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Report No: ICR00005302

IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF 18151-BR

ON A

GRANT

IN THE AMOUNT OF SDR 18.2 MILLION

(US$18.2 MILLION EQUIVALENT)

TO THE

BRAZILIAN BIODIVERSITY FUND - FUNBIO

FOR THE

BR MARINE PROTECTED AREAS PROJECT

September 9, 2020

Environment, Natural Resources & The Blue Economy Global Practice
Latin America and Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective Mar 30, 2020)

Currency Unit	=	Brazilian Real
5.1985 BRL	=	US$1
US$ 1.37057	=	SDR 1

FISCAL YEAR
July 1 - June 30

Regional Vice President:	Carlos Felipe Jaramillo
Country Director:	Paloma Anos Casero
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Practice Manager:	Valerie Hickey
Task Team Leaders:	Adriana Goncalves Moreira, Sylvia Michele Diez
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ABBREVIATIONS AND ACRONYMS

ARPA	Amazon Region Protected Areas program
CBD	Convention on Biological Diversity
CEPENE	Conservation of Marine Biodiversity of the Northeast
CONABIO	National Committee on Biodiversity
COP	Conference of Parties
CNPT	National Center for Research and Conservation of Sociobiodiversity Associated with Traditional Peoples and Communities
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
PA	Protected Area
ELAPIS	Latin American Meeting on Protected Areas and Social Inclusion
FUNBIO	Brazilian Biodiversity Fund
GDP	Gross Domestic Product
GEF	Global Environment Fund
GEF MAR I	Marine Protected Areas Project I
GEF MAR II	Marine Protected Areas Project II
GEO	Global Environmental Objective
GoB	Government of Brazil
IBAMA	Brazilian Institute of the Environment and Renewable Natural Resources
ICMBio	Chico Mendes Institute for Biodiversity Conservation
ICR	Implementation Completion and Results report
IP	Indigenous Peoples
ISR	Implementation and Supervision Report
IUCN	International Union for Conservation of Nature
MCPA	Marine and Coastal Protected Area
MF	Marine Fund
MMA	Ministry of Environment
MME	Ministry of Mines and Energy
MTR	Mid-Term Review
M&E	Monitoring and Evaluation
PA	Protected Area
PAD	Project Appraisal Document
PC	Project Council
PCU	Project Coordination Unit
PDO	Project Development Objective
PES	Payment for Ecosystem Services
PGL	Local Management Plan
PIU	Project Implementation Unit
PNAP	National Protected Areas Strategic Plan
PNMA II	2000 Second National Environmental Program
POC	Project Operational Committee
POM	Project Operations Manual
PROBIO I	Conservation and Sustainable Use of Brazilian Biodiversity Project I

SAMGe	*Sistema de Analise e Monitoramento da Gestao*/Management System for Analysis and Monitoring
SAPIS	Brazilian Seminar on Protected Areas and Social Inclusion
SCD	Strategic Country Diagnostic
SMART	Specific, Measurable, Achievable, Relevant, and Time-bound
SNUC	National System of Protected Areas
TTL	Task Team Leader
UCMC	*Rede de Unidades de Conservação Marinhas e Costerias*/Network of Marine and Coastal Protection Areas
UN	United Nations
WB	World Bank

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DATA SHEET

BASIC INFORMATION

Product Information

Project ID	Project Name
P128968	BR Marine Protected Areas Project
Country	**Financing Instrument**
Brazil	Investment Project Financing
Original EA Category	**Revised EA Category**
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Brazilian Biodiversity Fund - FUNBIO	Brazilian Ministry of Environment - MMA

Project Development Objective (PDO)

Original PDO

The Project's Global Environmental Objective (GEO) is the same as the Project's Development Objective (PDO), namely, (a) to support the expansion of globally significant, representative and effective Marine and Coastal Protected Area System in Brazil, and (b) to identify mechanisms for its financial sustainability.

FINANCING

	Original Amount (US$)	Revised Amount (US$)	Actual Disbursed (US$)
World Bank Financing			
TF-18151	18,200,000	18,200,000	18,200,000
Total	**18,200,000**	**18,200,000**	**18,200,000**
Non-World Bank Financing			
Borrower/Recipient	99,660,000	0	0
Total	**99,660,000**	**0**	**0**
Total Project Cost	**117,860,000**	**18,200,000**	**18,200,000**

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
19-Sep-2014	18-Dec-2014	21-Aug-2018	31-Oct-2019	31-Mar-2020

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US$M)	Key Revisions
23-Aug-2017	3.82	Reallocation between Disbursement Categories
05-Aug-2019	9.59	Change in Loan Closing Date(s) Reallocation between Disbursement Categories

KEY RATINGS

Outcome	Bank Performance	M&E Quality
Satisfactory	Satisfactory	Substantial

RATINGS OF PROJECT PERFORMANCE IN ISRs

No.	Date ISR Archived	DO Rating	IP Rating	Actual Disbursements (US$M)
01	26-Jan-2015	Satisfactory	Satisfactory	0

02	28-Aug-2015	Satisfactory	Satisfactory	1.29
03	13-May-2016	Satisfactory	Satisfactory	1.61
04	09-Dec-2016	Satisfactory	Moderately Satisfactory	2.14
05	15-Jun-2017	Satisfactory	Moderately Satisfactory	3.36
06	19-Dec-2017	Moderately Satisfactory	Moderately Satisfactory	4.52
07	22-Jun-2018	Satisfactory	Satisfactory	6.25
08	12-Nov-2018	Satisfactory	Satisfactory	7.44
09	09-May-2019	Satisfactory	Satisfactory	9.21
10	13-Dec-2019	Satisfactory	Satisfactory	9.67

SECTORS AND THEMES

Sectors

Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	**100**
Other Agriculture, Fishing and Forestry	100

Themes

Major Theme/ Theme (Level 2)/ Theme (Level 3)	(%)
Private Sector Development	**100**
Jobs	100
Environment and Natural Resource Management	**100**
Renewable Natural Resources Asset Management	80
Biodiversity	80
Environmental policies and institutions	20

ADM STAFF

Role	At Approval	At ICR
Vice President:	Jorge Familiar Calderon	Carlos Felipe Jaramillo
Country Director:	Deborah L. Wetzel	Paloma Anos Casero

Director:	Deborah L. Wetzel	Anna Wellenstein
Practice Manager/Manager:	Emilia Battaglini	Valerie Hickey
Project Team Leader:	Adriana Goncalves Moreira	Adriana Goncalves Moreira, Sylvia Michele Diez
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I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. **Expanding Brazil's Marine and Coastal Protected Areas (MCPAs) is a vital means of safeguarding global public goods—the vast collection of ecosystems arrayed along Brazil's 7,500-km coastline.** At the time of appraisal for the Marine Protected Areas Project I (GEF MAR I), only 1.57 percent of marine and areas were protected by the MCPA network (*Rede de Unidades de Conservação Marinhas e Costerias – UCMC),* even though the coastal assets were among the region's most environmentally threatened.

2. **Enlargement of MCPAs can strengthen the sustainability of Brazil's fishing industry and improve the livelihoods of the many traditional communities in the coastal zones.** Both outcomes depend on healthy marine resources and indirectly support efforts by the Government of Brazil to achieve the World Bank's twin goals of poverty reduction and shared prosperity.

3. **At Project appraisal, the coastal zone was estimated to account for roughly 70 percent of Brazil's GDP, making it key to continued recovery and development of a blue economy.** Brazil's economy had showed relative resilience during the 2008 financial crisis and recovered quickly in 2010, but growth slowed by 2013 to about 2 percent, with threats including climate change likely to become reality. Despite the sluggish growth, the outlook was positive as the decade continued, with poverty and inequality continuing to decline. Brazil was and continues to be a country with impressive natural resources and growth potential but it is battling structural impediments including burdensome tax and labor regulations, an insufficiently skilled workforce, and poor infrastructure.

4. **Brazil had in place at appraisal a comprehensive legal framework for creating and maintaining coastal Protected Areas (PAs).** The 2000 Second National Environmental Program (PNMA II) included coastal zone management as a focus. This was reinforced by Law Nº. 9.985 (SNUC Law) and regulated by Decree Nº. 4.340 of 2002, which established the National System of Protected Areas (SNUC) and the National PAs Strategic Plan (PNAP), via Decree 5.758 of 2006. Together, these initiatives have served as a blueprint for implementing the country's commitments under the Convention on Biological Diversity (CBD).

5. **From the start, the Project engaged relevant and strategic partners to ensure effective management of the MCPA network.** In addition to government agencies responsible for creation and maintenance of federal Protected Areas—the Ministry of Environment (MMA) and its executive agency, the Chico Mendes Institute for Biodiversity Conservation (ICMBio)—and their state and municipal-level counterparts, the Project also joined with the Ministry of Mines and Energy (MME) and the public-private company *Petróleo Brasileiro S.A*. (Petrobras). The MME was working on national energy planning that needed to fit into strategies for creating new PAs and into extraction activities in the coastal and marine zone. Petrobras was one of the most influential stakeholders in the region and sector, particularly regarding its role and resources in marine science. Furthermore, in collaboration with the World Bank Project PROBIO I (Conservation and Sustainable Use of Brazilian Biodiversity – P006210), Petrobras had

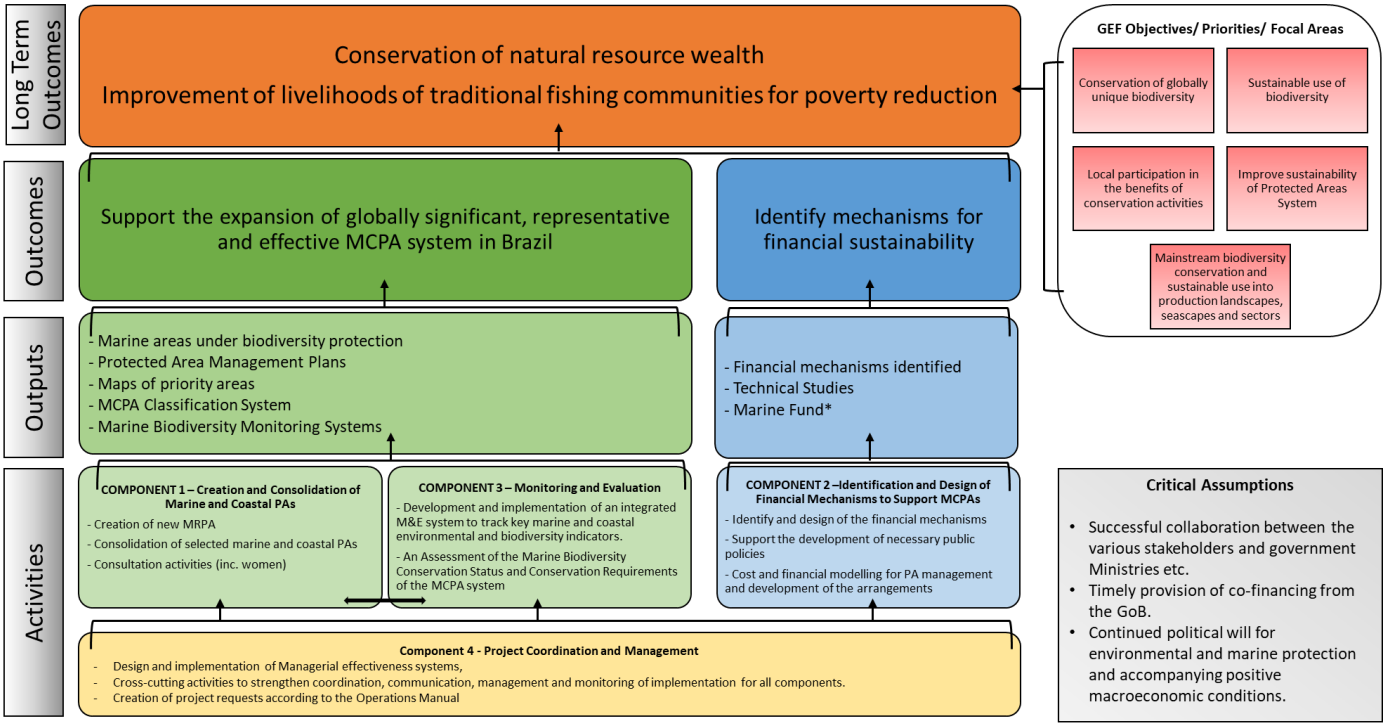
incorporated biodiversity into its long-term planning and environmental program and had undertaken several habitat-recovery and protection actions.

6. **At appraisal, the Project's objectives fit well into overall objectives laid out in the relevant Country Partnership Strategy (CPS) FY12- FY15.** One of the strategy's four objectives was to further improve the sustainable management of natural resources and enhance resilience to climatic shocks while maximizing contributions to local economic development. The CPS specifically referenced the Amazon Region Protected Areas Project from which this Project drew several lessons. The CPS also addressed the need to further develop the national system of protected areas, a specific objective of this Project. Some of the Project's later focus on the 2019 oil spill also aligned with work being undertaken under CPS on coastal pollution.

Theory of Change (Results Chain)

7. **A results chain/Theory of Change diagram was not included in the Project Appraisal Document (PAD)**. One has now been created from documents available at the appraisal stage of the Project. The Marine Fund that was set up at the second restructuring with undisbursed Project funds is also included to provide a complete picture of the Project. The diagram is presented in Figure 1, outlining activities, outputs, and outcomes. It also highlights the clear links to GEF objectives and summarizes critical assumptions that were made at appraisal.

Figure 1: Theory of Change



* The Marine Fund was created during the second Restructuring from planned project funding that was undisbursed

Source: Project team.

8. **The Project's long-term outcomes and GEF Objectives Priorities and Focal Areas revolve around conservation, biodiversity, improved sustainability, and local participation.** For the Project, these included the conservation of natural resource wealth and the improvement of livelihoods of traditional fishing communities for reduction of poverty. Achievement of both of these goals was buttressed by the two primary outcomes of the Project: to support the expansion of a globally significant, representative, and effective MCPA system in Brazil and to identify mechanisms for its financial sustainability.

9. **Activities and outputs all clearly contributed to the Project and higher-level outcomes.** Two sets of activities nurtured the creation and consolidation of MCPAs and the monitoring and evaluation of indicators that support the MCPA system. Specific outputs of the Project included an increase in the areas that came under and/or improved their biodiversity protection, along with maps and plans for protected and priority areas. Development and implementation of an integrated monitoring and evaluation (M&E) system was undertaken to track key marine and coastal environmental and biodiversity indicators. This work was underpinned by an initial assessment of the Marine Biodiversity Conservation status and requirements of the MCPA system. Additional activities and outputs focused on identification and design of supporting financial mechanisms. These included support of necessary public policies and cost and financial modelling for PA management, along with development of the arrangements themselves. Cross-cutting all of these activities were those related to Project coordination and development. These provided the foundation for implementation of the planned activities and achievement of outputs and outcomes, both those directly related to the Project and the higher-level outcomes to which the Project contributed.

10. **Certain critical assumptions were made which would need to hold to assure timely results through the lifecycle of the Project.** At the most basic level, the Project relied on a large amount of co-financing from the Government of Brazil arriving on schedule. It needed continuing close collaboration among the range of stakeholders and government ministries and institutions that carried out the various activities. The creation of new protected areas and maintenance of existing ones required sustained political will for environmental and marine protection. This will, in turn, was potentially contingent on a range of favorable macroeconomic conditions in Brazil and globally.

Project Development Objectives (PDOs)

11. **The original Global Environmental Objective (GEO) and Project Development Objectives (PDOs), as laid out in the Project Appraisal Document (PAD) and Grant Agreement,[1] have identical goals, split into two objectives with three GEO/PDO indicators.**

Objective 1: Supporting the expansion of globally significant, representative, and effective MCPAs in Brazil

- [GEO/PDO Indicator] Hectares of Brazilian marine territory brought under biodiversity protection (End Target: 17.5 million)
- [GEO/PDO Indicator] Hectares of Brazilian marine territory brought under *enhanced* biodiversity protection (End Target: 930,000)

Objective 2: Identify mechanisms for financial sustainability

- [GEO/PDO Indicator] Number of financial mechanisms to support the long-term sustainability of MCPAs designed and ready for implementation (End Target: 2)

[1] GEF Trust Fund Grant Number TF018151-BR

Components

12. **The Project was organized around four Components with total financing of US$117.86 million.** This was a combination of a grant of US$18.2 million from GEF/World Bank and US$99.6 million (equivalent of contributions in Brazilian Real) from the Government of Brazil (MMA and ICMBio), and MME and Petrobras. See Annex 3 for a summary of financing at appraisal and completion and differences in the figures. In response to shifting realities outlined in the report, the Project directed US$8 million towards the creation and financing of the Marine Fund. See Annex 6.A for more information. Annex 1B contains intermediate indicators and component-related results.

13. **Component 1: Creation and consolidation of Marine and Coastal Protected Areas.** This Component focused on the increase in area and the strengthening of the management of marine and coastal areas that were under formal protection. It included the creation and implementation of different categories for new and existing MCPAs and the establishment and strengthening of an effective system to do so. The Component was split into two sub-components: 1.1 to identify and create marine PAs and related seasonal or permanent no-take fishing zones in some of the MCPAs, and 1.2 to consolidate existing MCPAs. Component 1.1 was undertaken using a scientific and highly consultative process of prioritizing the sites and understanding what actions were required.

14. **Component 2: Identification and design of financial mechanisms to support Marine and Coastal Protected Areas.** This Component aimed to make the MCPA system financially sustainable and aid in the development of supporting public policies needed to ensure alignment between protected area policies and the central economic policies of the Planning and Treasury departments. Activities included cost modelling for PA management, financial modelling, and drafting of arrangements to create the mechanisms. Development of new financial tools and improvement of existing ones was another key part of this Component. Studies required for income-generating activities and related stakeholder assessments were completed. Also undertaken were studies, modelling, design, and structuring of potential revenue-generating mechanisms for PAs focusing on fisheries and for climate change-related mechanisms for payment for environmental services. At the end of the Project, the Marine Fund was created and capitalized with undisbursed GEF funding of US$8 million. For further information on the Marine Fund, see Annex 6A. Information specific to Restructuring 2 is in Section 1B.

15. **Component 3: Monitoring and Evaluation.** This Component focused on the development and implementation of an integrated M&E system to track key marine and coastal environmental and biodiversity indicators in Project-supported and other MCPAs.

16. **Component 4: Project coordination and management.** This Component focused on strengthening coordination, management, and communication for overall implementation of the Project. This included the day-to-day management and supervision of the Project by the Project Coordination Unit (PCU) and Project Implementation Unit (PIU), as well as the establishment and functioning of the Project Operational Committee (POC), Project Council (PC), and the Technical Working Groups. This Component also funded the development and implementation of the M&E systems to manage the effectiveness of the MCPAs and the MCPA system as a whole and their long-term financial sustainability.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION

17. **There were no significant changes during implementation of the PDO or outcome targets.** There were also no revised PDO Indicators, Components, or Other Changes other than two restructurings that had no effect on the assumed original theory of change.

- *Restructuring 1 (April 22, 2017):* This Level 2 Restructuring took place to incorporate changes linked to the World Bank's revised Procurement Guidelines of June 1, 2016. Reallocation of grant proceeds occurred to align with the new guidelines. There were no changes to the development objective, performance remained satisfactory, and there was agreement on the actions required with no outstanding or unsatisfactory audit reports.
- *Restructuring 2 (August 5, 2019):* This Level 2 Restructuring involved two main changes: (1) reallocation of grant proceeds between disbursement categories and (2) extension of the Project's closing date. A new Disbursement Category 1 was created for the establishment and initial capitalization of a new PA Trust/endowment fund, the Marine Fund. See Annex 6A for additional information on the Fund. With the creation of the Fund, it was deemed necessary to extend the Project's closing date by four months to finalize the Fund's set-up.

II. OUTCOME

A. RELEVANCE OF PDOs

High

Assessment of Relevance of PDOs and Rating

18. **Clear alignment exists between the Project's Objectives and those of the World Bank in Brazil.** This is evident in the current Country Partnership Framework (CPF) FY18-23 (Report No. 113259-BR) and other documents such as the Strategic Country Diagnostic (SCD) 2016 (Report No. 101431-BR) . The CPF FY18-23, continuing on from the CPF at appraisal, includes a related focus area and objective along with a specific indicator[2] that aligns directly with the objectives of the Project. The Framework states the need to continue to support management of natural resources in a sustainable way, combining conservation with promotion of local and regional economic development. It directly references the Project and the work to date to move this objective forward. The SCD discusses the importance of efficient use of land to achieving economic and environmental goals, but warns that agriculture is increasingly in conflict with the need to conserve valuable biomes and protect important resources. As a GEF Project, the work also clearly aligned with GEF focal areas and priorities. At the time of appraisal, these included conservation of globally unique biodiversity and its sustainable use while maintaining biodiversity conservation and sustainable use in production landscapes, seascapes, and sectors. The GEF priorities further aligned in the promotion of local participation in the benefits of conservation and improved sustainability of a Protected Areas System.

19. **The Project closely aligned with higher-level objectives of the Government of Brazil.** This was particularly clear in the linkage with Brazil's first report to the Conference of Parties (COP) 9, principles of the CBD, Ramsar Convention

[2] Focus Area 3: Inclusive and Sustainable Development, Objective 3.1 – Support the achievement of Brazil's NDC with a particular focus on land use, Indicator 18 – Areas of environmental significance under protection measures in target areas in the Amazon and coastal/marine regions.

on Wetlands of 1996, and eligibility criteria for Global Environment Facility (GEF) funding.[3] The alignment was most clearly laid out through the National Committee on Biodiversity (CONABIO), Decree Number 4.703 of May 22, 2003[4], and the National Biodiversity Policy, Decree Number 4.339 of August 22, 2002[5]. In addition, the Project is consistent with and has contributed to a large collection of national policies related to conservation goals, including biodiversity and sustainable development.[6]

20. **Policy commitments and progress achieved over the past decades have bolstered Brazil's ability to continue along a green growth path.** However, additional improvement of the management of Brazil's natural resources is essential for conservation and sustainable livelihoods for those who depend on the resources. MCPAs are a cornerstone of the blue economy, helping maintain a healthy, resilient, and diverse natural capital, which forms the basis of current and future socioeconomic development. Brazil continues to focus on the blue economy and recognize that new waves of blue investment are coming. The country has ambitious strategies encouraging blue/conservation finance, sustainable aquaculture, and eco-tourism. The large and growing contribution of the ocean and coastal regions to the economy is coming to the fore.

B. ACHIEVEMENT OF PDOs (EFFICACY)

Assessment of Achievement of Each Objective/Outcome

21. **Objectives and intended outcomes for this Project were achieved, with all three GEO/PDO indicators exceeded**. All indicators for the Project were met or exceeded, with the exception of three intermediate indicators that were narrowly missed (see Annex 1C). This had no bearing on meeting the PDOs. Furthermore, many achievements exceeded the indicators set at appraisal. Much supporting work showed excellent progress (see Section III.A). Towards the end of the Project, it became apparent that objectives had been met, so it was possible to create and fund an additional financial mechanism using undisbursed money and co-financing funds. This significantly advanced the Project's outcomes and higher-level long-term outcomes as well by providing the foundation for future monitoring and management of MCPAs.

22. **Over-achievement of some indicators was attributed to (1) conservative estimates of the targets during Project design based on evidence from similar projects and (2) outstanding collaboration among all implementing**

[3] The $18.2 million grant funding for this project came from the GEF.
[4] This Decree is composed of 12 articles, rules on the National Programme on Biological Diversity (PRONABIO) and on the National Commission on Biodiversity. PRONABIO is a program aimed at: orienting the elaboration and the implementation of the National Policy ion Biodiversity, promoting the implementation of the commitments undertaken by Brazil with regards to the Convention on Biological Diversity and defining the actions implementing the principles and guidelines of the National Policy on Biodiversity.
[5] The Decree, composed of two articles and one Annex, sets principles and guidelines for the implementation of the National Policy on Biodiversity. The Annex defines the general objective of the National Policy on Biodiversity, aimed at promoting, in an integrated way, biodiversity conservation and sustainable use of its components as well as the equitable distribution of the benefits derived from the use of genetic resources. The Annex defines the specific objectives of the National Policy on Biodiversity.
[6] Among these are the National Policy on Biodiversity; the 2010 National Goals for Biodiversity; the National Coastal Management Plan, 2012-2015; and the Sectorial Plan for Resources of the Sea (PSRM VIII). Others are the National Policy for Resources of the Sea (PNRM), which includes, among other things, the Sectorial Plan for Resources of the Sea (PSRM); the National Coastal Management Plan8 (PNGC); the Continental Shelf Survey (LEPLAC); the Evaluation, Monitoring and Conservation of Marine Biodiversity (REVIMAR); the Marine Mentality Program (PROMAR); the Ocean and Climate Observation System (GOOS); and the Oil and Gas National Zoning ZNMT.

partners. Collaboration was a risk factor that was difficult to reflect in the estimation of targets. Despite delays in obtaining MME/Petrobras funding, each partner brought its extensive expertise to MCPA management, which in combination amplified the positive impact of the interventions.

Objective 1 - Supporting the expansion of globally significant, representative, and effective MCPAs in Brazil.

23. **Achievement of this Objective was clear, and not just through the exceeding of the related indicators.** By Project close, 26.4 percent of the Brazilian Exclusive Economy Zone (EEZ) was under protection, including the large oceanic MCPAs of São Pedro, São Paulo, and Trindade-Martim Vaz. Both indicators of Component 1 (the area brought under enhanced biodiversity protection and Marine areas brought under biodiversity protection) , the key Component for achieving Objective 1, were greatly exceeded (by 551 percent and 164 percent, respectively). In addition, cross-cutting initiatives to strengthen the overall conservation management of the MCPA system were carried out, supported by public awareness activities including design of a website and preparation of communications materials. Several instruments designed for the Project, as well as studies and consultations on the creation of new coastal and marine protected areas, were completed. The importance of MCPAs cannot be overstated: they protect vital habitats and can assist in restoring the productivity of the oceans and avoiding further degradation. Overall, effective safeguarding of marine and coastal ecosystems, particularly through protected areas and their sustainable use by local communities, is fundamental to achieving other global objectives, targets, and national commitments.[7]

24. **Several other key outputs contributed to the strong achievement of Objective 1.** These included evaluation of the conservation status of 257 marine species along with the elaboration, evaluation, and monitoring of National Conservation Plans for marine threatened species. The Project also supported the development of a national monitoring strategy, several workshops and meetings for the design of the Program, and a training course for multipliers of the Monitora program. In addition, local management plans (PGLs) were prepared for the Resex Canavieiras, Cassurubá, and Corumbau extractive reserves with a focus on self-monitoring concerning endangered fishing species, such as Guaiamum and Budiões. Such actions helped communities residing in the interior and surroundings of the MCPAs to improve local productive chains. Evidence gathered during preparation for Sustaining Healthy Coastal and Marine Ecosystems Project—GEF MAR II (P168989), the follow-on Project)—also points to increased management effectiveness in various MCPAs. Protected Areas supported by the Project showed a higher level of effectiveness than PAs that were not supported. Analysis of the *Sistema de Analise e Monitoramento da Gestao (SAMGe)*/Management System for Analysis and Monitoring showed increased access to inputs (human, financial, and material resources), better alignment in the management of critical processes, and greater impacts of permitted uses (such as research, monitoring, and public use). The Project also undertook hiring through scholarship programs. These were evaluated as successful and serving to increase efficiency in supported MCPAs, especially in view of challenges in personnel allocation. Additional information about Objective 1 can be found in Section E.

[7] These include 2030 Sustainable Development Goals (particularly Goal 14); the Paris Agreement of the United Nations (UN) Framework Convention on Climate Change (particularly adaptation, but also mitigation); the 2020 Aichi Targets of the Convention on Biological Diversity (including Targets 11 and 12); the rights recognition and support for local and traditional communities, as well as Brazilian commitments in the UN Ocean Conference (SDG 14, New York 2017); and the IUCN World Parks Congress 2014. Source: Cláudio C. Maretti, Chico Mendes Institute (ICMBio). 2018. "Brazil increases marine protection to over 25percent." March 28, 2018. https://www.iucn.org/news/protected-areas/201803/brazil-increases-marine-protection-over-25

25. **Sub-projects undertaken by the Project also made important contributions to the achievement of Objective 1 by helping integrate traditional communities in supported areas.** These sub-projects numbered 20 and were selected through four calls for proposals. Some structures were already in place when the Project started, while others were developed through management of the PAs with support from the Project. All in all, the sub-projects provided important contributions towards empowerment, participation, and Project ownership by the local communities. See Annex 6 for additional information and Section E for specific information on gender outcomes, poverty reduction, and shared prosperity.

26. **The achievement of Objective 1 also had an important global impact.** Brazil has one of the world's top 10 longest coastlines, the world's second-largest national coverage of mangroves, unique coral assemblages, and a rich coastal culture. This makes Brazil a globally important country from a coastal and marine ecosystems perspective. A more sustainable society and marine-based economy, including ecological and cultural elements and social and economic benefits for current and future generations, has been fostered by the restoration and conservation of biological and social diversity, maintaining and recovering productivity, and strengthening climate resilience. The Project's outcomes should provide Brazilian social actors with an excellent base from which to broaden engagement on an ambitious ocean conservation strategy. They will help rank the country high among global leaders of ocean protection and sustainability.

Objective 2 - Identifying Mechanisms for Financial Sustainability (of Coastal Protection).

27. **The Project not only achieved this Objective by identifying mechanisms for financial sustainability—by Project close, it had put in place a mechanism for the long-term financing of PAs, the Marine Fund.** In line with the relevant GEO/PDO level indicators, four financial mechanisms were identified and made ready for implementation to support long-term financial sustainability. These were (1) federal environmental compensation, (2) an agreement between IBAMA and Petrobras for the co-financing of R$60,000,000 (approximately US$10.5 million), (3) development of a platform of financing under the New Blue Initiative and (4) development of a blue fund for the country's coastal and marine protected areas system. Ongoing cost modelling, being devised in conjunction with another MMA initiative, was initiated under Component 2 but was not completed due to procurement issues. Achievement of the related indicators can be reviewed in Table 2 and Annex 1B. By Project end, the original outcome of this Component had been exceeded, with the Project identifying financial mechanisms and then going on to establish one for PAs, the US$8.5 million Marine Fund. The Fund focuses on consolidating the system of protected marine and coastal areas (management of MCPAs, monitoring of research centers, and integration actions with communities). More details can be found in Annex 6. The Marine Fund means that financing can continue to flow to support and promote sustainable management of MCPAs well beyond the life of the Project. This financing mechanism will have long-lasting impacts.

Justification of Overall Efficacy Rating

Substantial

28. **A determination on achievement cannot simply be made based on indicators, but should also consider long-term outcomes.** The Project looked to conserve natural resource wealth and improve the livelihoods of traditional fishing communities which could contribute to poverty reduction. Continued political will and commitment will be required to ensure the success of expanded MCPAs. While identification of financial mechanisms was a Project objective, the implementation and use of these mechanisms and their sustainability will ultimately be what allows

livelihoods to improve. The Project was able to apply clear leverage, bringing in key stakeholders and ensuring ownership across multiple levels of society and government. It engaged communities while partnering at the government and private-sector levels and moving the blue economy and goals of conservation finance forward. The successor GEF MAR II Project will build upon this work.

C. EFFICIENCY

Assessment of Efficiency and Rating

Substantial

Cost-Effectiveness—Efficiency in Achieving Project Outcomes and in Project Implementation

29. **The Project met or exceeded its outcomes and with a high level of efficiency.** All components and staff supervision costs were managed within the laid-out budget. Although there was some delay in disbursement, this was dealt with through development and financing of the Marine Fund with the undisbursed funds, and appropriate restructuring within the original Project funding envelope. Furthermore, the continuity provided by the Bank task team and task team leader (TTL) added to efficient use of resources and ability to adapt as issues arose related to procurement and disbursement. Efficient administrative transactions and communications between implementing partners led to cost efficiency in achieving Project outcomes. Of particular note was the creation of a marketplace for clients and products for procurement. Framework agreements were set up with vendors to speed up the process. In addition, the second restructuring brought about adoption of the revised 2016 World Bank Procurement guidelines for the Project.

Economic Analysis

30. **A cost-benefit analysis was undertaken based on costs and benefits calculated for Component 1.** This Component, which concerned consolidation of Marine and Coastal Protected Areas, required a quantitative approach for benefit analysis. For the other Components (2, 3, and 4), a qualitative analysis was undertaken. Their benefits do not concern increasing the coverage of MCPAs, but rather on creating financing mechanisms for conservation of the areas, monitoring, and Project management. Their activities focused on sector policy instruments with social and environmental background. The detailed efficiency analysis can be found in Annex 4

31. **The economic analysis shows strongly positive economic impacts for 5-, 10-, and 15-year periods.** Cost-benefit ratios are between 1.75 to 2.45 with carbon price at US$4 and 12.79 to 17.96 with carbon price at US$60.[8] The results of quantitative simulations are robust in terms of sensitivity analyses, assuming different Project years, discount rates, and carbon prices. Throughout the analyses, the benefit assumptions were based on the values of ecosystem services in Brazil estimated in recognized studies. Based on Project results and the literature, analysis for Component 2 found that the Project generated benefits from the PES scheme for marine and coastal conservation and from local economic activities. The performance of Components 3 and 4 was relevant to sustainable development of the Project areas, in that resource managers and local communities can both contribute to efficient management of the Project. In summary, the Project has and will continue to greatly benefit Brazil and its communities, and also serves as a good example for countries in the region and globally.

[8] Environmental projects often do not carry out ERR/CBA calculations, so there is little literature for comparison on ratios, according to World Bank 2010, “Cost-Benefit Analysis in World Bank Projects.” In general, however, a ratio above 1 indicates positive benefits.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

Satisfactory

32. **The overall outcome rating of the Project has been determined as Satisfactory.** The Project objective was and continues to be highly relevant to development outcomes that were achieved with only minor shortcomings, resulting in a substantial efficacy rating. Furthermore, the Project shows substantial economic efficiency, with a strong positive impact demonstrated up to 15 years linked to the costs and benefits analysis for Component 1, which focused on the consolidation of Marine and Coastal Protected Areas. This was bolstered by the positive contribution of the three other components, concerning ecosystem services, sustainable development, and efficient management. Given the COVID-19 global pandemic, it is important to note that the fiscal resources of governments will be severely compromised. This could reduce public investment in Brazil and more widely. For that reason, the financing strategy of the MCPA system takes on even greater importance. Overall, it is clear that the Project has and will continue to have a substantial positive effect on expansion of globally significant, representative, and effective MCPAs and on identification of financial mechanisms for their long-term sustainability in Brazil.

E. OTHER OUTCOMES AND IMPACTS

Gender

33. **Brazil needs to continue efforts to reduce gender inequality and increase women's economic participation and opportunities.** A reversal in progress occurred in 2018 when the disparity between men and women rose to its highest level since 2011. Significant constraints remain to improving gender equality, but doing so could increase GDP per capita growth. This is particularly true with regard to people who are active in marine and coastal areas. All three gender tags were triggered at appraisal of the Project. Other than a disaggregated indicator (with no target set) related to the participation of women in consultation activities during Project implementation, no other indicators were developed to track specific actions to address identified gender gaps. Specific gender outcomes can result through the sub-projects and their aid to female economic/productive networks such as ones including artisanal fisherwomen and through building the capacity of these networks and strengthening income generation. The sub-project in South Bahia provides a particular example of this effect, with natural resource and fishery resource protection and biodiversity objectives aligning with strengthening of the associations.

Institutional Strengthening

34. **The Project contributed to institutional strengthening in multiple important ways.** The Project made a sensible decision to use known institutions to oversee Project implementation and meet various financial management and procurement requirements. This was particularly evident in the use of FUNBIO and other existing systems such as a platform for the Grievance Redress Mechanism.[9] The hope is that lessons learned from this Project can be communicated to institutions involved in future World Bank projects in Brazil. More information on lessons learned is in Section V. ICMBIO was also strengthened by Project activities. This was particularly evident in the national monitoring strategy that culminated in the publication of a Normative Instruction from ICMBio. This instruction set in

[9] By Project end, the GRM had registered receipt of three submissions, all of which were considered to have been dealt with satisfactorily.

place the National Biodiversity Monitoring Program(IN ICMBio Nº 03/2017). The Project supported several workshops and meetings for the design of the Program as well as a training course for multipliers of the Monitora program.

35. **The Project contributed to alignment and involvement of Research and Conservation Centers.** Although not all challenges were overcome, the *Conservacao da Sociobiodiversidade Associasa a Povos e Communidades Traadicionais* (National Center for Research and Conservation of Sociobiodiversity Associated with Traditional Peoples and Communities—CNPT), for example, was integrated into the Project. CNPT was key to the coordination of community sub-projects within the supported MCPAs and related activities, such as development of partnerships with artisanal fishermen in *PARNA da Lagoa do Peixe* . Work like this provides evidence of the broad space and support that the Project provided. *O Centro Nacional de Pesquisa* (the National Center for Research) and Conservation of Marine Biodiversity of the Northeast (CEPENE) reported that the Project helped lead those institutions to contribute to the strengthening of the northeast MCPA system concerning monitoring and to take part in the integration agenda with local communities.

36. **The Project helped in the implementation of various national tools.** For example, it aided the roll-out of the initial modules of the SALVE system, a tool that integrates the architecture of information systems in biodiversity and supports the evaluation of Brazilian fauna. SALVE functions as a database of evaluated species and as a tool for the control and monitoring of different stages of the process. Its system query module allows anyone to submit information about species that are undergoing evaluation. In addition, the Project is credited with enabling the preparation of the second Impact Reduction Plan directed at oil and gas exploration and production activities—PRIM/PGMAR, with publication expected shortly. The plan seeks to foster environmental management and support decision-making by building compatibility between biodiversity conservation and socioeconomic activities.

Mobilizing Private Sector Financing

37. **The importance of financing mobilized from Petrobras for the Project cannot be understated.** The involvement and financing through the arrangement between MME/Petrobras was a strategic development that was seen from the start as a means of opening the way for private-sector financing of MCPAs in the long term. This was the first Project in which the World Bank partnered with MME/Petrobras, despite their long-standing role in the national conservation dialogue. Petrobras' contribution was both in-kind and in-cash. The in-kind contribution was particularly useful in view of the history and resources of Petrobras regarding collection of biodiversity information.[10]

Poverty Reduction and Shared Prosperity

38. **Project interventions with traditional communities in rural coastal areas of Brazil aided people who are the poorest in the country.** This advanced one of the longer-term outcomes of the Project: to improve the livelihoods of traditional fishing communities as a means of poverty reduction. This goal was achieved through a variety of activities and technical assistance provided by the Project. Pilot programs addressed ways to make sustainable use of biodiversity to provide economic incentives for conservation. The scholarship programs and hirings were also an important source of benefits. Employment of scholarship holders was evaluated as successful and led to consolidation of supported MCPAs, helping alleviate some of the earlier problems of personnel allocation. Currently 80 fellows have been hired by the Project to support its implementation.[11] The Project's work related to the 2019 oil spill is also

[10] Annex 8 of the PAD outlines in detail Petrobras' Corporate Responsibility and Environmental Commitment.
[11] FUNBIO updated its research scholarship policy (P-41/2019), adopted from March 2020. Part of these adjustments were incorporated, with room for improvement of the mechanism.

acknowledged to have had positive impact on some of the poorest communities that the disaster afflicted. Further information on the spill can be found later in the report and in Annex 6C.

39. **The sub-projects for participatory management and community integration are worth a special mention, given their reach.** The sub-projects all focused on expanding communities' capacity to implement programs, promoting dynamism and ownership in implementation and co-management in MCPAs. The scope was broad. For example, in the south of Bahia alone, 8,180 families benefitted in 2018 from actions by community organizations linked to extractive reserves there.

Unintended Outcomes and Impacts

40. **Certain positive impacts that came about by Project end were not foreseen at the start.** One of these concerned the emergency response that the Project carried out after the oil spill. This work generated important lessons that will carry on into follow-up projects and beyond. See Section V and Annex 6C for additional information. Another unforeseen benefit came from work to establish PAs. This created opportunity to discuss a blue economy approach and thus start consultations on Marine Spatial Planning. This instrument allows for further governance and management of marine spaces and their underlying biodiversity, particularly in the southern region of Brazil. A blue economy approach has the potential to strengthen growth in fisheries, tourism, and other marine-related sectors and deal with related challenges of overfishing, pollution, coastal degradation, and climate change.[12] The Project was able to validate that a healthy and well managed marine environment can help deal with some of the challenges that the current economy faces concerning MCPAs, and can promote future growth. These will be further built upon and developed under GEF MAR II.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

41. **Preparation of the Project was well conducted and completed in a timely manner.** Realistic objectives were set, split across four well-articulated components and backed up with relevant SMART indicators. Given the country context at the time—economic and political stability and use of an implementing agency that had a long history with World Bank projects—the associated risks for the Project were also well laid out and considered.

42. **Taking into account the decentralized management of funds and challenges of working in a vast geographical area, governance arrangements set up during preparation laid out a clear understanding of how the Project would be implemented.** While this work may not have defused all potential problems, it set the foundation for what later on was clear success and collaboration with a wide range of stakeholders, including multiple ministries and institutions in or related to the GoB.

43. **Given the high over-achievement of some of the indicators, questions arose concerning how these targets were set during preparation.** Investigation for this report indicate that estimates were made based on available data,

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

literature, and evidence at time of appraisal, along with an appropriately conservative attitude on the part of the team. During the course of the Project, it became clear that there were in fact few hurdles to implementation (see Section IV.A). Delivery and collaboration were excellent (see Sections IV.A and V).

B. KEY FACTORS DURING IMPLEMENTATION

(a) Factors Subject to the Control of Government and/or Implementing Entities

44. **One of the key factors subject to government/implementing agency control during implementation was the coordination and engagement of the government.** The federal government transition during the Project lifecycle caused significant slowdowns in progress and weakened the general implementation capacity of the PCU. Government and political will visibly eroded starting in 2016. This was on display when in 2017 the government approved the reduction and degazetting of Federal Protected Areas in the Amazon and Atlantic Forest regions, the first such cut since 1998. This was seen as potentially slowing efforts of MME and ICMBio to promote creation of new MCPAs. The slow initial results in the PDO indicator may also have played a role. Furthermore, there was an apparent lack of coordination between ICMBio and MME and other government entities tasked with pushing the biodiversity protection agenda forward. Official diffidence showed itself in the turnover of Project Coordinators. The first coordinator was removed and a temporary installed in 2016 before a new permanent coordinator was appointed in mid-2017. By mid-2018, however, coordination was looking better: a strengthened coordination unit was at work in the MMA. This improved coordination helped bring the achievement of the Project development objectives.

(b) Factors Subject to World Bank Control

45. **The supervision record of the Project was detailed and complete, with Implementation and Supervision Reports complemented by Aide-Memoires.** The supervision record always included updated ratings and results and, importantly, provided a candid overview of issues and methods for mitigation. Follow-up occurred as required. Where possible, the Project task team followed through appropriately and supported the PCU. A clear example of that is the regular and appropriate correspondence related to the Petrobras co-financing that was somewhat delayed.

46. **Another key factor under the Bank's control was the enabling of participation of a range of technicians, specialists, and focal point members in important meetings, which bolstered the Project and its objectives.** Their **a**ttendance at gatherings such as the Congress on Blue Economy; the 4th International Marine Protected Areas; II Congress on Protected Areas in Latin America and the Caribbean; IX Brazilian Seminar on Protected Areas and Social Inclusion—SAPIS; and IV Latin American Meeting on Protected Areas and Social Inclusion–ELAPIS all contributed to achievement of objectives.

(c) Factors Outside the Control of Government and/or Implementing Entities

47. **Macroeconomic and political instability presented important challenges for implementation and outcomes of the Project.** The Project had been approved and became effective in the second half of 2014, just before Brazil entered into a deep recession in 2015/16. The subsequent recovery was weak. Job creation slowed. Poverty was concentrated in rural areas, particularly those along the coastline. The recession led to a devaluation of the Brazilian Real.[13] After the mid-term mission and request for restructuring in 2018, the Project responded in 2019 with a restructuring that

[13] From mid-2014 to the end of December 2015, the IMF calculated a 43 percent depreciation of the real against the dollar.

allowed for creation of the Marine Fund (see Annex 6 on the Marine Fund and Section 1B about the restructuring). This reallocation among disbursement categories allowed the Project to respond to the changing macroeconomic circumstances and bolster the objective of financial sustainability. Brazil's macroeconomic woes were at times accompanied by political instability. A significant transition in the federal government led to a political crisis in 2018 and instability around the general elections. These uncertainties eventually led to a downgrade in the Project's risk ratings. However, this did not prevent a Presidential Decree on March 20, 2018 creating two new MPAs in the exclusive economic zones.

48. **A crude oil spill in Northeast Brazil in 2019 also had important ramifications for the Project.** The spill triggered a National Contingency Plan. The Project was called upon to provide emergency support to MCPAs that were affected by the spill in nine states. Its activities included operational support to MCPA staff and to volunteer civilian brigades taking part in clean-up of beach and estuary areas. It also got involved in chemical analysis to evaluate the level of contamination and impact on coastal and marine ecosystems. More information on the oil spill and related Project activities can be found in Annex 6.

49. **COVID-19 and the resulting pandemic did not affect Project outcomes, but brought changes in final supervision.** The final supervision and Implementation Completion and Results (ICR) report took place remotely via Webex on June 10, 2020. The final evaluation by the PIU included only one face-to-face meeting.

IV. BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME

A. QUALITY OF MONITORING AND EVALUATION (M&E)

M&E Design

50. **While the PAD did not specifically develop a theory of change, there was clear evidence of a results chain and acknowledgement and development of objectives and accompanying GEO/PDO and intermediate indicators.** The Objectives of the Project were clearly laid out and allowed for the development of strong SMART indicators. The PAD had baselines and targets for the majority of indicators with clear direction on frequency of data collection, data source, and who would collect the data. For most of the indicators, additional information was provided to define them further. Only two indicators were not complete: no target was set for gender disaggregation of the one gender disaggregated intermediate indicator, and there was no distinction between whether Protected Area Management Plans were prepared/updated or under implementation.[14] Interestingly, the team included an indicator to monitor and evaluate the Project's impact on the ground, tracking management effectiveness in selected PAs and the MCPA system as a whole. Issues related to the setting of targets will be covered in the following section.

51. **Clear attention was paid to creating institutional arrangements within the Project and during PCU set-up.** In view of the overall Project's focus on M&E and M&E processes (Component 3), an M&E unit was established at design within the MMA's PCU. The PAD provided clear guidance on what actions would be undertaken and how. These included support from FUNBIO on fiduciary issues, the use of Annual Operation Plans, and directions on what reports would be submitted and with what frequency.

[14] This was reported in Aide-Memoires in a disaggregated manner, although not in ISRs.

M&E Implementation

52. **M&E implementation was strong throughout the Project.** First evidence of this came during the 1st Supervision mission in May 2015, which along with reporting participants from all coordinating units related to the M&E meeting took on a re-baselining. In October 2015, early in Project implementation, a workshop was convened to focus on targets and goals of M&E. An update to the 2014 baseline completed by June 2015. Along with regular updates in the ISRs and Aide Memoires, the Aide Memoires included two additional indicators[15] reported on by the PCU.

53. **Room for improvement emerged in the GEO/PDO indicators, related to marine territory brought under biodiversity protection and marine territory brought under enhanced biodiversity protection, and the intermediate indicator related to participants in consultation activities.** In all three of the aforementioned indicators, targets were significantly exceeded with achievement of all three GEO/PDO indicators at the time of MTR, June 2018. The results framework was deemed adequate and robust during the life of the Project, with no need for adjustments during the two restructurings. As indicated earlier, the over-achievement in some of the indicators was attributed to (a) conservative estimates of the targets during Project design based on evidence from similar projects, and (b) outstanding collaboration among all Project implementing partners. This collaboration brought into play their extensive expertise in MCPA management, which amplified the positive impact of the interventions.

M&E Utilization

54. **The Project's outcome indicators closely and accurately measured achievement of the outcomes.** They were also well backed up by the Project's intermediate/output indicators. Although none of the restructurings was directly driven by M&E information, the achievement of all three GEO/PDO indicators at the time of MTR may have had some effect on Restructuring 2. With the receipt of the Petrobras co-financing, GEF funds could be freed up. Along with low disbursements and the devaluation of the Real, this allowed the task team to create the Marine Fund, which contributed to further achieving Project objectives. The final restructuring of the Project occurred due to a need for additional time to ensure strong set-up of the Fund.

Justification of Overall Rating of Quality of M&E

Substantial

55. **Overall quality of the M&E was high, with careful attention at all stages both from the Bank Project team and the PCU structure.** Minor shortcomings concerning some of the targets set and definition of indicators did not affect M&E's ability to measure achievement of outcomes and outputs. From the outset, the M&E design and arrangements were well integrated into the implementation structure of the Project. It was clear that they functioned well throughout the duration of the Project.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

[15] One was tracking the percentage of Project requests that were created and functioning in line with the Operations Manual. This figure reached 100 percent by Project end, though at some points the level was at 90 percent due to lack of meetings by the Project Council. The second indicator concerned updates of the map of priority areas for conservation, sustainable use, and the sharing of benefits from the Brazilian bio-diversity-marine and coastal biome, as well as general maps of priority areas for the creation of conservation units.

56. **The Project recorded full compliance with all relevant environmental and social safeguards and policies.** At appraisal several policies were triggered for the Project, which was assessed as Category B (original and revised EA Category). The policies were Environmental Assessment OP/BP 4.01; Natural Habitats OP/BP 4.04; Forests OP/BP 4.36; Physical Cultural Resources OP/BP 4.11; Indigenous Peoples OP/BP 4.10; and Involuntary Resettlement OP/BP 4.12. The Project complied with these safeguards throughout its duration and included regular updates on the status in the supervision record. The Project was a conservation initiative that generated positive and long-lasting social, economic, and environmental benefits. Its social and economic benefits grew from the improved management of economically valuable coastal and marine resources. The Project assessed social implications for communities and other local stakeholders that depend on fisheries for a livelihood. It empowered indigenous and local fishing communities to progressively share the responsibility of managing coastal and fisheries resources. The GoB already had strong national laws and technical staff in place. More than ten years of maps of each biome already existed and were updated as necessary by experts. There were no negative environmental and social impacts from the Project. In fact, the Project was extremely helpful in cleaning up the 2019 oil spill (more information can be found in Annex 6). Furthermore, the Project had a functioning GRM with only three cases filed, each recorded as having been dealt with appropriately.

57. **Fiduciary compliance was Satisfactory throughout the lifetime of the Project.** All parties worked closely together and adhered to standards required by the Bank, including use of electronic systems. There is clear evidence of regular and detailed financial reports with the majority submitted in a timely manner. Required external audits were conducted. On the Bank side, regular and detailed Financial Management Implementation Support and Supervision Reports were submitted. Throughout the Project, the Bank team requested no changes or amendments regarding financial management plans or reports.

58. **Procurement was Satisfactory throughout the project.** A Project such as this one required many small procurements, often taking place in rural, hard-to-reach areas, working with groups that were not familiar with formal or in-depth procurement processes. To ensure prompt progress, much work was done to streamline processes and craft reactive and tailored solutions to procurement problems that arose. This included measures such as local procurement solutions to allow managers to get competitive quotations for faster processing of procurements involving vehicle maintenance and arrangements for meetings. Project personnel also created a procurement marketplace mechanism and developed framework agreements with vendors to speed up the process.

C. BANK PERFORMANCE

Quality at Entry

59. **The quality of the Bank's performance at entry was strong.** Starting from a foundation of clear strategic relevance and incorporating lessons learned from other projects across the Bank, the Project team prepared and appraised the Project effectively, integrating national commitments and relevant objectives of Brazil into Project design. The Project benefitted from the stability of the Project team, with the task team leaders who led design remaining in place throughout the duration of the Project, along with supporting team members in procurement and social and financial management. Extensive lessons were taken from the Amazon Region Protected Areas (ARPA) project, including ones related to protected areas, conservation finance, and stakeholder engagement. Project personnel identified and mitigated known and potential risks such as poor design and weak stakeholder participation, making changes as required such as the creation of a separate sub-component for stakeholder engagement. This work included selection of an experienced fiduciary partner (FUNBIO) in addition to the clear outlining of the governance and implementation structure of the Project. Economic feasibility was undertaken with estimations of total

incremental costs and domestic and global benefits to be produced. This is consistent with the types of outputs and outcomes of this Project. However, a quantitative appraisal could have been attempted for Component 1, as it was in the economic and financial analysis at completion.

Quality of Supervision

60. **The quality of supervision was high, with an extensive ISR and Aide-Memoire/Supervision record**. The Supervision record regularly kept track of and, where necessary, mitigated any identified fiduciary, safeguard, environmental, and social and procurement issues. Continued attention ensured achievement of the development outcomes. This included sensible and well thought-through restructurings (see Section IB). Furthermore, the Bank team was very consistent, with many of the operational and technical staff who took party in design continuing on as team members through closure and taking a role in the follow-on Project GEF MAR II. Details of the supervision record can be found in Annex 6B.

Justification of Overall Rating of Bank Performance

Satisfactory

D. RISK TO DEVELOPMENT OUTCOME

61. **There is no serious perceived risk to development outcome.** However, the continued cost of implementing the conservation finance mechanisms should not be underestimated. Ownership by significant partners will need to continue for benefits of development finance to endure and be sustainable. The capital of the Marine Fund will continue accruing interest beyond Project closing, which will support continuation of activities in the MCPAs and sustainability of outcomes. In addition to this continued support to the MCPAs, the follow-on Project GEF MAR II[16] will complement the work and objectives of this Project.

V. LESSONS AND RECOMMENDATIONS

Partnerships and Collaboration leading to increased leverage

62. **The Project built relationships and established partnerships in a wide range of ways to further success.** This allowed space for ownership and use of important “pull and push” levers to achieve Project objectives. Partnerships and key lessons include:
- The collaboration with MME/Petrobras, a first in a World Bank Project in Brazil. The brought lessons on private sector MCPA financing over the longer term and maximization of finance for development. The first point of engagement with Petrobras was through its science department. Its marine scientists were engaged as a key group of stakeholders as early as the conceptualization of the Project, giving them a strong sense of ownership and involvement from the outset. Through collaboration and the leveraging of key data provided by Petrobras, the team was able to build this relationship, eventually leading to financial resources flowing to the Project.
- The partnership developed between the Ministry of Defense/Navy of Brazil and the Ministry of the Environment/ICMBio. This was particularly important regarding enforcement of the rules of PAs and no-take

[16] P168989 - Sustaining Healthy Coastal and Marine Ecosystems Project

areas. Protection of biodiversity would not have happened without the Navy, because environmental agencies are able to track infractions but cannot enforce rules or confront offenders.

63. **The Project adopted mechanisms that helped to mainstream lessons and actions around Project coordination and management of financial resources provided by the GoB and other donors.** This was evident in multiple ways.

- An integrated approach for creating and strengthening PA management took into account social, economic, and political contexts as well as sustainability for the longer-term vision.
- The Project used existing implementing agencies to overcome certain issues related to coordination and increased management effectiveness of implementation. The Ministry of Environment created FUNBIO IN 1996 in conjunction with the Bank to implement projects. This meant that institutional and operational knowledge capacity had been building up through prior projects. In addition to the strong financial management and coordination of the Project, this was particularly evident in regard to procurement. In close collaboration with the MME, the Project was able to bring even more areas under protection than originally planned and move toward the planned blue economy funding platform (*Plataforma Azul)* of which the Marine Fund will be a part.

Ownership/stakeholder engagement

64. **The engaging of local communities proved to be key to the success of well managed and well performing MCPAs and higher-level objectives.** The Project ended up undertaking far more consultative activities than were originally planned, realizing that it would take more than policy changes and legal enforcement to bring about Project objectives. This was particularly true in trying to enforce permanent and temporary no-take areas. This lesson learned took many forms. In each PA, Management Councils were formed, and they created their own regulations. When this approach was adopted through large, face-to-face gatherings where relevant stakeholders could comment, better results occurred. Community consultation and organization were particularly important in responding to the oil spill (see Annex 6C). Overall, local communities played an important role in the defense of the PAs against environmental incidents.

Direct lessons learned from other projects should be tailored to the local context of the project.

65. **While lessons from similar projects are useful, they are not always directly transferable or applicable.** Community engagement was originally designed closely in line with the experience of the ARPA project. However, it quickly became clear to the team that communities had higher-than-expected capacity and were willing and able to take increased ownership in the drive toward results. This ultimately led to changes under the first restructuring that allowed for increased engagement with the communities. It is important that projects use lessons learned from other projects, but they must apply them only after considering the local context of the projects and ways in which they may differ.

Flexibility and Availability of Related Support

66. **The Project's actions to respond to the oil spill provide an important lesson, although this role was not among the Project's original explicit objectives.** (for more information see Annex 6C). Project actions included providing local clean-up personnel with personal protection equipment, which the Project was able to mobilize more quickly than the GoB. The Project was also able to provide scientific guidance regarding contamination and fishing resources, along with relevant training and event prediction simulations. Of particular note were actions undertaken to develop

contingency plans (local and/or regional) for the PAs. In conjunction with the many consultations previously undertaken by the Project, this provided important assurance and support to the communities alongside what they were receiving from the government. Although no specific impact studies have been conducted, qualitative evidence indicates that without the Project the spill's impacts may have been far worse. GEF MAR II will work to roll out contingency plans in more MCPAs for oil spills and mangrove fires, taking lessons learned from forest areas, including actions such as establishment of volunteer firefighting teams.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Support the expansion of globally significant, representative and effective MCPA system in Brazil

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area brought under enhanced biodiversity protectionTarget: 930,000 ha (9,300 km2),	Hectare(Ha)	0.00 03-Apr-2013	930000.00 30-Mar-2020		1582890.00 30-Mar-2020

Comments (achievements against targets):
The area brought under enhanced biodiversity protection to date total 1,525,282ha representing 17 Marine and Coastal Protected Areas, and surpassing the original target of 930,000ha. Management effectiveness focused on boundary delimitation, management plans, research and monitoring, infrastructure and equipment, capacity building, among others.

The value of 1,525,282ha does not include the consolidation efforts for the newly created PAs, although consolidation efforts were initiated (e.g. development of management plans). Enhanced effectiveness for the new PAs will be reported as part of the follow on project (GEF MAR II).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at

					Completion
Marine areas brought under biodiversity protection (M ha)	Hectare(Ha)	5.50 03-Apr-2013	17.50 30-Mar-2020		96.40 30-Mar-2020

Comments (achievements against targets):
Throughout the Project, 8 new PAs were created and one was expanded: August 2, 2016: Wildlife Refuge Alcatrazes; June 5, 2017: Taim Ecological Station (enlargement); March 19, 2018: EPA of the Archipelago of Trindade and Martim Vaz; MONA of the Isles of Trindade and Martim Vaz and Monte Columbia; APA the São Pedro and São Paulo Archipelago; MONA of the Archipelago of São Pedro and São Paulo; April 5, 2018: Extractive Reserve Itapetininga; Arapiranga Extractive Reserve- Tromaí; Tubarão Bay Extractive Reserve. In addition to the review of the priority areas, mapping of industrial fisheries was performed which will inform the proposal for Areas of Conservation and Reproduction of Species (ACREs). As a strategy for implementing these areas, national guidelines have been developed to support plans for recovery of endangered species, which can be implemented in PAs or ACREs.

Objective/Outcome: Identify mechanisms for its financial sustainability

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Financial mechanisms to support the long-term sustainability of MCPAs designed and ready for implementation.Target: 2	Number	0.00 03-Apr-2013	2.00 30-Mar-2020		4.00 30-Mar-2020

Comments (achievements against targets):

Term of Commitment between IBAMA and Petrobras, which contributed R $ 60,000,000.00 to the GEF Mar Project; Implementation of compensation resources federal environmental fund through the Federal Environmental Compensation; implementation of Project Platform for financing the MCPA system (Blue Initiative); Implementation of the Marine Fund to support MCPAs over the deadline.

A.2 Intermediate Results Indicators

Component: Support the expansion of globally significant, representative and effective MCPA system in Brazil

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Marine Biodiversity Monitoring System developed and under implementation in project sites	Percentage	0.00 03-Apr-2013	100.00 30-Mar-2020		80.00 30-Mar-2020

Comments (achievements against targets):

Institutionalized programs through Instruction Normative No. 3, of September 4, 2017, which institutes the National Health Monitoring Program Biodiversity of the Chico Mendes Institute; Strategy Integrated Marine and Coastal Monitoring published and available at: http://www.icmbio.gov.br/portal/images/stories/oquefazemos/ monitoring / Program_Monitor_ _Estrategia_Geral.pdf; and implementation of protocols per 19 conservation units supported by the Project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at

				Target	Completion
Protected Area Management Plans (a) prepared or updated, and (b) under implementation.	Number	0.00 03-Apr-2013	16.00 30-Mar-2020		13.00 30-Mar-2020

Comments (achievements against targets):

Of the PAs supported by the Project, 13 already have plans for management developed and being implemented by PA consolidation actions. The others are developing their management plans through Project support. The 13 plans prepared and implemented are:

- Parque Nacional Marinho Lagoa do Peixe
- Parque Nacional Marinho dos Abrolhos
- Parque Nacional Marinho de Fernando de Noronha
- Área de Proteção Ambiental de Fernando de Noronha
- Área de Proteção Ambiental da Costa dos Corais
- Área de Proteção Ambiental de Setiba
- Área de Proteção Ambiental de Guadalupe
- Reserva Biológica Atol das Rocas
- Parque Estadual Marinho de Areia Vermelh
- Reserva Extrativista Corumba
- Reserva Estrativista Canavieira
- Reserva Extrativista Cassurubá
- Refúgio de Vida Silverstre Ilha dos Lobos

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion

Participants in consultation activities during project implementation , of which female	Number	0.00 03-Apr-2013	480.00 30-Mar-2020		7325.00 30-Mar-2020

Comments (achievements against targets):
21 PAs supported by the Project with management councils instituted by holding periodic meetings, which counted with 2,972 women participants and 4,353 men participants (41 percent women and 59 percent men).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Managerial Effectiveness Monitoring systems adopted and implemented in all project sites	Percentage	0.00 03-Apr-2013	100.00 30-Mar-2020		100.00 30-Mar-2020

Comments (achievements against targets):
GEF Tracking management assessment tool Tool applied to the 30 PAs supported by the Project at early implementation and with annual measures during project execution; Analysis and Monitoring Tool Effectiveness of PAs Management developed by ICMBio (SAMGe) applied to PAs supported by Project since 2018.

Component: Identify mechanisms for its financial sustainability

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised	Actual Achieved at Completion

				Target	
Technical studies completed	Number	0.00 03-Apr-2013	4.00 30-Mar-2020		4.00 30-Mar-2020

Comments (achievements against targets):

Systematization of Payment by Experience Environmental Services (PES) in the marine and coastal area; mapping of funding sources current potentials for MCPAs; study on financial demand for the blue initiative; and elaboration of project platform proposal financing of the MCPA System called blue initiative, which later served as the basis for the elaboration of the Marine Fund.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
MCPA classification system defined and costed	Percentage	0.00 03-Apr-2013	100.00 30-Mar-2020		90.00 30-Mar-2020

Comments (achievements against targets):

Study to identify the financial demand for the Blue Initiative developed; Tool for detailing the specific costs of Coastal and Marine PAs in development.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Management systems (incl.	Yes/No	N	Y		Y

fiduciary systems) in place and operational, producing satisfactory annual and quarterly reports. Projectmonit. operational, producing satisfactory bi-annual and quart.rep.		03-Apr-2013	30-Mar-2020		30-Mar-2020

Comments (achievements against targets):
Management systems (incl. fiduciary systems) are in place and operational, producing timely reports as per the Project Operational Manual.

B. KEY OUTPUTS BY COMPONENT

Objective/Outcome 1 Supporting the expansion of globally significant, representative, and effective MCPAs in Brazil	
Outcome Indicators	1. Hectares of Brazilian marine territory brought under biodiversity protection (End Target: 930,000) 2. Hectares of Brazilian marine territory brought under enhanced biodiversity protection (End Target: 17.5 million)
Intermediate Results Indicators	1. Marine Biodiversity Monitoring System developed and under implementation in Project sites 2. Protected Area Management Plans (a) prepared or updated, and (b) under implementation 3. Participants in consultation activities during Project implementation, number of whom are female 4. Managerial Effectiveness Monitoring systems adopted and implemented in all Project sites 5. MCPA classification system defined and costed
Key Outputs by Component (linked to the achievement of the Objective/Outcome 1)	1. Marine Biodiversity Monitoring System in 80% of PAs[17] 2. Thirteen Protected Area Management Plans[18] 3. 12 Coastal and Marine Protected Areas with regular consultative meetings at least three times a year with 5,630 participants of which 41 percent were female and 59 percent male.

[17] Targets were established for wading birds, seabirds, marine mammals, manatees, sea turtles, mangrove vegetation, uçá crab, fish, and invertebrates, and fishing and associated biodiversity. For mangrove and continental margin and ocean basin that support the monitoring of the target, fishing and associated biodiversity didactic contents and trainings were carried out, as they had already been developed.

[18] Parque Nacional Marinho Lagoa do Peixe, Parque Nacional Marinho dos Abrolhos, Parque Nacional Marinho de Fernando de Noronha, Área de Proteção Ambiental de Fernando de Noronha, Área de Proteção Ambiental da Costa dos Corais, Área de Proteção Ambiental de Setiba, Área de Proteção Ambiental de Guadalupe, Reserva Biológica Atol das Rocas, Parque Estadual Marinho de Areia Vermelha, Reserva Extrativista Corumbau, Reserva Estrativista Canavieiras, Reserva Extrativista Cassurubá, Refúgio de Vida Silverstre Ilha dos Lobos

	4. Support of training and community-strengthening activities 5. GEF tracking tools applied in the 11 federal marine protected areas in 2013, 2015, 2016, 2017, and 2018, and in six state protected areas in 2016 and 2017. The tracking tools were updated on an annual basis.[19] 6. MCPA classification system defined and costed for 100% of the MCPAs supported by the Project 7. Maps of the PAs for Protected Areas generated and updated 8. Mapping of industrial fisheries and subsidization of Conservation and Reproduction of Species Areas 9. National Guidelines developed for species recovery plans 10. Development of Political Pedagogical Project for the coastal and marine areas in partnership with the Terra Mar Project
Objective/Outcome 2 Identify mechanisms for MCPAs' financial sustainability	
Outcome Indicators	1. Number of financial mechanisms to support the long-term sustainability of MCPAs designed and ready for implementation (End Target: 2)
Intermediate Results Indicators	1. Technical studies completed
Key Outputs by Component (linked to the achievement of the Objective/Outcome 2)	1. 3 Technical studies[20] 2. Marine Fund created[21] 3. Development of a Project platform for financing the MCPA/Blue initiative with forecast of financial demand.
Objective/Outcome 3 Effective Project implementation	

[19] Two MCPAs (188,640 ha) showed gains above 30 percent, nine MCPAs (1,143,328 ha) showed gains between 15 and 23 percent, and seven MCPAs (43,381,194.84 ha) showed gains between 3 and 7 percent.
[20] Assessment and mapping of financing sources for Protected Areas; assessment of demand for financing sources for protected areas, and development of a platform for long-term financing of the country's coastal and marine protected areas system, including Lessons Learned around Payment for Ecosystem Services in marine and coastal areas.
[21] See Annex 6 for additional information on the Marine Fund.

Outcome Indicators	n/a
Intermediate Results Indicators	1. Management systems (including fiduciary systems) in place and operational, producing satisfactory annual and quarterly reports. Project monitoring operational, producing satisfactory bi-annual and quarterly reports.
Key Outputs by Component (linked to the achievement of the Objective/Outcome 3)	1. Operational Management Systems – *Sistemsa de Analise e Monitoramento da Gestao*/Management System for Analysis and Monitoring (SAMGe) (ICMBio tool) and Tracking Tool (project level)

C. PROJECT ACHIEVEMENTS AGAINST INDICATORS (FROM LATEST UPDATE OF PCU)

Indicator	Baseline	End target at appraisal	Achieved by end of Project (December 2019)	Achievement
Project Development Objectives				
Marine Areas brought under biodiversity protection (million ha)	5.50	17.50	96.4	551%
Area brought under enhanced biodiversity protection (ha)	0	930,000	1,525,282 in 20 PAs (increase in effectiveness);[a] 491,782 in 5 PAs (change in level of management)	164% (increase in effectiveness); 53% (change in level of management)
Financial mechanisms to support the long-term sustainability of MCPAs designed and ready for implementation	0	2	4	200%
Intermediate Indicators				
Update of the Map of Priority Areas for Conservation, Sustainable Use and Benefit Sharing of Brazilian Biodiversity—Marine and Coastal Biome and generation of a Map of Priority Areas for the Creation of PAs (%)[b]	0	100	100	100%
Protected Area Management Plans (a) prepared or updated, and (b) under implementation [c]	0 (a) 6 (b) 0	16 (a) 16 (b) 16	13 (c) *13* (d) *13*	81%
Technical studies completed	0	4	4	100%

Marine Biodiversity Monitoring System developed under implementation in Project sites (%)	0	100	80	80%
Management systems (including fiduciary systems) in place and operational, producing satisfactory annual and quarterly reports[d]	No	Yes	100	100%
Participants in consultation activities during Project implementation, number of whom are female	0	480	7,325 (2,972 women)	1,526%
MCPA classification system defined and costed (%)	0	100	90	90%
Managerial effectiveness monitoring systems adopted and implemented in all Project sites (%)	0	100	100	100%
Project requests created and functioning in line with the POM[e]	0	100	100	100%

[a] The figure 1,525,282 ha does not include the consolidation efforts for the newly created PAs, although consolidation efforts were initiated (e.g. development of management plans). Enhanced effectiveness for the new PAs will be reported as part of the follow-on project, GEF MAR II.
[b] This was an extra indicator not included in the PAD, but measured by the PCU.
[c] The PAD did not have differentiated targets and baselines, but they were measured by the PCU and shown in italics.
[d] The PCU measured this by percentage, not Yes/No as defined in the PAD.
[e] This was an extra indicator not included in the PAD, but measured by the PCU.

Source: MMA (May 2020), Technical and Financial Progress Report, Semester 2, 2019, Project Closing Report January 2015-December 2019

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Adriana Goncalves Moreira	Task Team Leader
Frederico Rabello T. Costa	Procurement Specialist
Maria Joao Pagarim Ribei Kaizeler	Financial Management Specialist
Alberto Coelho Gomes Costa	Social Specialist
Agnes Velloso	Social Specialist
Supervision/ICR	
Adriana Goncalves Moreira, Sylvia Michele Diez	Task Team Leaders
Sinue Aliram De Souza, Efraim Jimenez	Procurement Specialists
Susana Amaral	Financial Management Specialist
Silmara Moreira Da Silva	Financial Management Specialist
Alberto Coelho Gomes Costa	Team Member
Cassia Coutinho Barreto	Procurement Team
Agnes Velloso	Environmental Specialist
Michele Martins	Procurement Team
Frederico Rabello T. Costa	Procurement Team
Juliana Medeiros Paiva	Social Specialist
Paola Carvalho Costa	Procurement Team

B. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY12	3.811	78,110.67
FY13	6.312	70,649.24
FY14	5.510	54,238.05
FY15	4.722	36,783.47
Total	**20.36**	**239,781.43**
Supervision/ICR		
FY14	0	1,345.54
FY15	1.350	14,904.46
FY16	7.271	38,086.65
FY17	6.789	43,892.02
FY18	8.648	48,453.12
FY19	15.233	101,734.80
FY20	13.615	82,866.75
Total	**52.91**	**331,283.34**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at approval (US$M)	Actual at Project closing (US$M)	Percentage of approval (%)
Component 1 – Creation and consolidation of Marine and Coastal Protected Areas	12.29	7.72	68
Component 2 – Identification and design of financial mechanisms to support Marine and Coastal Protected Areas	2.50	1.68	14
Component 3 – Monitoring and evaluation	2.50	0.28	14
Component 4 – Project coordination and management	0.91	0.38	5
Total	**18.20**	**10.20**	**100**

Components and actual financing amounts at completion (US$ million)

Component	GEF/ Project financing			Counterpart financing*		
	At Appraisal	At Completion	Difference	At Appraisal	At Completion	Difference
1	12.29	7.72	4.57	50.64	28	22.64
2 *Marine Fund*	2.50 0	1.68 8.0	0.82 8.0	1.09	-0.42	1.51
3	2.50	0.28	2.22	40.68	8.93	31.75
4	0.91	0.38	0.53	7.24	2.75	4.49
18.2	**18.2**	**18.06**	**0.48**	**99.6**	**39.26**	**60.39**

* Co-financing US$ amounts are equivalent to contribution made in Brazilian Real.

ANNEX 4. EFFICIENCY ANALYSIS

A. Overview

The economic analysis for the Project presents an incremental analysis of the economic (welfare) benefits generated by the financing, looking at two key benefit streams: (1) environmental goods and services (such as biodiversity protection, deforestation reduction, freshwater preservation), and (2) a reduction of carbon emissions. Establishing protected areas is an important initiative that the Government of Brazil has taken to conserve coastal ecosystems in response to the rapid degradation of the country's coastal habitats. Increasing impacts on the oceans from coastal development are straining the health of marine ecosystems, including the decline of fish populations, degradation of coral reefs and other vital habitat, threats to rare or endangered species, and loss of artifacts and cultural heritage resources (Abreu 2015).

The Project was designed to increase the number and expanse of MCPAs and create financial mechanisms for their conservation, monitoring, and evaluation. During the course of the Project, the total coverage of MCPAs under Brazilian national jurisdictions rose from 1.6 percent of Brazil's coastal and marine areas (5.5 million ha) to 26 percent (95.9 million ha), greatly exceeding the target of 17.5 million ha for the Project's Component 1. This result also goes well beyond the target of nationally administered marine areas making up 10 percent, as suggested in the United Nations List of Protected Areas 2014 report (Deguignet et al. 2014). Also, the Project developed a broad scheme of Payment for Ecosystem Services for marine and coastal areas to serve as a financing mechanism for Brazilian MCPAs. Other activities included the building of stakeholders' capacity for the efficient management of the Project. These outcomes make it clear that the Project will continue to generate multiple and incremental benefits for the local, national, and up to global level for future generations.

B. Main Assumptions, Cost Factor, and Methodology

To simplify the economic analysis of the Project, assumptions were applied for Component 1. These take account of the current situation in the Brazilian Coastal and Marine Areas, and therefore include an assumed mangrove area loss in the Project areas in the coming years. For example, an increase of the Marine Protected Areas would reduce the pace of mangrove deforestation. From a baseline scenario (without the Project) to an intervention scenario (with the Project), an assumption was made that the clearing of mangrove in protected areas would be ten percent lower than in unprotected areas. This effect is known as "the marginal generated benefit through marine protected areas," based on a different but related context analyzed in Miteva, Murray, and Pattanayak (2015). Factoring in the hectares saved from mangrove deforestation, a mangrove area loss of two percent for Brazil (Diniz et al. 2019) was assumed with mangroves covering about 83 percent of total land area of MCPAs (Simões 2018).

The distribution of the increase of MCPAs, as well as mangroves in the areas, is based on the triangular number[22] for five Project years, that is, the Project years times Project years plus one, divided by 15 to obtain the factor that each year is added to the growth of the previous year (see Table 1).[23] In view of the benefit being measured in Component 1-- the consolidation of Marine and Coastal Protected Areas—a

[22] The triangular number is n (n+1)/2, and for five Project years 5 x 6/2.
[23] The formula for year n is therefore: n x n (n+1)/2.

quantitative approach was mainly applied. For Components 2, 3, and 4, a qualitative analysis was undertaken to consider benefits. These Components did not focus on increasing the MCPAs, but rather on creating mechanisms to finance conservation of the areas, monitoring, and Project management. These Components' activities involved sector policy instruments aimed at social and environmental concerns.

Table 1: Distribution of the Increase of Mangroves in MCPAs

Variables	2015	2016	2017	2018	2019
Increase of MCPAs in ha (yearly)	6,426,667	12,853,333	19,280,000	25,706,667	32,133,333
Total MCPAs in ha (cumulative)	6,426,667	19,280,000	38,560,000	64,266,667	96,400,000
Total mangroves in MCPAs (ha)	**10,668**	**32,005**	**64,010**	**106,683**	**160,024**

Note: Row in bold is used to estimate Project benefits.
Source: Team's own calculations.

Recognized studies assessed the economic benefits of the mangrove forests in MCPAs. Salem and Mercer (2012) undertook a meta-analysis estimation in which 44 of relevant 145 studies were included to arrive at the economic value of the mangrove ecosystem by type of service. Table 2 shows three different bounds used to estimate this valuation, the lower bound representing the basic services provided by mangroves, such as forestry (US$576/ha/year) and fisheries (US$627/ha/year); the middle bound covering the main economic activities, which include basic services and recreation and tourism (US$1,079/ha/year); and the upper bound depicting all mangrove ecosystem services, the main economic activities, and environmental services such as coastal protection (US$3,604/ha/year) and water and purification (US$5,801/ha/year).

Table 2: Summary Statistics for Mangrove Valuation by Type of Service (US$/ha/year)

Ecosystem services	Lower bound	Middle bound	Upper bound
Forestry	$576	$576	$576
Fisheries	$627	$627	$627
Recreation & tourism	-	$1,079	$1,079
Coastal protection	-	-	$3,604
Water and air purification	-	-	$5,801
Total	**$1,203**	**$2,282**	**$11,687**

Source: Salem and Mercer (2012).

Another substantial benefit of mangrove areas is their function of carbon storage and sequestration. Amazon mangroves are thought to store twice as much carbon per hectare as tropical forest (Boone et al. 2018) and this was reflected in the impact analysis. An estimation was made of the value per hectare using the Amazon Fund's conservative parameter of 100 tC/ha for above-ground biomass, though data found

during literature review included a range of up to 320 tC/ha.[24] Concerning carbon prices in the analysis, the social carbon price of US$60/tC (World Bank 2017) was used as the upper bound and US$3.01/tC, the transactional market price for 2018, was used as the lower bound (Forest Trends' Ecosystem Marketplace 2019).

Opportunity Costs of Mangrove Areas in MCPAs

Loss of mangrove areas is mostly caused by the expansion of aquaculture and agriculture. The installation of shrimp farms has caused particular damage to mangrove areas in the northeastern region of Brazil (FAO 2007, Guimarães et al. 2010, and UNEP 2014). Other factors are harbor enlargement and the development of tourism infrastructure (Schaeffer-Novelli, Cintrón-Molero, Soares, and De-Rosa 2000).

Under scenarios used in the analysis, an opportunity cost caused by shrimp farming and agriculture was assumed as an alternative use of the mangrove areas in MCPAs. Tenório, Souza-Filho, Ramos, and Alves (2015) found that shrimp farms cover an area of 0.8 km^2 (approximately 0.4 percent of Brazilian ponds), of which 29.4 percent are located within mangrove forests. This percentage is used in the analysis for aquaculture as well as agriculture.

For this analysis, values of aquaculture (e.g. shrimp farming) and agriculture from Christensen (1982) are used: US$2,106/ha/year and US$165/ha/year, respectively. These values translate into a net present value (NPV) of US$16,018 and US$1,255, respectively, using a 15-year period and a 10 percent discount rate (based on Russi et al. 2013). Along these lines, a sensitivity analysis is applied using 6 and 9 percent discount rates.

Distribution of Costs and Benefits over Time

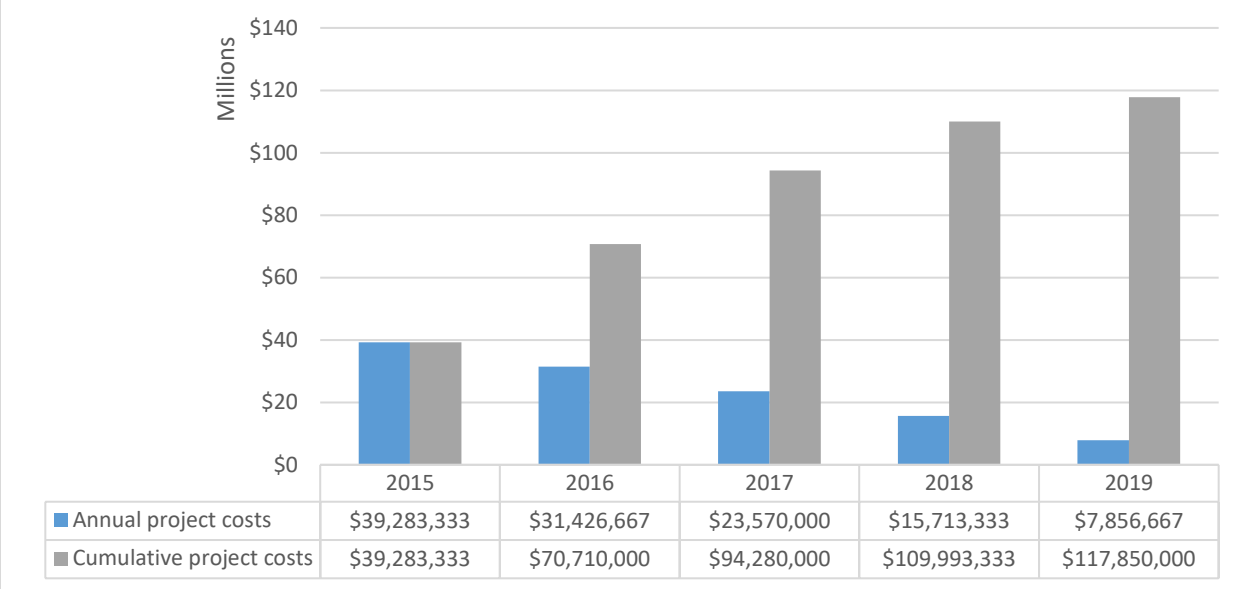
A 15-year period is assumed to assess the economic feasibility of the Project, alongside a five-year Project sensitivity assessment. It is assumed that there are no further incremental changes of Project-generated benefits beyond the 15-year evaluation period. While Project costs are assumed to emerge only from the five years of Project implementation, benefits and opportunity costs are assumed to be generated beyond the implementation phase. The distribution of benefits (the increase in MCPAs) is based on the triangular number[25] for five Project years, that is, the Project years divided by 15 to obtain the factor that is added each year to the growth of the previous year.[26] The rationale for this assumption is that it takes longer to reach an increase of MCPAs at the start of the Project than later on. Similarly, the distribution of Project costs follows a reverse pattern—higher investment costs in the early years fading out in later Project years, as Figure 1 shows. Project costs are approximated using the investment costs of the proposed Project totaling US$101.48 million (US$14.48 million from GEF and US$87 million from parallel co-financing).

A sensitivity analysis is applied for the main simulation parameters, notably discount rate and Project

[24] Brazil's Forest Reference Emission Level (FAO 2015).
[25] The triangular number is n (n+1)/2, and for five project years 5 x 6 / 2.
[26] The formula for year n is therefore: n x n (n+1) / 2.

horizon, to investigate analytical robustness. For the discount rate, alternative rates of 6 percent and 9 percent are applied. In addition to varying discount rates, simulation results are tested against a changing Project horizon of five and ten years. This set of sensitivity assessments enables a comprehensive analysis of the economic robustness of the Project in relation to the changing or differentiated value parameters. All sensitivity analyses are run for all discount rate scenarios. The results of the quantitative results are complemented with qualitative benefits to conclude overall Project feasibility.

Figure 1: Distribution of Project Costs (Including Co-Financing)



	2015	2016	2017	2018	2019
Annual project costs	$39,283,333	$31,426,667	$23,570,000	$15,713,333	$7,856,667
Cumulative project costs	$39,283,333	$70,710,000	$94,280,000	$109,993,333	$117,850,000

Source: Team's own calculations.

C. Results

Table 3 shows baseline results as well as a sensitivity analysis. Table 3a shows the baseline results, while Table 3b reduces the Project lifetime from fifteen years to ten years. Table 3c reduces the Project lifetime further to five years. All results are positive, suggesting that the Project creates more benefits than costs. Increasing the discount rate from 6 percent to 9 percent and reducing the Project lifetime and price of carbon, the most conservative indicators regarding the value of ecosystem services provided, do not affect the final estimates substantially.

Table 3: Net Present Values (US$) and Benefit-Cost Ratios under Different Scenarios

a. Default Scenario, Project Lifetime of 15 Years and All Costs Included (GEF + Co-Financing)

		Upper bound		Middle bound		Lower bound	
		NPV	BC-Ratio	NPV	BC-Ratio	NPV	BC-Ratio
Carbon price (US$60)	**Discount rate 6%**	$19,057,525,911	17.96	$20,706,813,280	19.43	$19,057,525,911	17.96
	Discount rate 9%	$14,947,795,182	17.64	$16,242,796,026	19.08	$16,242,796,026	19.08

Carbon price (US$3.01)	**Discount rate 6%**	$1,632,246,946	2.45	$3,281,534,314	3.92	$1,632,246,946	2.45
	Discount rate 9%	$1,265,673,196	2.41	$2,560,674,040	3.85	$1,040,237,118	1.93

b. Robustness Check 1, Project Implementation 10 Years and All Costs Included (GEF + Co-Financing)

		Upper bound		Middle bound		Lower bound	
		NPV	BC-Ratio	NPV	BC-Ratio	NPV	BC-Ratio
Carbon price (US$60)	**Discount rate 6%**	$12,451,869,075	17.13	$13,532,563,037	18.53	$12,451,869,075	17.13
	Discount rate 9%	$10,333,615,777	16.84	$11,231,443,099	18.21	$10,333,615,777	16.84
Carbon price (US$3.01)	**Discount rate 6%**	$1,033,971,803	2.34	$2,114,665,764	3.74	$1,033,971,803	2.34
	Discount rate 9%	$847,766,406	2.30	$1,745,593,728	3.68	$847,766,406	2.30

c. Robustness Check 2, Project Implementation 5 Years and All Costs Included (GEF + Co-Financing)

		Upper bound		Middle bound		Lower bound	
		NPV	BC-Ratio	NPV	BC-Ratio	NPV	BC-Ratio
Carbon price (US$60)	**Discount rate 6%**	$3,612,010,141	13.00	$3,931,797,861	14.06	$3,612,010,141	13.00
	Discount rate 9%	$3,234,128,812	12.79	$3,520,855,439	13.83	$3,234,128,812	12.79
Carbon price (US$3.01)	**Discount rate 6%**	$233,344,704	1.78	$553,132,424	2.84	$233,344,704	1.78
	Discount rate 9%	$204,765,009	1.75	$491,491,636	2.79	$204,765,009	1.75

D. Other Components

A classic economic and financial analysis (e.g. the cost-benefit) was not conducted for Components 2, 3, and 4, because the activities did not focus on increasing the areas of Marine and Coastal Protected Areas but on creating financing mechanisms for the conservation of the areas, monitoring, and Project management. These are sector policy instruments with social and environmental objectives. However, the potential benefits that could derive from the actions taken in these components are considered below, based on the final results of the Project and available academic literature.

Component 2 concerns the identification and design of financial mechanisms to support Marine and Coastal Protected Areas, based on the Payment for Environmental Services (PES) approach. Throughout the Project, a mapping of possible current sources of financing for the MCPAs was carried out, along with studies on linked financial demand and the preparation of a platform to finance projects in the MCPA

system, the “Blue Initiative.” These studies produced four pilot finance strategies during the Project: (1) Term of commitment between the Brazilian Institute of the Environment and Renewable Natural Resources (IBAMA) and the Brazilian oil and gas company PetroBras, which contributed R$60,000,000 (approximately US$10.5 million) to the Project, (2) use of federal environmental compensation resources, (3) implementation of the Project platform to finance the MCPA system (Blue Initiative), and (4) a fund to support MCPAs.

PES is a powerful economic tool that gives positive conditional incentives for the provision of additional ecosystem services. It has been adopted widely in terrestrial conservation (Muradian et al. 2010). Interest in the concept of marine PES has recently emerged, but the fluid, transboundary, and often common pool nature of marine ecosystems presents challenges for PES design and implementation (Bladon, Short, Mohammed, and Milner-Gulland 2014). According to Lau (2012), a first step in developing a PES project is the clear identification of the ecosystem service of interest, the habitats where it is found, and the biological and physical attributes contributing to provision of the ecosystem service. For these reasons, Component 3, monitoring and evaluation, and Component 4, Project coordination and management, were essential for necessary stakeholder participation in developing the new PES scheme in the marine and coastal conservation.

E. Results

This economic analysis of the FUNBIO for Marine and Coastal Protected Areas Project in Brazil shows a strongly positive economic impact for five-, 10-, and 15-year periods. It finds a cost-benefit ratio of 1.75 to 2.45 with carbon price at US$3 and 12.79 to 17.96 with carbon price at US$60. The results of quantitative simulations are robust in terms of sensitivity analyses, assuming different Project years, discount rates, and carbon prices. Throughout the analysis, the benefit assumptions were based on the values of ecosystem services in Brazil estimated by recognized studies.

Estimates presented here correspond to a lower bound because they represent the benefit streams derived from Component 1, applying a conservative approach. The economic values of Components 2, 3, and 4 are likely to be higher but are difficult to measure due to their social and environmental qualitative nature. The increase of MCPAs from 5.50 million ha in 2013 to 95.90 million ha in 2019 greatly exceeded the Project’s target of 17.50 million ha. This is reflected in the cost-benefit ratios. Additional economic benefits can arise from the better public service delivery that results from capacity building in coastal and marine ecosystem administration and specialized training of beneficiaries. While this approach is likely to systematically undervalue the Project impacts, it provides a high degree of robustness. If additional Project benefits are considered, results are expected to be even stronger.

The rest of the Components also contribute positively to the Project. Based on Project results and the literature, Component 2’s PES scheme can generate benefits for marine and coastal conservation and local economic activities. The performance of Components 3 and 4 was relevant for the sustainable development of the Project areas, in that resource managers and marine and coastal communities could be part of the efficient management of the Project. In summary, the Project has and will continue to greatly benefit Brazil and its communities, and also serves as a good example for countries in the region and globally.

F. References

Abreu, C.T. 2015. “Brazilian Coastal and Marine Protected Areas Importance, Current Status and Recommendations.” United Nations-Nippon Foundation of Japan Fellowship Programme.

Bladon, A., K. Short, E. Mohammed, and E.J. Milner-Gulland. 2014. “Payment for ecosystem services in developing world fisheries.” *Fish and Fisheries*, Vol. 17, Issue 3. *https://doi.org/10.1111/faf.12095*

Boone, J., et al. 2018. “Carbon stocks of mangroves and salt marshes of the Amazon region, Brazil.” *Biology Letters,* Vol. 14 (9). *https://doi.org/10.1098/rsbl.2018.0208*

Deguignet M., et al. 2014. “2014 United Nations List of Protected Areas.” UNEP-WCMC: Cambridge, UK.

Diniz, C., et al. 2019. “Brazilian Mangrove Status: Three Decades of Satellite Data Analysis.” *Remote Sensing*, Vol. 11(7). *https://doi.org/10.3390/rs11070808*

Forest Trends’ Ecosystem Marketplace. 2019. “Financing Emission Reduction for the Future: State of Voluntary Carbon Markets 2019.” Washington D.C: Forest Trends.

Guimarães, A.S., et al. 2010. “Impact of aquaculture on mangrove areas in the northern Pernambuco Coast (Brazil) using remote sensing and geographic information system.” *Aquaculture Research*, 41(6), 828–838.

Lau, W.W.Y. 2012. “Beyond carbon: Conceptualizing payments for ecosystem services in blue forests on carbon and other marine and coastal ecosystem services.” *Ocean & Coastal Management.* https://10.1016/j.ocecoaman.2012.03.011

Miteva, D., B. Murray, and S. Pattanayak. 2015. “Do Protected areas reduce blue carbon emission? A quasi-experimental evaluation of mangroves in Indonesia.” *Ecological Economics*, Vol. 119, Issue C, pp. 127-135. https://doi.org/*10.1016/j.ecolecon.2015.08.005*

Muradian, R., et al. 2010. “Reconciling theory and practice: An alternative conceptual framework for understanding payments for environmental services.” *Ecological Economics* 69, 1202-1208.

Russi, D., et al. 2013. “The Economics of Ecosystems and Biodiversity (TEEB) for Water and Wetlands.” IEEP, London and Brussels. Ramsar Secretariat, Gland.

Salem, M., and E. Mercer. 2012. “The Economic Value of Mangroves: A Meta-analysis.” *Sustainability*, Vol. 4, pp. 359-383.

Schaeffer-Novelli, Y., G. Cintrón-Molero, M.L.G. Soares, and T. De-Rosa. 2000. “Brazilian mangroves.” *Aquatic Ecosystem Health & Management,* 3(4), 561–570.

Simões, E. 2018. “Brazilian Blue Initiative: Structure, Definition and Guidelines.” In collaboration with Andréa de Lima Oliveira.

World Bank. 2017. “Guidance note on shadow price of carbon in economic analysis.” World Bank: Washington, D.C.

ANNEX 5. BORROWER, CO-FINANCIER, AND OTHER PARTNER/STAKEHOLDER COMMENTS

The actions taken by the Marine Protected Areas Project I—GEF MAR I—during its more than five-year implementation resulted in a substantial increase in the country's total marine protected areas. They rose from 1.6 percent of coastal and marine areas to 26.4 percent, to total 96.1 million ha. The Project also promoted significant consolidation of specific conservation units (i.e. Protected Areas) to support the overall system of Marine and Coastal Protected Areas (MCPAs). This was accomplished through the development, implementation, and regulation of management tools that will allow the continuity and effectiveness of MCPAs in the long term.

The Project included strategic actions, some at the national level, that led to the institutionalization of important public policies that will foster conservation of marine and coastal areas. The work bolstered the map of priority areas for the conservation and sustainable use of marine and coastal biodiversity; the National Plans for the recovery of threatened fishing species; the National Action Plans for the conservation of Endangered Species (PAN); the Impact Reduction Plan for the exploration of oil and natural gas in marine environments (PRIM); the National Biodiversity Monitoring Program (*Monitora*); the Integrated Strategy for Marine and Coastal Monitoring, and the Pedagogical Political Plan for the Coastal and Marine Zone (PPPZCM). At the local level, management plans including visitation and species recovery guidelines were developed by individual Protected Areas that the Project supported.

Implemented in close collaboration with partner agencies, the Project also allowed the physical and organizational restructuring of the management bodies of supported Protected Areas. Research grants supported by the Project helped to structure ICMBIO as a Technological Scientific Institution (ICT, in its Portuguese abbreviation) based on its Strategic Research Plan 2018-2021. Through this work, regulation of administrative procedures for the management of the grants was improved, and the Committee of Analysis of Research Projects (COAP) was created in 2020. Likewise, the incorporation of the Management Analysis and Monitoring System—SAMGe—as a monitoring and planning tool for the Project helped drive adoption of the tool at the national level both by ICMBio and the state management bodies involved. They leveraged it as a monitoring and management tool for the entire MCPA system.

GEF MAR I also ensured that development of these strategies was carried out in a participatory and integrated manner, both at the local level in the Protected Areas and at the macro level by the Project's governance bodies. The involvement, empowerment, and engagement of civil society and local communities, as well as different sectors involved in carrying out the activities, fostered direct benefits in the Protected Areas. Specific sub-projects supported by GEF MAR promoted greater impact, effectiveness, and internalization of results achieved, which will guarantee the continuity of the planned actions and future developments.

Finally, the implemented financial sustainability strategies, such as the Marine Fund, the Brazilian Blue Initiative, and the federal Environmental Compensation Fund, will make it possible to finance the continuity of these activities after the close of the Project.

GEF MAR I not only successfully achieved its goals. It also brought solid results for the conservation and sustainable use of Brazilian marine and coastal protected areas, laying the foundations for broader and more comprehensive actions in the near future, through new projects such as the proposed Sustaining Healthy Coastal and Marine Ecosystems Project (P168989)—GEF MAR II.

ANNEX 6. SUPPORTING DOCUMENTS

A. Additional Information on the Marine Fund

The Marine Fund, part of the Blue Initiative and the yet-to-be-established *Plataform Azul*, is the first of its kind in Brazil and serves to expand protection of coastal and marine environments and their related biodiversity and ecosystem services. Modelled on the successful Transition Fund for the Amazon Region Protected Areas (ARPA) program, the Fund will promote long-term financial sustainability for MCPAs in Brazil. Fully operational at the end of the Project, it has a level of capitalization that will generate sufficient investment income to cover long-term funding of the MCPAs and annual recurrent costs. The Fund aligns directly with one of the two overall objectives of the GEF MAR I Project, *"identifying mechanisms for its financial sustainability,"* and goes a step further in that the mechanism was actually created. The Fund was officially set up on January 29, 2020.

The Fund's creation was enabled by redistribution of part of a GEF grant and by counterpart funding from Petrobras. About US$8.5 million came from the GEF grant, freed up due to devaluation of the Real and slower-than-expected disbursement in other areas of the Project. FUNBIO was selected to undertake the management (administrative and financial tasks, accounting, and disbursement arrangements) of the Fund after a successful financial management assessment. The governance, institutional, and implementation arrangements had already been defined at the time of restructuring.[27] Under the Fund's rules, only interest earned on the principal will be used for financing, along with any expenditures.

The Operations Manual of the Fund clearly lays out the types of activities that can be financed. It states that actions of the Research and Conservation Centers of the Chico Mendes Institute for Biodiversity Conservation (ICMBio) may qualify as long as they are directly related to the supported MCPAs. Also eligible are projects by organized civil society in the surrounding areas or within the MCPAs. The Fund may act directly, through the acquisition of goods and contracting of services directed to its final beneficiaries (such as MCPAs, research and conservation centers, and communities), or through disbursements to civil society organizations that will develop programs that advance the Fund's objectives. The Fund may also finance its own operation by supporting its deliberative and operational bodies, within limits established by the *Comitê de Doadores do Fundo* (the fund donor committee). Finally, the Fund is authorized to finance the development of studies, strategies, and projects that generate improvements to the Fund itself and/or that support its long-term sustainability.

B. Summary of Documents Reviewed (Non-Exhaustive)

- World Bank Project documents
  - Project preparation package
  - Project appraisal document and appraisal package
  - Operational legal documents including GEF grant agreements and government communications
  - Restructuring Paper 1, August 22, 2017

[27] See Annex 1 to Report No. RES35926, BR Marine Protected Areas Project (P128968), and Restructuring Paper August 5, 2019.

  - Restructuring Paper 2, August 5, 2019
  - Financial Management Implementation Support and Supervision reports
- Supervision record
  - ISRs 1-10 (January 26, 2015 – December 13, 2019)
  - Accompanying Aide Memoires
- Other Project documents
  - PIU Independent MTR report: *Relatório Final sobre os Avanços do Projeto Áreas Marinhas e Costeiras Protegidas (GEF MAR) no período de 2014-2017, com ajustes resultantes das recomendações da Missão de Avaliação de Meio Termo*
  - Draft PIU Final Evaluation: *Versão Preliminar do Relatório de Avaliação Final do Projeto GEF MAR*

- Country Partnership Strategy FY12-15
- Country Partnership Framework FY18-23
- Systematic Country Diagnostic May 6, 2016
- Brazil Public Expenditure Review 2017
- Brazil Policy Notes/2018 Election

C. Additional Details on the Oil Spill

The oil spill in northeastern Brazil, first reported on **August 30, 2019, afflicted more than 2,250 km (1,400 miles)** of coastline and was the worst **oil spill and largest environment disaster ever recorded in Brazil or in any tropical costal region worldwide.**[28] **The severity of the disaster triggered a National Contingency Plan, allowing** the GoB to supply emergency support. By the end of October 2019, more than 1,000 tons of oil had been cleaned up across all nine states in the Northeast Region and over 200 localities. The GoB reported that 5,500 armed forces personnel took part in cleaning up beaches along with people and resources from the National Agency of Petroleum, Natural Gas and Biofuels (ANP), the Brazilian Institute of Environment and Renewable Natural Resources (Ibama), the Chico Mendes Institute for Biodiversity Conservation (ICMBio), and the National Secretariat of Protection and Civil Defense. Thousands of volunteers pitched in as well.[29] According to BBC Brazil, the spill left a toxic trail that degraded mangroves and corals and will have harmful effects for years to come.[30] Livelihoods and health of the region's people stand to suffer long-term, as well as biodiversity, including birds.

The Project took numerous actions to help in the emergency. Activities included containment, clean-up, provision of protective equipment to volunteers and community members, and consultations with fisher people who had lost livelihoods. Perhaps of most lasting consequence, the Project undertook development of contingency risk management plans for anthropogenic events and extended them to include climate

[28] The oil spill was reported on by national and international news outlets including Estadão (*https://www1.folha.uol.com.br/ambiente/2019/10/procuradoria-entra-com-acao-para-que-governo-acione-plano-de-incidentes-com-oleo.shtml*) and The Independent (*https://www.independent.co.uk/news/world/americas/brazil-oil-spill-beach-troops-environment-crisis-army-bolsonaro-a9169411.html*).

[29] "Exército reforça limpeza de praias atingidas por óleo no litoral pernambucano." G1. 22 October 2019 (https://g1.globo.com/pe/pernambuco/noticia/2019/10/22/exercito-reforca-limpeza-de-praias-atingidas-por-oleo-no-litoral-pernambucano.ghtml)

[30] *"Danos do óleo no litoral do Nordeste vão durar décadas, dizem oceanógrafos."* BBC Brasil. October 21, 2019. (https://www.bbc.com/portuguese/brasil-50131560)

events. This experience will be particularly important as GEF MAR II continues the work of drawing up contingency plans for other PAs to help prevent and mitigate risks.

D. Additional Information on the Sub-Projects

Sub-projects[31] included activities such as development of routine workplans (in 27 PAs); education and awareness promotion (22 PAs); programs to improve community well-being while ensuring conservation alongside the use of resources (18 PAs); and development of open and reliable communication channels between local communities and/or indigenous people (IP) groups (24 PAs). Management Councils were installed in 24 PAs (six per sub-project) and regular meeting were held in 21 PAs, with a total of 240 meetings supported. This was partially achieved through the active participation of representatives of local communities and fisher people in the strategic forum (Project Council). A total of 7,325 participants, of whom 2,972 or 41 percent were female, ultimately took part in the sub-projects. This included 22 local communities and IP groups, leaders, and managers in 24 PAs. Financial support totaled R$1.8 million, which was made up of four approved projects—one regional for R$600,000 and three local for R$400,000 each.

These mechanisms of participation allowed the demands and desires of local communities to be fully heard, leading to people's full engagement during Project implementation. Methods of this engagement continued to evolve through the Project lifecycle, which led to further strengthening of the Project's achievements and outcomes. The sub-projects sometimes presented challenges as the Project worked to select beneficiaries (this could be a struggle when done through competitive selection), build capacity, and deal with issues of sustainability and legacy. But in the end, this work enabled the communities to reach new levels of capacity, increase their economic empowerment, and apply for resources that were not available to them before the Project.

[31] The project complemented and strengthened existing practices in the MPAs, and supported sub-projects on the empowerment and participation of communities.