusion. For further information, see World Bank 2023.

In fact, Mozambique hosts one of Africa's largest mangrove ecosystems, covering approximately 300,000 ha. As of 2020, these trees stored an impressive carbon stock estimated at about 87 million metric tons (MMT). While research efforts have for the most part focused on mangroves, all three of Mozambique's BCEs are threatened by natural occurrences and human activities. Extreme weather events such as cyclones and rising sea levels pose significant dangers, as does extensive harvesting of mangrove wood for industries such as charcoal production and construction. Agricultural expansion, urban development, and mining compound these threats. Effective conservation and management practices will be essential to safeguarding these vital ecosystems.

Data-gathering capacity is robust for mangrove habitats, but less so for seagrass beds and salt marshes. Currently, no open-source national maps are available to track salt marsh extent. Similarly, global maps of salt marsh distribution do not show salt marsh extent for Mozambique. With several recent research and mapping initiatives, seagrass ecosystems have acquired some robustness of data, although there is plenty of room for more on extent and area. Mangrove activity data are available for the period 2017-2022 as part of the forest monitoring program of the MRV Unit of the National Fund for Sustainable Development (FNDS for its Portuguese initials).

The FNDS integrates a REDD+ MRV Unit with the mission to monitor and report on greenhouse gas (GHG) data from Mozambique's forest areas, including mangroves. It is well staffed and equipped and has produced a National Forest Inventory with mangrove data for 2018, as well as the country's first UNFCCC Forest Reference Emissions Level, an accounting measure used in the framework of the core program known as Reducing Emissions from Deforestation and Forest Degradation (REDD+).

Mozambique has begun incorporating recommendations in the 2013 Wetlands Supplement into its inventory preparations. Efforts continue to maximize use of the supplement's default data to accurately calculate emissions and removals from mangrove areas. Data on Mozambique's seagrass ecosystems are not included in the current GHG Inventory.

PHOTO BY ALEX BOMA

PILLAR 2:

POLICY AND INSTITUTIONS

Mozambique is among the growing number of countries worldwide that make Blue Carbon-specific pledges in their Nationally Determined Contribution (NDC).

Emission reduction and removal efforts from Blue Carbon habitats (limited to mangroves) show – at least in theory – in the country's NDC update of 2021. The pledge also includes the action-specific target of restoring a mangrove area of 5,000 ha.

Mozambique has an older NDC implementation plan (from 2018) in place, linking the then-applicable NDC's targets on Blue Carbon with domestic policies and institutions. The country also has several policies and laws that help enhance Blue Carbon habitats. These include a National Climate Change Adaptation and Mitigation Strategy (2012), a Mangrove Strategy (2020-2025), Regulation for the Implementation of REDD+ Programs and Projects,[6] and the REDD+ Strategy and its action plan (2016-2030). In addition, there are cross-economic strategies on marine spatial planning (2021 POEM, a policy milestone) and the Blue Economy Development Strategy (2023 EDEA, under development), Sea Law nr 20/2019 of November 8, and regulation of utilization of marine space (Decree 21/2017 of May 24). Other complementary frameworks include the Environment law (Law nr 20/97 of October 1), the Directive for biodiversity offsets (Ministerial Diploma 55/2-22 of May 19), the Green Economy Action Plan (2019-2024), the National Strategy for Development (2015-2020), and mining law and its associated regulations.

At the legal level, most of Mozambique's mangrove forests and seagrass meadows fall under the protection of the 1997 Land Law (Law nr.19/97 of October 1), one of the regulatory touchstones of post-colonial Mozambique. The law defines these habitats as "partial protected areas" outside regular use beyond customary usage by local communities.[7]

6 Decree 23/2018 - Regulation for the Implementation of Programs and Projects for Emission reduction from Deforestation and Forest Degradation, and carbon enhancement (REDD+).

7 Article 7, 1997 Land Law.

Together with the 1997 Environmental Law, the 2014 Conservation Law added a network of seven Marine Protected Areas (MPAs), most of them including Blue Carbon habitats. Additional legal protection for BCE and, at the least, nucleus sustainable community management formats are granted under the 1999 Forest and Wildlife Law, the 2013 Fisheries Law, the 2020 Fisheries Regulation (REPMAR), and the 2020 Regulation for Management of Coastal Zones and Beaches.

The 2018 REDD+ Regulation provides rules and procedures for the recognition of REDD+ projects and programs in Mozambique and is applicable to mangrove conservation as well as restoration activities. While declaring that the State of Mozambique is the original owner of carbon rights (it holds title to emission reductions and certificates), it gives non-state actors the right to apply for REDD+ licenses.

Coastal community fisheries councils (Conselhos Comunitários de Pesca or CCPs), as recognized under fisheries legislation, are eligible in principle to apply for REDD+ licenses. So far, however, all license applications have come from private sector firms. Furthermore, the REDD+ Regulation favors jurisdictional (terrestrial plus coastal) interventions, which makes Blue Carbon-centered interventions difficult to implement. Mangrove restoration projects are deemed compliant, however, without a terrestrial nexus.

At the institutional level, the Ministry of Sea, Inland Waters, and Fisheries (MIMAIP) is at the center of BCE governance through its responsibilities under fisheries regulations as well as its central role in marine spatial planning and the Blue Economy. ProAzul,[8] an important Blue Economy financing facility, is also organized under MIMAIP. However, the issuance and supervision of REDD+ licenses fall within the scope of MTA, not MIMAIP. Issues related to improved coordination among state agencies and other stakeholders (private sector, communities) need attention to ensure a conducive institutional environment for Blue Carbon or blue finance projects.

CCPs are widely used in coastal areas as the main community representation structure, and many already have started their process for legal recognition. However, CCPs have yet to have any direct involvement in habitat governance, legal enforcement, and results-based or carbon project finance. Furthermore, their future involvement depends on the design and approval of CCPs' management plans, as well as the implementation of any benefit-sharing plans.

8 https://www.proazul.gov.mz/

PILLAR 3:

FINANCE

While Mozambique has made significant progress toward establishing a cohesive Blue Economy framework to enable blue financing, it needs to take important additional steps to facilitate and leverage funding into blue carbon conservation and restoration activities.

The Government of Mozambique has adopted constructive strategies in recent years with a focus on planning and investment, including marine spatial planning and the Blue Economy. It has also employed nimble organizations, notably ProAzul, the Government's Blue Economy development fund, as well as the Foundation for Biodiversity Conservation (BIOFUND). BIOFUND, a private non-profit Mozambican institution with public utility status, mobilizes and manages financial resources for the benefit of biodiversity conservation in Mozambique. Over the years, BIOFUND has effectively created and managed endowment funds, pass-through funds, and project implementation funds. It has given vital support to programs focused on coastal ecosystems, including the Biodiversity Offsets Program, and the World Bank-financed projects MozNorte, MozRural, and MozBIO.

ProAzul manages Blue Economy projects and activities, designs financial mechanisms, and actively approaches national and international organizations for new funding opportunities – such as the World Bank-financed projects MozNorte and MozRural. ProAzul recently introduced the Blue Investment Opportunity Portfolio, a strategic instrument to expand financing for Blue Economy projects. It identifies initiatives to meet environmental and economic challenges related to natural resources and oceans. It seeks to promote sustainable economic growth and protect the environment by engaging stakeholders, including governments, companies, civil society, and local communities. Among the projects the Portfolio has identified, two involve conserving and restoring Blue Carbon ecosystems.

Despite these strong developments, actual investment levels – beyond government-to-government grant funding – remain low, and concrete investment opportunities benefiting BCE are missing. The Government has ambitious plans to introduce new frameworks to regulate emission reduction and removal initiatives across the economy. The Ministry of Finance has announced a carbon market regulation for the near future and recently moved to broaden the scope of payment-for-ecosystem services by introducing, as a concept, biodiversity offset credits. However, these efforts still need to show results on the ground.

BLUE CARBON READINESS

Mozambique's state of readiness for blue carbon interventions and investments is mixed along the different intervention pillars. While there are strong elements in all three pillars – decent mapping and inventory capabilities (Pillar 1), explicit references in Mozambique's 2021 NDC, advanced horizontal planning, and operational REDD+ results-based funding available for Blue Carbon restoration (Pillar 2), and nimble financing facilities and efforts to use markets to further investments (Pillar 3) – there remains much to do to improve the country's Blue Carbon readiness.

RECOMMENDATIONS OF THIS REPORT INCLUDE:

(Pillar 1) Better data management and greater use of the 2013 Wetlands Supplement in the short or mid-term, as well as robust habitat valuation and establishment of a restoration monitoring tool in the long term.

(Pillar 2) Improvement of the NDC commitments on Blue Carbon in the 2025 NDC, flanked by a clear commitment to apply the 2013 Wetlands Supplement for NDC accounting purposes; substantial revisions of the REDD+ Regulation, including to offer the ministry in charge (MTA) technical tools and capacity to make informed decisions to grant or turn down licenses for REDD+; and design of a comprehensive governance structure strengthening the role and powers of MIMAIP and linking its remits with the carbon pricing and investment approaches managed by the Ministry of Finance.

(Pillar 3) Design of a comprehensive financing strategy and development of a portfolio of shovel-ready investment opportunities benefitting Blue Carbon conservation and restoration action; use of public-private-partnerships to leverage private-sector involvement and funding; and positioning Blue Carbon within the future carbon market regulation and future Article 6 transactions under the Paris Agreement.

II. THE BLUE CARBON CONTEXT

PHOTO BY ALEX BOMA

"Blue Carbon" refers to coastal and marine ecosystems – mangroves, saltmarshes, and seagrass meadows, as well as macroalgae (such as kelp) and benthic sediments – that provide essential ecosystem services for humanity.

They both mitigate climate change — Blue Carbon habitats can bury three to five times more carbon per unit of area than tropical forests – and adapt to it through flood and storm protection, freshwater filter systems, soil fertilization, food, and more.

Despite their economic, environmental, and social importance, Blue Carbon ecosystems (BCE) are under severe pressure from a range of degradation drivers, including agriculture, aquaculture, infrastructure, and urban development. Rapid, substantial action is needed to scale targeted protection and restoration measures and provide the necessary funding.

While the benefits of sustained Blue Carbon action – environmental, social, and economic – outweigh the costs by far, achieving them will require considerable resources in terms of data,

science, finance, and tailored regulatory and institutional interventions. Governments – in their role as regulators, administrators, law enforcers, landowners, and social and economic mediators – are center stage in this process.

With the pressing need to tackle climate mitigation, enhance climate resilience, and transition to a more productive and resilient "Blue Economy," the World Bank Group launched the flagship report "Unlocking Blue Carbon Development: Investment Readiness Framework for Governments."[9] It aims to support government readiness to catalyze and scale up public and private sector investments in coastal Blue Carbon. The current report, "Mozambique: Blue Carbon Readiness Assessment," applies the global Blue Carbon readiness framework to the Mozambique context.

Mozambique has high potential for coastal Blue Carbon development. The Blue Carbon Readiness Framework provides a harmonized path for Mozambique to tap this potential by simultaneously taking on technical, institutional, regulatory, and financial challenges. The Framework builds on three intervention pillars to promote and scale Blue Carbon action. These are data and analytics (Pillar 1), policy and institutions (Pillar 2), and finance (Pillar 3).

Appendix 1 of this report is a decision tree and checklist to help countries navigate the various steps and action items on process and content. The further they move along, the greater the upside they enjoy in terms of robust and refined data, predictable and effective policies, and broad and efficient funding streams capable of crowding in the various sectors of private finance.

The Mozambique Blue Carbon Readiness Assessment Report summarizes findings of how far Mozambique has moved along the Blue Carbon path. The findings are based on a piloting exercise that included a mission to the country in early September 2023, a roundtable with government officials, a stakeholder workshop, and multiple bilateral meetings and interviews.

9 World Bank 2023.

III. READINESS FINDINGS

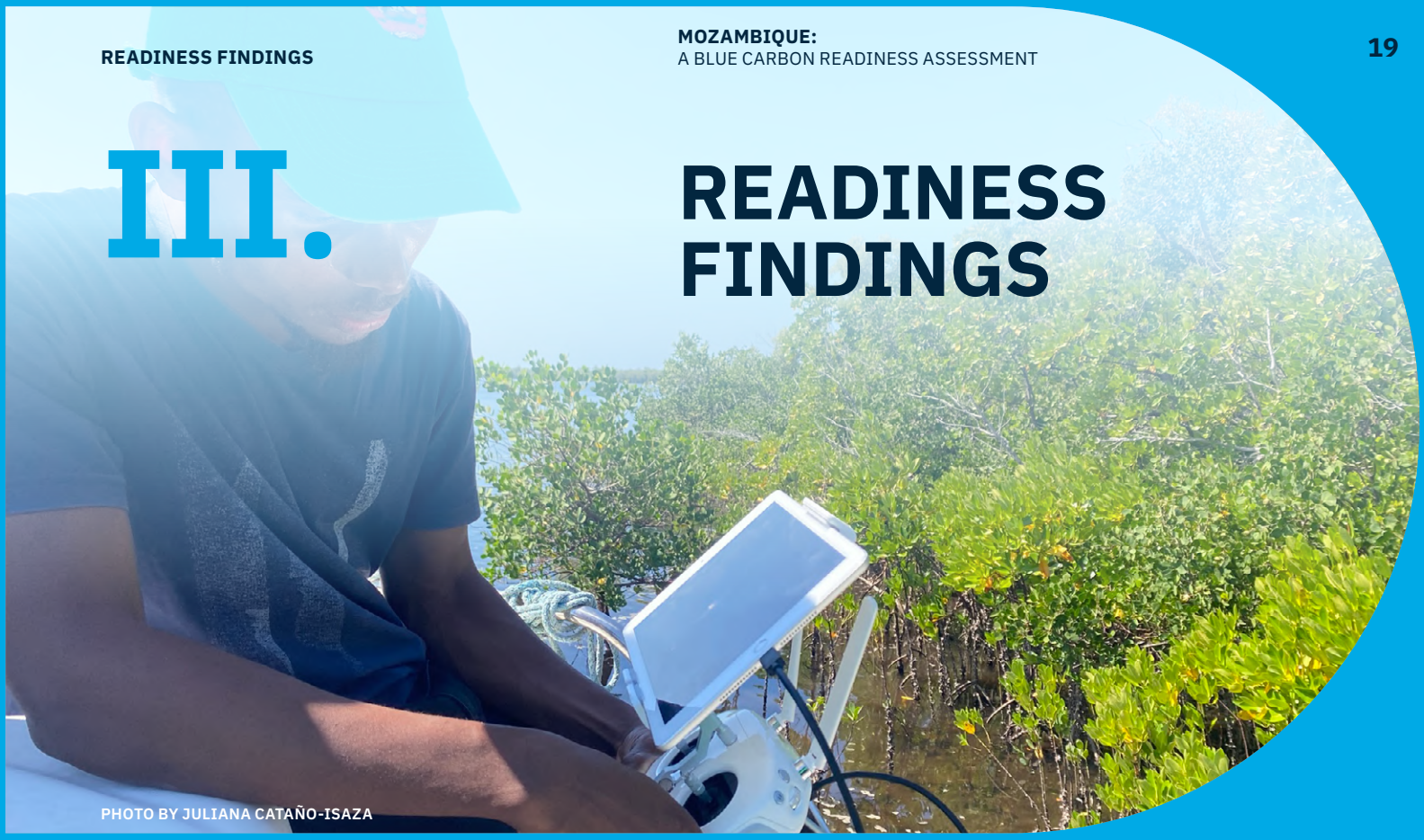


PHOTO BY JULIANA CATAÑO-ISAZA

The readiness findings are structured under the three pillars: Data and analytics (Pillar 1, divided into 1-A and 1-B), policy and institutions (Pillar 2), and finance (Pillar 3), and are organized along the decision tree.

Overall, the decision tree proved helpful in navigating the in-country discussions, including the roundtable, the workshop, and the assessment itself (see Figures 1, 3, 4, and 7).

The summary tables at the start of each of the following subsections include a grading exercise that is to be understood more as shorthand for overall findings on the specific section and less as a firm and final ranking on the readiness scale. More importantly, none of the grades identified are meant to be read as supporting any binary judgment on readiness (ready versus not ready). The authors understand readiness both as a growth curve and as a moving target. With this in mind, we have used the following guidance when assessing the grades (the amplitudes in each case indicating a spectrum): "low" means that relevant data, policy, and finance benchmarks and elements are not yet met or not yet in place; "moderate" means that several core benchmarks and readiness elements are met or that there is a clear pathway for meeting them, and "high" means that across data, policy, and finance points, relevant benchmarks and elements are met or in place.

3.1

DATA AND ANALYTICS: BLUE CARBON ECOSYSTEMS (PILLAR 1: 1-A)

FIGURE 1. SUMMARY TABLE OF PILLAR 1A STATUS BASED ON READINESS FRAMEWORK.

▼ DECISION TREE PATHWAY	▼ STATUS	▼ STATUS EXPLANATION
Does your country currently have any of the following Blue Carbon ecosystems (BCEs)?	H	Yes – mangroves (primary BCE due to extensive data), salt marsh, and seagrass beds.
Do you have data on the following for BCEs within your country: extent/ area, human activity?	M	High-quality data exist on BCE extent/area (seagrass, mangroves). Activity data for mangroves are robust, covering deforestation and charcoal production, and are available up to 2022.
		Current monitoring system carried out by the MRV Unit of FNDS is not specific to mangroves. As such, activity data for mangrove deforestation are collected as part of terrestrial forests at the provincial level.

QUALITY L M H — LOW HIGH

PROGRESS I → II → III — LIMITED ADVANCED

ACHIEVEMENTS

MISSING

3.1.1 MOZAMBIQUE'S BLUE CARBON ECOSYSTEMS

All three established Blue Carbon ecosystems – mangroves, salt marshes, and seagrass beds – can be found in abundance in Mozambique's coastal zone. They perform vital environmental functions that include carbon storage and coastline protection, but are also sights of great natural beauty and cultural significance.

MANGROVES

Mozambique boasts one of Africa's most extensive mangrove ecosystems, covering an estimated 300,000 ha as of 2020.[10] The Global Mangrove Watch (GMW) platform supplies current maps and spatial data, with information on mangrove extent, area change over time, and carbon stock estimates (biomass and soil). In addition to GMW, various in-country sources – including reports from completed and ongoing mangrove restoration, reforestation, and conservation projects – strengthen estimates of existing mangrove extent and area. The Zambezi River Delta stands out as the most extensively studied region in Mozambique, particularly concerning mangrove ecosystems, with numerous restoration initiatives currently underway.

National estimates of mangrove biomass carbon stocks are robust and are provided as part of Mozambique's GHG inventory and current Forest Emission Reference Level (FREL). Estimates of national mangrove soil carbon stocks are limited, however. This is primarily due to disparate research initiatives that have a regional, not national focus. Some estimates developed using in-country data are available as part of a pre-feasibility study for assessing Blue Carbon in Mozambique but values reflect regional, not national, estimates of soil carbon stock. A desktop study of global mangrove carbon stocks conducted by Silvestrum Climate Associates for the World Banks's Changing Wealth of Nations Report estimated total carbon stock for Mozambique to be roughly 87 million metric tons (MMT) of carbon as of 2020.

A variety of research initiatives between 2012 and 2016 amassed several datasets on mangrove carbon stocks for

FIGURE 2. MAP OF MOZAMBIQUE'S BLUE CARBON ECOSYSTEMS.

Note: Spatial data on salt marsh ecosystems are not currently available.

Source: *World Bank, adapted from Global Mangrove Watch (GMW).*

10 Bunting et al. 2022.

the Zambezi River Delta.[11] The research conducted by Stringer et al. estimated total mangrove carbon stocks – living biomass and soil carbon – for the delta to be roughly 1.4 x 107 metric tons. Carbon stock estimates from this initiative were integrated into Mozambique's National Forest Inventory and provided the platform for a Blue Forest project, a GEF-funded project implemented between 2015 and 2020 by WWF-Mozambique. Other notable studies similarly focus regionally, and in several cases, focus solely on one portion of total mangrove carbon stocks (either soil or biomass). Global maps of mangrove soil organic carbon stock,[12] and biomass carbon stock[13] provide reliable platforms for estimating national carbon stock but require in-country capacity for analysis.

SEAGRASS BEDS

Mozambique's seagrass beds have been the subject of several recent research and mapping initiatives aimed at improving the understanding of ecosystem extent and carbon stocks. A map of national seagrass ecosystem extent and carbon stock – developed through machine learning of Sentinel-2 data – was recently released.[14] Several small-scale studies provide information on seagrass extent regionally.[15]

Estimates of total carbon stock for Mozambique's seagrass beds – carbon stored in the living biomass and soil – range between 922 and 2447 metric tons of carbon per square kilometer.[16] Each square kilometer of Mozambique's seagrass beds has carbon stocks roughly equal to the annual emissions of 15,000-41,000 cars (EPA 2023). Maps depicting Mozambique's seagrass ecosystems could be improved through the inclusion of extent and area data from regional seagrass surveys. There is considerable technical capability in-country to accomplish this – notably within the Eduardo Mondlane University system, the Wildlife Conservation Society, and a Pew Charitable Trusts initiative to improve seagrass mapping and carbon stock assessments in the Western Indian Ocean.

SALT MARSHES

Mozambique's roughly 1,000 ha of salt marshes are predominantly found in low-lying regions between mangrove and terrestrial ecosystems in several estuaries in Cabo Delgado and Nampula provinces. By area, the largest marshes occur within the Limpopo Estuary (>300 ha) and

11 Stringer et al. 2015, Trettin et al. 2017, and CIFOR 2012.
12 Sanderman et al. 2018.
13 Simard et al. 2019.
14 Traganos et al. 2022.
15 Gullström et al. 2018 and Poursanidis et al. 2020.
16 Traganos et al. 2022.

Maputo Bay (>500 ha).[17] Salt marshes have expanded into degraded mangrove areas in the Limpopo River Estuary. In-country data sources on salt marsh distribution are limited, with current information provided primarily by a research study of salt marsh extent in eastern Africa. While this study provides general information on salt marsh distribution and extent, estimates of the marshes' size are limited due to scarcity of available data. Therefore, increased research would improve understanding of salt marsh distribution and status in Mozambique.

3.1.2 DATA CAPACITY

Data capacity remains strongest for mangrove habitats for which the MRV Unit of the National Fund for Sustainable Development (FNDS for its Portuguese initials) has collected activity data for the period of 2001 to 2022. These data result from systematic sampling of known mangrove areas (100m x 100m plots), across all land-cover change classes.[18] In 2017, the MRV Unit switched to a hybrid approach for collection of activity data, enabling it to produce annual estimates of deforestation and resulting emissions. A 2016 study on how charcoal production affects forest degradation in Mozambique provides additional data on forest degradation and emissions.[19] Moving forward, robustness of data remains an issue, especially with regard to forest degradation. Activity data on mangrove deforestation cannot be easily disaggregated from data on terrestrial forests—this would require additional staffing and funding. Disaggregation would likely involve a spatial analysis of known mangrove areas and terrestrial forests to extract annualized carbon data. Currently, the authors are unaware of any sources of activity data for seagrass or salt marsh ecosystems in Mozambique.


PHOTO BY ALEX BOMA

Leveraging the Earth Observation for Sustainable Development (EO4SD) Initiative of the European Space Agency (ESA) could further increase Mozambique's data capacity for forest monitoring.[20] The EO4SD Initiative addresses geospatial information needs of developing countries across several thematic areas,

17 Bandeira and Balidy 2016.
18 Muri Soares 2023.
19 Sedano et al. 2016.
20 EO4SD-FOREST – forest management

including forest management. In the case of Mozambique, the initiative's Forest Management Project is helping assess mangrove vegetative extent, change, and health. The resulting information stands to improve national understanding of mangroves and increase data capacity in future iterations of Mozambique's REDD+ program, as well as their FREL and GHG Inventory.

The calculation of carbon stocks (soil organic carbon, or SOC) requires varying levels of effort for each of Mozambique's Blue Carbon ecosystems. National estimates of SOC are provided by Global Mangrove Watch.[21] while regional estimates come from several recent studies and research initiatives. Using these values for GHG inventory reporting, however, requires certain considerations. The MRV has committed to use Tier 1 values from the 2013 Wetlands Supplement for the calculation of SOC stocks for mangroves in the next GHG inventory report and FREL – indicating capacity for that initial calculation. Meanwhile, SOC estimates for seagrass beds are becoming more robust as various initiatives upgrade understanding of seagrass extent in Mozambique. But directly calculating a national value for mangrove and seagrass SOC instead of using a Tier 1 value would require financial resources that the MRV unit does not currently have. In the meantime, national and regional estimates of SOC for the third major Blue Carbon asset, salt marsh ecosystems, will not be possible until improved data on ecosystem extent are available.

3.1.3 DRIVERS OF LOSS ANALYSIS

Considerable literature is available on deforestation and degradation trends, which are sometimes hidden by natural habitat changes that can lead to an overall extension of Blue Carbon habitats (see Table 1). The extraction of mangroves for their wood resource continues to be the most significant driver of degradation and deforestation country-wide.[22] Notable logging locations include the Incomáti estuary close to Maputo city, Nhangau (near Beira city), and Quelimane.

The production of charcoal is also a major driver of mangrove deforestation in Mozambique, as trees are cut down for conversion into this fuel. This is most common in urban and densely populated areas.[23] In the context of fisheries, the extraction of tannins and quarrying activities contribute to environmental degradation through increased sedimentation and fragmentation of coastal habitats. More recent threats include salt production, which can alter hydrological patterns, and the intrusion of saltwater.[24] In Maputo Bay, Mossuril, Pemba Bay, and Mecúfi, salt works are causing loss of mangrove areas, particularly near populated or peri-urban centers.[25] Furthermore, disturbed hydrology from coastal development and pollution are increasingly harming mangrove areas.

21 Bunting et al. 2022.
22 Macamo et al. 2021.
23 Macamo et al. 2021.
24 Monteiro and Marchand 2009.
25 Barbosa et al. 2001.

TABLE 1. TRENDS IN MANGROVE AREA COVERAGE AND DEGRADATION IMPACTS

REGION IN MOZAMBIQUE	SITE	PERIOD OF STUDY	AREA (km²)		% OF CHANGE	MAJOR IMPACTS	SOURCE
			T_0	T			
North	Cabo Delgado	1995-2005	325	369	+13.5	Local use for firewood, building material	Ferreira et al. 2009b
	Olumbi	1991-2013	7.24	5.56	-25.4	Harvesting, pathways, invertebrate harvesting	Macamo et al. 2018
	Pemba Bay	1991-2013	21.43	31.30	+23.1	Aquaculture, saltpans, logging	Macamo et al. 2018
	Quirimbas National Park	1991-2013	112.44	123.48	+9.8	Local harvesting, natural sedimentation, and erosion	Nicolau et al. 2017
	Nacala Bay, new port area	2013-2016	0.365	0.276	-24.9	Port development	Macamo et al. 2019
Central	Zambezi Delta	1994-2013	333.1	370.34	+10.1	Erosion, natural causes	Shapiro et al. 2015
	Chiveve River (Beira city)	2016-2017	0.23	0.1	-43.5	Urban encroachment	Uacane and Ombe 2016; Salomão Bandeira, personal observation
South	Save River	1999-2014	147.44	84.02	-56.9	Cyclone impact in 2000	Macamo et al. 2016
	Limpopo Estuary	1999-2001	9.28	3.82	-58.8	Floods in 2000	Bandeira and Balidy 2016
	Incomáti Estuary	1991-2003	42.31	44.51	+5.1	Deforestation	Macamo et al. 2015

Source: *Adapted from C. Macamo et al. 2021.*

Mangroves also face considerable degradation from natural factors, such as cyclones and floods. Cyclones Eline (2000), Japhet (2003), and Favio (2007) struck the Save delta hard, causing a 50 percent loss of the total mangrove area.[26] The Pomene Reserve's mangroves and other nearby forests were also damaged, though subsequent studies suggest they will make a gradual recovery.[27]

26 Massuanganhe et al. 2016 and Macamo et al. 2018.
27 Balidy et al. 2005.

More recent natural disasters, such as Cyclones Idai (2019), Kenneth (2019), and Freddy (2023), further harmed central and northern Mozambique's mangroves, resulting in loss or severe impact in about 2,500 ha.[28] The Limpopo estuary had already witnessed considerable transformation during the 2000 floods, with approximately 5.5 square kilometers (half of the area) cleared due to submersion for more than 45 days.[29] Moreover, natural sedimentation that weakens mangrove areas has afflicted parts of the Zambezi Delta [30] and the Quirimbas Natural Park.[31]

The looming challenges posed by climate change, including rising sea levels and heightened storm frequency and severity, cast a shadow over mangroves throughout Mozambique, but particularly in the central and northern regions. Research concludes that these areas will likely bear the brunt of such impacts.[32] While recovery is possible, through natural means or restoration, Mozambique needs to assess whether portions of the recent habitat decline in mangroves are irreversible.

PHOTO BY JULIANA CASTAÑO-ISAZA

3.1.4 SOCIOECONOMIC VALUATION OF BCES

The economic value of mangrove forests – the resources and ecosystem services they provide – has been assessed for several key ecosystems of the forests in Mozambique.[33] The mangroves of the Zambezi River Delta and the Limpopo Estuary are among the most important in Mozambique and were the focus of this study. An estimated value for each ecosystem service and resource of importance to the communities residing within the studied regions was calculated and is documented in Table 2 below.

28 IUCN 2020 and Blue Ventures 2023.
29 Bandeira and Balidy 2016.
30 Shapiro et al. 2015.
31 Nicolau et al. 2017.
32 Cabral et al. 2017.
33 Macamo et al. 2021.

TABLE 2. MANGROVE ECOSYSTEM VALUATION IN THE ZAMBEZI RIVER DELTA AND THE LIMPOPO ESTUARY.

GOOD OR ECOLOGICAL SERVICE	ESTIMATED VALUE (USD) PER YEAR	
	ZAMBEZI DELTA	LIMPOPO ESTUARY
Charcoal	44 440 800	5 990
Poles	38 315 560	738 088,2
Coastal protection	740 680 000	Not assessed
Habitat and nursery	22 220 400	5 198 172
Carbon sequestration	222 204 000	635 337,2
Natural and traditional medicine	Not assessed	12 715,98
Honey production	Not assessed	833,3

Source: *Macamo et al. 2021.*

Wood – formed into thin poles known as *lacalacas* – is the most common good/natural resource extracted from Mozambique's mangrove ecosystems. The poles are commonly used in construction. But mangrove wood also serves as a source of domestic fuel and dye across the country and is processed into charcoal in several regions. Mangrove charcoal has a distinct and preferable quality over charcoal made from terrestrial species. Rates of mangrove wood extraction vary across Mozambique because different species are preferable to others for construction or charcoal production. For example, the species *Rhizophora mucranata* (red mangrove) is a high-quality building material that is harvested heavily around the Mauputo River Estuary, while *Avicennia marina* (white mangrove) is more preferable for charcoal but is also used in construction around Maputo Bay due to its easy availability. Mangroves are also relied upon in the country's agricultural (honey, cattle grazing) and fishery industries (nurseries and habitat for economically valued species).

Non-extractable uses for Mozambique's mangroves range from water purification and coastal protection to cultural and recreational uses. Mangrove stands can serve as navigational landmarks for individuals in small vessels on the ocean. Many mangrove species – and other

species that thrive alongside mangroves– serve as an invaluable resource for cultural remedies and food, as well as ceremonies performed by traditional healers and indigenous communities. Local people rely on many of the associated species as a valuable food source that does not require money to obtain. Associated species of significance include *Phragmites australis*, a reed used for weaving baskets and fishing nets, and *Thespesia pulpunea*, a tree whose bark is used to produce rope.

The Zambezi River Delta, classified as a Ramsar site, is home to mangroves that have high rates of carbon storage and actively support the most productive fishery in the country.[34] Though some mangrove degradation has occurred in the delta, the trees there are directly protected by their Ramsar designation. In contrast, the mangrove ecosystems of the Limpopo are now only about half of their historic extent and face continued degradation, primarily by floods.[35] Overall, the decline of Mozambique's mangrove ecosystems poses a direct threat to regional and national economics alike, and places pressures on communities that rely on these resources. In several regions of the country, restoration initiatives operate in conflict with local extraction of mangroves. This has resulted in increased degradation in formerly untouched mangroves or slowed the progress of initiatives.

PHOTO BY JULIANA CASTAÑO-ISAZA

34 Macamo et al. 2021.
35 Ibid.

3.2

DATA AND ANALYTICS: GHG INVENTORY (PILLAR 1: 1-B)

FIGURE 3. SUMMARY TABLE OF PILLAR 1B STATUS BASED ON READINESS FRAMEWORK.

▼ DECISION TREE PATHWAY	▼ STATUS	▼ STATUS EXPLANATION
Are BCEs included in your country's GHG inventory?	H	Yes – the latest inventory was released in 2016 and includes biomass data for mangroves. Inventory updates are on the way.
		The current inventory does not include data on SOC or dead organic matter for mangroves or any data for seagrass.
Does your country apply the 2013 Wetlands Supplement (WS13)/2019 Refinement (R19)?	M	Yes – the National GHG Inventory currently uses 2006 IPCC Guidelines (along with 1996 and 2003) and partially integrates guidance from WS13.
		WS13 is expected to be more comprehensively integrated in future updates.
Has your country submitted a Forest Reference Level (FRL) or Forest Reference Emission Level (FREL)?	H	Yes – the latest FREL was released in 2018. It includes mangrove biomass (AGB, BGB) and SOC, leveraging Tier 1 Default Values from WS13 for the estimations. Mozambique has a REDD+ strategy and was awarded FCFP funds.
		Dead organic matter and SOC will be integrated into the updated FREL using default values from WS13.

QUALITY L M H — LOW HIGH

PROGRESS → → — LIMITED ADVANCED

ACHIEVEMENTS

MISSING

A National Greenhouse Gas (GHG) Inventory serves as a comprehensive database of annual GHG emissions and removals resulting directly from human activities. Inventories commonly track emissions and removals by source and economic sector and are updated annually with the latest data. Inventories are submitted to the United Nations in accordance with the Framework Convention on Climate Change. The development of a national inventory enables a country to address emissions and identify reduction opportunities and can support national and regional policy decisions.

Mozambique's latest update to its National GHG Inventory was completed in 2016 and includes biomass carbon data for mangrove ecosystems as a part of natural forests, but it does not include data on soil carbon or seagrass ecosystems (Ministry of Land and Environment 2022). The GHG inventory was developed using guidance from four IPCC publications: Revised 1996 Guidelines for National Greenhouse Gas Inventories, 1996 Good Practice Guidance and Uncertainty Management in National Greenhouse Gas Emission Inventories, and the 2000 and 2003 versions of Good Practice Guidance for Land Use, Land Use Change, and Forestry. The primary resource for the development of the inventory was the 2006 Revised IPCC Guidelines. Partial utilization of the IPCC 2013 Wetlands Supplement has already improved mangrove biomass calculations, and there's potential for even greater integration to enhance the upcoming inventory. Activity data surrounding deforestation is included within the inventory for the years 2001-2016 but is not disaggregated by forest class (mangrove vs broadleaf forest).

While the 2013 Wetlands Supplement (WS13) is only partially applied for inventory reporting, the REDD+ MRV unit intends – at the technical level – to integrate WS13 guidance in the future for estimating emissions and removals from mangroves (seagrass does not yet fall in the unit's scope). There are strong indications that data availability and infrastructure will improve in the short to medium term. Benefitting from the REDD+/FCPF developments in recent years, Mozambique can rely on its REDD+ MRV Unit's advanced experience in gathering, processing, and preparing comprehensive data for REDD+ monitoring and reporting. The unit is currently working on GHG inventory data for 2019, and it will – to the extent possible – apply guidance from the 2013 Supplement, though this will not extend to seagrass data. There is no capacity at present to improve default data or do Tier 3 modelling.

The MRV Unit's team is highly knowledgeable and outspoken about the opportunities concerning data management for Blue Carbon; they are also prepared to act as anchor institution for Blue Carbon data management, subject to adequate staffing and funding. They confirm that they have the technical capacity to provide disaggregated data on mangrove baseline (reference level) emissions, including soil carbon. However, they need additional personnel and financial resources to conduct this work. The team is also eager to start collecting seagrass-related data, again subject to appropriate staffing and finance. Improved communication and collaboration with other data providers in the area such as MIMAIP and the Oceanographic Institute of Mozambique (InOM) would strengthen the MRV's capacity to carry out robust inventory improvements. MIMAIP – which has legal authority over seagrass areas – is currently

understaffed and operating with a budget which has limited its capacity to undertake seagrass mapping. Issues regarding institutional arrangements for Blue Carbon could use further clarification. In addition, coordination mechanisms should be regulated and enforced.

3.2.1 REDD+/ FOREST REFERENCE EMISSION LEVELS (FREL)

Mozambique has a National Strategy for REDD+ covering the period of 2016 -2030. The strategy outlines objectives and actions for mangrove conservation and restoration. In support of its national strategy, Mozambique released its first Biennial Update Report (BUR) in 2022 and updated FREL in 2018. The BUR includes data and estimates from the latest National GHG Inventory as well as the FREL.

A FREL is a key component of a country's efforts to reduce emissions from deforestation and forest degradation. It is a baseline against which a country's progress in reducing forest-related emissions is measured. By documenting historical emissions from deforestation and forest degradation, the FREL serves as a reference point for determining the effectiveness of REDD+ activities in reducing these emissions. In support of Mozambique's National REDD+ Strategy, the country's first FREL was submitted in 2018. It established a reference period of 2003-2013 and covered all natural forest areas (including mangroves), which account for approximately 43 percent of the country's total land area. While the FREL is estimated at the national level, results are reported at the provincial level.

The FREL was developed using the 2006 IPCC Guidelines for National Greenhouse Gas Inventories as well as the 2013 Wetlands Supplement. Biomass carbon stock estimates and national emissions factors included in the report were provided by Mozambique's National Forest Inventory (NFI) for all forest types, excluding mangroves. Biomass carbon stock estimates for mangroves were calculated using Tier 1 default values and root-to-shoot ratios (R:S) provided in the 2013 Wetlands Supplement. The MRV Unit carried out a Land Use, Land-Use Change, and Forestry (LULUCF) analysis for the 2001-2016 period, which produced annual forest cover and forest change maps for each year during this period. The MRV Unit then followed the 2006 IPCC Guidelines to generate annual activity data for deforestation at a national scale for 2003-2013, in keeping with the FREL reference period.

Currently, activity data and emissions estimates are only provided for deforestation, but planned improvements over the coming years include the integration of methods to estimate emissions from forest degradation. Other improvements include the addition of carbon stock estimates for soil organic carbon (SOC) and dead organic matter (DOM) for all forest types. Data for both types of carbon pools for natural forests were collected by the NFI but are still being processed. Plans call for carbon stock estimates for SOC and DOM for mangroves to be carried out utilizing the Tier 1 Default Values provided in the 2013 Wetlands Supplement.

3.2.2 ACHIEVEMENTS AND AREAS OF IMPROVEMENT

ACHIEVEMENTS

Overall, Mozambique's status in data quality and progress for Pillar 1 (Sections A and B) is considered moderate. Data on BCE extent and area are generally robust, with mangroves serving as the primary BCE due to extensive datasets and refinements currently underway. National and regional data on ecosystem extent and carbon stocks are available for Mozambique's mangrove and seagrass ecosystems. In-country technical capacity is primarily provided by the MRV Unit which has accomplished several notable successes including (as a joint work with the National Directorate of Forests—DINAF) the design of Mozambique's National Forest Monitoring System (NFMS) and the technical work behind the country's FREL. That work integrates mangroves and WS13 guidance for biomass carbon estimates and was recently awarded Forest Carbon Partnership Facility (FCPF) funds to further REDD+ emission reductions. The National Forest Monitoring System has successfully installed a quarter of planned permanent sampling plots – essential tools for monitoring forest health and degradation – and is on track to start annual monitoring of forest degradation and health.

Notable next steps by the MRV Unit include the implementation of participatory MRV (PMRV) at a national scale (the first PRMV was enacted in 2020), and contributions to the 2nd Biennial Update Report (BUR) submission in 2024 as well as to the 2nd FREL and 1st Biennial Transparency Report (BTR) submission in 2025. Expansion of in-country capacity is supported by local research institutions such as Eduardo Mondlane University, and external NGO and non-profit organizations including the World Wildlife Fund and the Pew Charitable Trusts, both of which are funding research initiatives in Mozambique.


PHOTO BY JULIANA CASTAÑO-ISAZA

AREAS OF IMPROVEMENT

There is room to improve data collection in the BCEs. Mozambique's salt marsh ecosystems are the least researched of the three BCEs present in the country. Currently, no open-source national maps are available to track salt marsh extent, and global maps of salt marsh distribution by the UN Environment Programme do not show extent for Mozambique. Annual monitoring of mangrove forests will improve access to up-to-date activity data, but disaggregation of that data regarding mangrove forests from terrestrial forests remains a challenge. Activity data for seagrass beds exist but are limited – what are available come primarily from work by local researchers and NGOs. Activity data for salt marshes, meanwhile, are severely limited. What is known is broad-scale and focuses on a few select regions (Zambezi River Delta and Maputo Bay). These data mainly cover generalized habitat trends (increasing, stable, decreasing) and land use pressures.

National estimates of mangrove soil carbon stocks are limited. The MRV Unit is concerned about an over- reliance on Tier 1 default values for estimates of soil carbon stocks. Estimates of seagrass total carbon stock (biomass and soil) are provided by a robust study released in 2022.[36] But no estimates of the total carbon stock of salt marshes are currently available.

Mozambique's GHG inventory currently acts on guidance from several IPCC reports (1996, 2000, 2003, 2006, and partially the 2013 Wetlands Supplement) for the methods used to estimate carbon stocks, emissions, and removals. While this guidance provides a solid platform for GHG reporting and calculations, newer guidance provided by the 2013 Wetlands Supplement should be further integrated. By applying Tier 1 Default values for mangrove aboveground biomass (AGB) and soil organic carbon (SOC), along with the updated root-to-shoot ratio for calculating belowground biomass (BGB), Mozambique could achieve more comprehensive estimates of emissions and removals in the updated inventory. As annual monitoring of mangroves improves, Mozambique can work towards developing country-specific emissions factors and default values for calculating carbon stocks and emissions and removals for mangroves. Leveraging guidance from the 2013 Wetland Supplement, Mozambique can then follow Tier 2 and Tier 3 approaches, both of which rely on country-specific data, to improve their estimates. Further exploration of WS13 applications to include BCE restoration activities, such as accounting for emissions and removals during the restoration of degraded mangroves, presents another opportunity to strengthen the updated inventory.

Mozambique's current FREL integrates guidance from the 2013 Wetlands Supplement for estimates of mangrove biomass carbon stock. These data could be utilized, along with activity data surrounding deforestation, to inform future GHG inventories and improve harmonization

36 Traganos et al. 2022.

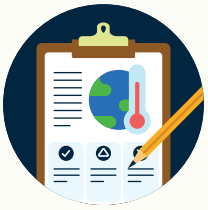
between the two. In addition, guidance on the inclusion of coastal wetlands in national GHG inventories can be leveraged to improve future iterations of Mozambique's Inventory.[37]

From a data governance point of view, the MRV Unit relies on impressive infrastructure for data assessments in terms of offices and equipment, but organizational challenges remain. On one side, there is the recent integration of the Unit into the hierarchy of the Ministry of Agriculture (MADER) and away from MTA. On the other, there is a partial institutional overlap between the Unit and the National Directorate for Forests (DINAF), which remains under the purview of MTA. Both facts point to a lack of recognition and administrative coherence, as well as the inefficient use of resources, hampering the overall efficiency of the management of mangrove forests.

Regarding seascapes, MIMAIP plays a central role as the primary government authority responsible for governing seagrass areas. While MIMAIP has acknowledged its limited technical capacity for mapping and conducting seascape studies, it relies on the Oceanographic Institute of Mozambique (InOM) to carry out such tasks. The primary challenge, though, has been the scarcity of financial resources, which has hindered the development of comprehensive maps and seascape studies. In addition to MIMAIP and InOM, other organizations such as WCS and Eduardo Mondlane University are actively engaged in data collection and analysis efforts related to seascapes in Mozambique.

PHOTO BY ALEX BOMA

37 Coastal-Wetlands-in-National-Greenhouse-Gas-Inventories.pdf (bluecarbonpartnership.org)



3.3

POLICY AND INSTITUTIONS (PILLAR 2)

FIGURE 4. PILLAR 2 STATUS BASED ON DECISION TREE FRAMEWORK.

▼ DECISION TREE PATHWAY	▼ STATUS	▼ STATUS EXPLANATION
Are emissions and removals from BCE(s) included in your NDC?	H	**GHG Accounting |** NDC includes forest and mangrove biomass (but **not** soil carbon). AFOLU falls within scope. FREL includes mangrove carbon estimates (AGB, BGB).
		Other BCE(s) not considered. WS13 is expected to be more fully integrated into the updated GHG inventory.
	H	**REDD+ |** Mitigation strategies include REDD+ (including mangrove deforestation).
		Other BCE(s) not integrated.
	H	**Action-Based Targets |** Adaptation target – 5,000 ha of mangroves restored by 2025.
Do you have an NDC implementation plan?	H	Older NDC implementation plan exists. Range of policies addressing BCE(s): Mangrove Strategy, REDD+ Decree, MSP, and a Blue Economy Strategy.
		Updates needed to mangrove restoration target. REDD+ decree lacks integration of all BCEs.
Does your plan incorporate appropriate institutional/governance frameworks?	M	Modest institutional governance.
		Improve coordination between ministries and agencies.

QUALITY L M H — LOW HIGH

PROGRESS → → — LIMITED ADVANCED

ACHIEVEMENTS

MISSING

Mozambique is moderately advanced in Blue Carbon policy development and governance (Pillar 2). The country's regulatory framework (see Figure 4) is overall protective of mangroves. The protection of seagrass beds is patchier. With its powerful 1997 Land Law, Mozambique recognizes customary rights of coastal communities, and through more recent legislation it provides several tools for community governance. There is also a growing set of rules and procedures concerning the recognition of carbon rights and the right to monetize ecosystem services, including the Ministry of Finance's current interest in enabling a regulatory framework for a carbon market.

3.3.1 NDC COMMITMENTS

Mozambique is among the growing number of countries worldwide that make blue carbon-specific pledges in their Nationally Determined Contributions (NDC). Emission reduction and removal efforts from Blue Carbon habitats (limited to mangroves) show – at least in theory – in the country's NDC update of 2021, which promises an all-sector reduction target (i.e., a target that includes forestry and, thus, mangroves) of 40 million tons of CO2 compared to business-as-usual over the period 2020-2025.[38] However, as the updated NDC falls short in presenting sector contributions in a disaggregated way, and given Mozambique's limited capacity for data collection, monitoring, and tracking of progress towards the target, the top-level commitment arguably has limited value for putting Mozambique on a clear mitigation path for Blue Carbon.

PHOTO BY JULIANA CASTAÑO-ISAZA

Pledges that are more specific on forests, including mangroves, can be found in the NDC's adaptation and transversal actions sections, with the latter combining mitigation and adaptation action. Mozambique, it says, seeks to regenerate "mangroves and [implement] protective measures for seaweed and seagrass, corals and other breeding and feeding areas for fish." Furthermore, the NDC restates the target from the National Strategy and Action Plan for the Management of Mangroves 2020-2024, known as the "Mangrove Strategy." In other words, Mozambique will attempt to restore a mangrove area of 5,000 ha. The NDC extended the timeframe for this restoration target, however, from 2022 (as per the Mangrove Strategy) to 2025.

38 Further details of the target are provided in Mozambique's BUR 2022: "Mozambique expects to reduce about 40 million tCO_2eq in the period between 2020 and 2025. The emission reductions proposed in the mitigation contribution of Mozambique would represent a mitigation effort of about 1.2 tCO_2eq per capita by 2025, a very relevant figure when compared to the total GHG emissions per capita of Mozambique, which were respectively 0.6 tCO_2eq in 1990 and about 2 tCO_2eq today (total emissions with LULUCF)."

3.3.2 NDC IMPLEMENTATION

Mozambique's NDC includes guidance on Blue Carbon implementation. It notably defines REDD+ as the "key means of implementation to operationalize mitigation ambition" and it refers to specific programs under implementation or planned in the country, including the World Bank projects MozBio, FIP, Sustenta, MozNorte, and the Zambézia Integrated Landscape Management Program (ZILMP).

Mozambique has developed a NDC Implementation Plan for 2020-2025 (*Plano de Operacionalizacao da NDC de Moçambique* in Portuguese), but has not kept it up to date. It was released in 2018, supported by the World Bank. The plan establishes actions, as well as corresponding measures to implement the NDC. Relevant to Blue Carbon, it aims to increase the resilience of fishing grounds, aligned with the National Strategy for Climate Change Adaptation and Mitigation (NSCCAM – see Section 3.3.5). For this, the plan considers important the "regeneration of mangroves and implementation of measures to protect algae and seagrasses, as well as coral reefs and other fish reproduction and feeding areas." Furthermore, it seeks to manage and protect biodiversity and coastal ecosystems through the "rehabilitation of deforested areas" and the "establishment of transboundary conservation areas to maintain ecosystem functions and enable the migrations of wild fauna." Another prescribed action is to match the development of tourist zones and coastal areas with climate change mitigation goals. This should be done by promoting good practices, conservation of ecosystems, and coastal zone protection. Despite these provisions, it is essential to note that the plan has not been updated since 2018. It requires timely revisions to ensure integration with the current (2021) and subsequent NDCs.

3.3.3 MOZAMBIQUE'S MANGROVE STRATEGY

PHOTO BY ALEX BOMA

Mozambique's Mangrove Strategy serves as a solid backdrop for directing mangrove-related policy development and implementation. The document provides core information on mangrove habitats in Mozambique, threats and degradation trends and opportunities for better conservation, restoration, and management. Importantly, it identifies the MIMAIP as the lead institution to drive the implementation of the Strategy. The Strategy has five pillars:

1 **Management, protection, and sustainable use of the mangrove ecosystem**

2 **Reinforcement of monitoring and legislation**

3 **Capacity building and coordination**

4 **Environmental education and awareness**

5 **Research and knowledge management**

The most palpable element of the Strategy is its restoration target of 5,000 ha. While the initial timeframe (2022) was missed, MIMAIP recently announced that the country is comfortably on track, having achieved 96 percent of the target by the end of 2022.[39] As there is no comprehensive monitoring of restoration campaigns, it is not immediately clear what activities MIMAIP counted towards the target. It is also hard to verify the results achieved to date by ongoing initiatives (see Table 5).

3.3.4 MOZAMBIQUE'S REDD+ STRATEGY

As mangroves are considered forest in Mozambique, the National Strategy for REDD+ (2016-2030) contains additional elements relevant to mangrove conservation and restoration. The Strategy sets out relevant objectives or "strategic actions" for the national forests (including mangroves). Specific actions include identifying forests to be protected and areas to be restored, promoting the sustainable use of forest resources, and promoting restorations and rehabilitations of degraded areas. Each strategic action is identified with indicators and targets to be achieved. The Strategy estimates costs and potential implementing actors, as well as the geographic regions with higher potential for implementation of the policy goals. These also include restoring 150,000 ha of degraded forests (all types of forests, including mangroves) in Zambézia, Nampula, and Cabo Delgado.

PHOTO BY JULIANA CASTAÑO-ISAZA

39 https://www.mimaip.gov.mz/mocambique-ja-cumpriu-96-de-restauracao-do-mangal-2/.

The Strategy's action plan follows a phased approach for REDD+.

PHASE 1 2016-2019

consists of "preparation of the environment and experimentation for sustainable governance of the natural resources."

PHASE 2 2020-2024

is the "implementation and massification of investments and consolidation of actions to reduce deforestation and degradations."

PHASE 3

addresses the "consolidation and evaluation of performance and payment for results in reducing emissions from deforestation and forest degradation."

Responsibility for executing the policy goals lies mostly with government actors – such as MTA, Ministry of Mineral Resources and Energy (MIREME), and MEF – but also on NGOs such as WWF and IUCN.[40,41]

Regarding execution of REDD+, the main instrument providing a framework for the development of forest conservation and restoration work is the 2018 REDD+ Decree. In particular, the regulation provides rules for licensing of REDD+ projects – including mangrove forest projects – and therefore provides a pathway for the country to access carbon finance. Section 3.3.8 provides for further discussions about the licensing process for REDD+ projects.

3.3.5 ADAPTATION AND BIODIVERSITY STRATEGIES

Mozambique has other policies that directly or indirectly relate to protection of Blue Carbon ecosystems. These include the National Strategy for Climate Change Adaptation and Mitigation (NSCCAM or ENAMMC / 2015-2035). The NSCCAM sets a goal to increase fisheries resilience through actions such as "to regenerate mangroves and implement measures to protect algae and seagrass, corals and other fish breeding and feeding areas." Likewise, to improve agriculture, forestry, and land use sustainability, it prescribes the management of biodiversity and coastal ecosystems through the development of "programs for the sustainable exploitation, regeneration and protection of mangroves, algae and seagrass associated with the potential for capturing and sequestering sequestration potential."[42]

40 2016-2030 National Strategy for REDD+.

41 The strategy also presents a description of strategic actions, indicators, and targets to be achieved. It estimates costs and potential implementing actors, as well as geographic regions that have higher potential for reaching policy goals.

42 2015-2035 National Strategy for Climate Change Adaptation and Mitigation (NSCCAM or ENAMMC).

The Strategy and Plan of Action for the Conservation of Biological Diversity in Mozambique (2015-2035) provides for a range of principles and action targets, some of them affecting Blue Carbon assets. Its four objectives are

i

reducing the direct and indirect causes of biodiversity degradation and loss,

ii

improving the conservation status of biodiversity, safeguarding the diversity of ecosystems, habitats, species, and genetic conservation,

iii

improving the sharing of benefits from biodiversity and ecosystem services to all sectors of government and society, and

iv

improving implementation through participatory planning, knowledge management and capacity building, and synergies between national and global targets for biodiversity conservation.

The country's focus on protection of coral reefs also led to the recently launched National Strategy for the Management and Conservation of Coral Reefs (ECOR/2022-2032). Seagrasses are mentioned in the policy once, concerning monitoring and mapping efforts. Notably, ECOR should result in coral reefs and associated seagrass extents being adequately mapped by 2026. Ultimately, ECOR represents an important incentive to expand the number of MPAs to achieve the target of including 30 percent of coral reef area in protected zones – which, in turn, would directly benefit the protection of seagrasses in these areas. MIMAIP is the institutional coordinator of the policy.[43]

3.3.6 MARINE SPATIAL PLANNING AND THE BLUE ECONOMY

PHOTO BY JULIANA CASTAÑO-ISAZA

Mozambique adopted its first national Marine Spatial Plan – Plano de Ordenamento do Espaço Marítimo or POEM – in November 2021. POEM's main objective is the responsible utilization of national marine resources, including through the management of protected areas. Responding to the High Ambition Coalition for Nature and People to safeguard 30 percent of the world's oceans by 2030, POEM identifies priority areas for the designation, in the future, of new conservation areas.

43 2022-2032 National Strategy for the Management and Conservation of Coral Reefs (ECOR).

POEM envisages better protection of marine and coastal zones through better integration of diverse policy frameworks, including the evolving framework of the Blue Economy. It serves as a tool for efficiently allocating space and resources in marine and coastal areas. POEM enables the country not only to identify MPAs but also to incorporate Other Effective Conservation Measures (OECMs) within various sector-specific development plans.[44]

This means that POEM allows for the comprehensive management of marine resources, including conservation efforts, alongside other sectorial developments. It started in 2017 as the National Policy and Strategy for the Sea (POLMAR) to explore the space for a "blue, profitable and sustainable economy at sea," bringing the different coastal sectors into view (including fisheries, tourism, oil and gas, research and more). Now it has led to the design of a full-fledged Mozambique's Blue Economy Development Strategy, approved on June 17th, 2024.

Through an exercise called "benchmark," the development of the Mozambique's Blue Economy Development Strategy (2024 EDEA) was developed considering best practices – at national and international levels – for promoting the Blue Economy in accordance with Mozambique's national reality. The integrated approach of EDEA includes diverse sectors such as fishing, tourism, maritime transport and ports, renewable marine energy, aquaculture, and others. The policy includes specific actions for each of the strategic goals.

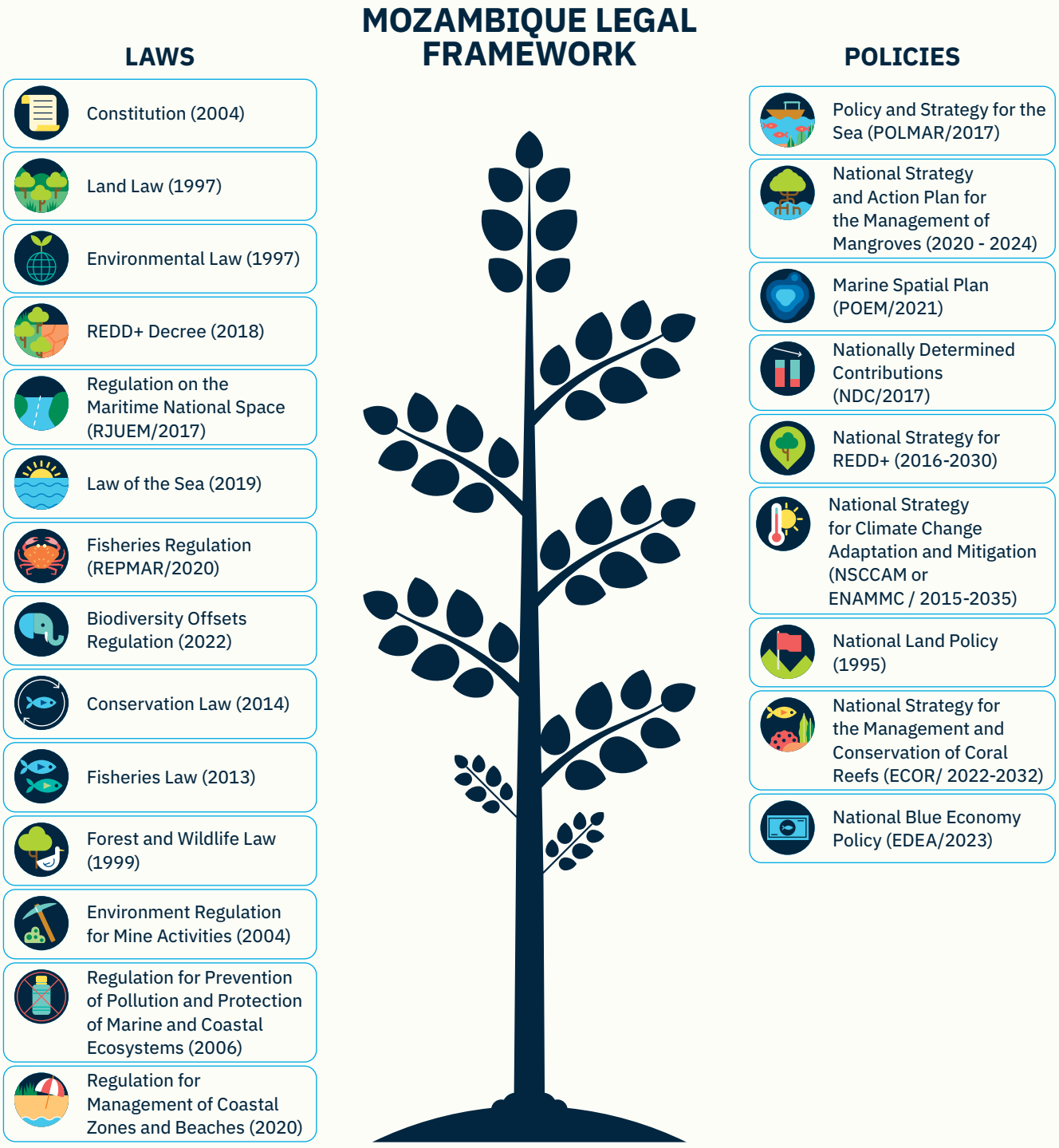
EDEA's goals include the improvement of "the conservation state of natural capital so that it continues to provide the relevant ecosystem services" and the promotion of "knowledge of the economic value of aquatic and coastal ecosystems and its respective services…to ensure financing necessary to improve the management, financial situation, and efficiency of MPAs and other sensitive ecosystems." The strategy explicitly seeks to promote "the conservation and restoration of coastal ecosystems (mangroves, coral reefs, and seagrasses) capable of minimizing coastal erosion and the negative impacts of the growing number of extreme climate events."

Emphasizing sustainable development, the country also has its 2021 National Plan for Territorial Development (PNDT), with "sustainability" as one of its core principles. The plan (referencing, among others, the Mangrove Strategy of 2018) supports wide safeguarding of natural resources in Mozambique. Forests should be protected from "exploration and unsustainable practices." At the same time, it acknowledges the "potential for the development of fishing and the Blue Economy." At the regional level, the country has development plans such as the Zambezia Strategic Development Plan (2011-2020) or Plano Estratégico de Desenvolvimento da Zambézia, which equally promotes the "sustainable use of lands, forests, and fauna."

44 OECMs are defined in the 1992 Convention on Biological Diversity (CBD) as "a geographically defined area other than a Protected Area, which is governed and managed in ways that achieve positive and sustained long-term outcomes for the in situ conservation of biodiversity, with associated ecosystem functions and services and where applicable, cultural, spiritual, socio–economic, and other locally relevant values…"

3.3.7 LEGAL PROTECTION FOR BLUE CARBON ECOSYSTEMS

FIGURE 5: MOZAMBIQUE LEGAL FRAMEWORK: BLUE CARBON.



Source: *World Bank, 2023.*

The 2004 Constitution (CRM) gives the government of Mozambique exclusive ownership of all lands and resources – including Blue Carbon resources. Prior to that, the 1999 Forest and Wildlife Law had already declared all forestry resources to be "State property." That of course included mangrove forests.[45]

Most of Mozambique's mangrove forests and seagrass meadows fall under the protection of the 1997 Land Law as "partial protected areas." These areas include, among others,

a

the bed of inland waters, the territorial sea, and the Exclusive Economic Zone (EEZ),

b

the continental shelf, the seafront strip and the contours of islands, bays and estuaries, measured from the line of maximum high tides of up to 100 meters adjoining the water sources,

c

the strip of land of up to 100 meters wide from inland water sources (i.e., refers to areas of land that are adjacent to or directly bordering bodies of water, such as rivers, lakes, seas, etc), and

d

the land strip surrounding dams and reservoirs up to 250 meters wide (Article 8).

As the government owns all natural resources, other actors are left with the possibility of obtaining use rights or licenses. At the same time, the partial protection status of Blue Carbon ecosystems entails that "no rights of land use and benefits can be acquired" over such areas. The ban includes any title under usufruct rights (known as Direito de Uso e Aproveitamento de Terra or DUAT), a type of land usufruct commonly granted for agricultural and forestry lands across Mozambique. The legal regime for the use of maritime space is established under the legal framework of utilization of marine space (i.e, RJUEM regulation or Regime Jurídico de Utilização do Espaço Marítimo Nacional), approved by decree 21/2017, which implements the 2019 Law of the Sea. RJUEM, which is administered by MIMAIP, creates coastal use rights – similar to the DUATs for land – and referred to as TUPEM or private title of utilization of marine space (Título de Utilização Privativa do Espaço Marítimo). TUPEM can be granted by MIMAIP through concession, license, or authorization.[46]

Nonetheless, communities can rely on their customary use rights to any coastal areas, including BCEs. Alternatively, the government can issue special licenses for specific activities, such as fishing or mining and potentially REDD+ (though such licenses usually come at significant costs).[47] Licensing authorities are provincial governors, unless an area

45 IUCN and WWF (2016). National Blue Carbon Policy Assessment. Mozambique. IUCN, WWF. 26pp.
46 Articles 43 and 46, Decree 21/2017 / RJUEM.
47 Article 9, Land Law.

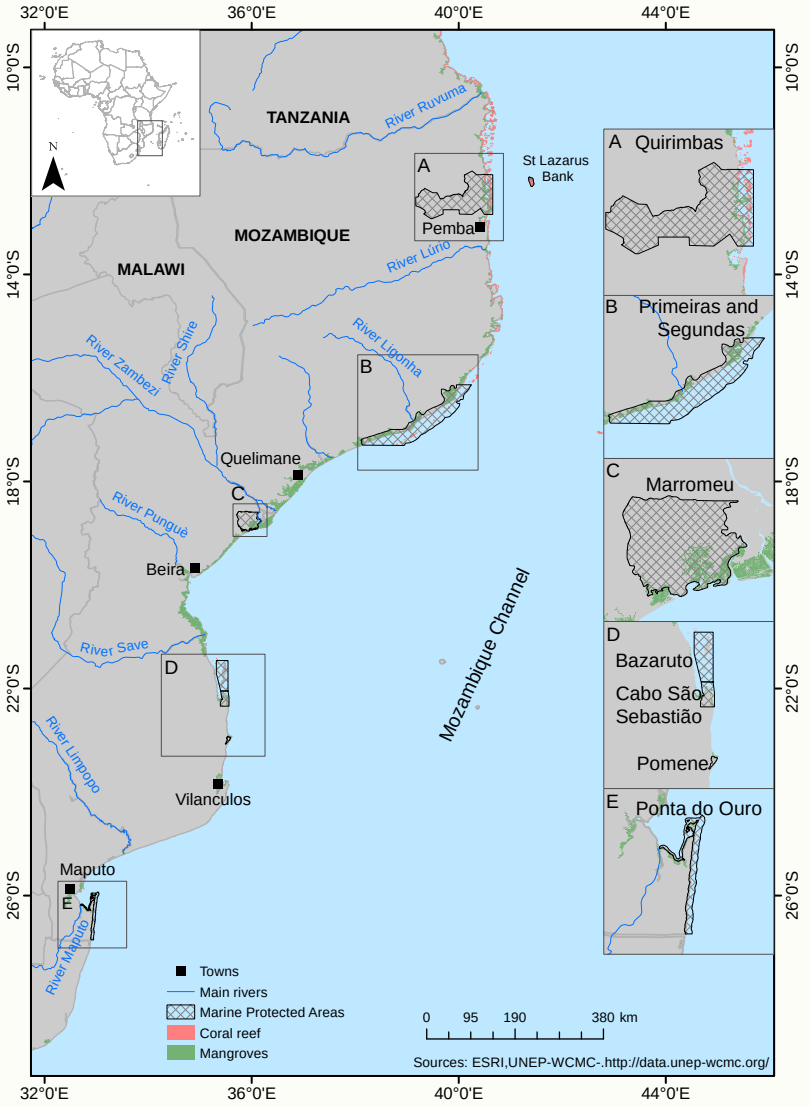
is declared a "total protection area," in which case licenses must be issued by MIMAIP[48] and under the authorization of the legal framework for utilization of marine space (RJUEM), approved by decree 21/2017, which implements the 2019 Law of the Sea.

The network of conservation areas is legally shaped by the 1997 Environmental Law[49] and the 2014/2017 Conservation Law (Nr. 16/2014, amended and republished by Law No 5/2017), which created a "national system of conservation areas." Today, Mozambique has a network of seven Marine Protected Areas (MPAs): two national parks, three reserves, one environmental protection area, and one total protection area (see Figure 6).[50] Five of the protected areas[51] are internationally recognized as "Ecologically or Biologically Significant Marine Areas" (EBSAs) under the CBD, i.e., "special areas in the ocean that serve important purposes, in one way or another, to support the healthy functioning of oceans and the many services that it provides."[52] One of the protected areas , the Marromeu in the Zambezi Delta, is also a Ramsar site (the other Ramsar site in Mozambique is Lake Niassa and its coastal zone).[53] The seven protected areas cover a total area that is comparatively small, however. Together they make up about 2 percent of the country's Exclusive Economic Zone (EEZ) and include few mangrove and seagrass areas (as a share of the total such habitats in Mozambique).[54]

PHOTO BY JULIANA CASTAÑO-ISAZA

48 Article 22, Land Law.
49 Article 13, 1997 Environmental Law or Environmental Act.
50 A list of all protected areas can be found at https://sibmoz.gov.mz/protected-areas/ and at https://www.anac.gov.mz/
51 Quirimbas National Park (QNP), the Primeiras and Segundas Environmental Protection Area (PSEPA), the Bazaruto Archipelago National Park (BANP), the São Sebastião Cape total protected area, the Maputo Special Reserve (MSR) – which comprises two MPAs: the Inhaca Marine Reserve and the Ponta do Ouro Partial Marine Reserve (PPMR) – and the Zambezi and Cherringona Coast.
52 Convention on Biological Diversity (CBD). About EBSA. 2023. https://www.cbd.int/ebsa/about
53 Ramsar sites Information Services, 2023. https://rsis.ramsar.org/ris-search/mozambique?f%5B0%5D=regionCountry_en_ss%3AAfrica&f%5B1%5D=regionCountry_en_ss%3AMozambique&pagetab=1
54 Pereira 2021.

FIGURE 6. MARINE PROTECTED AREAS IN MOZAMBIQUE.



Source: *M.A.M. Pereira 2021.*

Most MPAs include conservation of mangrove forests among their key objectives, while salt marshes and seagrasses are not always mentioned (see Table 3).[55] In fact, several ecosystems and species – including seagrass beds and mangroves-- seem poorly represented under the current MPA network in Mozambique.[56] One study[57] also showed that most MPAs are geared around coral reefs and do not consider seagrass distributions, although there are still cases in which the protection zones are clearly defined by the area extension of seagrass beds—for example,

55 Menon et al. 2021.
56 Pereira 2021.
57 Gullström et al. 2021.

Ponta do Ouro Partial Marine Reserve which covers all seagrasses around Inhaca Island. MTA is in charge of coordinating coastal and marine conservation efforts of MPAs, particularly through its National Administration for Conservation Areas (ANAC) agency. The overall performance of conservation goals, however, is bleak, especially since MPAs often lack resources (including finance, staff, and infrastructure) and tools for effective management (including business and management plans, monitoring, and research).[58]

TABLE 3. EXISTENCE OF BLUE CARBON HABITATS IN ESTABLISHED MPAS.

**Comprises Inhaca Marine Reserve and Ponta do Ouro Partial Marine Reserve (PPMR).*

PROTECTED AREA	MANGROVE	SEAGRASS	SALTMARSHES
Quirimbas National Park (QNP)	**Presence:** Yes (Extensive) **Scale:** Not available	**Presence:** Yes (seagrass beds to the west of the main line of islands) **Scale:** Not available	Data not available
Primeiras and Segundas Environmental Protection Area (PSEPA)	**Presence:** Yes **Scale:** Over 57,000 ha of mangrove forests	**Presence:** Yes (extensive coastlines with seagrass beds) **Scale:** Not available	Data not available
Marromeu National Reserve (MNR)	**Presence:** Yes **Scale:** 170.3 km^2 comprise coastal ecosystems (mangroves, estuaries, coastal dunes, seagrass beds)	**Presence:** Yes **Scale:** 170.3 km^2 comprise coastal ecosystems (mangroves, estuaries, coastal dunes, seagrass beds)	**Presence:** Yes **Scale:** 170.3 km^2 comprise coastal ecosystems (mangroves, estuaries, coastal dunes, seagrass beds)
Bazaruto Archipelago National Park (BANP)	**Presence:** Yes **Scale:** Not available	**Presence:** Yes **Scale:** Extensive	Data not available
São Sebastião Total Protection Area	**Presence:** Yes **Scale:** Not available	**Presence:** Yes **Scale:** Not available	Data not available
Pomene National Reserve (PRN)	**Presence:** Yes **Scale:** Not available	**Presence:** Data not available **Scale:** Not available	Data not available
Maputo Special Reserve*	**Presence:** Yes **Scale:** Not available	**Presence:** Yes **Scale:** Not available	**Presence:** Yes **Scale:** Not available

Source: *Menon et al. 2021.*

58 Pereira 2021.

In alignment with the vision outlined in the Global Biodiversity Framework (GBF), particularly Target 3,[59] the government of Mozambique currently aims to increase its MPA from 2 percent to 10 percent of its territorial waters by 2024, and from 10 percent to 30 percent by 2030.[60] Seven areas have been identified by marine development partners, including the Wildlife Conservation Society (WCS), the World Wildlife Fund (WWF), and Centro Terra Viva (CTV) as highly likely to be granted MPA status in the future.[61]

Outside the Land Law's definition of total or partial protected areas, and outside site-specific protection (MPA), a number of laws and regulations recognize coastal wetlands as sensitive areas for which any form of degradation is *prima facie* forbidden. These legal instruments – most of them falling under the administrative remit of MIMAIP – include the 2014 Environmental Law, the 2013 Fisheries Law, the 2020 Fisheries Regulation (REPMAR), and the 2020 Regulation for Management of Coastal Zones and Beaches. There are other laws for which MTA is the main engaging authority, such as the 1999 Forest and Wildlife Law. The 2013 Fisheries Law provides a legal protection regime for mangroves, specifically banning the destruction of mangrove forests for aquaculture (Article 63(1)). Cutting mangroves for the installation of aquaculture tanks – or other purposes – without restoring lost mangroves is also a violation punishable by law (Article 101). But the law creates an exception for interference with mangrove forests for "the construction of water pumping stations, water intake channels for fixed ground installations and small berths or for the cultivation of species whose habitat is the mangroves," but also "subject to a commitment of replacing the destroyed mangrove and to a technical and environmental impact study" (Article 63(2)). Further, the 2020 Regulation for Management of Coastal Zones and Beaches considers wetlands (including mangrove forests, seagrasses areas and coral reefs) as "sensitive" ecosystems for which special rules apply in terms of protection and usage. In this sense, destroying or polluting sensitive ecosystems such as mangroves and seagrass meadows is prohibited and punishable by law (Article 50). In addition, the 2020 Fisheries Regulation (REPMAR) – although not explicitly mentioning mangroves or seagrasses – sets out rules for fishing practices whose purpose is to protect coastal ecosystems. The law also bans the harvesting of live corals.

3.3.8 REDD+ LICENSING

While these strategic documents offer little in terms of pathways and specific implementation tools, the nod to carbon crediting is instructive. Indeed, the 2018 REDD+ Regulation provides rules and procedures for the recognition of REDD+ projects and programs in Mozambique. While declaring that the State of Mozambique is the original owner of carbon rights (it holds title to emission reductions and certificates), it gives non-state actors the right to apply for REDD+ licenses.

59 Kunming-Montreal Global Biodiversity Framework 2022.
60 WCS Mozambique 2022.
61 Menon et al. 2021.

Licenses are issued by the Minister of the Environment (MTA) with provincial and national technical support of FNDS (Fundo Nacional de Desenvolvimento Sustentável). According to FNDS, any REDD+ project that involves mangroves will need an official technical opinion from MIMAIP (and InOM integrates the government evaluation team for REDD+ projects in mangroves). MIMAIP, together with MEF and other ministries, holds a seat on the REDD+ Oversight Committee,[62] which, among other functions, facilitates multisectoral implementation of the REDD+ Strategy, as well as REDD+ programs and projects, and proposes improvements to FNDS activities.

Management of the REDD+ licensing process is the responsibility of the National Directorate on Climate Change (DMC), with MTA responsible for decisions on licenses. The FNDS's MRV Unit provides technical support for the management of the REDD+ registry platform, as well as preparing dossiers of REDD+ licenses for MTA.

Licenses are valid for 20 years, with the possibility of renewal for an equal period. Under the regulation, all types of legally recognized entities – government entities (including a "REDD+ program"), private sector firms, or NGOs running a REDD+ project) – are eligible to become project proponents for REDD+. For communities, though the regulation explicitly recognizes "community REDD+ projects," to be eligible they must establish themselves legally, e.g., through a CCP with a legal personality (see below).

The application process is phased. The first step is the submission of an expression of interest. The second is the feasibility stage. As long as an applicant submits the documentation required throughout the process (the regulation is vague on application timelines), they are pre-selected, in the sense that no other applicant is permitted to submit an application for the same area and the same program/project type (conservation or restoration). This seniority right applies and continues through implementation, unless the project is rejected for failing to comply with the terms of the regulation. Note that the authorities grant a one-year window for the conducting of the feasibility study and extend the window on account of actual progress.

Projects can be "nested" in larger ones. While there are few details on how projects can be integrated – or, using a technical term from international REDD+ practices, "nested" – into larger projects or programs, the practice of nesting is recognized (cf. section 18.f) as long as the smaller (nested) project accounts for at least 200,000 tCO_2eq over its lifetime.

The lead project or program must follow a jurisdictional approach, i.e., a REDD+ license must cover at least one district entirely. For example, a project developer would currently not be able to obtain a license to conserve (reduce emissions from deforestation and degradation) only mangrove forests in a district unless the license also covers the terrestrial forests in the same district.

62 Article 11 and 12, 2018 REDD+ Decree.

The situation is different for carbon restoration activities, which also fall within the scope of the REDD+ Regulation (the "+" signifies stock enhancement strategies, including through restoration). While there is little in the text of the regulation itself, the MRV unit of the FNDS has clarified that both the FNDS and the MTA interpret the regulation as permitting restoration (but not conservation) activities that focus on coastal habitats or mangroves only. The jurisdiction-level requirement, in these cases, does not apply – the applicant can request a REDD+ restoration license without having to cover terrestrial trees in the district as well.

That explains why outside the Zambézia Integrated Landscape Management Program (ZILMP) – a program developed with support from the Forest Carbon Partnership Facility (FCPF)– the only Blue Carbon active initiatives under the REDD+ Regulation concern restoration interventions. Conservation actions would require a combination of terrestrial and coastal interventions or some form of program integration ("nesting"), a complex and untested procedure.

To date, applicants have made ample use of the restoration path under the 2018 REDD+ Regulation. Across the country, 32 REDD+ projects have been "registered" (that is, they have been listed, but not necessarily approved), 10 of them along coastal districts.[63] There is one active project (the FCPF one) and three "under licensing," among them the mangrove restoration initiative MozBlue of project developer Blue Forest.

3.3.9 COMMUNITY GOVERNANCE

The 1997 Land Law recognizes the right of land use and benefit acquired by "occupancy by individual persons and by local communities, in accordance with customary norms and practices which do not contradict the Constitution" (Article 12). This right – which applies to all land areas covered by the law, including Blue Carbon ecosystems – is automatic and does not require formalization. However, titling is an option, and local communities can obtain a title in their name (Article 13). Tenure recognition and community governance, in this constellation, go hand in hand. Headed by the FNDS – which is under MADER – the government has its MozLand project (Terra Segura), which aims to accelerate the registration of DUATs and consolidate the use of lands.[64] In general, land laws are enforced by MADER, although other institutions, such as MTA, can be involved in supervising land usage.

Coastal community governance has recently gained momentum outside the titling process. MIMAIP's approval of the revised Fisheries Maritime Regulation (REPMAR) in 2020 was described by Rare[65] as "a major step toward giving coastal communities the formalized right to

63 See http://143.198.245.84/maps/new?layer=geonode:SRPP_atualizado&view=True#/ and https://app.powerbi.com/view?r=eyJrIjoiODYzMjMx MGUtNzQ2ZS00YjQ4LWIwN2ItZjgxZGY4Y jIzZTA2IiwidCI6IjQwNTRkZDM4LWFjIzZTA2IiwidCI6IjQwNTRkZDM4LWF mMzktNDQxYi04MjFkLWUyOThkOWIxZGQ1NCJ9

64 FNDS. Terra Segura Project. https://www.fnds.gov.mz/index.php/pt/nossos-projectos/listagem-de-projectos/terra-segura

65 https://rare.org/story/moz-mentum-landmark-legislation-paves-the-way-for-empowered-coastal-communities-in-mozambique/

access and steward coastal waters for their fisheries." The 2020 regulation enables communities to set up locally managed marine reserves where fishing and any other invasive activities are off-limits, allowing fish populations to rebound. Under the law, communities can form community fisheries councils (Conselhos Comunitários de Pesca or CCPs). These bodies receive a wider role to manage fisheries areas, including those located in mangrove and seagrass areas. According to the 2020 regulation, the CCPs can designate rules for access to marine resources and designate community management areas. Specifically, the law provides a "path for CCPs to become legal entities, which will allow them to designate community management areas and implement rules regulating access to marine resources."[66] MIMAIP is in charge of facilitating the work of CCPs, particularly due to the task that the REPMAR regulation assigned to the ministry, the ensuring of adequate execution of this law.

The laws also permit public-private and community partnerships for the purpose of managing conservation areas. The State's right to establish partnerships with the private sector and national or foreign organizations to administer conservation areas is recognized in both the 2014 Conservation Law and the 2017 Regulation on Protection, Conservation, and Sustainable Use of Biodiversity. Article 9 of the Conservation Law allows "Public-Private and Community Partnerships," outlining that "the State may establish partnerships with the private sector, local communities, national and foreign civil society organizations through contracts and funding, in whole or in part, from the private partner for the administration of conservation areas, creating synergies in favor of the conservation of biological diversity, without prejudice to the sharing of responsibilities in the costs and benefits of conservation area management." It is noted that these conservation partnerships are distinct from the "concession agreements" that are also laid down in Article 9 of the law. Concession agreements are concluded when the private sector or local communities seek to pursue activities to generate income (such as mining or potentially carbon financing). The 2017 Regulation sets out compliance requirements for such concession licenses. They concern, among other things, environmental impact assessments and monitoring requirements.

Despite these laws, development of public-private partnerships in Mozambique has stalled.[67] The Functional Unit of Supervision of Acquisitions (operated under MEF) is the oversight agency for all procurement activities, including public-private partnerships, but it lacks the capacity and authority to coordinate such projects across government entities. Likewise, the National Directorate for Development Support of the Private Sector (operated under the Ministry of Industry and Commerce) supports investments in the country, but it is not a dedicated agency for public-private partnerships. Furthermore, contracts and documents from such partnerships are not easily accessible to the public, which hinders goals of transparency and efficiency. There is also a lack of robust and specific legislation on the governance aspects of these partnerships.[68] These shortcomings certainly show in coastal management: While the 2014 Conservation Law

66 See https://news.mongabay.com/2021/01/mozambiques-new-fisheries-law-expands-protections-but-old-problems-persist/
67 Economist Intelligence Unit 2021.
68 Ibid.

permits ANAC to conclude conservation partnerships with non-state actors, not a single case of formalized co-management has yet appeared.

Laws and regulations require that projects' benefits be shared with local communities, but are often vague about how much. Various laws and regulations require that communities receive a portion of fees, taxes, or other benefits to finance community governance and enhance local livelihoods. The measures that prescribe benefit sharing include the 1999 Forest and Wildlife Law, the 2014 Conservation Law, the 2017 Regulation on Protection, Conservation, and Sustainable Use of Biodiversity, and the 2022 Decree on Forests and Wildlife. However, specific distribution keys are often not provided. A ministerial diploma of 93/2005, established under the 1999 Forest and Wildlife Act, defined a mechanism for channeling and utilizing 20 percent of the value of certain licensing fees to special management committees for the benefit of local communities. Similar arrangements – here benefiting CCPs – exist under fisheries regulations for a share of fishing licensing fees. Then, under the 2014 Conservation Law, 20 percent of the profits generated from the use of forest resources and other natural resources are specifically allocated to local communities. There is no benchmark value under the REDD+ Regulation, however. While REDD+ applicants must propose a benefit sharing plan, there is no clear word on what is considered a fair community share and how it is to be distributed, though the country has some experience with terrestrial REDD+ projects. The older Nhambita Project had set aside 30 percent for communities. The 2019 Benefit Sharing Plan of the Zambézia Integrated Landscape Management Program (ZILMP) earmarks 70 percent of the net revenues from carbon finance (after deduction of program costs) for community activities.[69]

PHOTO BY JULIANA CASTAÑO-ISAZA

69 The ZILMP program area includes the Gilé National Reserve (GNR REDD+), an initiative led by ANAC. It is mainly a conservation project, but also promotes some sustainable management activities, such as agro-ecology, and supports value chain development for cashew nuts. Its area comprises a national reserve composed of Miombo forest and the open grassy and wetlands area known as Dambo. Gilé receives 4 percent of benefits from the benefits sharing plan (BSP) of FCPF (Implementation Status & Results Report, FCPF WBG, June 2023).

3.3.10 INSTITUTIONAL FRAMEWORK

From this discussion we can identify four types of Blue Carbon stakeholders:

STAKEHOLDER GROUP 1

State authorities charged with regulating Blue Carbon areas or other aspects of the pipeline for restoration and conservation — for example, MEF making decisions regarding the new carbon market framework.

STAKEHOLDER GROUP 2

Communities using Blue Carbon areas for economic and subsistence purposes, such as fishing or extracting of resources.

STAKEHOLDER GROUP 3

Other users, including holders of licenses for specific economic use in total and partial protected areas (these groups are often drivers of degradation but may also be active in restoration campaigns, such as Total Energies), and REDD+ license holders.

STAKEHOLDER GROUP 4

State actors and non-state actors (national and foreign) promoting Blue Carbon protection and restoration activities. This group includes funding institutions as well as research institutions and the private sector.

Appendix 3 to this brief provides a comprehensive list of stakeholders from all four groups.

3.3.10.1 STAKEHOLDER GROUP 1: GOVERNMENT ENTITIES

Blue Carbon habitats fall directly or indirectly into the remit of multiple ministries and agencies. MTA grants licenses for REDD+ restorations and conservations, while the REDD+ MRV Unit of FNDS provides technical input and robust data for deforestation and degradation monitoring, with MIMAIP and MEF having a seat on the REDD+ Oversight Committee for consultation and supervision of the licensing process. Licenses for economic uses can be granted by different agents: MIMAIP usually controls the maritime and tidal areas, providing mostly fishing licenses, MICULTUR provides licenses for activities within its scope, such as permits for hotel construction, and MIREME provides licenses for mining. Other government entities, notably those that manage areas on the ground, such as the provincial and district governments, grant licenses for economic use of Blue Carbon areas. Further, ANAC, which is an agency under the MTA, is charged with administering total conservation areas. MEF leads

discussions for a carbon market framework in Mozambique and coordinates international efforts to advance natural ecosystems protection in Mozambique through leveraging carbon finance. Implementation of NDC targets, meanwhile, falls under the remit of MIMAIP, MTA, and MADER.[70]

The governance framework for Marine Spatial Planning and the Blue Economy sector, on the other hand, is more horizontal by design. As the policies' aim is to help diverse sectors intersect with each other, a diverse set of regulators and administrators is meant to collaborate to establish rules for the management of the marine and coastal resources. For instance, MIMAIP, ANAC, and MIREME each have administrative responsibilities for coastal development, though MIMAIP is considered "the central driving force to address enabling environment actions for the Blue Economy."[71] The governance framework is also tilted towards the facilitation of investment. Thus, financial actors, notably ProAzul (see below), play important roles.

3.3.10.2 STAKEHOLDER GROUP 2: COASTAL COMMUNITIES

Coastal fishing communities hold customary tenure over the country's Blue Carbon habitats (see above, Community Governance), and they can apply for REDD+ licenses for conservation and/or restoration, subject to their acquisition of legal personality. Beyond terrestrial areas, use rights can be granted by a local authority, such as MIMAIP or provincial governors. These licenses are usually linked to economic activities, such as fishing. Customary use rights can also be a reality, as most of the laws allow subsistence rights to exist in favor of local communities for such activities as fishing or extraction of natural resources.

Note that in past years Mozambique's laws have provided for forms of community governance, thereby mixing Stakeholder Group 1 (State Authorities/Regulators) and Stakeholder Group 2 (Communities). Currently, community Fishery Councils (CCPs) are recognized to manage fisheries areas, including those located in mangrove and seagrass areas. According to a 2020 regulation, the CCPs can designate rules for access to marine resources and designate community management areas — the law provides a "path for CCPs to become legal entities, which will allow them to designate community management areas and implement rules regulating access to marine resources."[72]

Communities may also function as degradation drivers. The customary use of mangrove resources by local people is widespread. Though the authorities nowadays discourage selling of mangrove wood, extraction and local trade often continue in clandestine ways.

70 2018 NDC Implementation Plan.
71 Menon et al. 2021.
72 See https://news.mongabay.com/2021/01/mozambiques-new-fisheries-law-expands-protections-but-old-problems-persist/

3.3.10.3 STAKEHOLDER GROUP 3: OTHER USERS

Mining, including mining for heavy mineral sands, has become increasingly disruptive and harmful to Blue Carbon habitats and the environmental services they provide. While stark differences persist among the many operators and investors in pursuing environmental and social sustainability strategies, in sum the socio-economic impacts can be severe.[73] At a time when the Ministry of Energy has given out large numbers of concessions, resistance among communities is growing. The fishing industry is also critical, given its often direct, harmful impact on fish stocks and fishing grounds.

Total Energies is the leading firm in the consortium investing in Mozambique's $23 billion liquefied natural gas (LNG) fields. The project had been on hold due to the Islamist insurgency in the north of the country but seems back on track. The environmental impact on the Quirimbas Archipelago and beyond may be significant. A new sub-group of users has emerged, firms and organizations that seek REDD+ licenses to engage in Blue Carbon conservation and restoration activities (see above, REDD+).

3.3.10.4 STAKEHOLDER GROUP 4: BLUE CARBON INVESTMENT FACILITATORS

Several international donors are promoting Blue Carbon activities in Mozambique. They include multilaterals such as the World Bank, as well as development agencies, notably USAID, the Millennium Challenge Corporation, and the Blue Planet Fund of the UK.

National actors include research institutions such as the Eduardo Mondlane University (UEM) and the Oceanographic Institute in Mozambique (InOM) – the latter an agency under MIMAIP. Both institutions are active in research and mapping of coastal ecosystems in Mozambique, including seagrass meadows. They include firms and organizations specializing in community tenure and land registration (a pre-requisite for many governance models including REDD+), such as the firm Terra Firma, which maintains, together with local partner Centro Terra Viva, an online land governance platform for Mozambique. First and foremost, however, this stakeholder group includes dedicated funds and financing facilitators, namely BIOFUND and Pro Azul (see below, Pillar 3).

73 Bisht and Martinez-Aller 2023.

3.3.11 ACHIEVEMENTS AND AREAS FOR IMPROVEMENT

ACHIEVEMENTS

In the Blue Carbon Readiness Framework for Pillar 2, Mozambique shows strengths on several levels. Blue Carbon features prominently in the country's NDC commitments. GHG emissions and removals from mangroves fall within the mitigation as well as the adaptation scope. They are also part of Mozambique's REDD+ accounting. The NDC includes a specific (if not too ambitious) action-based target for mangrove restoration.

Regarding NDC implementation, the 2021 NDC offers guidance on Blue Carbon, and the country has moved to formulate a (now outdated) Implementation Plan (2018). The NDC highlights the importance of REDD+ for the implementation of mitigation targets, including through World Bank-supported projects MozBio, FIP, Sustenta, MozNorte, and the Zambézia Integrated Landscape Management Program (ZILMP). The Implementation Plan assigns responsibilities for the achievement of NDC targets to specific government agencies and ministries and integrates the protection of biodiversity and coastal ecosystems (including BCEs) into mitigation and adaptation goals. The government has also issued a dedicated Mangrove Strategy alongside its REDD+ Strategy and a national adaptation plan. Horizontal policy commitments on marine spatial planning (2021 POEM) and the Blue Economy (2017 POLMAR, 2023 EDEA) mainstream coastal protection into all other economic sectors.

Mozambique also has several strong legal provisions for mangrove and seagrass protection and management, especially under the 1997 Land Law, the 2014 Conservation Law, and the 2020 Fisheries Regulation (REPMAR). The 2018 REDD+ Regulation has proved a fit-for-purpose mechanism to foster the development of REDD+ activities along the coast of Mozambique.

The material law commitments are matched by several robust institutional structures and actors. Fishing communities are widely organized in CCPs, many of which are on the way to legal recognition. MIMAIP is the lead government agency, responsible for overseeing policy development, implementation, and – through ProAzul (see next section 4.2) – financial facilitation. The REDD+ institutional framework, with FNDS's REDD+ MRV Unit, provides rigorous technical management and oversight. While they are yet to go into operation, the country has enacted legal frameworks that foresee public-private and community partnerships.

AREAS FOR IMPROVEMENT

There is plenty of room for improvement — the current NDC lacks a firm commitment to the use of the 2013 Wetlands Supplement when defining the NDC mitigation scope and the NDC accounting framework. Mangrove forests are part-in and part-out (since soil carbon is excluded). Seagrass beds and salt marshes are not covered at all. The REDD+ reference level omits soil carbon (see also above, Pillar 1). The action-based target (5,000 ha restoration) was recycled from the Mangrove Strategy and watered down in ambition, with the timeframe moved from 2022 to 2025.

On NDC implementation, the 2018 Plan should be updated, especially to align with current and subsequent NDC targets, as well as targets of other policies such as the Mangrove Strategy. That said, conservation and restoration targets for Blue Carbon, for the short, mid-, and long term, are still missing. New implementation plans should consider setting priorities, as well as firm action commitments within a roadmap that contemplates technical, policy, community, and financial aspects. In fact, it is not clear whether the government plans (at the very least) a new Mangrove Strategy for the time beyond 2024/2025.

While most BCEs benefit from abstract legal protection (they are in partial protected areas), concrete protection is scarce. There are few Marine Protected Areas with considerable presence of BCE. However, while there is consensus among stakeholders that this should change through a substantial scale-up of protected areas, and while priority areas have long been identified (including at the level of POEM), regulators have been procrastinating on the issue. The reality is that additional legal protection does not necessarily mean heavy additional commitments of administrative personnel and finance.

Existing legislation allows at numerous levels for tailored public-private partnerships, including for the co-management of protected areas and for cooperation with communities, but public-private partnership opportunities lie mostly dormant. This applies to the single most effective instrument in Blue Carbon enhancement connecting public management entities with the private sector and leveraging private finance: the REDD+ Regulation. While public entities are nominally entitled to operate a REDD+ program, the regulation does not actually promote public-private partnerships. The upshot is that actual opportunities for public sector entities – which will struggle to fully operate a REDD+ program in-house—fall flat. In fact, all of the REDD+ licenses under consideration are private sector-driven, without a clear path for public sector entities such as ANAC, which is responsible for the management of MPAs.

The REDD+ Regulation is also weak in securing land access and carbon title. While the regulation declares that carbon rights are a priori owned by the State and that the State can give out REDD+ licenses, these general rights collide in practice with the legitimate holders of land title, including communities that rely on customary rights. Beyond a vague reference to "benefit sharing," there are no clear provisions in the REDD+ Regulation on how REDD+ license applicants can secure land title and involve communities. This seems to generate bottlenecks for implementation as well as challenges to environmental equity.

At the institutional level, despite the presence of strong government and private (including community) actors, Blue Carbon governance as a whole remains frail and little coordinated. Enforcement of mangrove protection lies mostly with under-resourced districts. MIMAIP is the central regulator, planner and executer, yet it is not clear whether it has the resources it needs to carry out its wide set of duties. These include habitat protection, fisheries governance, and powers under marine spatial planning policies, as well as the Blue Economy. Competing agencies often take precedence. A case in point is the Ministry of Energy, whose permits trump any other permits, including a REDD+ permit.

MIMAIP, although linked to REDD+ licensing for mangrove forests, could have a bigger role in providing for government action. The Ministry takes part in the "consultation" and "supervision" of REDD+ strategies, as part of the REDD+ Supervision Committee. However, it could get involved in the entire REDD+ licensing process from delineation to definition of a theory of change, from integration of communities to securing land access and benefit sharing.

In the same way, MEF, another member of the REDD+ Oversight Committee,[74] could expand its role into decision-making. While MEF is currently designing a carbon market regulation which has implications for the future of REDD+, its influence is somewhat limited in the domains of REDD+ licensing and the mechanisms for generating carbon benefits. Its more guiding than decision-making role in REDD+ poses a potential threat to the Blue Carbon sector in future regulation and the broader investment framework for Blue Carbon.

Across stakeholders, a platform is missing that could connect currently siloed activities. This platform could tap into the large pool of resources, technical capacity, and knowledge of government agencies, research organizations, communities, NGOs, and the private sector to create meaningful levels of support for Blue Carbon interventions.

74 Articles 11 and 12 of the 2018 REDD+ Decree.

3.4

FINANCE (PILLAR 3)

FIGURE 7. PILLAR 3 STATUS BASED ON DECISION TREE FRAMEWORK.

DECISION TREE PATHWAY	STATUS	STATUS EXPLANATION
Does your country have a Blue Carbon finance and investment strategy in place?	M	Partially yes. POLMAR laid the foundation for Blue Economy development. ProAzul assists in the development of Blue Economy activities, e.g. it published the Portfolio of Blue Finance Opportunities (screens potential investment of $900 million).
		Develop an actionable plan to operationalize financing through existing policies and institutions.
Have you operationalized specific funding tools?	M	Several financial tools have been implemented: • Private-public partnerships through MozBio • Results-based finance with Zambezia ER REDD+ program • REDD+ finance pipeline for mangroves
		Finance opportunities missing for other BCEs. Adopt a framework that owns Blue Carbon financing tools.
Does your country intend to use carbon markets as a means of investment?	H	Waiting for the carbon market strategy to be published. Rules for Article 6 and VCM to be incorporated.

QUALITY L M H — LOW HIGH

PROGRESS → → — LIMITED ADVANCED

ACHIEVEMENTS **MISSING**

3.4.1 BLUE CARBON FINANCE STRATEGY

While Mozambique has made significant progress in establishing a cohesive framework to enable blue financing, important additional steps remain for facilitating and leveraging funding into Blue Carbon conservation and restoration activities. Following the 2015 reforms to the structure and remit of MIMAIP, the ministry began designing what has become the country's first Blue Economy agenda (see above, Sections 3.3.6 and 3.3.10.1). The Legal Regime for the National Maritime Zone Use (RJUEM), adopted in 2017, provided initial guidelines for coastal zone management, land use, and zoning. It was followed by the adoption of the Sea Policy of 2017 (POLMAR), which laid the foundation for Blue Economy development. These frameworks served as the starting point for the two-year Marine Spatial Planning process (POEM).

In 2007, a conservation conference in Maputo brought together government, academia, the private sector, civil society, NGOs, and donors, all in agreement about the necessity of an environmental fund. This concept advanced further in 2011 with the formal establishment of BIOFUND.[75] A private non-profit Mozambican institution with public utility status, it mobilizes and manages financial resources for the benefit of biodiversity conservation in Mozambique. Over the years, the institution has effectively raised and managed endowment funds, pass-through funds, and project implementation funds. It has played a crucial role in supporting programs focused on coastal ecosystems, including the Biodiversity Offsets Program, MozNorte, MozRural, and MozBIO.

Subsequently, in May 2019, following the "Growing Blue" conference in Maputo, the Mozambican Government established ProAzul, a Blue Economy development fund.[76] ProAzul aims to promote the sustainable development of blue economy activities through the allocation of resources and support for the management of programs, projects, and investments. Since its inception, ProAzul has played a crucial role as an intermediary connecting stakeholders and offering information about project financing needs for Blue Economy development. To date, ProAzul has successfully managed and coordinated several projects with donor funding.

75 BIOFUND (October, 2023). Sobre nós. https://www.biofund.org.mz/sobre-nos/oque-e-a-biofund/

76 ProAzul. Quem Somos. http://www.proazul.gov.mz/quem-somos/

PROAZUL PROJECTS

PROJECT AND PARTNER	DESCRIPTION	BUDGET
MOZRURAL **- World Bank**	Works to improve the performance of small agricultural producers and fisheries to increase their productivity and access to markets. Helps MSMEs upgrade their sales and implement climate-smart agriculture practices.	$24.7 million
MOZNORTE **- World Bank**	Aims to improve the livelihoods of vulnerable communities and the management of natural resources in rural areas of northern Mozambique, including forestry, fisheries, biodiversity, and soil, adopting community-driven and climate-sensitive approaches to enhance the management of natural resources on which rural livelihoods depend.	$21 million
SWIOFISH- MZ **- World Bank**	Works as part of a regional collaboration that is tasked with reducing resource degradation and strengthening the management of selected priority fisheries at community, regional, and national levels. al levels.	$37 million
MAISPEIXE SUSTENTÁVEL **- World Bank**	Oversees a matching grant program to raise the incomes traditional fishermen, promote micro, small, and medium-sized enterprises, and increase awareness of aligning economic development with the sustainability of marine resources.	$4.5 million (Phase 1) $14 million (Phase 2)
RESILIÊNCIA DAS COMUNIDADES COSTEIRAS ÀS MUDANÇAS CLIMÁTICAS **- Sweden**	Works to implement an integrated approach in sea and coastal areas, covering activities such as restoring and managing marine ecosystems, identifying diverse livelihood opportunities, and supporting the local governance framework for greater local involvement in decision-making.	$1 million
MILLENNIUM CHALLENGE CORPORATION	Among other activities, oversees the Coastal Livelihood and Climate Resilience (CLCR) projects, which promote sustainable management for marine resources such as mangroves. The funds will benefit the province of Zambézia and two districts bordering the north of Sofala and south of Nampula.	$100 million
FUTURO AZUL **- BIOFUND, IUCN, RARE, OIKOS AND BLUE VENTURES**	Promotes sustainable management of ecosystems, through the restoration and conservation of mangroves, seagrasses, and coral reefs.	$8 million

In a strategic move to match financing to projects in Mozambique's Blue Economy, ProAzul introduced the Blue Investment Opportunity Portfolio.[77] The portfolio identifies initiatives aimed at developing solutions for environmental and economic challenges related to natural resources and oceans. It seeks to promote sustainable economic growth and protect the environment by engaging a wide range of stakeholders, including governments, companies, civil society, and local communities.

The portfolio lists blue opportunities in six major sectors. They are:

I.

Fishing and Aquaculture,

II.

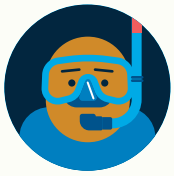
Renewable Energy and Marine Extractive Industry,

III.

Transport and infrastructure,

IV.

Natural Capital, Environment, and the Circular Economy,



V.

Coastal and Marine Tourism, and

VI.

Governance and Capacity Building.

ProAzul prioritizes projects for each pillar and estimates the required investment. Between all projects, it is screening a total of $900 million in potential investment

(see Appendix 5).

77 ProAzul 2023.

Among projects the Portfolio has identified, two involve conserving and restoring Blue Carbon ecosystems. The "Green Infrastructure for a Resilient and Sustainable Blue Economy" project (Pillar 4) focuses on financing initiatives for developing eco-friendly infrastructures to protect the coastal and marine environment, including mangroves, seagrass, dune forests, sand dunes, coral reefs, and their ecosystem services. Part of this project entails identifying economic opportunities for the private sector to advance the conservation and sustainable use of these natural resources. For this project, the Portfolio is screening $20 million in potential investment.

The second project, "Building Resilience of Coastal Communities through Ecosystem Adaptation," aims to mitigate climate impacts on communities in the Limpopo, Zambeze, and Bons Sinais estuaries. One of the planned mitigation activities, which will protect against floods and storms, is stressing nature-based solutions, such as rehabilitating and conserving mangroves. In total, the Portfolio is seeking $50 million in investment for this project.

While the Portfolio has effectively identified Blue Economy projects requiring funding, it lacks clarity in explaining how actual investment can be secured. It does not provide specific guidance on the tools or methods that could finance these activities or on ProAzul's or other Mozambican institutions' specific roles in the process. Even though Mozambique has progressively developed a framework to support the Blue Economy, it lacks an implementation plan that describes key sectors and available resources.

Discussions with stakeholders in Mozambique suggest that the government has not yet surveyed financing needs, sources, and instruments. In this regard, the development of a Blue Economy satellite account could move the process further along by providing transparency on domestic and external financial flows related to the Blue Economy. This tool would clearly illustrate the contribution of relevant sectors to the country's economy, streamline budget allocation for the Blue Economy, and enhance donor coordination.

3.4.2 OPERATIONALIZED FUNDING TOOLS

Mozambique relies on international donor funding to protect its forests and coastal ecosystems. According to studies, Mozambique's protected area system requires annual funding of $68-135 million per year. Yet the country's government provides only about $2 million per year.[78] To bridge the gap, the country has managed to receive funding through a range of international initiatives (for an overview of anchor initiatives with coastal impact, cf. Appendix 6).

78 Baghai et al. 2018.

3.4.2.1 PUBLIC INTERNATIONAL INITIATIVES

The World Bank has been a key international donor partner. Cooperation between the Bank and Mozambique on REDD+, led within the framework of the Forest Carbon Partnership Facility (FCPF), has generated important institutional infrastructure, notably the creation of FNDS REDD+ MRV Unit (see chapter 4.2.7.1) as well as a specific funding program, the Zambézia Integrated Landscape Management Program (ZILMP).[79] This results-based carbon finance program – provided under an emission reduction purchase agreement (ERPA) with the FCPF's carbon fund in the amount of $50 million (ceiling) – includes conservation management activities for some 50,000 ha of mangroves.[80] The Bank is also spearheading programs to improve the management of conservation areas, including MPAs, with its Conservation Areas for Biodiversity and Development (MozBio, phases I[81] and II[82]). The GEF-funded, grant-based initiatives have a budget volume of more than $90 million.

PHOTO BY JULIANA CASTAÑO-ISAZA

79 Forest Carbon Partnership Facility 2018
80 Emission Reduction Purchase Agreement 2019.
81 World Bank. Mozambique Conservation Areas for Biodiversity and Development Project.
82 World Bank. Mozambique Conservation Areas for Biodiversity and Development Project- Phase 2.

The Blue Action Fund, a multi-donor facility that grew out of Germany's KfW, funds efforts by WCS (lead) and partners to establish an MPA of at least 1,000 km².[83] Local communities will take part in restoration activities, including mangrove and seagrass rehabilitation and coral reef recovery. Further support will come from several bilateral programs (funding sources include the UK Blue Planet Fund[84] and USAID) to improve the adaptive capacities, climate resilience, and prosperity of vulnerable coastal communities in developing countries. The Millenium Challenge Corporation (MCC) has just announced plans to spend some $100 million through ProAzul and BioFund for nature-based and youth and gender-inclusive solutions to restore mangroves and coastal ecosystems, and boost incomes from fisheries while building coastal communities' resilience to climate change.[85]

While most of this funding is classic grant finance, the Global Fund for Coral Reefs recently announced a program, MZ CoreInvest (grant base $100,000), that seeks to mobilize blended finance mechanisms for coral reef and mangrove programs and strengthen services in reef-dependent communities.[86] The conceptual approach is to combine various funding sources, including carbon finance and biodiversity offsetting finance, under Ministerial Diploma 55/2022 to implement Biodiversity Offsets (adopted under Decree 54/2015 of 31 December: Environmental Impact Regulation. Under this instrument, development projects (coastal as well as terrestrial) that harm biodiversity that is considered very important (including mangroves and seagrass beds) must include offset plans to restore/rehabilitate biodiversity equivalents to what was lost, but in a location outside the direct influence of the development project.

As we have seen above, Mozambique has effectively secured funding for its blue ecosystems, even in the absence of a clearly defined blue financial strategy. The country has primarily relied on two types of funding: results-based carbon finance (FCPF) and donor funding in the form of bilateral and multilateral grants. The absence of a strategy has meant that Mozambique has missed out on certain other instruments discussed at the international level, such as blue bonds and debt-for-nature swaps. The lack of a comprehensive strategy is further evident in the absence of a valuation of coastal ecosystem services. If available, it could inform budgetary planning and government strategies for attracting foreign direct investment in nature-based solutions for resilient infrastructure.

83 Blue Action Fund Grant Fact Sheet.
84 Department for Environment, Food & Rural Affairs, United Kingdom 2023.
85 MCC Mozambique Connectivity and Coastal Resilience Compact.
86 UN MPTF Office Partners Gateway.

3.4.2.2 PRIVATE INITIATIVES OF MANGROVE RESTORATION

While Mozambique's past mangrove restoration campaigns have encountered challenges, recent initiatives (particularly for mangroves but also seagrasses) are more promising. Criticism of the earlier efforts focused on ineffective mangrove restoration techniques, lack of monitoring and law enforcement, and poor integration of coastal communities.[87] Today, we have several studies to inform on restoration practices, including regional guidelines (for example, UNEP guidelines on best restoration practices for mangrove and seagrass ecosystems) and a national mangrove restoration guideline (2023) released by the Oceanographic Institute of Mozambique (InOM) for MIMAIP. It was produced in collaboration with many of the key Blue Carbon stakeholders in Mozambique (including the World Bank, BIOFUND, the Eduardo Mondlane University, WWF, and WCS).[88]

PHOTO BY ALEX BOMA

Also noteworthy are studies conducted by WWF (2014-2021),[89] whose findings underlaid one of the first Blue Carbon project finance initiatives to come from the REDD+ Regulation. All concern mangrove restoration and all are driven by international private firms. These are Carbon Capture Singapore (Maputo), Lomasul (Inhambane), Blue and Green Carbon (Nampula), Total Energies (Cabo Delgado), and Blue Forest (Zambezia). Blue Forest project (often referred to as MozBlue) is the most advanced (under licensing with MTA) and – if approved -- will be one of the largest reforestation projects in Africa. It seeks to restore mangrove across 140,000 ha. Its offset potential was estimated at approximately 15 million tons of CO_2 emissions during its 20-year lifetime.[90]

Table 5 below summarizes some of the most recent restoration campaigns.

87 Bandeira et al. 2016.
88 InOM 2022.
89 See https://www.blueforestsolutions.org/mozambique
90 Blue Forests 2023.

TABLE 5. BLUE CARBON RESTORATION CAMPAIGNS IN MOZAMBIQUE.

PROJECT DEVELOPER/ PARTNER	PROJECT NAME	YEAR	DESCRIPTION	LOCATION	SIZE	STATUS
Blue Forests. **Project partners include MIMAIP, InOM, MTA, FNDS, Eduardo Mondlane University, Eden, WWF, GRID-Arendal, and GEF.**	**Moz Blue**	To date	Largest mangrove reforestation project in Africa. Expected to offset approximately 15 million tons of CO_2 emissions during its 20-year lifetime.	Sofala and Zambezia provinces.	140,000 ha. Target to plant over 200 million mangroves.	Project under REDD+ licensing in Mozambique. Registration with Verra (VCS, CCB) is envisaged. Initial planting is underway.
Total Energies EP Mozambique, and Eden Reforestation Association (UniLurio University as project partner).	**N/A**	2022	Coral reefs and mangrove restoration. Including sustainable fisheries development.	Cabo Delgado province (pilot in the district of Palma), including Pemba, Maringanha, Wimbe, and Gimpia.	Expected: 5,000 ha	Planted more than 12 ha of mangroves.
MozParks Holding and Eden Reforestation Association. **Project partners include Maputo government**	**N/A**	2020-2022	Rejuvenation of mangroves, replanting of indigenous terrestrial trees, especially those bearing fruit high in vitamin C, and the preservation of existing indigenous trees.	Green Belt around Beluluane Industrial Park in Boane/ Maputo	260 ha	N/A
Ecologi and Eden Reforestation Association	**Mussuquelane**	2021-2025	Mostly reforestation of natural terrestrial forest. Includes mangroves.	Maputo province	Expected: 3,000 ha (not all mangroves). Target to plant about 3.3 million trees on site.	Project among those selling best Blue Carbon offsets. Prices to be determined.
The Carbon Offset Company and Eden Reforestation Association	**Casa Partida (Savane)**	2023	Mangrove reforestation with community management.	Casa Partida, Southern coastline, Sofala Province	854 ha. Expected to plant more than 8.5 million mangrove trees.	Project among the those selling the best Blue Carbon offsets. Prices to be determined after initial contact.

PROJECT DEVELOPER/ PARTNER	PROJECT NAME	YEAR	DESCRIPTION	LOCATION	SIZE	STATUS
Ecologi and Eden Reforestation Association	**Irregele Milato**	2021-to date	Mangrove restoration with community involvement.	Quelimane district, Zambezia province	756 ha	Project perhaps the first to sell mangrove credits, though these do not follow a recognized standard.
Blue and Green Carbon	**N/A**	N/A	Application submitted for REDD+ license covering 7 districts.	Angoche, Ilha de Mocambique, Memba, Moma, Mossuril, Nacala, Nacala-a-Velha	N/A	N/A
White Green Blue and Eden Reforestation Association	**N/A**	N/A	Together with Eden Reforestation, local communities, and other partners, the company restores degraded mangrove forests and reforests destroyed mangrove lands.	N/A	N/A	N/A
IUCN, Blue Forest company	**N/A**	2020-2022	Several mangrove plantation activities, developed with communities and other NGOs. Goal to obtain finance through carbon credits. The majority of net income generated over the multi-year project would be channeled to local communities living alongside the mangrove forests.	Maputo Province (Matola river), Mecufi district (Cabo Delgado), Inhassoro, Dondo district.	200 seedlings planted in Maputo. 420 seedlings planted in Dondo. Data not available for other districts.	In 2022, IUCN signed a MOU with Blue Forest company.
Peace Parks Foundation and Maputo National Park (PNM) authority. Project partners include ADRA-Mozambique.	**Part of initiative "Adaptation to Climate Change Based on Ecosystems, Conserving, and Building Resilience."**	2022-2027	Mangrove and seagrass restoration. Project goals also involve promoting sustainable community development in agriculture and capacitation of CCPs.	Matuituíne and Ilha da Inhaca	Goal: Rehabilitate 200 ha mangroves, and 3 ha seagrass meadows.	N/A

PROJECT DEVELOPER/ PARTNER	PROJECT NAME	YEAR	DESCRIPTION	LOCATION	SIZE	STATUS
RARE	**N/A**	To date	Restoration and conservation of BCEs (planning stage). It is a rare NGO that is working with several communities (CCPs) to protect coastal ecosystems.	N/A	N/A	N/A
WCS. Project partners include MIMAIP, MTA, InOM, ProAzul, BIOFUND, ANAC, IUCN, Rare, Oikos, and Blue Ventures.	**Futuro Azul--Building a blue future for ecosystems and people on the east coast of Africa.**	2022	Restoration, conservation, and sustainable management of ecosystems including mangroves, seagrasses, and coral reefs.	North of Nampula and South of Mossuril/ Ilha de Mocambique. Memba	N/A	WCS has a MOU with MIMAIP and MTA. Collaboration with InOM in developing a project to expand conservation areas, including creation of an intersectoral group to integrate the project results into the marine spatial plan POEM. The group includes some members of ANAC.
Oikos NGO. Project partners include CEPF, MARE researchers, local communities, Oikos, and Blue Ventures	**N/A**	2018-2022	Conservation and restoration of mangroves. Oikos, with the support of CEPF, brought together MARE researchers and local communities to improve participatory management of the Malanza and Praia das Conchas mangroves in São Tomé. On the east African coast, Oikos, Blue Ventures, and local communities have worked to promote the conservation and enhancement of the coastline of the Island of Mozambique and Mossuril.	São Tomé, Ilha de Moçambique and Mossuril	N/A	The project in São Tomé concluded and will be used as a model for intervention in other mangrove areas in Mozambique

PROJECT DEVELOPER/ PARTNER	PROJECT NAME	YEAR	DESCRIPTION	LOCATION	SIZE	STATUS
Fondation Segré	**N/A**	2021-2022	Restoration of degraded Blue Carbon ecosystems and conservation of threatened species and their habitats. Has provided more than $3 million through African Parks to support the Bazaruto Archipelago National Park MPA	Bazaruto	N/A	Started in the second half of 2022. Current status is unknown.
Solidariedade Mocambique. Project partner: Provincial Environmental Service of Nampula	**Part of the implementation of the Resistance and Resilience to Climate Change Project (PROMUC), financed by the United Nations Capital Development Fund (UNCDF), through the European Union (EU).**	2021	Mangrove reforestation.	Mecuburi river, in the Fungo community, on the outskirts of the main village of Memba / Nampula.	400 mangrove seedlings planted. Area of 600m^2	N/A
Communities (including CCPs)	**National Mangrove Ecosystem Restoration Program in the District of Nacala-à-Velha**	2021	Mangrove restoration program	Nampula	So far, a plan was announced to plant 34 ha in Nacala-à-Velha, 91.92 ha in Moma, 108 ha in Angoche, and 58 ha in Moma (most degraded areas). Until the end of 2024, however, the project expects to have a total of 631.4 ha planted.	N/A

PROJECT DEVELOPER/ PARTNER	PROJECT NAME	YEAR	DESCRIPTION	LOCATION	SIZE	STATUS
UNEP. Project partners: GEF, Eduardo Mondlane University	**Limpopo River Estuary**	2019-2023	Restoration of mangrove forests. First project using hydrological restoration in Mozambique.	Mahielene-Xai Xai district (about 200 km north of Maputo)	38 ha restored	N/A
Aga Khan Foundation (AKF) and IUCN. Project partners: German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety, and International Climate Initiative	**Locally Empowered Area Protection (LEAP) project**	2023	Mangrove reforestation and sustainable livelihoods implementation.	Metuge, Cabo Delgado province	N/A	N/A
Aga Khan Foundation (AKF)	**AKF project**	N/A	Mangrove reforestation and sustainable livelihoods implementation.	Mozambique Island, Nampula	N/A	The project has been used as a reference for the LEAP project above.
Environmental Association (AMA)	**N/A**	N/A	Mangrove reforestation.	Mecufi District	N/A	N/A

3.4.3 CARBON MARKETS AS A MEANS OF INVESTMENT

Mozambique has expressed its intention to access international carbon markets and establish a national market of its own. While the size of funding that Blue Carbon assets might generate has not yet been explored in detail, Blue Carbon finance has considerable potential, as the strong interest in project development under the REDD+ Regulation shows. As a source of funding, it would offer continuity (project crediting may be in place for 20, 30, or more years) and close community involvement.

However, as of now, no consistent framework has been developed. In June of 2023, Mozambique joined the Africa Carbon Markets Initiative (ACMI) with the goal of advancing the development of a carbon market within its borders. This initiative is a collaborative effort led by Sustainable Energy for All (SEforALL), the Global Energy Alliance for People and Planet (GEAPP), the Rockefeller Foundation, and the UN Economic Commission for Africa, with support from the UN Climate Change High-Level Champions. Its objective is to lay the foundation for a thriving carbon market ecosystem in Africa by 2030.

For Mozambique to successfully establish a carbon market, it must define carbon pricing approaches and issue rules for carbon transactions and Article 6. Furthermore, MEF's role in overseeing procurement activities (including PPPs necessary for carbon agreements) and coordinating such projects across government entities should be streamlined in the carbon market framework, particularly by upgrading the agency's authority and capacity.

3.4.4 REDD+ FINANCE

While no consolidated estimates are available concerning the potential value of Mozambique's REDD+ results or disaggregated data for mangroves results, preliminary calculations point to considerable potential. Considering that the potential GHG benefit from one hectare of avoided mangrove deforestation in Mozambique stands at about 500 tCO_2 (or 700 over 30 years, as sequestration builds up), that annual loss of mangroves is in the range of 350 ha, and that the human-induced loss is about 50 percent of that value, the annual potential is in the range of 87,500 tCO_2 from mangrove conservation alone, excluding restoration work. At a price of $20, that would be $1,750,000 per year.

The fact that REDD+ license applications have been submitted for almost all coastal districts (in most of them, two applications per district) is a strong indicator that private carbon finance has high practical relevance in the country. Although an overall carbon market framework is still missing in Mozambique, the REDD+ Regulation provides guidance on how to build one.

3.4.5 BIODIVERSITY FINANCE

In 2022, the government of Mozambique issued a regulation on biodiversity offsets. Under the law, offsets are defined as measurable conservation outcomes generated from actions designed to compensate for adverse impacts on biodiversity caused by the development of a project – after appropriate measures to avoid, minimize, and restore the local biodiversity to its status quo have been attempted first (mitigation hierarchy). Implementing legislation is needed, and currently, a biodiversity offsets mechanism is under development by the MTA, with the support of BIOFUND and WCS. Biodiversity offsets will occur through establishment of new conservation areas, located away from the project's own zone. Many are to be managed by local communities. Generally, the mechanism will allow the private sector to contribute financially to the management and monitoring of biodiversity conservation activities.[91]

The biodiversity offset mechanism has yet to be applied to protect Blue Carbon ecosystems, but the ministry in charge of this development, MTA, has recognized two mangrove initiatives as having biodiversity-rich ecosystems that could benefit from finance – including biodiversity finance. These initiatives are the Gilé National Reserve project (GNR REDD+) and the Quirimbas National Park (PNQ), designated as a Marine Protected Area.[92]

91 ProAzul 2023.
92 MTA 2019.

3.4.6 ACHIEVEMENTS AND AREAS OF IMPROVEMENT

ACHIEVEMENTS

Applying the Blue Carbon Readiness Framework for Pillar 3, Mozambique shows overall strengths on several levels. It has accessed international funding sources (government, philanthropy, results-based) for a significant portion of Blue Carbon ecosystems—even in the absence of a clearly defined blue financial strategy.

The government relies on a set of nimble financial actors – notably ProAzul but also the BIOFUND – that provide targeted research, guidance, and funding along Blue Economy priorities. These include the protection and enhancement of blue natural capital, i.e. Mozambique's BCE.

Other bright spots to which Mozambique can point are its strong experience with REDD+ funding, and the existence of an operational mechanism to steer private investment to REDD+ jurisdictional programs—these put the country apart from most others in Africa. The new mechanism on biodiversity offsets may prove a smart tool for diversifying the country's payment for ecosystem services.

IMPROVEMENTS

While Mozambique has secured base funding for its blue ecosystems, even in the absence of a clearly defined blue financial strategy, it depends for the most part on grant-based funding that is delivered either through bilateral (government-to-government) means or international funds and development banks. Some philanthropy finance has become available and several international NGOs are active in the country (most of them linked to bilateral programs). However, private sector funding has been minimal. There are few examples of direct investments in conservation or restoration from private sources.

The Government of Mozambique has so far failed to present a pipeline of investable projects. For these, think private conservation areas and private restoration projects to mitigate coastal impact. The government has also not yet offered public-private partnership tools to manage conservation areas with public entities such as ANAC, or with communities. Public-private partnerships seem well suited to connecting government planning with private investment (think: blue, resilient infrastructure).

Dedicated funding tools with high international recognition – blue bonds, debt for blue nature swaps – and strategies to implement blended finance opportunities are missing. The offset-driven biodiversity finance is still largely untested, and REDD+ -based carbon finance opportunities remain largely untapped. None of the projects has received a REDD+ license, and there is lingering uncertainty about land access and carbon rights (see above, Pillar 2).


PHOTO BY JULIANA CASTAÑO-ISAZA

To address these gaps, the World Bank's "Financing Mechanisms for Sustainable Development in Mozambique" report has suggested that the Government of Mozambique, through ProAzul and other conduits, explore financing mechanisms from public and private finance These would include market-based instruments, blue bonds, debt conversions, carbon credits, and investment opportunities through impact investment. That suggestion remains valid.

IV. RECOMMENDATIONS

PHOTO BY JULIANA CASTAÑO-ISAZA

4.1

PILLAR 1: DATA & ANALYTICS

RECOMMENDATION 1

S M L MID-TERM

→ Refer to Checklist 2 of the BCRF.

Monitor and gather disaggregated activity data for BCEs and develop a framework to improve capacity for collection of activity data on salt marsh and seagrass ecosystems.

Developing a framework to improve data collection on salt marsh extent and area would enable Mozambique to leverage WS13 guidance to develop biomass and soil carbon estimates for salt marshes that could then be integrated into its national GHG inventory. If the current trend of salt marsh expansion into degraded mangrove ecosystems persists, understanding the salt marsh extent will be critical to accurately accounting for Mozambique's BCEs. While activity data are robust for mangrove ecosystems, disaggregation of mangrove forest activity data from terrestrial forest activity data is needed. Increased annual monitoring of mangrove ecosystems will enable improvements to existing activity data.

RECOMMENDATION 2

S M L **SHORT-TERM**

- → Refer to Checklists 3 and 4 of the BCRF.
- → Explore the Mangrove Alliance report on mangrove socioeconomic evaluation and conservation in Mozambique.
- → Leverage guidance from this report for the inclusion of coastal wetlands in GHG Inventories.

Utilize Tier 1 default values from WS13 to integrate mangrove soil carbon data into the GHG Inventory.

Estimates of mangrove carbon stocks are robust regionally thanks to research and restoration initiatives over the past decade. A good next step would be to increase coordination between organizations and research institutions that maintain data on regional mangrove carbon stocks. Development of a national dataset of mangrove soil carbon stocks would enable the calculation of a regional default value for mangrove carbon stocks and reduce reliance on the use of generalized Tier 1 default values.

Mozambique can strengthen its GHG Inventory through further integration of guidance from the 2013 Wetlands Supplement (WS13). Inclusion of estimates of mangrove soil carbon should be a primary goal for inventory improvements. As activity data and area estimates for salt marsh and seagrass ecosystems improve, integration of biomass carbon, and eventually soil carbon, estimates can be integrated into the inventory.

RECOMMENDATION 3

S M L **LONG-TERM**

- → Refer to Checklist 5 of the BCRF.
- → Follow up on guidance provided in Pillar 2 of this report.

Address valuation of mangrove ecosystems by building upon existing studies that assess Mozambique's mangrove ecosystem services.

Obtaining a better assessment of Mozambique's national mangrove ecosystem services will rely heavily on understanding where mangrove ecosystems are located and the drivers behind degradation and loss. The MRV Unit will play a key role in improving the national data capacity surrounding mangroves. Leveraging data from local research institutions can further scale data capacity. Global and regional (West Africa) research can help in this scaling as well. A 2013[93] study calls for an improved understanding of global biodiversity from the standpoint of human-nature interactions. Overall, improved research in this area could enable Mozambique to access biodiversity offsets or credits individually or as part of the journey towards carbon finance.

93 Pereira 2013.

RECOMMENDATION 4

S M L MID-TERM

→ Follow guidance from the Restoration Monitoring Tools Guide.

Establish a restoration monitoring system for Mozambique, determine tools needed to define restoration targets, and integrate these into existing and future MRV efforts.

While the MRV unit has made important advancements in its ecosystem monitoring system, needed improvements include developing restoration monitoring systems and tools to define restoration targets. A critical step to achieving this goal is creating a landscape monitoring system for Mozambique's existing restoration initiatives. The World Resources Institute provides an interactive Restoration Monitoring Tools Guide which can be a starting point for developing such a system. The guide walks the user through various questions and assists in determining which tools and guidance to leverage. Developing a national restoration monitoring system will bolster Mozambique's existing efforts in the expansion of MRV. Given the scope of work, the authors believe a political mandate, additional capacity in-country to support the MRV Unit, and additional finance are needed.

PHOTO BY JULIANA CASTAÑO-ISAZA

4.2

PILLAR 2: POLICY AND INSTITUTIONS

RECOMMENDATION 1

S M L SHORT TO MID-TERM

→ Refer to Checklist 5 of the BCRF.

For the 2025 NDC – Include new and ambitious Blue Carbon commitments.

The 2025 NDC will be an important touchpoint for new and ambitious Blue Carbon commitments. Among those should be a procedural commitment to apply the 2013 Wetlands Supplement to future NDC accounting (short-term/mid-term recommendation). This is important because, depending on the state of the GHG inventory and the capacity to report emissions and removals in line with the 2013 Wetlands Supplement, Mozambique may include BCE comprehensively within its economy-wide target. (Note: The country can always present stand-alone, action-based targets for BCE, regardless of the state of the inventory.) Mozambique should set out, in the next NDC update (if WS 2013 is not yet integrated), a clear timeframe for when it will report GHG emissions and removals.

RECOMMENDATION 2

S M L MID-TERM

→ Refer to Checklist 7.2 of the BCRF.

Renew the 2018 NDC implementation plan and develop a bespoke Blue Carbon Strategy.

The 2018 NDC implementation plan should be renewed in lockstep with future NDC commitments (2025), while a bespoke Blue Carbon Strategy takes shape. The implementation plan may go beyond the NDC commitments but should ensure that everything that is committed internationally will be implemented nationally. It should include all Blue Carbon habitats (seagrass beds and salt marshes among them), ascertain socio-economic values providing a sound Blue Carbon valuation, and identify conservation and restoration targets short, mid-, and long term. In addition, it should set priorities (including for interventions and project sites) and firm action commitments. All should be within a roadmap that contemplates technical, policy, community, and financial aspects.

RECOMMENDATION 3

S M L SHORT TO MID-TERM

→ Refer to Checklist 7.6 of the BCRF.

Scale up the network of MPAs and OECMs, targeting BCEs specifically.

At the level of legal implementation and enforcement, Mozambique needs to take up long-incubated plans to scale the MPA network, paying particular attention to BCE and accommodating landscape and seascape interests (short and mid-term). Equally, the country should consider increasing the number of OECMs. This can happen in tandem with deepening horizontal policy tools around MSP and the Blue Economy, or by extending the legal protection of BCEs along the coasts. In terms of legal protection, Mozambique could create clear, transparent, and enforceable frameworks stretching across all BCEs.

RECOMMENDATION 4

S M L SHORT TO MID-TERM

→ Refer to Checklists 8.4 and 9.5 of the BCRF.

Operationalize public-private and community partnerships, including for management of Blue Carbon projects.

Operationalizing public-private and community partnerships, especially at the community level, would bring broad benefits. This approach should encompass co-management formats, including those designed for Blue Carbon projects. Partnerships with the private sector are crucial for establishing clear ownership rights for conservation and restoration investments. Furthermore, these partnerships can play a vital role in identifying and implementing nature-based solutions, with a focus on Blue Carbon Ecosystems (BCE), and in constructing a resilient blue infrastructure. It is equally vital to develop laws that offer robust and specific guidance on governance of these partnerships, including benefit sharing. Mozambique also needs to build capacity within government bodies (including MEF), enabling them to better coordinate projects across multiple government entities and stakeholders.

RECOMMENDATION 5

S M L SHORT TO MID-TERM

→ Refer to Checklists 7.2 and 9.4 of the BCRF.

Revise the REDD+ Regulation, establish a process for securing land access and carbon rights, and offer guidance on benefit-sharing.

The REDD+ Regulation should be updated to clarify the specific role that communities have as necessary agents and/or partners and to lay out a process for securing land access and carbon rights. It should also include guidance on benefit sharing and define procedural and content benchmarks. For this, Mozambique can rely on World Bank models for community involvement and benefit sharing.[94]

These models should not be too rigid and should allow for divergence. To move forward, social inclusion aspects such as gender and integration of under-represented people and vulnerable communities must be considered for programs and projects. Then, the revised REDD+ regulation should be opened to mangrove conservation projects along the coast without a strict requirement to follow a jurisdictional, i.e., terrestrial approach.

RECOMMENDATION 6

S M L MID TO LONG-TERM

→ Refer to Checklists 8 and 5.1 of the BCRF.

Revise and strengthen institutional roles and responsibilities of agencies with a mandate over Blue Carbon areas, and promote coordination among stakeholders.

Institutionally, the role of MIMAIP and its responsibility for Blue Carbon conservation and restoration should be strengthened. That applies to the process of Marine Spatial Planning (where MIMAIP could be given veto powers), the REDD+ regulation (where MIMAIP should be more involved throughout the feasibility process, particularly in decision-making for mangrove projects), and the emerging carbon market regulatory framework. Furthermore, a close partnership between MEF and MIMAIP should be built to ensure that Blue Carbon conservation and restoration finance are leveraged through a range of regulatory approaches, including a regulatory framework on Article 6. Then, there is a need to build capacity within government bodies (MEF among them), including enhancing their ability to coordinate projects and PPPs across various government entities and stakeholders. Strengthening MEF's role in REDD+ licensing and carbon benefit mechanisms could be an option to safeguard the Blue Carbon sector in the upcoming carbon market regulation.

Finally, to link public and private stakeholders, we recommended creating an institutionalized communication and coordination platform. It would help bring together Government agencies, the private sector, academia, implementation partners, and other relevant actors in the development of Blue Carbon programs and projects. This platform could have a technical system for tracing mitigation and adaptation programs and projects (including restoration campaigns), feeding information into the NDC accounting process, and providing enhanced knowledge and skills for future action.

94 See https://www.worldbank.org/en/topic/climatechange/brief/enable-enhancing-access-to-benefits-while-lowering-emission

4.3

PILLAR 3: FINANCE

RECOMMENDATION 1

S M L SHORT TO MID-TERM

→ Refer to Checklists 9.5, and 9.6 of the BCRF.

Develop a blue finance strategy that targets bilateral and multilateral donor funding and implements innovative blue finance tools.

Mozambique should make it a priority to develop a blue finance strategy targeting bilateral and multilateral grants.[95] The strategy should define key sectors, outline available implementation tools, and pinpoint methods to finance prioritized activities. The financial framework should specify how a variety of financing alternatives and stakeholders will collaborate and complement each other. For instance, the strategy could promote blue blended finance, where public and philanthropic capital catalyze private investment, the issuance of blue bonds, and debt-for-nature swaps.

The ProBlue report "Financing Mechanisms for Sustainable Blue Economy Development in Mozambique" can serve as a valuable foundational tool for crafting a comprehensive and impactful blue financial strategy by providing essential insights and guidance.

RECOMMENDATION 2

S M L SHORT TO MID-TERM

→ Refer to Checklists 9.3, 9.4, and 9.5 of the BCRF.

Create a portfolio of investment-ready Blue Carbon initiatives to be funded, with details on responsibilities, funding opportunities, and community involvement, including through benefit-sharing arrangements.

Mozambique should create a pipeline of projects that are ready for investment. This entails identifying a list of Blue Carbon initiatives that are financially and operationally viable. They may include private restoration initiatives aimed at mitigating coastal impact. The pipeline should provide detailed information about the stakeholders and conditions for engagement and should outline strategies for involving communities in the short, medium, and long term, incorporating benefit-sharing arrangements as part of the overall plan.

95 See PROBLUE and Biodiversity factsheet at https://thedocs.worldbank.org/en/doc/dcb50c3383110e23850603bdf92fe065-0320072023/original/PROBLUE-GBF-CLEARED-and-FINAL-May-31.pdf

RECOMMENDATION 3

S **M** L MID-TERM

→ Refer to Checklist 9.5 of the BCRF.

Develop a Blue Economy satellite account (a tracking tool on cross-sector economic contributions associated with marine and coastal resources).

While ProAzul's Portfolio offers numerous examples of Blue Economy opportunities, it should pay closer attention to Blue Carbon opportunities. To enhance efforts to prioritize activities that need funding, the development of a Blue Economy satellite account[96] could provide transparency regarding domestic and external financial flows related to the Blue Economy. This tool would illustrate the contribution of relevant sectors to the country's Blue Economy, streamline budget allocation for it, and enhance donor coordination. Drawing on the data collected, decision makers could make informed choices about allocating additional finances.

RECOMMENDATION 4

S M L SHORT-TERM

→ Refer to Checklist 9.5 of the BCRF.

Promote public-private partnerships (PPP).

Promoting Public-Private Partnerships would reduce policy barriers to scaling private investment in Blue Carbon ecosystems while ensuring equity and transparency. As pointed out in Pillar 2, Mozambique has a framework enabling PPPs. These entities should facilitate ANAC's role in advising private partners interested in developing conservation areas and facilitate licensing agreements to participate in REDD+ projects in coastal areas. Therefore, the PPP mechanism should designate public entities that can engage in PPPs, define terms of engagement, and specify how private initiatives must engage relevant public entities and communities. Similarly, we recommend that the government establish stable investment parameters for the private sector, complete with models detailing how to involve communities in the short, mid-, and long terms, including through benefit-sharing arrangements.

96 A Blue Economic Satellite Account is an economic tracking tool that focuses on the economic contributions of sectors and activities associated with marine and coastal resources. These include revenue, employment, investments, and other economic indicators.

RECOMMENDATION 5

S M L MID-TERM

→ Refer to Checklist 9.6 of the BCRF.

Create a framework for Mozambique's carbon market and issue the implementing rules of Article 6.

While Mozambique should evaluate the use of diverse financing sources, its commitment to carbon markets is a strength that the country can capitalize on. Through a carbon market framework, Mozambique will incentivize industries and entities to reduce their emissions, while mobilizing funding to nature-based solutions. The framework will bring additional benefits, including flood protection, enhanced biodiversity, food security, and creation of new jobs. Moreover, the government should consider issuing the implementing rules of Article 6 of the Paris Agreement to give certainty to international stakeholders that are interested in the future of the Mozambican carbon market.

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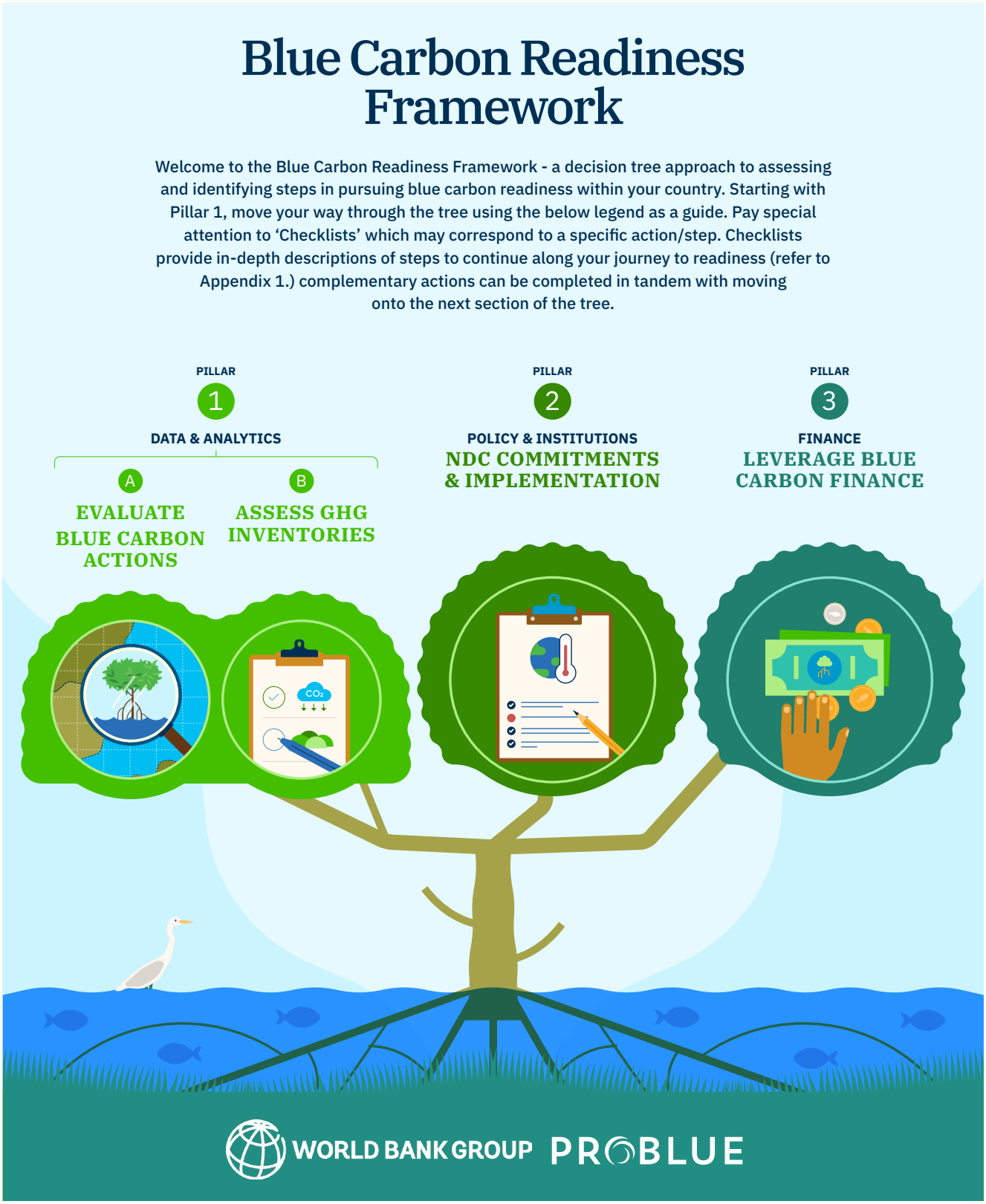
World Bank. 2023. "Unlocking Blue Carbon Development: Investment Readiness Framework for Governments." Washington, DC: World Bank. http://hdl.handle.net/10986/40334. License: CC BY-NC 3.0 IGO, https://openknowledge.worldbank.org/entities/publication/304fe159-e9ea-40ef-b568-fa6e8e992bb4

A. APPENDICES

PHOTO BY JULIANA CASTAÑO-ISAZA

APPENDIX 1

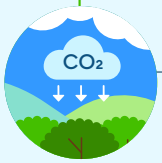
DECISION TREE



PILLAR 1

DATA & ANALYTICS

B ASSESS GHG INVENTORIES



1 GHG INVENTORIES

Are BCEs included in your country's GHG inventory?

NO → Use the Wetland Supplement and Tier 1 default values (or Tier 2/3 depending on available data) to determine carbon stock values for your country's BCE(s). Refer to Checklist 3 for steps and guidelines.

YES

Does your country apply the 2013 Wetlands Supplement (WS13)/2019 Refinement (R19)?

NO → Improve your GHG Inventory via integration of WS13/R19
- Identify where bottleneck(s) are – e.g., soil carbon data
- Review Checklist 3 for ways to improve your existing inventory

If you are engaging in REDD+

YES

2 REDD+ FOREST REFERENCE LEVELS

Has your country submitted a Forest Reference Level (FRL)/ Forest Reference Emission Levels (FREL)?

NO →
- Consider developing a REDD+ FRL/FREL with Blue Carbon integration
- Decide to build a separate blue carbon framework (using synergies)

YES →
- Review Checklist 4
- Confirm and iterate consistency between your Forest Reference Levels (FRL)/ Forest Reference Emission Levels (FREL) and your GHG inventory

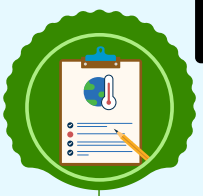
USE RESULTS FROM COMPLETED ACTION/ STEPS TO:

- Strengthen calculated carbon stocks by substituting regional/ local values in place of Tier 1 default values
- Compare calculated carbon stock values to existing activity data, and use results to improve your GHG inventory
- Integrate calculated carbon stocks into your FRL/FREL

GHG INVENTORY IS DONE!

YOU CAN MOVE ON TO PILLAR 2

while improving inventory capacities



PILLAR 1 A B 2 3

PATHWAY

ACTIONS/ STEPS

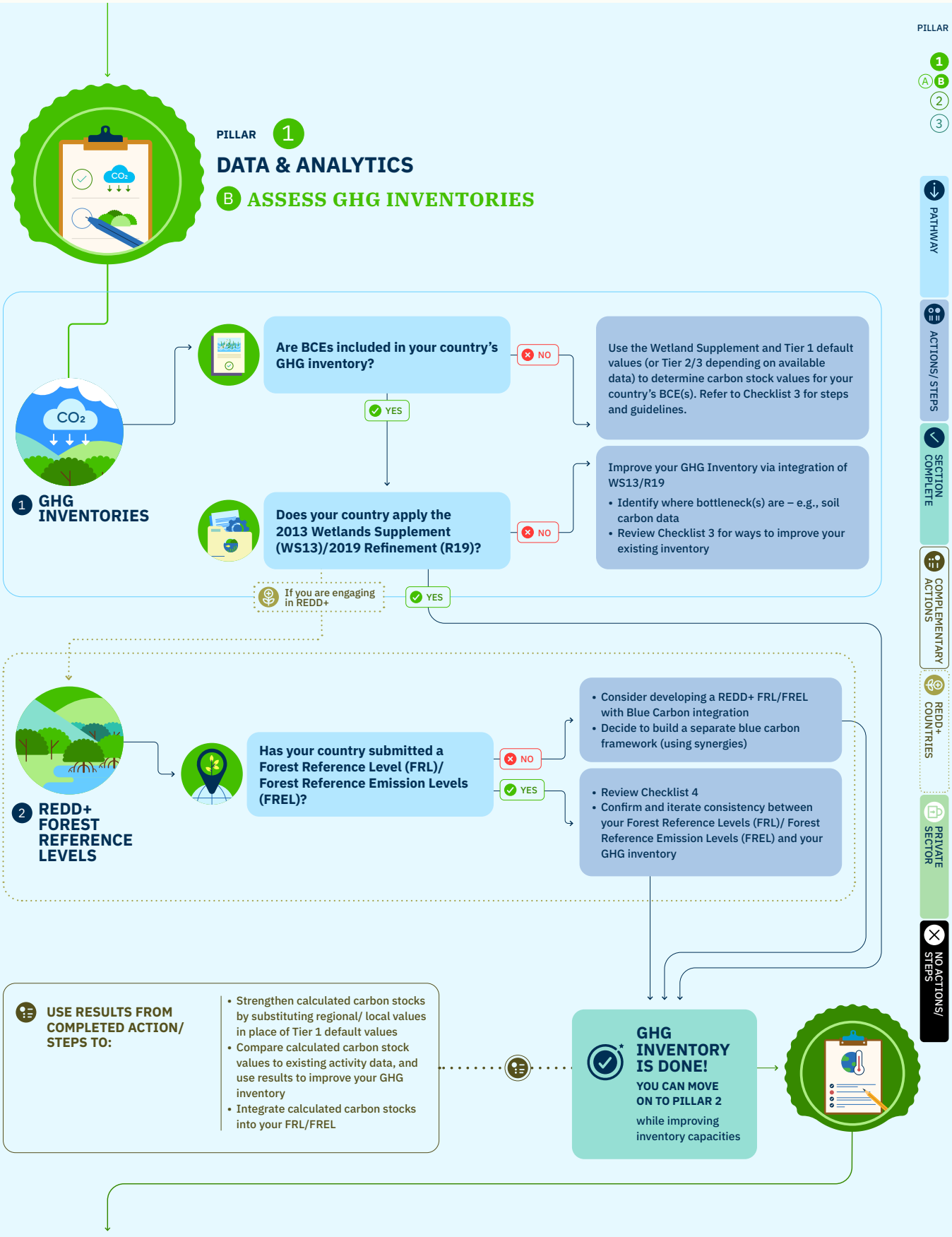
SECTION COMPLETE

COMPLEMENTARY ACTIONS

REDD+ COUNTRIES

PRIVATE SECTOR

NO ACTIONS/ STEPS


PILLAR
1
A B
2
3
PATHWAY
ACTIONS/ STEPS
SECTION COMPLETE
COMPLEMENTARY ACTIONS
REDD+ COUNTRIES
PRIVATE SECTOR
NO ACTIONS/ STEPS
PILLAR 1
DATA & ANALYTICS
B ASSESS GHG INVENTORIES
1 GHG INVENTORIES
Are BCEs included in your country's GHG inventory?
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YES
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NO
Improve your GHG Inventory via integration of WS13/R19
• Identify where bottleneck(s) are – e.g., soil carbon data
• Review Checklist 3 for ways to improve your existing inventory
YES
If you are engaging in REDD+
2 REDD+ FOREST REFERENCE LEVELS
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• Decide to build a separate blue carbon framework (using synergies)
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• Compare calculated carbon stock values to existing activity data, and use results to improve your GHG inventory
• Integrate calculated carbon stocks into your FRL/FREL
GHG INVENTORY IS DONE!
YOU CAN MOVE ON TO PILLAR 2
while improving inventory capacities

PILLAR 2

POLICY & INSTITUTIONS

NDC COMMITMENTS & IMPLEMENTATION

1 IDENTIFY COMMITMENTS

Are emissions and removals from BCE(s) included in your country's NDC?

YES

YES

NO

CONSIDER | Extending the scope of your NDC to account for BCE(s)

- Make sure your GHG inventory can accurately report emissions and removals from BCE(s). If your country cannot yet do this, you can still acknowledge the mitigation impact of BC interventions → **Move to Box 2 below.**

- Turning this procedural milestone into a target, e.g., by [Year] or when submitting the second Biennial Transparency Report, [Country] will use the WS13 and account for all anthropogenic carbon stock changes in [BC Habitat] and [BC Habitat 2].

FOCUS ON | Acknowledging mitigation impact of BC interventions Formulating stand-alone (action) targets:

- Halt and reverse all degradation in [BC Habitat]
- Restore [#] hectares of [BC Habitat]

Synchronize and refine with existing policy instruments beyond mitigation (and/or climate change), notably National Adaptation Plans NBSAPs

Does your county have a REDD+ framework that integrates BCE(s)?

FOCUS ON | Accounting for Emissions Reduction/Removals
[Review Checklists 5 and 6]

1. Consider inclusion in economy-wide or sector-wide (AFOLU) targets and/or
2. Include action-specific target such as "restore x hectares of mangroves by [date]".

FOR REDD+ COUNTRIES
Build reference levels for conservation aligned with REDD+ targets, and define sequestration targets for restoration

2 IMPLEMENT YOUR NDC

If you are engaging in REDD+ → Review integration of BCE(s) in your REDD+ policy framework

Do you have an NDC Implementation Plan?

NO

NO

YES

NEXT STEPS

1. Where feasible, prepare a cost-benefit analysis for conservation and restoration options (use CWON and other datasets for valuation)
2. Develop a bespoke Blue Carbon Strategy
3. Work through MSP and ICZM
4. Focus on land tenure and community involvement
5. Tackle bottlenecks to implementation
6. Design the plan with Section 4 (Financing) in mind
7. create a benefit sharing arrangements
8. Policy reforms for BCEs conservation, restoration, or sustainable management (NBS).

Refer to Checklist 7 for a detailed list of next steps

ADDRESS THE PRIVATE SECTOR:

Set out investment parameters and clear guidance for the private sector engagement (cf. Section 4: Financing, see below)

Promote private sector initiatives and create institutional structures for private sector and community involvement (planning, decision making, implementation

Does your plan incorporate appropriate institutional/governance frameworks?

NO

YES

FOCUS ON | Design of Bespoke Governance Framework
[Review Checklist 8]

FOR REDD+ COUNTRIES
Checking if your REDD+ framework provides key structures (to be adjusted as needed)

1. Identifying and using or synchronizing with parallel governance frameworks on adaptation/resilience, private sector initiatives, technology transfer, and more.
2. Developing an institutional/ governance framework:

- Technical governance (task force / technical unit) for FRL calculation, MRV, and other
- Institutions & policy governance
- Financial governance (receiving and distributing funding in line with benefit sharing arrangements)
- Community governance models to drive implementation

USE RESULTS FROM COMPLETED ACTION/ STEPS TO:

- Use input data to inform biennial NDC reporting and accounting
- Design commitments for subsequent rounds of NDCs and long-term plans
- Seek synergies with policy actions across the board (SDG focus)

YOU CAN MOVE ON TO PILLAR 3

PATHWAY
ACTIONS/ STEPS
SECTION COMPLETE
COMPLEMENTARY ACTIONS
REDD+ COUNTRIES
PRIVATE SECTOR
NO ACTIONS/ STEPS

PILLAR 3

FINANCE

LEVERAGE BLUE CARBON FINANCE

Does your country have a blue carbon finance and investment framework in place?

YES

NO

FOCUS ON | Developing a framework that integrates with the implementation plan

1. Scrutinizing existing funding flows to benefit/disadvantage Blue Carbon investments
2. Conduct Stock-take of financing approaches (including the use of mechanisms such as Article 6 and jurisdictional REDD+/RBCF) and sources/instruments (concessional and non-concessional, considering innovative business models, see further below)
3. Set out stable investment parameters for the private sector, including with respect to carbon finance: Define and allocate carbon rights, create mandates for carbon trading, and present models for community involvement and benefit sharing

FOCUS ON | Accessing Grant Funding

Accessing grant funding for capacity-building and related needs, namely:

- Design and operationalize the governance framework
- Inventory work
- BCEs mapping, carbon stock assessments
- Preparation of a pipeline of shovel-ready projects
- Conceptualization of blue infrastructure finance

Have you operationalized specific funding tools?

NO

YES

CONSIDER | Operationalizing in line with survey above – leverage tools such as:

- Concessional instruments, including blended finance instruments and philanthropy
- Dedicated sovereign and/or corporate debt finance instruments (blue loans, blue bonds)
- Blue infrastructure /NBS finance
- Business models that stack multiple revenue streams
- Results Based Carbon Finance (RBCF)
- Blue carbon project finance (carbon markets)

Review Checklist 9 for examples and guidelines on leveraging investment.

Does your country intend to use carbon markets as a means of investment?

YES

NO

CONSIDER |

- Using Article 6 of the Paris Climate Agreement;
- Allowing Voluntary Carbon Markets with corresponding adjustments

PILLAR 1 A B 2 3

PATHWAY

ACTIONS/ STEPS

SECTION COMPLETE

COMPLEMENTARY ACTIONS

REDD+ COUNTRIES

PRIVATE SECTOR

NO ACTIONS/ STEPS

APPENDIX 2

LAWS AND POLICIES

LEGAL INSTRUMENT	RELEVANCE FOR BLUE CARBON
1997 Land Law	Grants the government ownership of all land and resources and specifies the community's user rights (DUATs). Most mangrove forests are classified as partial protected areas within the law (special protection).
1997 Environmental Law	Provides principles and overall rules regarding the environment, including a legal basis for conservation areas.
2004 Constitution	Reinforces the government ownership right to all land and natural resources, including soil, subsoil, interior waters, continental shelf, and EEZ. Specifies that mangrove forests and seagrass areas are owned by the State. The right to a healthy environment for communities is protected, with the State as the guarantor of this right, including by adopting sustainable development policies.
2018 REDD+ Decree	Is the main legal instrument providing a framework for the development and registration of forest conservation and restoration projects and programs (REDD+). Licenses are granted by MTA, after an opinion from FNDS, and can last for a period of 20 years, renewable for equal time.
2021 Marine Spatial Plan (POEM)	Defends the need to develop a Blue Economy framework in the country, as well as to promote sustainable development and to ensure conservation and restoration of coastal and marine natural ecosystems in order to minimize the effects of climate change.
2014 Conservation Law	Establishes the "national system of conservation areas," with governance principles that include an obligation for citizen participation in the management and benefits of conservation areas, the principle to establish and operate public-private partnerships, the precautionary principle, and the principle to seek international and cross-border cooperation.
2022 Biodiversity Offsets Regulation	Creates the legal framework for the generation of biodiversity offsets from actions that protect endangered biodiversity ecosystems, particularly through restoration or rehabilitation of biodiversity or through activities that reduce anthropogenic impact on biodiversity in Conservation Areas or areas of high ecological value.
2017 Policy and Strategy for the Sea (POLMAR)	Prioritizes the conservation of marine and coastal resources – including mangroves – in connection with a community's right to a healthy environment. Reinforces that mangrove ecosystems, coral reefs, seagrasses, coastal dunes, beaches, cliffs, seabed and subsoil should be conserved and properly managed. Objectives also include developing the Blue Economy and promoting sustainable fishing.

LEGAL INSTRUMENT	RELEVANCE FOR BLUE CARBON
2017 Regulation on the Maritime National Space (RJUEM)	Establishes rules for the protection of coastal areas, including rules that govern concessions and licenses for use of coastal areas.
2019 Law of the Sea	Establishes rules and limits of use in Mozambique's coastal zone and maritime areas. Provides concession rules for the private use of areas, which on principle should benefit the public interest.
2020 Fisheries Regulation /REPMAR	Creates the CCPs or community fisheries councils (Comunitários de Pesca), which are the main community bodies in charge of local management of fisheries areas. Establishes no-take zones and provides rules regarding fishing practices in order to protect coastal ecosystems. The law also bans the live harvesting of corals.
National Strategy and Action Plan for the Management of Mangroves (2020 – 2024)	Establishes a policy goal to fight deforestation that is due mainly to anthropogenic causes. Includes specific targets to ensure sustainable and participative management of mangrove forests; promote the protection, conservation, and restoration of mangrove forests; promote diversification of livelihoods for local communities; implement sustainable finance mechanisms for mangroves; and reinforce fiscalization, reassess legislation, and promote education.
1999 National Land Policy	Defends the securing of customary land rights and promotes the idea of attracting investment into rural areas.
National Strategy for Climate Change Adaptation and Mitigation (NSCCAM or ENAMMC / 2015-2035)	Highlights the importance of mangroves in increasing fisheries resilience through the regeneration and implementation of coastal protection measures in mangrove forests.
National Strategy for the Management and Conservation of Coral Reefs (ECOR/ 2022-2032)	Establishes as main strategic objectives to "by 2032, lose no more than 5% of current live coral coverage and no more than 5% of the current extent of coral reefs due to human causes" – with the rate established using 2022 as reference year – and to have "by 2030, the legal instruments, programs, and mechanisms for implementing the strategy and at least 30% of the coral reef area in Mozambique effectively conserved in Marine Conservation Areas." Designates MIMAIP as the institutional coordinator of the policy. Mentions seagrasses only once, concerning monitoring and mapping efforts with the objective of having, by 2026, knowledge of seagrass distribution associated with coral reefs.

APPENDIX 3

PORTFOLIO SUMMARY TABLE

QUADRO SUMÁRIO DO PORTFÓLIO

PILARES	PROJECTOS PRIORITÁRIOS IDENTIFICADOS	INVESTIMENTO USD, 10^3
I. Pesca e Aquacultura	P1.1. Programa de Apoio ao Desenvolvimento da Aquacultura Sustentável - Aquablue	65.000
	P1.2. Estruturação da cadeia de produção e comercialização da tilápia para os pequenos e médios produtores - Aldeias de Tilápia	50.000
	P1.3. Projecto de produção aquícola nas “terras salinizadas” do Regadio do Chokwe	40.000
	P1.4. Fortalecimento da Rede de Comercialização e Distribuição dos Produtos da Pesca	30.000
	P1.5. Programa integrado para o Desenvolvimento Sustentável da Pesca Artesanal	55.000
	P1.6. Aumento dos estoques através do repovoamento de espécies de holotúrias (pepino-do-mar)	260
II. Energias renováveis e Industria Extractiva Marinha	P2.1. Projecto de criação de alternativas de renda, aumento da segurança alimentar e energética para as comunidades rurais	80.000
III. Transporte e Infraestruturas	P3.1 Infraestruturas para o Uso Sustentável dos Recursos Pesqueiros e Conservação do Ambiente Marinho	150.000
	P3.2. Portos Azuis de Moçambique	151.000

QUADRO SUMÁRIO DO PORTFÓLIO

PILARES	PROJECTOS PRIORITÁRIOS IDENTIFICADOS	INVESTIMENTO USD, 10^3
IV. Capital Natural, Ambiente e Economia Circular	P4.1. Infraestruturas Verdes para uma Economia Azul Resiliente e Sustentável	20.000
	P4.2. Investigação Científica Sustentável para uma Economia Azul Saudável e Competitiva	40.000
	P4.3. Reciclagem, tratamento e conversão de plásticos	30.000
	P4.4. Programa de substituição de Artes de Pesca Nocivas por tecnologias de pesca sustentáveis	30.000
	P4.5. Construindo a resiliência das comunidades costeiras através de adaptações ecossistêmicas	50.000
	P4.6. Produção sustentável de culturas hortícolas em zonas costeiras	700
IV. Capital Natural, Ambiente e Economia Circular	P4.7. Projecto Diga não ao desperdício!	150
	P4.8. Co-financiamento de Iniciativas para o Desenvolvimento de Negócios Azuis - Matching Grants para o Desenvolvimento de Negócios Azuis	20.000
	P4.9. Incubadora de PMEs voltadas para a Economia Circular no quadro da Economia Azul Sustentável	3.000
V. Turismo Costeiro e Marinho	P5.1. Programa de Turismo Azul Sustentável	20.000
	P5.2. Plataforma de Integração do Turismo na Economia Circular	5.000
VI. Governação e Desenvolvimento de Capacidades	P6.1. Reforço da Capacidade Institucional e Capital Humano para o Desenvolvimento da Economia Azul	40.000
	P6.2. Fiscalização Oceânica e Costeira	20.000
	P6.3. Zona Económica Sustentável da Economia Azul	2.000
	P6.4. Promoção de Janela de Oportunidades de Negócio na Economia Azul em Moçambique - Blue Cluster de Moçambique	2.000
	P6.5. Conta Satélite de Economia Azul	1.000
	P6.6. Literacia do Meio Aquático	1.000
	P6.7. Salvaguarda do Património Marítimo	605
	TOTAL	**~900.000**

APPENDIX 4

DONOR FUNDING INITIATIVES IN MOZAMBIQUE

This Appendix shows large donor initiatives who may fund specific conservation/restoration campaigns (including those in Table 5).

DONOR FUNDING INITIATIVES IN MOZAMBIQUE

INSTITUTION	PROJECT NAME	DESCRIPTION	AMOUNT
World Bank	**Conservation Areas for Biodiversity and Development (MozBio Phase I and II)**	The two-phase project seeks to enhance the effective management of the Conservation Areas in Mozambique and enhance the living conditions of communities in and around the Conservation Areas.	Phase I: Financed by the International Development Association and the Global Environment Facility, for $46.3 million, channeled through the World Bank. Phase II: $45 million International Development Association grant channeled through the World Bank.
BMZ, Public Fund founded by the German Federal Ministry for Economic Cooperation and Development , KfW Development Bank, the Swedish Ministry for Foreign Affairs, Agence Française de Développement, the Norwegian Agency for Development Cooperation (Norad), and Irish Aid.	**Blue Action Fund (BAF)**	BAF aims to enhance the management and use of coastal and marine ecosystems to conserve marine biodiversity for future generations while improving the lives of local people today. It pursues that mission by making targeted grants to non-governmental organizations active in developing countries. For that, BAF has the **"Building a blue future on the East African coast, Mozambique"** project or "Blue Future", which aims to have "by 2027 a new 1,000 km^2 sustainable use Marine Protected Area" established.[97] Wildlife Conservation Society leads the project to establish the MPA. Local communities will be involved in restoration activities, including mangrove and seagrass rehabilitation and coral reef recovery.	Building a blue future on the East African coast, Mozambique was awarded a grant of €5,913,746.

97 https://wcsbluefuture.com/en/#:~:text=The%20Building%20a%20Blue%20Future,operated%20community%2Dmanaged%20fishing%20areas%2C

DONOR FUNDING INITIATIVES IN MOZAMBIQUE

INSTITUTION	PROJECT NAME	DESCRIPTION	AMOUNT
UK Blue Planet Fund	**Climate and Ocean Adaptation and Sustainable Transition (COAST)**	The program aims to improve the adaptive capacities, climate resilience, and prosperity of vulnerable coastal communities in developing countries (Mozambique is a priority country). It focuses on key themes: • coastal nature-based solutions, • small-scale fisheries management, • sustainable aquaculture production, • inclusive coastal planning and governance.	The COAST program has £154 million in funding from the UK Blue Planet Fund. Started in 2023, it will run to 2030.
Multi-partner trust fund	**The Global Fund for Coral Reefs (GFCR)**	This is a blended finance mechanism towards coral reef ecosystem conservation and resilience and strengthened services in reef-dependent communities. Among other activities, the MozCorinvest program will provide carbon finance for the protection and long-term development of mangroves in the Primeiras and Segundas Archipelago. Several companies will develop capacity for reef, mangrove, and seagrass restoration, for clients needing offsets under Mozambique's Biodiversity Offsetting Decree.	Stakeholders hope to mobilize $500 million in grants and investment capital. In 2022, the Executive Board approved $99,441 for MozCorinvest in Mozambique.
Multi-sector alliance	**Ocean Risk and Resilience Action Alliance (ORRAA)**	This group aims to drive investment into coastal natural capital by developing innovative finance solutions to deliver a sustainable and equitable Blue Economy and more resilient coastal communities. **Blended Finance Facility for Marine Protected Areas (MPAs).** Blended finance is under development to implement sustainable revenue-generating initiatives in marine protected areas in the Bahamas, Belize, Cabo Verde, Dominican Republic, Fiji, Indonesia, Mozambique, Philippines and Tanzania.	

DONOR FUNDING INITIATIVES IN MOZAMBIQUE

INSTITUTION	PROJECT NAME	DESCRIPTION	AMOUNT
USAID **Implemented by CrossBoundary LLC**	**PLANETA**	This three-year program aims to provide Mozambican partners, public and private, with the knowledge necessary to establish connections and implement nature-based carbon capture projects in Mozambique.	USAID will invest more than $2 million in PLANETA over three years. Work began in 2023.
USAID	**Feed the Future Resilient Coastal Communities (RCC)**	RCC aims to improve the resilience of coastal communities of South Pemba and North of Maganja de Costa. Part of the coastal and marine ecosystem activities will focus on reducing threats to the ecosystem in high biodiversity areas by leveraging the private sector and other sources of investment for employment and income generation through sustainable livelihood approaches. Working under the RCC umbrella, one of the project partners, Rare, currently leads a Blue Carbon pre-feasibility assessment.	Five-year program awarded with $24 million.
Millenium Challenge Corporation (MCC)	**Coastal Livelihoods and Climate Resilience (CLCR) project**	MCC is an independent U.S. government agency working to reduce global poverty through economic growth. The CLCR project will use nature-based and youth and gender-inclusive solutions to restore mangroves and coastal ecosystems and boost incomes from fisheries while building coastal communities' resilience to climate change.	Budget of $100 million.
IUCN and Aga Khan Foundation	**Locally Empowered Area Protection (LEAP) project**	The LEAP project aims to improve livelihoods in coastal Mozambique while reducing pressure on natural resources such as mangroves. The project will draw lessons from a recent AKF project on Mozambique Island, Nampula province, that has seen the successful replanting and protection of mangroves by members of the local community.	Supported by the German Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU) and the International Climate Initiative (IKI).

WORLD BANK GROUP

PROBLUE
HEALTHY OCEAN • HEALTHY ECONOMIES • HEALTHY COMMUNITIES

MOZAMBIQUE

2024

A BLUE CARBON READINESS ASSESSMENT