Report No: ICR00004905

IMPLEMENTATION COMPLETION AND RESULTS REPORT

ON A

GRANT FROM THE GLOBAL ENVIRONMENT FACILITY (TF018972)

IN THE AMOUNT OF US\$9.59 MILLION

TO THE

REPUBLIC OF PANAMA FOR THE

SUSTAINABLE PRODUCTION SYSTEMS AND CONSERVATION OF BIODIVERSITY PROJECT

August 28, 2020

Agriculture And Food Global Practice Latin America And Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective December 31, 2019)

Currency Unit =	Balboas (B/)
B/ 1.00 =	US\$1.00
US\$1.00 =	PAB 1.00

FISCAL YEAR January 1 - December 31

Regional Vice President: Carlos Felipe Jaramillo

Country Director: Seynabou Sakho

Regional Director: Anna Wellenstein

Practice Manager: Preeti S. Ahuja

Task Team Leader(s): Garry Charlier

ICR Main Contributor: Leah Arabella Germer

ACERT	Authority of Panama for Control and Certification of Organic Products
ANAM	National Environmental Authority of Panama (became MIAMBIENTE)
BCR	Borrower Completion Report
CBD	Convention on Biological Diversity
CBMAP	Mesoamerican Biological Corridor of the Panamanian Atlantic
СВО	Community-based Organization
CPF	Country Partnership Framework
CPS	Country Partnership Strategy
EF	Endowment Fund
EFA	Economic and Financial Analysis
ESF	Environmental and Social Framework
ESMF	Environmental and Social Management Framework
EMP	Environmental Management Plan
FM	Financial Management
GDP	Gross Domestic Product
GEF	Global Environmental Facility
GoP	Government of Panama
GRM	Grievance Redress Mechanism
ha	hectare
ICRR	Implementation Completion and Results Report
IFR	Interim Financial Report
IPP	Indigenous Peoples Plan
IRR	Internal Rate of Return
ISR	Implementation Status Report
IUCN	International Union for the Conservation of Nature
MBC	Mesoamerican Biological Corridor
M&E	Monitoring and Evaluation
MEF	Ministry of Economy and Finance of Panama
METT	Management Effectiveness Tracking Tool of the GEF
MIAMBIENTE	Ministry of Environment of Panama
MTR	Mid-term Review
MICI	Ministry of Commerce and Industry
MIDA	Ministry of Agriculture and Livestock
MOU	Memorandum of Understanding
NGO	Non-governmental Organization
NPV	Net Present Value
PA	Protected Area
PAD	Project Appraisal Document
PDO	Project Development Objective
PIU	Project Implementation Unit
POM	Project Operations Manual
RF	Results Framework
SINAP	National System of Protected Areas of Panama
SNIMDB	National Information System and Monitoring of Biodiversity
SPCB	Sustainable Production Systems and Conservation of Biodiversity Project
TA	Technical Assistance
ToC	Theory of Change

ABBREVIATIONS AND ACRONYMS

TABLE OF CONTENTS

DAT	TA SHEET 1
I.	PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES1
	A. CONTEXT AT APPRAISAL1
	B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)
П.	OUTCOME
	A. RELEVANCE OF PDOs8
	B. ACHIEVEMENT OF PDOs (EFFICACY)8
	C. EFFICIENCY14
	D. JUSTIFICATION OF OVERALL OUTCOME RATING16
	E. OTHER OUTCOMES AND IMPACTS (IF ANY)16
III.	KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME
	A. KEY FACTORS DURING PREPARATION17
	B. KEY FACTORS DURING IMPLEMENTATION
IV.	BANK PERFORMANCE, COMPLIANCE ISSUES, AND RISK TO DEVELOPMENT OUTCOME 20
	A. QUALITY OF MONITORING AND EVALUATION (M&E)20
	B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE
	C. BANK PERFORMANCE
	D. RISK TO DEVELOPMENT OUTCOME25
v.	LESSONS AND RECOMMENDATIONS
	NEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS 28
	NEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION
	NEX 3. PROJECT COST BY COMPONENT
	NEX 4. EFFICIENCY ANALYSIS
	NEX 5. BORROWER. CO-FINANCIER AND OTHER PARTNER/STAKEHOLDER COMMENTS 48
	NEX 6. GLOBAL SIGNIFICANCE OF THE 12 PROJECT PROTECTED AREAS AND BUFFER ZONES49
	NEX 7 EXISTING AND DISCOVERED BIOLOGICAL SPECIES IN PROJECT PROTECTED AREAS 51
AN	
ANN	NEX 11. MAP OF PROJECT INTERVENTION AREAS



DATA SHEET

BASIC INFORMATION

Product Information	
Project ID	Project Name
P145621	Sustainable Production Systems and Conservation of Biodiversity
Country	Financing Instrument
Panama	Investment Project Financing
Original EA Category	Revised EA Category
Partial Assessment (B)	Partial Assessment (B)

Organizations

Borrower	Implementing Agency
Republic of Panama	Ministerio de Ambiente (MIAMBIENTE)

Project Development Objective (PDO)

Original PDO

The proposed global environmental objective is to conserve globally significant biodiversity through improved management effectiveness of the project protected areas and biodiversity mainstreaming in the buffer zones.

PDO as stated in the legal agreement

The objective of the Project is to conserve globally significant biodiversity through the improvement of the management effectiveness of the Project Protected Areas and biodiversity mainstreaming in the Buffer Zones.



FINANCING

	Original Amount (US\$)	Revised Amount (US\$)	Actual Disbursed (US\$)
World Bank Financing		-	
TF-18972	9,589,000	9,571,277	9,571,277
Total	9,589,000	9,571,277	9,571,277
Non-World Bank Financing			
Borrower/Recipient	10,159,300	9,400,000	9,400,000
Municipalities of Borrowing Country	91,000	60,000	60,000
Local Beneficiaries	630,000	630,000	630,000
Private Commercial Sources (identified)	8,500,000	4,160,000	4,160,000
Total	19,380,300	14,250,000	14,250,000
Total Project Cost	28,969,300	23,821,277	23,821,277

KEY DATES

Approval	Effectiveness	MTR Review	Original Closing	Actual Closing
09-Feb-2015	04-Feb-2016	10-Apr-2018	30-Dec-2019	30-Dec-2019

RESTRUCTURING AND/OR ADDITIONAL FINANCING

Date(s)	Amount Disbursed (US\$M)	Key Revisions
21-Jul-2015	0	

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	01-Apr-2015	Satisfactory	Satisfactory	0
02	26-Oct-2015	Satisfactory	Satisfactory	0
03	10-Feb-2016	Satisfactory	Moderately Satisfactory	0
04	22-Jul-2016	Satisfactory	Moderately Satisfactory	1.50
05	15-Jan-2017	Satisfactory	Moderately Satisfactory	1.58
06	21-Aug-2017	Moderately Satisfactory	Moderately Satisfactory	2.90
07	29-Nov-2017	Moderately Satisfactory	Moderately Satisfactory	2.90
08	05-Jun-2018	Moderately Satisfactory	Moderately Satisfactory	3.96
09	05-Dec-2018	Moderately Satisfactory	Moderately Satisfactory	6.71
10	20-Feb-2019	Satisfactory	Satisfactory	7.63
11	16-Sep-2019	Satisfactory	Satisfactory	9.59
12	30-Dec-2019	Satisfactory	Satisfactory	9.59

SECTORS AND THEMES

Major Theme/ Theme (Level 2)/ Theme (Level 3)

Sectors	
Major Sector/Sector	(%)
Agriculture, Fishing and Forestry	92
Crops	9
Public Administration - Agriculture, Fishing & Forestry	29
Other Agriculture, Fishing and Forestry	54
Public Administration	8
Sub-National Government	8
Themes	

(%)



Finance	0
Finance for Development	7
Agriculture Finance	7
Social Development and Protection	0
Social Inclusion	8
Indigenous People and Ethnic Minorities	8
Urban and Rural Development	0
Rural Development	18
Rural Markets	7
Rural Non-farm Income Generation	8
Land Administration and Management	3
Environment and Natural Resource Management	0
Renewable Natural Resources Asset Management	68
Biodiversity	65
Landscape Management	3

ADM STAFF

Role	At Approval	At ICR
Vice President:	Jorge Familiar Calderon	Carlos Felipe Jaramillo
Country Director:	J. Humberto Lopez	Yaye Seynabou Sakho
Director:	Juergen Voegele	Anna Wellenstein
Practice Manager/Manager:	Laurent Msellati	Preeti S. Ahuja
Project Team Leader:	Norman Bentley Piccioni	Garry Charlier
ICR Co Author:		Leah Arabella Germer



I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

1. At the time of project appraisal, a key priority of the Government of Panama (GoP) was to promote economic growth that contributes to both biodiversity conservation and the country's socioeconomic development and poverty alleviation efforts. Panama had experienced annual Gross Domestic Product (GDP) growth averaging eight percent in the years leading up to project appraisal and was ranked as an upper-middle income country. At the same time, 60 percent of the country's rural residents, a third of the total population, lived below the poverty line.¹ Critically, in Panama, conservation of the country's natural resources and biodiversity had long played a significant role in addressing these challenges. Major contributors to the country's GDP, including the Panama Canal and tourism, continued to depend on the sustainable management of the country's rich natural resources and globally significantly the water flows and quality necessary for the Canal's functioning.² The biodiversity found in forests, which cover approximately 40 percent of the country area, as well as in coastal and other ecosystems moreover constituted a main attraction in Panama's tourism industry, as well as directly supported cultural heritage and sustainable livelihoods in timber, agro-forestry, artisanal craftwork, and fishing for some of the country's poorest, rural and remote populations.

2. Panama's high level of biodiversity and geographic location also make it a critical link in regional and global efforts to conserve biodiversity. Panama ranked 10th in the world for its high level of biodiversity in proportion to its size and 29th based on the Global Environment Facility (GEF) Benefits Index for Biodiversity. Notably, there were 976 species of birds, the second highest number in Central and North America, and more than 10,000 species of plants, two times more plant species per unit of area than Brazil. As part of the Mesoamerican Biological Corridor (MBC), a multi-national effort to connect natural habitats from Mexico through Central America to Colombia, Panama's geographic location also made it a critical link in regional efforts to conserve biodiversity. Many of Panama's plant and animal species are also designated by international conservation institutions as significant for global conservation efforts, with some populations ranked as vulnerable and/or threatened.

3. Inadequate support for Panama's National Protected Areas System (SINAP) as well as unsustainable activities in the productive areas located in their "buffer zones"³ posed considerable challenges to the country's biodiversity conservation efforts. The SINAP consists of 104 protected areas (PAs) encompassing 3.6 million hectares (ha) (about 39 percent of the national area and 2.7 million ha of terrestrial land). Biodiversity within the SINAP had long been considered threatened by habitat fragmentation due to pressures on their

¹ Sustainable Production and Conservation of Biodiversity (P145621) Project Appraisal Document (PAD). January 21, 2015.

² Simonit & Perrings 2013. *Bundling ecosystem services in the Panama Canal watershed*. Proceedings of the National Academy of Sciences of the United States of America, 110 (23).

³ PA management zoning systems frequently include a highly protected "core area" surrounded by a "buffer zone." The core area—such as a strict reserve or no-take area (the PAs in this case) — protects critical habitats and species. The buffer zones allow a broader range of uses but are intended to insulate the core from threats to their conservation status. In Panama, PA buffer zones are legally established under RESOLUCIÓN AG -0304-2012 of December 11, 2012 and set out in the management plans of each PA.



buffer zones, including poor land use planning, agriculture and cattle ranching, poorly managed large-scale extractive activities and energy projects, unplanned tourism development, deforestation, soil and water contamination, and population growth. Habitat fragmentation due to such activities also threatens the broader efforts of the MBC to maintain the connectivity of natural biological corridors across countries. The fact that the rural and often indigenous communities who live in the buffer zones have some of the highest poverty rates in the country presents another challenge. Many of these communities operate small farms, practice shifting agriculture, raise cattle, and conduct some eco-tourism activities, are marginalized, and have few other livelihood options. The conservation of biodiversity in Panama thus depends not only on valuing the corridor's ecosystem services and reducing the pressures of unsustainable activities in PA buffer zones, but also in supporting more sustainable livelihoods for those communities living in the buffer zones and facing socio-economic isolation and poverty.

4. The GoP accordingly prioritized support for the SINAP and the rural and indigenous communities that conduct agriculture and eco-tourism in the buffer zones. At the time of project appraisal, the promotion of sustainable agricultural growth and prioritization of biodiversity conservation – especially in areas of regionally and globally recognized biodiversity such as the MBC – was expressed in Panama's National Environment Strategy (1999-2020), National Biodiversity Policy (2008), Strategic Plan of the Agriculture Sector (2010-2014), and National Climate Change Policy (2007). More specifically, the GoP was already promoting sustainable economic growth and raising awareness of the important environmental services provided by the PA ecosystems in these buffer zones through its National Environment Authority (ANAM, which in 2015 became the "Ministry of Environment – MIAMBIENTE), which administers the SINAP and is responsible for implementing the United Nations Convention on Biological Diversity (CBD) and all other biodiversity-related multilateral environmental agreements.

5. The project rationale was thus strong, aligning with GoP priorities and building on over a decade of World Bank/Global Environmental Facility (GEF) projects supporting biodiversity conservation in Panama. The World Bank-implemented and GEF-funded Project built on the foundation of expertise and experience gained through the Mesoamerican Biological Corridor of the Panamanian Atlantic project (CBMAP - P045937) and the Rural Productivity and Consolidation of the Atlantic MBC Project (CBMAP II - P083045). These projects, also World Bank/GEF-supported, boosted the basic functionality of the then newly-established SINAP, supported productive subprojects and municipalities in PA buffer zones, brought additional buffering land area under conservation, and supported the fledging development of a National System of Information and Monitoring of Biological Diversity (SNIMDB).

6. **Still, the GoP faced significant challenges to the long-term sustainability of these achievements.** Lessons and experiences from CBMAP II emphasized the need for mechanisms to support the long-term sustainability of its achievements and highlighted several critical gaps in PA management effectiveness going forward. These included: an estimated annual financing gap to support the basic management of PAs in the SINAP of US\$ 5.2 million annually and a larger gap of over US\$ 12.0 million for optimal management, indicating the need for a long-term financing strategy for the SINAP; lack of systematized biodiversity monitoring in PAs to improve management effectiveness; the need to address adverse impacts on the biodiversity and connectivity of the PAs from productive activities in their buffer zones; lack of incentives for the private sector, civil society, and local governments to provide co-management, emphasizing the value of multi-sectoral approaches to conservation activities and the opportunities for marketing of biodiversity-friendly products; and insufficient knowledge and



awareness among policymakers as well as Panamanians more broadly regarding the contribution of biodiversity to economic and social well-being. The project was designed to address these challenges by furthering the PA conservation efforts undertaken by the previous two MBC projects, investing in the mainstreaming of biodiversity-friendly practices in the buffer zones, and introducing innovation in ensuring the long-term sustainability of these achievements. The project was designed moreover to support enhanced corridor integrity and connectivity, contributing to regional and global biodiversity conservation efforts.

7. The project sought to support the objectives of the Panama Country Partnership Strategy (CPS) and subsequent Country Partnership Framework (CPF), as well as the broader mission of the Bank and GEF. The Sustainable Production and Conservation of Biodiversity project (SPCB) project was well aligned with the CPS discussed by the World Bank Group Board of Executive Directors in August 2010 for the period 2011-2014 and the subsequent CPF discussed by the Board in March 2015 for the period 2015-2021. The project activities were directly relevant to the CPS Objective 1 (C) "To create a sustainable environment for building tourism and conserving globally important biodiversity, forests, and marine-costal ecosystems." Regarding the CPF, project activities were consistent with Pillar 2, supporting "sustainable income-generating opportunities" in rural areas through "an integrated landscapes approach." The project aimed to contribute to the Bank's twin goals to eradicate extreme poverty and promote shared prosperity by supporting beneficiaries (including indigenous communities and women) to build capacity for sustainable, income-generating opportunities, thus supporting inclusive economic growth among some of Panama's poorest communities. The project was also aligned with two strategic objectives of the GEF-5 Biodiversity Strategy: (i) improving the sustainability of PA systems; and (ii) mainstreaming conservation and sustainability into production landscapes/seascapes and sectors.

Theory of Change (Results Chain)

8. The Theory of Change (ToC) is based on the results chain logic in the Project Appraisal Document (PAD) and other appraisal documents (see Figure 1). The key underlying ToC is that improving the management effectiveness of PAs (Sub-outcome A) and mainstreaming biodiversity conservation practices into the productive buffer zones of those PAs (Sub-outcome B) would contribute to the conservation of globally significant biodiversity (the PDO). The project aimed to underpin these two approaches with outreach, educational, and partnership-building activities to improve knowledge and awareness of the value of PAs, biodiversity mainstreaming in productive areas, and biodiversity conservation more broadly.

Project Development Objectives (PDOs)

9. The PDO as stated in the PAD was "to conserve globally significant biodiversity through the improvement of the management effectiveness of the Project Protected Areas and biodiversity mainstreaming in the Buffer Zones." This is identical to the PDO stated in the Grant Agreement of July 9, 2015.



Figure 1. Theory of Change





Key Expected Outcomes and Outcome Indicators

10. The key expected outcomes were the generation of global, regional, and local environmental benefits. Global environmental benefits are the conservation of globally significant biodiversity through improved protected area management effectiveness and biodiversity mainstreaming. At the regional level, the countries situated along the MBC were also expected to gain environmental benefits. Locally, Panamanians were expected to benefit from biodiversity conservation as well as improved livelihoods in the productive buffer zones.

11. The PDO is technically the phrase up to the word "through," or "to conserve globally significant biodiversity." The phrases after the word "through," or "the improvement of the management effectiveness of the Project Protected Areas" and "biodiversity mainstreaming in the Buffer Zones," are considered to be "sub-outcomes." According to the ToC implied in the project PAD, achievement of these two sub-outcomes demonstrates achievement of the broader PDO and is measured through the project's two PDO-level indicators:

- (i) Areas brought under enhanced biodiversity protection (ha). Target: 550,000 ha.⁴
- (ii) Landscapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations (ha). Target: 1,200 ha.

12. The first PDO-level indicator is a Biodiversity Core Indicator that was calculated based on a scoring for each project PA by the broadly used GEF Management Effectiveness Tracking Tool (METT) (see Annex 8). The second indicator is a GEF Indicator corresponding to the productive area which, through project actions, is producing certified products under environmental standards that include biodiversity considerations. As shown in the project ToC, the two sub-outcomes are used as measurable proxies for the PDO, which is worded as a higher-level objective. Achievement of the sub-outcomes is thus considered to represent achievement of the project's PDO, to conserve globally significant biodiversity (see Section II).

13. **Targeted beneficiaries**. At appraisal, the project was expected to reach 48,450 direct beneficiaries, defined in the PAD as "people or groups who directly derive benefits from an intervention."⁵ It was expected that at least 50 percent of these beneficiaries would be women. In addition, the project was expected to benefit local governments and traditional authorities interested in pursuing co-management agreements in PAs with MIAMBIENTE, the private sector and civil society organizations interested in administration or services concessions in PAs, and MIAMBIENTE, municipal governments, community members, and others directly involved in project training activities and exchanges among countries within the MBC.

14. **Project intervention areas.** Panama's SINAP consists of 104 PAs encompassing 3.6 million ha (about 39 percent of the national area and 2.7 million ha of terrestrial land). The project at appraisal identified 12 of these PAs for intervention according to a two-stage selection process including both environmental and socio-economic criteria.⁶ Buffer zones are officially (federally) designated productive areas surrounding PAs. The 12

⁴ The project interpreted "enhanced biodiversity protection" to be synonymous with "improved management effectiveness;" per the PAD, "enhanced biodiversity protection results from the establishment or upgrading of a functioning management system in PAs, including a management plan and the capacity and resources to implement the plan."

⁵ Consultation with the project team as part of the ICRR process confirmed that the targeted 48,450 "direct beneficiaries" in the PAD referred both to producers benefitting from subproject investments and TA and to the populations of municipalities benefitting from municipal environmental management plans (EMPs).

⁶ In the first stage of the PA selection process, prioritization was given to: (a) PAs located in the MBC; (b) PAs above 10,000 hectares; and



selected project PAs (697,818 hectares in total) and their buffer zones are located in the Atlantic and centraleastern parts of the country and include areas belonging to seven of Panama's nine provinces (Bocas del Toro, Coclé, Colón, Chiriquí, Los Santos, Panamá and Veraguas), two indigenous *comarcas* (Guna Yala and Ngäbe-Buglé), and two Indigenous Peoples territories (Bribri and Naso-Teribe).

Components

15. **Component 1: Sustainable Management of Protected Areas**. (*Estimated total cost US\$ 15.16 million, of which GEF Grant US\$ 4.68 million (31 percent). Actual total cost: US\$ 13.33 million, about 88 percent of the estimated cost at appraisal).* This component supported the improvement of management effectiveness and long-term sustainability of project PAs with a focus on financial sustainability and biodiversity monitoring. Component 1 financed the establishment of "participatory alliances" (concessions) to improve PA management (subcomponent 1.1); the implementation of a biodiversity monitoring system in project PAs and maintenance and dissemination of the information collected (subcomponent 1.2); and the establishment of an Endowment Fund (EF) to help address the financial gap for effective management of the SINAP (subcomponent 1.3).

16. **Component 2: Biodiversity and Sustainable Productive Landscapes**. *Estimated total cost US\$ 6.81 million, of which GEF Grant US\$ 3.25 million (48 percent). Actual total cost: US\$ 5.91 million, about 87 percent of the estimated cost at appraisal).* This component supported mainstreaming biodiversity and sustainable production in PAs and buffer zones, focusing on biodiversity-friendly production systems, strengthening of Community Based Organizations (CBOs) and municipal environmental plans and subprojects. Component 2 financed the design and implementation of subprojects in PA buffer areas with biodiversity considerations mainstreamed into productive activities (subcomponent 2.1); technical and business capacity building for the CBOs implementing the productive subprojects (subcomponent 2.2); and the development and financing of municipal environmental management plans (EMPs) and subprojects for select municipalities.

17. **Component 3: Knowledge Management, Training and Communications**. *Estimated total cost US\$ 5.17 million, of which GEF Grant US\$ 1.19 million (23 percent). Actual total cost: US\$ 2.86 million, about 55 percent of the estimated cost at appraisal).* This Component proposed to underpin Components 1 and 2 by supporting knowledge generation and dissemination, including a study to analyze the SINAP management financial gap (subcomponent 3.1); partnerships and standards development to support the marketing and consumption of biodiversity-friendly products (subcomponent 3.2); and communication and educational activities to raise awareness of the SINAP, the value of producing and consuming biodiversity-friendly products and more broadly the economic value of biodiversity (subcomponent 3.3).

18. **Component 4: Project Management.** *Estimated total cost US\$ 1.83 million, of which GEF Grant US\$ 0.47 million (26 percent). Actual total cost: US\$ 1.72 million, about 94 percent of the estimated cost at appraisal).* This component financed the strengthening of MIAMBIENTE's capacity for technical and administrative implementation of the project. As such it supported the consulting services, office equipment, audits and other operational costs of the Project Implementation Unit (PIU).

19. **Costs and Financing**. The financing plan for the project included a Recipient-executed GEF grant (with the World Bank as GEF Implementing Agency) and counterpart contributions from GoP, two private companies (hydroelectric and mining), and beneficiaries of subprojects and municipal EMPs. The cost of the project was

⁽c) PAs with experience implementing environmental subprojects under CBMAP II or similar programs. In the second stage, national experts were consulted to define and weight environmental, social, and economic criteria and apply them to select the final project PAs.



estimated at US\$ 28.97 million to be executed over a period of five years (2015-2019). As shown in Annex 3, the actual project cost was about 82 percent of the cost estimated at appraisal (see Annex 3). This was due largely to lower-than-estimated contributions to the capitalization of the EF from a private sector mining company, and thus did not affect the amount of funds budgeted for the project activities. This shortfall moreover was balanced out by higher-than-expected EF capitalization contributions from a private sector hydro-electric company and further Government revenue streams harnessed during the project (see section II.B).

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

20. (The PDO was not revised.)

Revised PDO Indicators

21. (The PDO Indicators were not revised.)

Revised Components

22. (The project components were not revised.)

Other Changes

23. Three changes were undertaken during implementation. A level two restructuring was done in July 2015, five months after approval in February 2015. Changes made were: (i) to update the project implementation agency after the creation of MIAMBIENTE in replacement of ANAM; and (ii) to remove a subsidiary agreement that was originally set as an effectiveness condition of the Grant Agreement. In addition, as an outcome of the Mid-term Review (MTR), the project team (iii) increased the target number of beneficiaries (Intermediate indicator 2.4) from 48,450 to 80,000 and the target "Number of outreach or educational activities to promote the benefits of biodiversity and the public's role in conservation" (Intermediate indicator 3.3) from 30 to 50.

Rationale for Changes and Their Implication on the Original Theory of Change

24. These changes did not affect the ToC or the originally expected outcomes or targets. Their rationale was as follows: (i) the status and name of the project implementation agency was changed (according to Law 8 of 2015, voted on by the National Assembly of Panama on March 25, 2015) from the National Environmental Agency (*Agencia Nacional del Ambiente – ANAM*), an autonomous entity, to its replacement and newly created Ministry of Environment (Ministerio de Ambiente – MIAMBIENTE). The Grant Agreement was revised accordingly; (ii) the Subsidiary Agreement between the Ministry of Finance and ANAM was deemed no longer necessary because under this change, MIAMBIENTE as implementing agency being a government ministry; (iii) the MTR recognized the larger-than-expected populations of the selected municipalities and the advanced progress on the outreach and educational activities under Component 3. Increasing the target values for those indicators thus enabled the results framework (RF) to capture achievements beyond those originally envisaged.

II. OUTCOME



A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

25. Relevance of the project PDO is rated **Substantial** due to its strong alignment with the objectives of the current World Bank Group CPF for the Republic of Panama for the period FY2015-2021 (Report No. 93425-PA), discussed by the Board in March 2015 and spanning most of the project period. The PDO is also in line with the broader mission of the Bank as well as Panama's sector strategies at the time of project closing.

At the time of project closing, the PDO remained well aligned with the CPF and demonstrated ongoing 26. relevance to higher-level Bank objectives. The PDO, "to conserve globally significant biodiversity," is strongly aligned with Pillar 2, "Ensuring Inclusion and Opportunities for Marginalized and Indigenous Groups" and in particular its Objective 4, "Complement social assistance with productive inclusion." Under this Objective, the CPF emphasizes that "sustainable, income-generating opportunities can be fostered by an integrated landscape approach to produce long-term well-being, health and poverty reduction," specifically mentioning "sustainable, high value agriculture" and "eco-tourism." The PDO also directly contributes to the CPF Pillar 3, "Bolstering Resilience and Sustainability," which highlights the need to address human pressures on forestry, water, and other natural resources as well as the dependency of the Panama Canal and other economic sectors on those resources. The conservation of biodiversity is a critical aspect of achieving these Objectives through its contributions to sustainable agriculture (e.g. soil micro-organisms, pollinators, seeds), eco-tourism (e.g. forest walks, boat tours in coastal ecosystems, bird-watching), and water resources management (e.g. forest and coastal habitats that contribute to water flows and quality). The PDO also remained relevant to higher-level Bank objectives to reduce poverty and inequality in the context of rising challenges to conservation, as demonstrated by the Bank's Environment Strategy 2012-2022 Pillar 1 ("Green," where biodiversity is framed as an economically critical resource) and the Bank's adoption in 2019 of the Environmental and Social Framework (ESF) and its "Standard on Biodiversity conservation and sustainable management of living resources."

27. **The PDO also remained relevant in relation to Panama's sector strategies, as well as Panama's higherlevel growth agenda**. The PDO remained directly relevant to the following: (i) Panama's National Biodiversity Strategy 2018-2050, in particular to Axis 1 "Conservation and Restoration," which seeks to conserve biodiversity in the SINAP and its buffering areas; (ii) Panama's agriculture and livestock development agenda as reflected in the 2018 National Climate Change Plan for the Agriculture and Livestock Sector, which includes biodiversity conservation under its Strategic Objective 2 "Develop efficient production systems compatible with sustainable environmental and natural resource management"; and (iii) GoP's higher-level agenda, as demonstrated in the new President's flagship, multi-sector Action Plan "Uniendo Fuerzas" ("Joining Forces") 2019-2024 and Strategic Plan 2019-2024. These Plans have a strong focus on agriculture and rural development and aim *inter alia* to leverage optimally the country's natural resources and biodiversity to modernize the agriculture sector and reduce rural/urban economic disparities by promoting sustainable and inclusive territorial development.

B. ACHIEVEMENT OF PDOs (EFFICACY)



Assessment of Achievement of Each Objective/Outcome

28. Achievement of the PDO ("Conservation of globally significant biodiversity") is indicated by the achievement of the two sub-outcomes (a): Improvement of the management effectiveness of the project PAs, and (b): Mainstreaming of biodiversity in the buffer zones. The following evidence links the PDO to these two sub-outcomes and demonstrates their achievement through the RF indicators and supplementary information.

29. The project activities as described in the PAD reflect a broad interpretation of the term "conservation" in accordance with key conservation organizations. While "conservation" could be interpreted narrowly to refer only to "conserving" existing levels of biodiversity, the project documents and activities reflect a broader scope that also includes enhancement of biodiversity beyond present levels. This interpretation is in accordance with the use of the term "conservation" by leading organizations in the field such as the International Union for the Conservation of Nature and the United Nations CBD.

30. **The PAs selected for project intervention contain biodiversity that is "globally significant."** The animal and plant biodiversity contained in the project PAs are significant in that they have certain conservation statuses reflecting the vulnerability of their populations to threats. The PAs are thus significant not only at the national level through their relevance to the SINAP, but also at the regional level through inclusion in the MBC and at the global level through designation by international conservation institutions. Relevance at multiple levels is evidenced in Annex 6, which shows key characteristics of the project PAs, namely that all project PAs are part of the MBC and that six PAs (or about 63 percent of the total project PA area) are internationally recognized by the Ramsar Convention and/or the *Reserva de la Biosfera La Amistad*. As shown in Annex 7, all PAs contain species that are tracked by IUCN and thus considered to be significant for global efforts to conserve biodiversity. These include flagship species⁷ such as the Jaguar and Harpy Eagle as well as species listed as "endangered" and "critically endangered" such as *Tapirus bairdii* (Baird's tapir) and *Atelopus varius* (harlequin toad), as well as "vulnerable" such as *Leopardus tigrinus* (oncilla) and *Cephalopterus glabricollis* (bare-necked Umbrellabird).

31. The project used improvement in the management effectiveness of PAs and mainstreaming biodiversity practices in buffer zones as proxies for achieving biodiversity conservation outcomes. Direct evidence of biodiversity conservation, such as sustained or increased populations of specific species, can often require longer than a project cycle to arise.⁸ It is therefore conventional for projects with only a few years of implementation to assess biodiversity conservation outcomes by measuring achievement of the means used to conserve biodiversity as a proxy. The SPSCB project took this approach in that while it sought ultimately "to conserve globally significant biodiversity" (more of a higher-level objective than a project-level objective), it did not measure these outcomes directly in the RF. Rather, the project measured the land area (through suboutcomes A and B, below) on which certain practices known to contribute to biodiversity conservation were implemented and/or improved. Using adoption of biodiversity-friendly practices as a proxy for conservation outcomes is a mainstream methodology in the scientific literature, in GEF and the Bank, and in conservation organizations.⁹ Accordingly, for the SPSCB project, achievement of the land area indicator targets of suboutcomes A and B demonstrates achievement of the PDO, to conserve globally significant biodiversity. Evidence for PDO achievement is bolstered by further project outcomes detailed below, including the discovery of species new to Panama and to science and the implementation of conservation programs targeted at flagship species.

⁷ Flagship species are those considered to have ability to draw financial support for broader environmental purposes (*Liu et al. 2016*).

⁸ GEF Final Report: Biodiversity Indicators for Monitoring GEF Programme Implementation and Impacts.

⁹ GEF 2018 Background Note. See Bank projects in Panama, CBMAP (045937) and CBMAPII (P083045), and Mexico (CONABIO) (P121116).



Sub-outcome A: Improvement of the management effectiveness of the project PAs

32. The main indicator used to measure progress on Sub-outcome A is PDO Indicator 1, "Areas brought under enhanced biodiversity protection (ha)." The project interpreted "enhanced biodiversity protection" to be synonymous with "improved management effectiveness" per the PAD, "enhanced biodiversity protection results from the establishment or upgrading of a functioning management system in PAs, including a management plan and the capacity and resources to implement the plan" (see Section IV.A.). The indicator was measured using the GEF Management Effectiveness Tracking Tool (METT), a widely used site-level tracking tool that was designed to facilitate survey-based reporting over time on 30 variables of protected area management covering financial, business management, legal, regulatory, staff capacity, and communications aspects. For each of the three METT evaluations conducted (baseline, mid-term, and final), a workshop was held with park directors, managers, rangers, and various staff from MIAMBIENTE to evaluate each project PA according to the METT and estimate its respective score. According to the methodology reflected in the PAD, if a PA showed an improved METT score relative to the baseline evaluation, the total park area was counted toward the area brought under enhanced biodiversity protection under this PDO indicator; if no improvement or a negative improvement was recorded, the PA area was not counted (See Annex 8).

33. At project closing, improved METT scores were recorded for nine project PAs, representing 654,501 ha under enhanced biodiversity protection (119 percent of the end target of 550,000 ha) (see Annex 8 Table 1). These improvements are due to project investments i.a. in infrastructure, programs, and trainings in natural resource management, wildlife rescue, fire monitoring and control, environmental sustainability, biodiversity monitoring, and the use of specialized equipment (GPS, camera traps, drones, forest fire fighting, and motorboats). Among the nine project PAs that showed improvements, higher METT scores were achieved for *Fortuna* Forest Reserve, *Cerro Hoya* National Park, and other areas in which the project supported park boundary demarcation, which significantly influences METT scores. Three PAs (*Altos de Campana* National Park, *General Omar Torrijos* National Park, and *Isla Bastimentos* National Marine Park) showed lower METT scores in 2019 relative to 2014. This is due in part to the lingering effect of an unexpected shortfall in funding in 2015-16 from the Ecological Trust Fund of Panama (FIDECO) (the main financial supporter of the SINAP), which adversely impacted several aspects of management effectiveness assessed by the METT in these PAs.

34. Implementation of the National Biodiversity Monitoring System (SNIMDB) in nine of the 12 project PAs significantly improved PA management effectiveness as assessed by the METT. The SPCB project markedly improved the monitoring of PA biodiversity, and thus the availability of information for decision-making and awareness raising, by implementing species monitoring to feed the National Biodiversity Monitoring System (SNIMDB) in nine of the 12 project PAs (exceeding the target of 8 PAs). Activities to monitor biodiversity included the completion of baseline studies to identify the existing biodiversity information in the PAs, the conducting of species inventories, and capacity building for PA staff to use SNIMDB and the web-based platform it links to, *iNaturalist*, through five workshops. As a result of these activities, ten species new to science were discovered, five first new records of species for Panama (see Annex 7), and a new order of *Plecoptera* (commonly known as "stoneflies") was discovered (pending revision). The demarcation and signposting of park boundaries was also completed for three PAs (*San San Pond Sak* Wetland, *Cerro Hoya* National Park, and *Fortuna* Forest Reserve). This clarification of PA boundaries, which also determines the limits of private land assets and where productive activities are permitted, benefited an estimated 18,513 individuals living in PA buffer zones (see Annex 6 Table

2). While the Panama-specific, biodiversity information software originally envisaged as part of these activities was not developed due to cost limitations, implementation of the SNIMDB strengthened significantly PA management effectiveness by improving the knowledge base for targeting SINAP programming to conservation needs and the human resources for monitoring and evaluating conservation outcomes.

35. The project undertook a wide range of further activities that improved human resource, financial, and knowledge and awareness aspects of PA management effectiveness as assessed by the METT and contribute to the conservation of biodiversity:

- Human resources: The project supported the training and awarding of Park Ranger Diplomas for 50 park rangers, as well as training for over 150 additional staff and partners on relevant thematic areas and the use of project-supported equipment. This made a direct contribution to park management capacity.
- **Financing:** The project supported a published study of the additional funding needed to bring the entire SINAP to a level of "adequate management."¹⁰ This study makes a significant contribution to the financial sustainability of the SINAP in that it quantifies its ongoing financing needs (US\$ 16.7 million annually for adequate management), estimates the economic value of the benefits that the SINAP provides, and proposes a strategy for diversifying the sources and mechanisms of its future financing.
- Knowledge: Effective management of PA biodiversity was significantly enhanced through the implementation of the Livestock-Jaguar Preventive Conflict Management Program and the Harpy Eagle Biology and Ecology Monitoring Program. These programs directly contributed to conservation by providing the diagnostics and support for targeted interventions to protect flagship conservation species. To ensure continued support for knowledge aspects of PA management beyond project closing, the project also supported the formation of three participatory alliances or "concessions" with the University of Panama for research services to support selected PAs. The findings from these activities were presented in over 20 scientific publications and international conferences, contributing to the dissemination within and beyond Panama of the scientific information discovered through the project.
- Awareness: The project also supported a series of outreach and educational activities for researchers, students, and public figures to improve knowledge and awareness of the importance of biodiversity conservation in Panama (Component 3). These activities helped to broaden the base of support for biodiversity conservation beyond the project staff and beneficiaries, contributing to the overall enabling environment for private and public support for the SINAP and the Endowment Fund going forward.¹¹

36. The establishment of the Endowment Fund (EF) to support the SINAP was a critically important achievement. Currently in its second year of operation, the EF lays the foundation for substantially improving the financial and sustainability framework for PA management and thus SINAP's potential to contribute to biodiversity conservation going forward. As a result of the project, GoP issued Executive Decree 69 (July 11, 2017) establishing a national trust – *Fideicomiso de Agua, Areas Protegidas y Vida Silvestre* (known as the "Super Fund") – with the EF as one of its windows. This Decree requires that the Super Fund, which includes numerous sinking and revolving windows that are replenished from various already-established revenue streams, allocate

¹⁰ Study of the financial gap of protected areas: Financial strategy for fundraising and monitoring of the financial gap of the National System of Protected Areas of Panama (Pacay 2019). The study estimates the annual financial needs of the SINAP under an adequate management scenario to be about US\$16.7 million, and about US\$27.4 million for optimal management.

¹¹ Held from early 2017 to late 2019, these activities included a workshop for researchers and environmental authorities on biodiversity information system design, participating in national Biodiversity Day and Environmental Excellence Awards, demonstrations for students in catching species and logging data for project PAs, and public discussion and interviews on the development of environmental trusts.



30 percent of such streams to the EF. These additional, ongoing capital contributions amount to an estimated US\$ 7.0 million annually (starting in 2018), exceeding substantially the original leveraging expectations of the EF. Fully established in October 2018 with an initial capital of US\$ 5.0 million (US\$ 1.5 million GEF seed funding and US\$ 3.5 million from GoP), the EF currently holds over US\$ 20.3 million in its revolving fund. The EF contributes to management effectiveness in two main ways: (i) it helps to centralize different funding streams supporting the various PAs, allowing the prioritization of key activities in different PAs to be conducted at the level of SINAP and contributing to improved decision-making regarding SINAP financing; and (ii) it helps to ensure that financing is available to sustain the SPCB project's improvements to PA management effectiveness beyond the project's closing.

Sub-outcome B: Mainstreaming of biodiversity in the Buffer Zones

37. Sub-outcome B is measured using PDO Indicator 2, "Landscapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations (ha)." The project interpreted "biodiversity mainstreaming" in PA buffer zones as a measure of productive area certified by environmental standards; the PAD defined measures to mainstream biodiversity as those that "help reduce the negative impacts that productive sectors exert on biodiversity, particularly outside of Protected Areas and those affecting landscape species, and highlight the contribution of all components of biodiversity to ecosystem functioning, economic development and human wellbeing." Reducing negative environmental impacts in buffer zones contributes to conservation outcomes as, while buffer zones are official designations in Panama that are intended to insulate PAs from threats to conservation, they also allow a much broader range of uses than PAs and without interventions such as environmental certifications to mainstream biodiversity practices into these uses, they may cease to insulate PAs. The certification of productive areas in buffer zones through environmental standards is thus a proxy for reducing negative environmental impacts on biodiversity, both in neighboring PAs and within the buffer zones.

38. In PA buffer zones, 1,611 hectares of coffee, cacao, banana, and horticulture farms (134 percent of target) were certified and five business alliances for marketing these products were established. These activities contributed significantly to biodiversity mainstreaming by providing incentives for producers to adopt biodiversity-friendly practices to comply with the certifications. Of the total certified land area, 626 ha received the biodiversity-friendly products certification from MIAMBIENTE. Another 77 ha received the organic products certification from the Authority of Panama for Control and Certification of Organic Products (ACERT) of the Ministry of Agriculture and Livestock (MIDA). Finally, 908 ha received the appellation of origin certification through the Ministry of Commerce and Industry (MICI), which is awarded, inter alia, based on compliance with a set of sustainability and biodiversity-friendly practices.¹² Critically, the project also supported subproject beneficiaries to improve business skills, in some cases linking them with specific business partners to form "alliances," providing incentives for continued biodiversity mainstreaming in the future under these partnerships. Five such business alliances were established under the project (surpassing the target of two alliances) for the marketing of bio-friendly products with the cooperatives COCABO and COOBANA (dedicated to the export of organic cacao and banana to the Unites States (US) and Europe, APRE (organic coffee), GORACE (organic horticulture and fruits), and Solarys (organic cacao). These alliances represent a significant step toward demonstrating the market value of investing in biodiversity mainstreaming, providing incentives for beneficiaries to sustain the biodiversity-friendly practices promoted by the project after the project closes, as

¹² The weblinks to the certifications are: MIAMBIENTE, ACERT, MICI.



well as a model for additional producers to pursue these certifications.

39. These 1,611 hectares became eligible for environmental certification through support for subprojects in which biodiversity-friendly practices were mainstreamed into productive activities. The project supported the implementation of 30 business plans prepared and selected according to a set of environmental and socioeconomic criteria, including compliance with a list of biodiversity-friendly production practices (see Annex 9). Subprojects were located in buffer zones (see Annex 6) and implemented by producer associations and groups for activities in organic agriculture and agro-forestry, community tourism and craftwork, or sustainable livestock, with most focusing on the mainstreaming of biodiversity-friendly practices as part of rehabilitating, upgrading, and diversifying over 300 farms. Subprojects ranged in SPCB project financing from about US\$ 18,000 to US\$ 100,000 (with beneficiaries contributing at least 10 percent in cash or kind of the total subproject).

40. Frequent and effective Technical Assistance (TA) and capacity building for biodiversity mainstreaming was provided during the project. TA was provided by MIAMBIENTE in partnership with the Ministry of Agricultural Development (MIDA) through 192 field school days and 153 training workshops, regular follow-up visits (averaging twice monthly) on-site, and the contracting of technical specialists to ensure eligibility for the environmental certifications. Beneficiaries totaled 33,806 and included: (i) 5,560 direct beneficiaries of subproject investments and TA, and (ii) 28,246 additional beneficiaries who benefited from those subproject activities and TA associated with them (see Annex 6 Table 2). About 47 percent of these beneficiaries were women, and 15 of the subprojects were implemented by indigenous groups in indigenous areas. Planned TA during the first two cycles of production, intended to help ensure the viability and sustainability of the investments in biodiversity-friendly practices could not be provided due to the shortened timeframe of the project implementation period (due to startup delays). However, at project closing, MIAMBIENTE confirmed its commitment to continuing support for these investments with their own resources and together with MIDA, the Institute of Agricultural Research of Panama (IDIAP) and the Panama Tourism Authority (PTA).

41. Additional biodiversity mainstreaming was achieved through project support for selected municipalities, located in PA buffer zones, to implement priority actions under their environmental management plans (EMPs). This activity was designed to build on the contributions of CBMAP and CBMAP II to Panama's 2007 decentralization policy on environmental management and its federally-mandated action plan, which included support to 15 municipalities to improve environmental management through newly-established Consultative Environmental Commissions. Under the SPCB project, five of those municipalities (*Boquete, Renacimiento, Tierras Altas, San Lorenzo, and Gualaca*) and one additional municipality (*Chame*) implemented priority activities under their EMPs that contributed *i.a.* to improve water quality, maintenance of forest cover, and zoning of development activities in accordance with biodiversity considerations. The populations of the municipalities benefitting under these activities amounted to an estimated 99,800.

42. The project set a unique example for attracting private, multi-sector financing to biodiversity mainstreaming in buffer zones, diversifying financing sources and expanding opportunities to achieve conservation outcomes. The project yielded several "proofs-of-concept" for leveraging private sector financing for biodiversity conservation. These include a national-level eco-tourism subproject implemented in partnership with the National Network of Private Reserves that sought to improve connectivity among PAs through mainstreaming biodiversity practices onto private lands, which could then generate income through eco-lodge experiences. MIAMBIENTE has recognized this proof-of-concept, as evidenced by a new GoP initiative to expand



the Network's model (which was implemented on 12 Reserves under the SPCB project) to the remaining 18 of its Private Reserves. MIAMBIENTE is furthermore contributing to the sustainability of this achievement by issuing a national decree to establish the Reserves legally as protected areas. Similarly, at the municipal level, among the priority actions implemented was support for the *"Circuíto de Café"* or *"Coffee Route,"* a publicprivate eco-tourism partnership between local coffee producers and the Local Tourism Authority in a highaltitude, high-quality coffee-producing area of the country *(Corredor Biológico Altitudinal)*. This partnership aims to promote sustainable coffee tourism, undertaking the delineating, sign-posting, and marketing of a specific "coffee route" through 15 sites in five municipalities ranging from 900 to 2,287 meters above sea level, where tourists can learn about the unique characteristics of the area's coffee and purchase it for home consumption. Contrary to previous experiences in Panama, these cases illustrate how biodiversity mainstreaming in buffer zones can attract significant private sector financing from multiple sectors.

43. The project implemented outreach and educational activities to underpin the investments in biodiversity mainstreaming, promoting the benefits of biodiversity-friendly production and the products and marketing opportunities that this provides. These activities (62 in total, surpassing the target of 50) were conducted from early 2017 to late 2019 and included promoting project contributions to biodiversity conservation and raising awareness of the value of biodiversity more broadly. Key examples include TV shows sponsored by MIAMBIENTE and participation in national-level meetings e.g. the Panamanian Association of Organic Agriculture as well as in regional-level meetings e.g. the Congress of the Mesoamerican Society for Biology and Conservation. Private sector actors were engaged *i.a.* through meetings with the Eco-labeling Committee of Panama and promotions of project-supported products for restaurant industry representatives and business entrepreneurs. Such private sector engagement contributed significantly to promoting the marketing and consumption of the biodiversity-friendly products supported and certified with project support.

44. All of the RF indicators were either achieved or surpassed; however, the project did not fully complete three planned activities before the closing date, due to significant startup delays. Delays in effectiveness and a project restructuring mere weeks after signing resulted in a shortened overall timeframe (about 18 months) for the completion of project activities. These delays led to three activities not being fully implemented before project closing: (i) updating a forest cover study to support implementation of the SNIMDB; (ii) the full TA planned to accompany productive subprojects in their first production and operation cycles; and (iii) preparation of a fund-raising strategy for the rest of the PAs in the SINAP based on the recommendations of the SINAP financing gap analysis supported by the project. Notably, the forest cover study and subproject TA are currently being completed by MIAMBIENTE and relevant partners using GoP's own resources. Moreover, incompletion of the fund-raising strategy did not adversely impact achievement of the PDO, as it was originally envisioned to complement the support to project PAs by raising funds to support other PAs within the SINAP in the future.

45. **Justification of Rating for overall Efficacy.** Project Efficacy is rated overall as **Substantial**, given that, as described above, conservation of globally significant biodiversity was achieved through the improvement of the management effectiveness of the project PAs and mainstreaming of biodiversity in the buffer zones, and that the project fully achieved or surpassed all of its objectives/intended outcomes and related indicators. **C. EFFICIENCY**

Assessment of Efficiency and Rating

46. Efficiency is assessed based on: (i) an economic and financial analysis (EFA) and (ii) the project's



implementation efficiency. The EFA presents an incremental analysis to evaluate 19 productive subprojects (63 percent of the total 30 subprojects or 83 percent of the productive subprojects) for which sufficient economic and financial data was available. The full analysis can be found in Annex 4.

47. **The project PAD included an ex-ante incremental cost analysis rather than a full EFA (PAD Annex 7).** The baseline costs were estimated for the proposed project without GEF funding based on information available from MIAMBIENTE's annual budget over the project timeframe (US\$ 12.6 million). The costs of the proposed project represent the sum of the baseline and incremental costs associated with the activities proposed in the PAD and required to achieve the PDO. The total estimated incremental cost for achieving the PDO was the amount beyond the baseline, or US\$ 16.35 million (US\$ 9.59 million of which was requested from the GEF).

48. **The EFA shows a positive return on the project investment.** The internal rate of return (IRR) is estimated to be 36 percent for a seven-year evaluation period, considering a social discount rate of 10 percent. The project investment in the 19 subprojects analyzed is approximately US\$ 1.1 million (not including beneficiary contributions). The financial net present value (NPV) is estimated to be about US\$ 1.7 million and the environmental NPV is estimated to be an additional US\$ 1.6 million. This suggests that the returns on the analyzed subproject exceed the costs of investment and are economically viable, both considering the financial return without the environmental benefits (exceeding the cost by about US\$ 0.6 million) and considering environmental benefits as well (exceeding the cost by about US\$ 2.2 million). This highlights the significant environmental added value of the subproject investments. The incremental NPV per beneficiary annually is estimated to be US\$ 192. These IRR and NPV values are similar to projects in the region featuring agriculture and forestry business plans and promoting the adoption of sustainable practices.

49. The EFA is based on secondary information from the SPCB project and expert input due to limited availability of subproject data. Sufficient information for inclusion in the EFA was available for 19 of the total 30 subprojects. Most of the subproject investments were implemented within the last two years of the project and are expected to begin generating income between three and four years after project closing. Therefore, the EFA relies on estimates of income and production costs as well as expected yields and prices over a period of seven years reached in consultation with the respective beneficiaries, project technicians, and agriculture experts. The 19 subprojects analyzed can be categorized into 11 types of production systems (see Table 1) in seven areas of the country.

50. The economic valuation of environmental benefits from the subprojects was estimated using standard default values for water infiltration and carbon sequestration. Although at the time of project closing there were no markets for these environmental services, their economic value is calculated by estimating the carbon dioxide stored per year in reforested areas and the amount of water absorbed by certain changes in land use. These amounts are multiplied by their respective market prices. It is estimated that carbon sequestration generates a benefit of up to US\$158,000 per year and water infiltration an additional US\$173,000 per year.

51. **Institutional and implementation efficiency.** The project underwent significant startup delays (about 18 months between approval and first disbursement) and actual project costs were about 82 percent of the costs estimated at appraisal due largely to a financing shortfall for the capitalization of the EF from a planned private sector contributor (see section I.A). Despite these time and financing shortfalls, high PIU commitment, performance, and agility allowed the project to achieve all of its RF indicators and nearly all of the planned



outcomes with no FM or Procurement issues and no extension. Targets for two Intermediate indicators were moreover revised upward at MTR (see section I.A), allowing the project to achieve more than planned at appraisal. In addition, as the EF was capitalized with an amount significantly higher than expected at appraisal, the project in effect leveraged more financing than originally planned demonstrating high value-for-money.

		Economic and financial indicators						
Productive System Typ and Quantity of each Ty	pe ype	Average NPV (US\$)	Average NPV of Carbon Sequestration (US\$)	Average NPV of Water Filtration (US\$)	Average IRR	Average Payback Period (years)	Average Net Benefit (US\$/ beneficiary/year)	
Molas (craft)	1	-18,220	24,055	26,289	-10%	-	16	
Сасао	4	-33,108	155,020	169,421	-5%	11.3	116	
Cacao & Banana	3	64,960	102,901	112,460	35%	4.7	60	
Coconut oil	1	108,928	9,355	10,224	67%	3.0	95	
Coffee	4	174,105	300,686	328,618	35%	5.3	461	
Sugar & Honey	1	81,991	20,046	21,908	56%	3.0	338	
Plantain	1	11,714	37,419	40,895	19%	5.0	51	
Roast coffee	1	36,035	-	-	57%	2.0	106	
Tubers	1	16,148	44,101	48,197	50%	3.0	8	
Vegetables & Plantain	1	63,704	29,400	32,132	34%	4.0	111	
Wood	1	219,369	48,110	52,579	59%	4.0	441	
Total general	19	65,966	123,369	134,829	36%	4.5	192	

52. **Efficiency Rating**. The estimated positive IRR for the project and high implementation efficiency despite the startup delays and shortened implementation timeframe result in an Efficiency rating of **Substantial**.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

53. Overall outcome is rated **Satisfactory** based on only minor shortcomings in the operation's achievement of expected outcomes. This rating is justified by:

- **Substantial relevance of the PDO** to the CPF objectives based on its initial and sustained alignment with Bank and GoP strategies at closing as outlined in the Panama CPF for the period FY2015-2021.
- **Substantial rating for Efficacy,** given the improvement of the management effectiveness of the Project PAs and mainstreaming of biodiversity in the buffer zones, thereby leading to conservation of globally significant biodiversity; achievement or surpassing of all PDO and Intermediate indicators; and substantial likelihood that the benefits of project investments will be sustained beyond project closing.
- **Substantial rating for Efficiency**, based on the positive economic value of benefits and demonstrated institutional and implementation efficiency.

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Gender

54. While projects were not gender tagged at the time of the SPCB project appraisal, women's participation was still a strong aspect of project design and implementation. Gender was explicitly disaggregated under the number of beneficiaries (Intermediate Indicator 2.4). Of the total beneficiaries reached, about 47 percent were



women (just short of the project target of 50 percent). Of the productive subproject beneficiaries, 49 percent were women; of the subprojects implemented with Indigenous Peoples, about 40 percent of beneficiaries were women. To support achievement of this sub-indicator, the selection criteria for business plans included the participation of women in their design and implementation. Moreover, training targeted specifically to women was incorporated into the capacity-building activities under Subcomponent 2.2 - strengthening of CBOs. Women were also supported by the education and communication activities under Component 3, for example through exercises in subproject communities to address concepts of gender equality and equity, empowerment, and inclusion of rural women in society (e.g. through a workshop event in March 2017 in Guna Yala).

Institutional Strengthening

55. The project contributed to the strengthening of institutions engaged in biodiversity conservation in several ways: (i) Component 1 activities contributed significantly to the capacity of MIAMBIENTE to manage PAs effectively by improving its use of human resources (e.g. through staff hiring and training and alliances with the University of Panama), financial resources (e.g. through the establishment of the Endowment fund), and knowledge (e.g. through improving biodiversity monitoring and contribution to scientific research); (ii) Component 2 activities provided training and supported the capacity of producer and other groups benefitting from the project to design business plans, attract financing, adopt biodiversity-friendly production practices, and obtain environmental and other certifications for their products; and (iii) the project improved the capacity of diverse partners to collaborate on productive subprojects that contribute to biodiversity conservation, e.g. through public-private partnerships between producers, tourism companies, and municipalities.

Poverty Reduction and Shared Prosperity

56. **Targeting marginalized groups, including the indigenous and rural poor, was a significant design feature of the project.** Poverty in Panama is overwhelmingly rural and indigenous, with levels of multidimensional poverty from about 70 to 90 percent in rural indigenous areas or about 4.5 times higher than the national average. While beneficiaries were not disaggregated in the RF by level of income or identification with an indigenous group, the selection criteria for both project PAs and business plans included poverty and income criteria (poverty rate greater than 50 percent according to national poverty standards; average monthly income less than US\$ 163.00) as well as the presence of Indigenous Peoples. This resulted in 15 of the 30 productive subprojects being implemented in indigenous locations (in two indigenous comarcas, Guna Yala and Ngäbe-Buglé, and two Indigenous Peoples territories, Bribri and Naso-Teribe), with 60 percent of the beneficiaries of the 30 productive subprojects being Indigenous. A significant portion of project benefits therefore reached indigenous areas with some of the highest poverty levels in the country.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

57. **Project design had clear linkages to other relevant, ongoing activities at the time of preparation, enhancing the design logic and ensuring cumulative benefits.** The groundwork for the project was laid in the closing phase of CBMAP II, which contributed significantly to the logic of project design in terms of sequencing and timing of activities. For example, CBMAP II financed/supported: (i) two studies on the financing needs of the SINAP which served as the basis for the establishment of the Endowment Fund under the SPCB project; (ii) improvements to the management effectiveness for 13 PAs under CBMAP II led to the SPCB project supporting further improvements for ten of them; and, (iii) establishment of environmental plans for 15 municipalities, five of which obtained SPCB support to implement priority activities under those plans. These linkages enabled the



SPCB project to attain an appropriate balance between expanding the base of beneficiary individuals and institutions while generating cumulative benefits by building on the know-how gained by CBMAP II beneficiaries.

58. The CBMAP II PIU technical staff carried over into the SBCB, ensuring that lessons learned from that operation informed SBCB design. For example, a CBMAP II lesson noted that conservation of biodiversity cannot be seen as the exclusive responsibility of environmental authorities; and, that decentralized, participatory approaches based on consensual arrangements contribute significantly to the likelihood that conservation benefits are sustained beyond project closing. Therefore, SPCB project design included the appropriate selection of stakeholders to engage or beneficiary groups to target; it included local alliances or "concessions" to comanage PAs, the selection of subprojects with strong private sector partnerships (Private Reserve Network, the *Curcuito* de Café), the establishment of business "alliances" with cooperatives, and support to municipalities to implement priority activities under their environmental management plans. These activities not only broadened the base of technical and financial support for project PAs, but also brought diverse actors (producer groups and associations, municipalities, private tourism entities, universities, hydroelectric and mining companies) into partnership, improving the prospects for the sustainability of project activities.

59. **The PDO was phrased as a higher-level objective instead of a project-level objective.** The project PDO, "to conserve globally significant biodiversity," was ambitious and is a high-level objective typical of GEF-funded projects of its time. The project ToC would have been clearer if the PDO had been defined at the level of improving management effectiveness of PAs and mainstreaming biodiversity into PA buffer zones.

60. **Proposed project activities to further develop the SNIMDB could have been more detailed during preparation.** The project originally envisaged improving the SNIMDB through the development and integration of a Panama-specific, information management software, an activity that also had been envisaged under CBMAP II. The software would intake and systematize the biodiversity data collected in PAs and feed it into the SNIMDB. However, during implementation, it was discovered that financing the software development proposals considered for this activity would require about US\$ 6.0 million, far above the budgeted project financing. While this resulted in the envisioned SNIMDB improvements not fully materializing, the PIU with Bank team support ultimately found an agile solution to lay the basis for such improvements in the future (see section III.B.).

61. The risk assessment developed at appraisal captured well the key risks and proposed adequate mitigation measures. The PAD adequately assessed the following key Risks: Stakeholder Risk (Substantial), Implementing Agency Risk (Substantial), Project Risk (Substantial), and Overall Risk (Substantial). Within Project Risks, a mitigation measure proposed that, if expected private sector company contributions to the EF did not materialize, a fundraising campaign would be financed to support ANAM in capturing other resources. Ultimately the contribution of one company did not materialize; while the project activities were not jeopardized by this shortfall, additional project benefits could have been delivered if the project had also implemented the planned fundraising campaign.

B. KEY FACTORS DURING IMPLEMENTATION

Factors subject to the control of Government and/or implementing entities:

62. The project faced significant startup delays, resulting in some planned activities not being completed by closing. Because of a structural change in March 2015 to the implementing agency (from ANAM to



MIAMBIENTE), a project restructuring was required to amend the Grant Agreement mere weeks after signing. As a result, 18 months passed between approval (February 9, 2105) and first disbursement (July 14, 2016) with effectiveness reached on February 4, 2016. These delays led to a shortened overall timeframe for the completion of project activities.¹³ Toward project closing, an extension was not deemed feasible given that project funds were nearly exhausted, leading to three planned activities not being completed: (i) updating of a forest cover study to support implementation of the SNIMDB. Detailed TORs were prepared but the consultancy was not initiated due to lack of time until the closing date. MIAMBIENTE however is currently updating the forest cover study with its own resources; (ii) TA to accompany the productive subprojects in their first productive cycles. As many subprojects initiated implementation later than expected due to the project startup delays, provision of this TA in the operational/productive phases was limited. However, MIAMBIENTE along with relevant partner ministries and agencies is providing this TA post-project using GoP's own resources, to support the viability and sustainability of these investments; and (iii) preparation of a fund-raising strategy based on the findings and recommendations of the SINAP financing gap analysis conducted by the project. The gap analysis report was widely disseminated to stakeholders, but the fundraising activities were not initiated due to lack of time. These activities were not essential for the ToC or achievement of the project PDO.

63. **Despite startup delays, the PIU demonstrated commitment, agility, and overall high staff performance in achieving the RF targets and finding creative solutions to challenges.** The PIU had to significantly accelerate the pace of implementation to ensure satisfactory achievement of the PDO within an actual timeframe of about three years. The PIU not only achieved all of the RF indicators within this reduced timeframe, but also found creative solutions to several unforeseen challenges. Notably, the PIU showed determination and resourcefulness in seeking less costly alternatives to developing a new, Panama-specific, biodiversity information management software to feed into the SNIMDB (described in Section III.A). Instead of developing a new software, the PIU with Bank team support took the decision to utilize an existing, internationally known/used platform, *iNaturalist.*¹⁴ While adoption of *iNaturalist* is not an adequate substitute for the initially envisaged software, it serves as a significant first step toward improving biodiversity information management in Panama. The Borrower Completion Report (BCR) observes that the commitment, agility, and relative autonomy of the PIU within MIAMBIENTE to seek alternative solutions contributed to its high performance.

64. A change in the GoP's approach to the institutional and technical arrangements for the EF delayed its establishment but resulted in an initial capital much larger than expected. Originally MIAMBIENTE had requested that the EF be established within *Fundación Natura*, a well-known local Non-governmental Organization (NGO) that both the Bank team and MIAMBIENTE considered to have the requisite administrative and technical experience. Following a GoP administration change in 2017, the new authorities requested to house the EF instead as window of the GOP's Super Fund. While the due diligence processes necessary to assess the capacity of the existing institutional infrastructure delayed the EF's full establishment to October 2018, it also resulted in higher and more sustained growth in capital than originally foreseen. It also attests to the project team's ability to build trust within GoP and build a more complex instrument to finance the SINAP.

65. The PIU both facilitated and benefited from strong coordination between MIAMBIENTE and MIDA,

¹³ As a result, the IP rating was downgraded to Moderately Satisfactory (MS) between February 2016 - December 2018 and DO rating was downgraded to MS May 2017 - December 2018.

¹⁴ *iNaturalist* is an open-access, web-based platform that crowd-sources biodiversity information from the public. It is well-known internationally and currently being utilized by the Smithsonian Institution and NGOs to monitor species in countries across the globe.



improving prospects for successful collaboration on agro-tourism activities. In Panama, collaboration between ANAM (later MIAMBIENTE) and MIDA historically has been infrequent. Due to the focus of the SPCB project on both the eco- and agri-tourism sectors, project activities fostered considerable informal coordination among the two ministries. MIDA, given its domain, frequently accompanied the PIU on engagements with the agriculture sector, helped to facilitate site visits with producers, and supported the PIU on the environmental standard certifications for producers. In some cases, MIDA and PIU staff coordinated to align TA that some SPCB project beneficiaries were separately receiving from MIDA with project activities, maximizing benefits to the beneficiaries. This collaboration is likely to continue in emerging GoP activities in the eco- and agro-tourism sectors, contributing to improved ongoing complementarity of investments by MIDA and MIAMBIENTE.

Factors subject to the control of the World Bank:

66. Bank fiduciary support was critical to improving the pace of implementation in the face of its early startup delays. Delays in compliance with the conditions of effectiveness and submission of the first disbursement as well as a project restructuring mere weeks after signing meant that key PIU staff (financial management, procurement, monitoring, communications, and subproject specialist) were not in place until early 2017. Moreover, at that time, the selection processes for other staff (e.g. social and environmental specialists) were still ongoing. The Bank thus collaborated intensively in the latter half of 2016 and first half of 2017 to support the PIU in identifying and hiring adequate financial management and procurement specialists e.g. through guidance on financial reporting and structuring procurement plans. Bank financial management (FM) and procurement staff continued to support the PIU effectively throughout the project.

67. The Bank provided consistent and effective support throughout the project for maintaining a sufficiently high pace of implementation to offset the initial startup delays. Action plans to improve and maintain an adequate pace of implementation were a focus of virtually all supervision documents prepared by the Bank team, and follow-up on these action items was generally timely and complete. The MTR accordingly undertook a number of adjustments in support of this effort. For example, the maximum amount of financial resources allocated to subproject beneficiaries was increased to allow individuals subprojects to increase in complexity and scale (e.g. the National Network of Private Reserves) and reach additional beneficiaries.

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

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

M&E Design

- 68. M&E design was generally sufficient to monitor progress towards the achievement of the objectives:
 - The M&E design was strong, given the absence in Panama of a country-specific biodiversity monitoring software. M&E design for the project was strengthened by the hiring not only of an M&E specialist, but also a biodiversity consultant with significant experience in Bank-funded GEF projects with conservation objectives. This ensured consistency with international best practices in M&E for conservation projects.
 - The TOC was clear and logical, with some caveats. Improving the management effectiveness of PAs and
 mainstreaming biodiversity conservation practices would contribute to the conservation of globally
 significant biodiversity. However, the TOC could have been enhanced in three main aspects: (i) The
 project used the two sub-outcomes as measurable proxies for the achievement of the PDO, which was
 worded as a higher-level objective instead of as a project-level objective. The project ToC would have
 been strengthened if the two sub-outcomes had instead been used as the PDO; (ii) Sub-outcome A of the

PDO is phrased in terms of "management effectiveness," while the indicator used to evaluate it (PDO Indicator 1) is phrased in terms of "enhanced biodiversity protection." Phrasing PDO Indicator 1 as "area under improved management effectiveness," would have contributed to the logic of the M&E design; and (iii) In the PAD, the expected subproject beneficiaries (conventionally considered to be "direct") were not distinguished from the beneficiaries of the municipal and other project activities (conventionally considered to be "indirect"). While the project far exceeded its total (direct and indirect) beneficiaries would have been better captured if a distinct target for them had been set out at appraisal.

- The project RF captured well the improvements in PA management effectiveness and biodiversity mainstreaming in PA buffer zones and would have been further strengthened by including aspects of livelihood benefits and economic inclusion. Through beneficiary targeting and subproject selection criteria, the project successfully reached high proportions of poor, women, and indigenous beneficiaries. The EFA moreover, indicates that the productive subprojects were generally profitable and financially sustainable. These important achievements, however, are not captured in the RF (e.g. through an indicator to monitor increases in farm productivity, incomes, or sales attributable to the biodiversity-friendly certifications, or an indicator to disaggregate indigenous beneficiaries).
- The design of the M&E strategy overall was adequate. Project M&E consisted of three main pillars: (i) tracking project results indicators through the Integrated Project Management and Monitoring System, which had been used under CBMAP II and was adapted to the SPCB project; (ii) monitoring biodiversity in project PAs and buffer zones using *iNaturalist* and the SNIMDB; and (iii) assessing the management effectiveness of project PAs using the METT. Semi-annual progress reports, subproject activity logs and closure reports, and monthly reports from PIU staff (regional and headquarters) contributed to the PIU's capacity to reflect on and verify progress toward project outcomes.

M&E Implementation

- 69. M&E implementation was sound and M&E data were collected and analyzed in a methodological manner:
 - **M&E activities were implemented effectively overall.** Project indicators were monitored consistently and efficiently, semi-annual progress reports were submitted on time and with good quality, and METT assessments were completed satisfactorily.
 - Although achievement of RF indicators was substantial, understanding of M&E data methodology was
 not always consistent. Two different methods for assessing PDO Indicator 1 are found in project
 supervision documents. The project's MTR, BCR, Final Evaluation, and select ISRs indicate the use of a
 methodology different from the one reflected in the PAD to assess PDO Indicator 1.¹⁵ Use of this
 alternative methodology does not impact project efficacy as it results in near achievement of the end
 target (530,884 hectares or 97 percent achieved). However, the manner in which it is reflected in
 supervision documents indicates that members of the Bank team, PIU, and PIU consultants contracted
 to evaluate the project at times lacked a shared understanding of some M&E aspects.
 - The PIU submitted good quality reports. The PIU submitted a good quality mid-term project evaluation report (MIAMBIENTE 2017) and final impact evaluation (MIAMBIENTE 2019a). The Final Safeguards Report was comprehensive and detailed.

¹⁵ See the PAD method in Annex 8. The alternative method found in project files assesses PA management effectiveness improvements more narrowly by specifying the portion of PAs considered to have attained an "adequate" level of management effectiveness.



M&E Utilization

70. M&E utilization showed that data on performance and results progress were used to inform project management and decision making:

- Project M&E data was utilized as an input into Implementation Status Reports (ISR), aide memoires, semi-annual progress reports, the MTR, project financial reports and statements, the final impact evaluation, the BCR, and the ICRR. At the MTR, M&E data was used to revise several indicators that were already close to achievement, allowing the project to deliver and record greater benefits than had been envisaged originally. The number of targeted beneficiaries was thus increased from 48,450 to 80,000 and the number of outreach and educational activities to promote the benefits of biodiversity was increased from 30 to 50. Still, the conclusions of the MTR report could have been utilized more fully to enhance the clarity of the phrasing and approach for PDO indicator 1 and clarify the beneficiary targeting approach.
- Project activities included training and workshops on biodiversity monitoring and evaluation, creating a positive feedback loop that contributed to M&E capacity over the course of the project. Improving biodiversity monitoring in project PAs was an important aim of the project's Component 1. Activities to this end included five workshops to train PA staff to use SNIMDB and the web-based platform it links to, *iNaturalist*, as well as biodiversity monitoring more broadly. This capacity building directly supported the quality of M&E for the project itself. It will also serve MIAMBIENTE in future activities as biodiversity monitoring, particularly in productive areas in PA buffer zones, continues to gain relevance in conservation approaches in Panama.

Justification of Overall Rating of Quality of M&E

71. Quality of M&E is rated **Substantial** based on moderate shortcomings in the M&E design, implementation, and utilization. The M&E system was generally adequate to assess the achievement of project objectives, test the links in the results chain, and make valued contributions to national efforts to monitor and inform decision-making about the conservation of biodiversity.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

72. The project was rated B (Partial Assessment) for environmental assessment category and triggered Environmental Assessment (OP/BP 4.01), Natural Habitats (OP/BP 4.04), Forests (OP/BP 4.36), Pest Management (OP 4.09), Physical Cultural Resources (OP/BP 4.11), Indigenous Peoples (OP/BP 4.10), and Involuntary Resettlement (OP/BP 4.12). As a GEF co-financed project with a biodiversity-focused PDO, the project activities directly addressed a range of environmental issues, and in areas of the country with majority indigenous populations. During project preparation, Social and environmental assessments, an Environmental and Social Management Framework (ESMF), an Indigenous Peoples Plan (IPP), and a Process Framework were prepared, reviewed and approved by the Bank, disclosed in-country and posted on the Bank's external website. During the consultations held as part of project preparation, community organizations expressed support for the project and emphasized the need for a new phase (after CBMAP II). The grievance redress mechanism was also presented and discussed. Finally, the PIU staff included an environmental and social safeguards specialist, who conducted training workshops and outreach in the regions where the project was active.

73. **Environmental Safeguards**. The project was rated Satisfactory in terms of Environmental Safeguards compliance for most of the project duration. As the project built on the experience and lessons learned from CBMAP I and II and aimed to contribute directly to biodiversity conservation, it was expected to have a strong,



overall positive environmental impact. Potential negative environmental impacts from productive activities and small public works were expected to be minimal and adequately addressed through the project's mitigation framework. In mid-2019, ratings were downgraded from Satisfactory to Moderately Satisfactory due to several delayed actions and inadequate level of detail in environmental safeguards monitoring documentation,¹⁶ and then subsequently upgraded to Satisfactory based on the improvements demonstrated by the PIU. The final impact evaluation found that compliance with all triggered safeguard policies was satisfactory.

74. **Social Safeguards.** The project was rated Satisfactory in terms of Social Safeguards for most of the project duration. Project preparation and implementation followed careful procedures to include indigenous authorities during project design, with consultation and the signing of letters of support and memorandums of understanding (MOUs) for project activities within their respective territories. The project did not require the involuntary land taking, resettlement, or displacement of people living or utilizing resources within PAs or their periphery areas. During the MTR it was discovered that the Project Process Framework was not being used; a review of protected area investments was carried out by the PIU to confirm that there were no cases of restrictions to protected areas. A simplified Process Framework more aligned to the project's implementation structure was subsequently submitted to the Bank for review in February 2019 and re-published. The Final Safeguards Report found that compliance with all triggered safeguard policies was satisfactory.

75. **Grievance Redress Mechanism (GRM)**. The Project established several mechanisms to allow for ongoing feedback, resolution and/or clarification of issues through its ample field presence and consultations as part of project activities. A project GRM website was created but no formal complaints were received. Given that many stakeholders could not access the internet, the project also provided a field protocol through which stakeholders could voice concerns or complaints. The Final Safeguards Report confirms that no formal complaints were received through the project website or field protocol.

76. **Financial Management.** Project Financial Management (FM) performance was rated Satisfactory throughout. Only twice during the project were Interim Financial Reports (IFRs) received after due date with delays above one month; despite the delays, IFRs were consistently deemed satisfactory and acceptable by the Bank. The Bank moreover provided effective support to the PIU FM staff throughout the duration of the project. Due to the project's significant startup delays, key PIU staff including for FM were not hired until early 2017. To help mitigate this delay, the Bank team collaborated intensively in the latter half of 2016 and first half of 2017 to support the PIU in identifying and hiring financial management staff with adequate skills and experience. The Bank team continued to support the PIU throughout the project to maintain satisfactory FM performance, contributing significantly to building FM capacity within the PIU. This resulted in PIU FM staff performing with increasing independence as the project progressed.

77. **Procurement.** Project procurement performance was rated Satisfactory throughout. The project's procurement design was relatively simple, with subprojects requiring moderate procurement amounts and simple arrangements. No procurement issues were identified. Nonetheless, procurement capacity within the PIU was low at the outset, and the Bank provided intensive support in the early years to hire and train new procurement staff. The Bank continued to provide effective support on procurement throughout the project,

¹⁶ Delays arose in the replacement of the safeguard specialist on the client side and submission of the next bi-annual report, including due-diligence on compliance with the requirements of Environmental Assessment (OP/BP 4.01) and Pest Management (OP 4.09). The Bank team also recommended that more evidence be included to document environmental safeguards compliance.



providing well-attended annual training as well as ad hoc training and regular dialogue via phone and email. Due to this effective support, procurement capacity within the PIU was significantly enhanced and procurement staff operated with increasing autonomy in the project's later years.

78. **Audits**. Audit reports were consistently delivered on time, opinions were unqualified, and no audit issues were identified during the course of the project.

C. BANK PERFORMANCE

Quality at Entry

- 79. The Bank's performance at entry was as follows:
 - The Bank provided effective support and technical expertise during preparation to ensure that project relevance, components, implicit ToC, and link to GEF priorities were well designed. The Bank played a key role in shaping the initial project design based on the technical and operational lessons learned during CBMAP II and the emerging, strategic cross-sectoral relevance of recognizing synergies between conservation and rural livelihood outcomes. The implicit TOC and the complementarities among the project activities are clear, results framework were straightforward, and key activities aligned to the modest financing available. The M&E could have been further strengthened by using a project-level PDO, improving the phrasing and evaluation method for PDO indicator 1, and including an indicator to evaluate livelihood benefits for project beneficiaries. Institutional arrangements were well-conceived and documented and Safeguards, FM, and Procurement aspects were designed appropriately.
 - The project benefited from strong Bank support during preparation to lay the groundwork for the establishment of the Endowment Fund. The Bank played a critical role in shaping the vision for the Endowment Fund according to international best practice as well as Bank, GEF, and GoP requirements for the Fund to be capitalized. This groundwork enabled the Endowment Fund to become operational within the project timeframe despite some unforeseen delays and changes to its structure.
 - The risk assessment developed at appraisal showed moderate shortcomings. Within Project Risks, a mitigation measure proposed that, if private sector company contributions¹⁷ to the endowment fund did not materialize, a fundraising campaign would be financed to support ANAM in capturing other resources. Ultimately these companies contributed only about 49 percent of the amount initially expected; given the project startup delays and reduced implementation timeframe, the fundraising strategy was not completed. Nonetheless, all project RF indicators were achieved and/or surpassed.

Quality of Supervision

- 80. The Bank's supervision performance was as follows:
 - Overall, the Bank provided consistent and effective implementation support, in particular when the project faced implementation challenges early on. Supervision missions were conducted regularly and with low Bank staff turnover. Support was also provided through regular videoconferencing between PIU and Bank staff as well as ad hoc consultations through email and phone. The Bank team provided especially intensive support in the preparation of the project operations manual (POM), the early

¹⁷ The project design included co-financing from two companies, AES Changuinola (US\$ 2.5 million) and Minera Panama, SA (US\$ 6.0 million), which at project approval were expected to sign addenda to their existing contracts with ANAM (subsequently MIAMBIENTE) to establish the co-financing arrangements for the SPCB project.



restructuring to recognize the transition from ANAM to MIAMBIENTE, and the memorandum of understanding that enabled the signing of grant agreements between MIAMBIENTE and traditional authorities in the indigenous areas of project intervention. In particular, the Bank's support for detailing the processes of the subproject cycles (in particular the application of eligibility criteria and safeguards) in the POM resulted in a clear roadmap for the PIU to act more independently as the project progressed.

- The Bank team played a strong role especially in building PIU capacity for FM and procurement aspects. While the SPCB project was implemented by the same technical PIU staff as CBMAP II, new specialists for FM and procurement had to be hired and the PIU in general lacked capacity and experience with Bank procurement and financial management aspects. The Bank team collaborated intensively in the latter half of 2016 and first half of 2017 to support the PIU in hiring financial management and procurement specialists and supporting them in the hiring of further key staff e.g. through guidance on structuring procurement plans. This heightened level of support in the early phases of implementation significantly strengthened the capacity of the PIU to manage financial and procurement issues independently and contributed to MIAMBIENTE's broader knowledge base on the implementation of Bank projects.
- Despite the limited supervision budget for GEF-funded projects, increased Bank safeguards support could have helped to mitigate select issues that arose. While Bank safeguards specialists were deeply involved in project preparation, the presence of safeguards specialists during implementation was less consistent due in part to constraints in budget. Increased safeguards presence throughout the project could have strengthened documentation of environmental safeguards compliance and use of the Project Process Framework. It would also have provided needed guidance to the PIU on interacting with traditional authorities, given the considerable level of project intervention in indigenous areas.
- The Bank also showed agility and strong follow-through during the MTR, providing critical support to lay the groundwork for achieving all of the project's objectives/intended outcomes in the remaining, shortened timeframe. The Bank engaged fully and proactively in the MTR process. In particular, the Bank team helped to generate creative solutions for accelerating progress toward the RF end targets, despite the shortened timeframe due to the initial startup delays and several administrative bottlenecks and delays within GoP and the institutions and associations involved in certain key activities (signing of the operating concessions, formalization of the business alliances, and awarding of labeling certifications).

Justification of Overall Rating of Bank Performance

81. Bank performance is rated **Satisfactory** given that the shortcomings in Quality at Entry and Quality of Supervision were minor. In all other respects, the Bank team provided strong and consistent overall support to achieve the stated objectives and all RF indicators within a significantly shortened implementation timeframe.

D. RISK TO DEVELOPMENT OUTCOME

82. The design and implementation of the project demonstrate strong prospects, albeit some risks, that the benefits achieved by the project will be sustained:

• Client ownership and institutional capacity for continuity: (i) MIAMBIENTE's strong commitment to the objectives of the project despite the recent (2019) change in administration bodes well for the sustainability of the project results. The current preparation of a follow-on project (Sustainable Rural Development and Biodiversity Conservation - P174289), with the aim to strengthen biodiversity management and improve the economic opportunities and climate resilience of targeted beneficiaries, further attests to the sustainability prospects of the project achievements; (ii) the project design included

the formalization of several partnerships that continue to contribute to project objectives past closing: the concessions with the University of Panama and the certifications of biodiversity friendly products (legally established); the business alliances with cooperatives; and, the local alliance in Chiriquí between the agriculture sector and the Local Tourism Authority (more informal). MIAMBIENTE is furthermore contributing to the sustainability both of the Network's investments under the project and the ongoing expansion of the model through a national decree to establish the Reserves legally as protected areas; (iii) MIAMBIENTE's capacity to support productive subprojects and effectively collaborate with MIDA to support biodiversity mainstreaming in PA buffer zones has been strengthened significantly. This brings the scope of the institutional capacity building achieved to the inter-agency level, improving the likelihood for successful, multi-sector collaboration on future sustainable production initiatives.

- **Sustainability of subproject investments:** MIAMBIENTE together with MIDA and other relevant partners are providing (with GoP resources) the TA to productive subproject beneficiaries for their first cycles of production that could not be completed before the closing date. This mitigates the potential adverse impacts of the incomplete project TA on the sustainability of subproject investments, contributing both to their viability and to evidence of strong GoP commitment to the project objectives.
- **Financial sustainability of PAs:** The project contributed significantly to the financial sustainability of the SINAP, including the SPSCB project's own investments in project PAs, through the establishment of the EF. The EF currently has US\$ 20.3 million of capital for PA management, due to higher-than-expected initial capital contributions as well as the accrual of its investment returns. The EF is thus a critically successful component of the project's sustainability prospects.

V. LESSONS AND RECOMMENDATIONS

- 83. The SPCB project generated the following important lessons to be considered in future operations:
 - The EF illustrates how with strong government buy-in, a moderate amount of seed funding can be leveraged to build up a much larger fund for conservation. The EF grew from US\$ 1.5 million to over US\$ 20.3 million within the timeframe of the project, attesting to the project team's ability to convey the relevance of Panama's biodiversity and natural resources to GoP and build trust to establish ongoing revenue streams for conservation financing. Countries with comparable natural capital and stakeholder buy-in potential may replicate this model by attracting seed financing from donors for a conservation financing mechanism housed within and supported by the existing institutional infrastructure.
 - It is critical to mobilize multiple, diverse sources of conservation funding. The capacities of individual private actors to contribute to conservation activities may evolve overtime, as in the case of the company whose contribution to the EF indicated at appraisal did not materialize. That the project identified multiple, diverse financing sources prevented this shortfall from impacting the project outcomes.
 - Subprojects can serve as a critical proof-of-concept to jumpstart public and private investment in an innovative solution to a challenge. The "Coffee Route," a public-private eco-tourism partnership between local coffee producers and the Local Tourism Authority National Network of Private Reserves Project (see Section II.B) served as a proof-of-concept to MIAMBIENTE and MIDA, showing that private individuals will voluntarily invest their own financial resources in biodiversity conservation when the livelihood benefits from those investments can be generated. MIAMBIENTE is accordingly contributing to the sustainability of the Network's investments under the project through a national decree to enable the model to be replicated. This model for demonstrating the viability of an innovative initiative through



a project and then formalizing it through a decree can be replicated in other countries to help strengthen the enabling environment for private sector conservation financing.

- Multi-sector approaches to biodiversity conservation can play a critical role in capturing livelihood benefits for low-income and marginalized groups and diversifying the base for conservation financing. Beyond protected area management, conservation activities can also achieve economic inclusion objectives by identifying synergies between conservation goals and opportunities for eco- and agrotourism, sustainable production, marketing of sustainable products, and research. These activities also broaden the base of technical and financial support for conservation activities by convening diverse public and private actors from those sectors. The project's contribution to collaboration among MIAMBIENTE and MIDA and other partners from multiple sectors can be replicated in other projects.
- The project could have better demonstrated its positive impacts on livelihoods and inclusion if it had included socio-economic, intermediate indicators. GEF project PDOs typically focus on environmental objectives. However, a critical strength of the project is that that the activities were designed to generate significant livelihood co-benefits for some of Panama's poorest and more marginalized groups. If the project had included indicators to monitor increases in farm productivity, incomes, or sales attributable to the biodiversity-friendly certifications, or an indicator to disaggregate indigenous beneficiaries, these benefits could have been better captured and lessons learned drawn from them.
- Monitoring and evaluation strategies for biodiversity outcomes need careful assessment during
 project preparation. The project contributed important lessons regarding the challenges of adequate
 M&E for measuring biodiversity outcomes with a limited budget and within the project timeframe: (i)
 PDOs for conservation projects should be project-level, not higher-level; (ii) even project-level PDOs for
 conservation projects can be difficult to monitor and evaluate (e.g. measuring adequate PA
 management); therefore, ToCs for conservation projects must be extremely clear in order to
 demonstrate links between activities, outputs, and outcomes; and (iii) given these complexities, efforts
 to ensure consistency and a shared understanding of M&E approaches throughout the project duration
 and among all stakeholders are particularly important in biodiversity projects.



ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome: Conserve globally significant biodiversity through improved mgmt effectiveness of Protected Areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Areas brought under enhanced biodiversity protection (ha)	Hectare(Ha)	481418.00 01-May-2014	550000.00 31-Dec-2019		654015.00 12-Dec-2019

Comments (achievements against targets):

Surpassed (119% of target). The final value is the sum of the total areas (ha) of the 9 project protected areas that had improved METT scores in 2019 relative to 2014. These improvements are due to project investments i.a. in infrastructure, programs, and trainings in natural resource management, wildlife rescue, fire monitoring and control, environmental sustainability, biodiversity monitoring, and the use of specialized equipment (GPS, camera traps, drones, forest fire fighting, and motorboats). The indicator was measured using the GEF Management Effectiveness Tracking Tool (METT), a widely used site-level tracking tool that was designed to facilitate survey-based reporting over time on 30 variables of protected area management covering financial, business management, legal, regulatory, staff capacity, and communications aspects. For each of the three METT evaluations conducted (baseline, midterm, and final), a workshop was held with park directors, managers, rangers, and various staff from MIAMBIENTE to evaluate each project PA according to the METT and estimate its respective score.



- · · · · · · · · · · · · · · · · · · ·					
Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Landscapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations (ha)	Hectare(Ha)	0.00 01-May-2014	1200.00 31-Dec-2019		1611.00 12-Dec-2019

Objective/Outcome: Conserve globally significant biodiversity through biodiversity mainstreaming in buffer zones

Comments (achievements against targets):

Surpassed (134% of target). The project interpreted "biodiversity mainstreaming" in PA buffer zones as a measure of productive area certified by environmental standards; the PAD defined measures to mainstream biodiversity as those that "help reduce the negative impacts that productive sectors exert on biodiversity, particularly outside of Protected Areas and those affecting landscape species, and highlight the contribution of all components of biodiversity to ecosystem functioning, economic development and human wellbeing." Reducing negative environmental impacts in buffer zones contributes to conservation outcomes as, while buffer zones are official designations in Panama that are intended to insulate PAs from threats to conservation, they also allow a much broader range of uses than PAs and without interventions such as environmental certifications to mainstream biodiversity practices into these uses, they may cease to insulate PAs. The certification of productive areas in buffer zones through environmental standards is thus a proxy for reducing negative environmental impacts on biodiversity, both in neighboring PAs and within the buffer zones. This contributed significantly to biodiversity mainstreaming by providing incentives for producers to adopt biodiversity-friendly practices to comply with the certifications.

Of the total certified land area, 626 ha received the biodiversity-friendly products certification from MIAMBIENTE. Another 77 ha received the organic products certification from the Authority of Panama for Control and Certification of Organic Products (ACERT) of the Ministry of Agriculture and Livestock (MIDA). Finally, 908 ha received the appellation of origin certification through the Ministry of Commerce and Industry (MICI), which is awarded, *inter alia*, based on compliance with a set of sustainability and biodiversity-friendly practices. These 1,611 hectares became eligible for environmental certification through support for subprojects in which biodiversity-friendly practices were mainstreamed into productive activities.



A.2 Intermediate Results Indicators

Component: Sustainable Management of Protected Areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Endowment fund to support sustainable management of PAs established and operating	Percentage	0.00 01-May-2014	100.00 31-Dec-2019		100.00 12-Dec-2019

Comments (achievements against targets):

Fully achieved (100% of target). Currently in its second year of operation, the EF lays the foundation for substantially improving the financial and sustainability framework for PA management and thus SINAP's potential to contribute to biodiversity conservation going forward. As a result of the project, GoP issued a Executive Decree 69 (July 11, 2017) establishing a national trust – *Fideicomiso de Agua, Areas Protegidas y Vida Silvestre* (also known as the "Super Fund") – with the EF as one of its windows. This Decree requires that the Super Fund, which includes numerous sinking and revolving windows that are replenished from various already-established revenue streams, allocate 30 percent of such streams to the EF. These additional, ongoing capital contributions amount to an estimated US\$ 7.0 million annually (starting in 2018), exceeding substantially the original leveraging expectations of the EF. Fully established in October 2018 with an initial capital of US\$ 5.0 million (US\$ 1.5 million GEF seed funding and US\$ 3.5 million from GoP), the EF currently holds over US\$ 20.3 million in its revolving fund. The EF contributes to management effectiveness in two main ways: (i) it helps to centralize different funding streams supporting the various PAs, allowing the prioritization of key activities in different PAs to be conducted at the level of SINAP and contributing to improved decision-making regarding SINAP financing; and (ii) it helps to ensure that financing is available to sustain the SPCB project's improvements to PA management effectiveness beyond the project's closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of operating	Number	0.00	3.00		3.00



concessions for administration or services to support the management of 3 PAs	01-May-2014	31-Dec-2019		12-Dec-2019
--	-------------	-------------	--	-------------

Comments (achievements against targets):

Fully achieved (100% of target). To ensure continued support for knowledge aspects of PA management beyond project closing, the project supported the formation of three participatory alliances or "concessions" with the University of Panama for research services to support selected PAs. Three agreements were signed with the University for scientific investigation services to support the management of the following Protected Areas: Camino de Cruses National Park, the Gulf of Montijo Wetland, and Altos de Campana National Park and Biological Reserve. These concessions are part of the project sustainability approach to formalize partnerships so that they continue to contribute to project objectives past closing.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of PAs where the SNIMDB is implemented	Number	3.00	8.00		9.00
		01-May-2014	31-Dec-2019		12-Dec-2019

Comments (achievements against targets):

Surpassed (113% of target). The SPCB project markedly improved the monitoring of PA biodiversity, and thus the availability of information for decisionmaking and awareness raising, by implementing species monitoring to feed the National Biodiversity Monitoring System (SNIMDB) in nine of the 12 project PAs (exceeding the target of 8 PAs). The nine PAs are: Volcan Baru, La Amistad, Fortuna, San San Pond Sak, Altos Campana, Omar Torrijos, Camino de Cruces, Santa Fe, and Bosque Protecor Palo Seco. Activities to monitor biodiversity included the completion of baseline studies to identify the existing biodiversity information in the PAs, the conducting of species inventories, and capacity building for PA staff to use SNIMDB and the web-based platform it links to, *iNaturalist*, through five workshops. As a result of these activities, ten new species to science were discovered, five first new records of species for Panama, and a new order of *Plecoptera* (commonly known as "stoneflies") was discovered (pending revision). The demarcation and signposting of park boundaries was also completed for three PAs (*San San Pond Sak* Wetland, *Cerro Hoya* National Park, and *Fortuna* Forest Reserve). This clarification of PA boundaries, which also determines the limits of private land assets and where productive activities are permitted, benefited an estimated 18,513



individuals living in PA buffer zones. Implementation of the SNIMDB strengthened significantly PA management effectiveness by improving the knowledge base for targeting SINAP programming to conservation needs and the human resources for monitoring and evaluating conservation outcomes.

Component: Biodiversity and Sustainable Productive Landscapes

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Producer association groups implement at least 30 sub- projects	Number	0.00 01-May-2014	30.00 31-Dec-2019		30.00 12-Dec-2019

Comments (achievements against targets):

Fully (100% of target). The 1,611 hectares certified under PDO indicator 2 became eligible for environmental certification through support for 30 subprojects in which biodiversity-friendly practices were mainstreamed into productive activities. The project supported the preparation of the business plans for these subprojects, selected according to a set of environmental and socio-economic criteria including compliance with a list of biodiversity-friendly production practices. Subprojects were located in buffer zones and implemented by producer associations and groups for activities in organic agriculture and agro-forestry, community tourism and craftwork, or sustainable livestock, with most focusing on the mainstreaming of biodiversity-friendly practices as part of rehabilitating, upgrading, and diversifying over 300 farms. Subprojects ranged in SPCB project financing from about US\$ 18,000 to US\$ 100,000 (with beneficiaries contributing at least 10 percent in cash or kind of the total subproject).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Two business alliances with Number buyers for marketing of	Number	0.00	2.00		5.00
biodiversity-friendly products		01-May-2014	31-Dec-2019		12-Dec-2019



are established

Comments (achievements against targets):

Surpassed (250% of target). The projected supported subproject beneficiaries to improve business skills, in some cases linking them with specific business partners to form "alliances," providing incentives for continued biodiversity mainstreaming in the future under these partnerships. Five such business alliances were established under the project (surpassing the target of two alliances) for the marketing of bio-friendly products with the cooperatives COCABO and COOBANA (dedicated to the export of organic cacao and banana to the Unites States (US) and Europe, APRE (organic coffee), GORACE (organic horticulture and fruits), and Solarys (organic cacao). These alliances represent a significant step toward demonstrating the market value of investing in biodiversity mainstreaming, providing incentives for beneficiaries to sustain the biodiversity-friendly practices promoted by the project after the project closes, as well as a model for additional producers to pursue these certifications.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of municipalities that have implemented activities in their environmental plans	Number	0.00 01-May-2014	6.00 31-Dec-2019		6.00 12-Dec-2019

Comments (achievements against targets):

Fully achieved (100% of target). Biodiversity mainstreaming was also achieved through project support for selected municipalities, located in PA buffer zones, to implement priority actions under their environmental management plans (EMPs). This activity was designed to build on the contributions of CBMAP and CBMAP II to Panama's 2007 decentralization policy on environmental management and its federally-mandated action plan, which included support to 15 municipalities to improve management of their environmental responsibilities through newly-established Consultative Environmental Commissions. Under the SPCB project, five of those municipalities (*Boquete, Renacimiento, Tierras Altas, San Lorenzo, and Gualaca*, in the province of *Chiriquí*) and one additional municipality (*Chame*) implemented priority activities under their EMPs that contributed *i.a.* to improved water quality, maintenance of forest cover, and zoning of development activities in accordance with biodiversity considerations. The human population of the municipalities that benefitted under these activities amounted to an estimated 99,800.



Sustainable Production Systems and Conservation of Biodiversity (P145621)

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Direct project beneficiaries	Number	0.00	48450.00	80000.00	152119.00
		01-May-2014	31-Dec-2019	02-Apr-2018	12-Dec-2019
Female beneficiaries	Percentage	0.00	50.00		47.20

Comments (achievements against targets):

Surpassed (190% of target). The MTR revised the total (direct and indirect) beneficiary target upward from 48,450 to 80,000. The actual value achieved at project completion is 152,119. This includes (i) 5,560 direct beneficiaries of subproject investments and technical assistance, (ii) 28,246 additional beneficiaries who benefited from those subproject activities and technical assistance associated with them, (iii) 18,513 beneficiaries who benefited from the demarcation of project PAs, and (iv) 99,800 beneficiaries of implemented activities under the municipal environmental plans.

Component: Knowledge Management, Training, and Communications

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Number of outreach or educational activities to promote the benefits of biodiversity and the public's role in conservation	Number	0.00 01-May-2014	30.00 31-Dec-2019	50.00 02-Apr-2018	62.00 12-Dec-2019



Comments (achievements against targets):

Surpassed (124% of target). (The MTR revised the target upward from 30 to 50.) The project supported a series of outreach and educational activities for researchers, students, and public figures to improve knowledge and awareness of the importance of biodiversity conservation in Panama. These activities helped to broaden the base of support for biodiversity conservation beyond the project staff and beneficiaries, contributing to the overall enabling environment for private and public support for the SINAP and the Endowment Fund going forward. Held from early 2017 to late 2019, these activities included a workshop for researchers and environmental authorities on biodiversity information system design, participating in national Biodiversity Day and Environmental Excellence Awards, demonstrations for students in catching species and logging data for project PAs, and public discussion and interviews on the development of environmental trusts.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Analysis of financial gap for the entire PA system published	Number	0.00 01-May-2014	1.00 31-Dec-2019		1.00 12-Dec-2019

Comments (achievements against targets):

Fully achieved (100% of target). The project supported a published study of the additional funding needed to bring the entire SINAP to a level of adequate management. (Study of the financial gap of protected areas: Financial strategy for fundraising and monitoring of the financial gap of the National System of Protected Areas of Panama - Pacay 2019) This study makes a significant contribution to the financial sustainability of the SINAP in that it quantifies its ongoing financing needs (US\$ 16.7 million annually for adequate management), estimates the economic value of the benefits that the SINAP provides, and proposes a strategy for diversifying the sources and mechanisms of its future financing.

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



Sustainable Production Systems and Conservation of Biodiversity (P145621)

At least one biodiversity-	Number	0.00	1.00	4.00
friendly product (i.e., coffee, cacao, orange, or banana) receives bio-labels and/or		01-May-2014	31-Dec-2019	12-Dec-2019
denomination of origin.				

Comments (achievements against targets):

Surpassed (400% of target). The project activities to environmentally certify land area contributed significantly to biodiversity mainstreaming by providing incentives for producers to adopt biodiversity-friendly practices to comply with the certifications for various products. Under the project, four products (banana, cocoa, coffee and horticulture) received at least one of the following bio-labels: (i) biodiversity-friendly products certification from MIAMBIENTE, (ii) the organic products certification from the Authority of Panama for Control and Certification of Organic Products (ACERT) of the Ministry of Agriculture and Livestock (MIDA), and (iii) the appellation of origin certification through the Ministry of Commerce and Industry (MICI), which is awarded, *inter alia*, based on compliance with a set of sustainability and biodiversity-friendly practices.



B. KEY OUTPUTS BY COMPONENT

Objective/Outcome: To conserve globally significant biodiversity.					
Outcome Indicators	 Area brought under enhanced biodiversity protection: 654,015 hectares (119% of target) Landscapes certified by internationally or nationally recognized environmental standards that incorporate biodiversity considerations: 1,611 hectares (134% of target) 				
Intermediate Results Indicators	 Endowment fund to support sustainable management of PAs established and operating: 1 (100% of target) Operating concessions for administration or services to support the management of 3 PAs: 3 (100% of target) Protected Areas where the SNIMDB is implemented: 9 (113% of target) Subprojects implemented by producer association groups: 30 (100% of target) Business alliances establishd with buyers for marketing of biodiversity-friendly products: 5 (250% of target) Municipalities that have implemented activities in their environmental plans: 6 (100% of target) Direct project beneficiaries: 152,119 (190% of target). Female beneficiaries: 47% (94% of target) Outreach or educational activities to promote the benefits of biodiversity and the public's role in conservation: 62 (124%) Analysis of financial gap for the entire PA system published: 1 (100% of target) Biodiversity-friendly products that receive bio-labels and/or denomination of origin: 4 (400% of target) 				
Key Outputs Component 1 : Sustainable management of protected areas	 1 Endowment Fund to support the SINAP established and operating, with US\$ 20.3 million in funding in its revolving fund available for PA management. 3 participatory alliances established with the University of Panama for scientific research services to support the management of protected areas. 150 key personnel and partners trained in biodiversity monitoring, use of park equipment, and other key protected area management aspects. 50 park rangers trained and awarded Park Ranger Diplomas. 5 protected areas with biodiversity baseline studies completed. 3 protected areas with demarcation and sign posting for park boundaries. 2 conservation programs for flagship biodiversity species implemented. 1 conservation program designed and implemented to prevent livestock-jaguar conflict in five target areas of project PAs. 1 publicly available manual developed and released for mitigating livestock-jaguar conflict on farms in PA buffer zones. 1 conservation diagnostic of the flagship species <i>Harpy Eagle</i> to serve as the basis for targeted conservation interventions. 				



The World Bank Sustainable Production Systems and Conservation of Biodiversity (P145621)

	11. 10 new species discovered and 5 first sightings for Panama recorded.
Key Outputs Component 2 : Biodiversity and sustainable productive landscapes	 1,611 hectares of productive land certified by recognized standards for biodiversity-friendly production. 5 business alliances established with buyers for marketing of biodiversity-friendly products. 52,319 individuals benefitting from subproject investments and technical assistance. 301 farms rehabilitated, upgraded, or diversified under productive subprojects. 388,670 seedlings and graftings planted in productive subprojects for crops. 37 major facilities (mills, nurseries, warehouses, greenhouses) constructed in subprojects. 38 efficiency irrigation systems constructed in subprojects. 38 efficiency irrigation systems constructed in subprojects. 153 training workshops and 192 field school days held to assist and build capacity for subproject beneficiaries. 10.12 nature reserves provided with management plans and connectivity routes as part of the National Network of Private Reserves. 11. 1 strategy designed and implemented to promote and sign post ecotourism destinations in 15 sites across 5 municipalities along the <i>Coffee Route</i>. 2 new municipal environmental plan developed (for the municipalities of <i>Chame</i> and <i>Capira</i>). 3 surveys conducted evaluating the perception by beneficiary communities of the SPCB project. 14.95% of subproject beneficiaries surveyed are satisfied with the results of the subprojects.
Key Outputs Component 3 : Knowledge management, training, and communications	 4 biodiversity-friendly products certified with bio-labels and/or denomination of origin 1 analysis published estimating the additional funding needed to bring the entire SINAP to a level of "adequate management" and "optimal management." 20 scientific publications completed on biodiversity information resulting from the project. 17 events held to promote awareness and partnerships for biodiversity conservation beyond the scope of the project. 45 events to promote knowledge and awareness of the project contribution to biodiversity conservation.



ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS	
Name	Role
Preparation	
Norman Bentley Piccioni	Task Team Leader(s)
Evelyn Villatoro	Procurement Specialist(s)
Dmitri Gourfinkel	Financial Management Specialist
Mary Lisbeth Gonzalez	Social Specialist
Angel Alberto Yanosky	Social Specialist
Abdelaziz Lagnaoui	Social Specialist
Supervision/ICR	
Garry Charlier	Task Team Leader(s)
Leonel Jose Estrada Martinez	Procurement Specialist(s)
Eduardo Franca De Souza	Financial Management Specialist
Dmitri Gourfinkel	Financial Management Specialist
Leanne Farrell	Environmental Specialist
Mario I. Mendez	Team Member
Dianna M. Pizarro	Social Specialist
Ramon Ernesto Arias Moncada	Team Member
Carlos Lago Bouza	Procurement Team

Т
1

Change of Ducingst Couple	Staff Time and Cost		
Stage of Project Cycle	No. of staff weeks	US\$ (including travel and consultant costs)	
Preparation			



FY14	26.370	218,540.48
FY15	1.284	24,871.65
FY16	.100	7,844.32
Total	27.75	251,256.45
Supervision/ICR		
FY16	9.260	82,142.52
FY17	13.829	91,264.16
FY18	12.474	104,569.01
FY19	6.625	82,077.86
FY20	11.376	114,025.65
Total	53.56	474,079.20



ANNEX 3. PROJECT COST BY COMPONENT

Project cost at appraisal and closing by component

Components	Amount at Approval (US\$M)	Actual at Project Closing (US\$M)	Percentage of Approval (%)
Sustainable Management of Protected Areas	15.16	13.33	87.9
Biodiversity and Sustainable Productive Landscapes	6.81	5.91	86.8
Knowledge Management, Training, and Communications	5.17	2.86	55.3
Project Management	1.83	1.72	94.0
Total	28.97	23.82	82.2

Actual Project Financing, by Component and Source (US\$ million)

Components	GEF	Government of Panama*	Beneficiaries	Municipalities	Other**	TOTAL ACTUAL (US\$ million)
Component 1: Sustainable Management of Protected Areas	4.78	4.39	0	0	4.16	13.33
Component 2: Biodiversity and Sustainable Productive Landscapes	3.12	2.1	0.63	0.06	0	5.91
Component 3: Knowledge Management, Training, and Communications	0.83	2.03	0	0	0	2.86
Component 4: Project Management	0.84	0.88	0	0	0	1.72
TOTAL ACTUAL (US\$ million)	9.57	9.40	0.63	0.06	4.16	23.82
% of total actual cost	40.10%	39.46%	2.64%	0.25%	17.46%	100.00%

*This does not include GoP contributions to the Endowment Fund that was established through activities under Component 1 (see section II.B).

** AES-Changuinola (the company operating the Changuinola I hydroelectric plant) and Minera Panamá S.A (MPSA) (a Panamanian subsidiary of a Canadian mining company)



ANNEX 4. EFFICIENCY ANALYSIS

Methodology

1. Data limitations. As a baseline was not carried out at the beginning of the project, and no quantitative data was gathered at the end of the project, the data used for this Economic and Financial Analysis (EFA) is secondary and generated by the SPSCB Project. For each subproject, the beneficiaries presented files where each initiative and its record of disbursements are described. Most of the investments have been implemented in the last two years; however, as they will begin to generate income only in a period of 3 or 4 years, no accounting data on the operation of production practices or operating costs is available. Accordingly, both the income and the production costs were estimated through consultations with the owners of the investments, the project's technicians and agricultural experts. In this way, the expected yields and potential prices for future periods were determined (which in many cases are periods after the SPSCB project closes) as well as the minimum production costs (which are lower than those recorded by MIDA at the national level). Given these limitations, of the 30 subprojects supported by the SPCB project, 19 productive subprojects had limited but sufficient information for evaluation in the EFA, when complemented by consultation with beneficiaries, the project's technicians, and local agricultural experts (the remaining 11 subprojects could not be evaluated).¹⁸ This sample is statistically significant, representing 63% of the identified subprojects and 83% of the total of productive subprojects, allowing valid and representative conclusions to be drawn.

2. **Data used**. For each of the 19 subprojects, an Excel tool was used to consolidate and estimate the information used in the EFA (see below). Calculations have been made for two scenarios. Scenario 1 "without project" assumes that the productive activities are developed without the implementation of the project and Scenario 2 "with project" assumes that the productive activities are developed with the implementation of the project and its support for biodiversity-friendly production practices. The Excel file used for these calculations can be found in the SPCB project files and the key information they contain are the following:

- Income. The majority of the subprojects are agricultural activities. Thus, incomes were estimated for each
 production system on the basis of: yield of the item, per hectare or per period; yield of a comparative
 productive system, per period; hectares under a particular crop or period of yield; number of hectares
 under each crop; frequency with which each yield is produced; price according to the specific market of
 each activity.
- **Production costs.** The beneficiaries expressed in the formulation of the subprojects that they would make a contribution in return for this main investment. This counterpart contribution has not actually been accounted for. However, in order for the subproject to generate returns, the beneficiaries have to guarantee the production costs. In this sense, the minimum production costs per productive unit (e.g. hectare) is estimated for each productive system.
- Environmental benefits. There is a direct relationship between reforested areas and the production of

¹⁸ Four productive subprojects are without sufficient information for the economic evaluation (3 in Guna Yala related to agroforestry and 1 in Chiriquí related to organic agriculture). Four conservation projects are without sufficient information for an economic evaluation (1 in Veraguas related to the conservation of the micro-basin of the Gallito River, 1 in Bocas del Toro related to reforestation activities, 1 in West Panama that suggests a Biological Corridor for the conservation of the Jaguar and, and 1 on a National level, promoting biological corridors through the sustainable management of Private Natural Reserves in Panama). Three subprojects of other types are also without sufficient information for an economic evaluation (1 in Veraguas related to the strengthening of the capacities of the partners of the Cooperative of Tourism of Santa Fe, 1 in Guna Yala related to the strengthening of the capacities of the Women Artisans' Network, and 1 related to the collection and treatment of solid waste in insular areas of Guna Yala).



environmental goods and services, in particular carbon sequestration and water infiltration. Although the beneficiaries of the subprojects do not necessarily have access to specific markets for these environmental goods and services, their economic value is estimated based on the carbon dioxide stored per year in the reforested areas and the approximate amount of water filtered changes in vegetation cover. These benefits are multiplied by their respective prices in specialized markets and are considered to be an economic return from the project.

- **Analysis**. The cash flow for each subproject is constructed. Five key indicators are used for the analysis: net present value (NPV), internal rate of return (IRR), period of investment recovery, benefits per person, and benefits per hectare (in agricultural production systems).
- Additional information on subprojects. Since new primary data could not be collected as part of the EFA, subproject files were analyzed as available for additional qualitative information to help characterizes each subproject: (i) the subprojects are relatively straight-forward initiatives for the associations to implement, in most cases taking the form not of new activities but rather of expansion or improvement in existing production; (ii) there are clearly established markets for the products of these activities; (iii) the production systems largely use organic inputs and eco-friendly processes; and (iv) the associations that promote these initiatives have the capacity to address the specific problems they face.
- 3. **Assumptions**. The analysis is based on the following key assumptions:
 - An evaluation period for this EFA of 7 years was used. This time period was chosen as most productive systems start generating benefits only after 3 or 4 years, allowing projections to be made without assumptions far into the future being necessary.
 - The Discount Rate considered is the social discount rate used for comparable projects: 10 percent.
 - To calculate the NPV of the carbon sequestration and water filtration benefits, average values per hectare are assumed and conservative market prices are utilized for their economic valuation.

Results

4. Table 1 shows the distribution of the 19 productive subprojects analyzed for this EFA by province and by type of productive system. As shown in Table 2, three of the systems (cacao, cacao and banana, and coconut oil) account for the largest amount of productive and reforested area.

Productive Systems	Boca del Toro	Bribri	Chiriquí	Guna Yala	Naso	Ngäbe Bugle	Veraguas	Total
Molas (craft)						1		1
Сасао	1					3		4
Cacao & Banana	2	1						3
Coconut oil				1				1
Coffee			2			1	1	4
Sugar & Honey							1	1
Plantain					1			1
Roasted coffee							1	1
Tubers					1			1
Vegetables & Plantain						1		1
Wood							1	1
Total	3	1	2	1	2	6	4	19

Table 1: Subprojects by province and productive system



Productive Systems	Area under production	Area under Reforestation
	(ha)	(ha)
Molas (craft)	-	18
Сасао	184	116
Cacao & Banana	294	77
Coconut oil	-	7
Coffee	835	225
Sugar & Honey	10	15
Plantain	31	28
Roast coffee	-	-
Tubers	62	33
Vegetables & Plantain	31	22
Wood	-	36
Total general	1,447	577

Table 2: Production areas and reforestation for each productive system

Source: SPSCB Project data.

5. For the 19 productive subprojects, 1,837 direct male beneficiaries and 1,493 direct female beneficiaries are identified. In addition, 16,145 indirect beneficiaries are identified. The largest number of beneficiaries are in the areas of Chiriquí, Bocas del Toro and Ngäbe Bugle. The average incremental net benefit per beneficiary and per hectare are estimated in Table 5. Some activities do not present benefits per hectare, as they are not purely agricultural and do not depend on the land area used.

Productive system	Incremental	Incremental
	average benefit	average benefits
	per person (US\$)	per hectare (US\$)
Molas (craft)	16	-
Сасао	116	207
Cacao & Banana	60	136
Coconut oil	95	-
Coffee	461	327
Sugar & Honey	338	1,046
Plantain	51	102
Roast coffee	106	-
Tubers	8	35
Vegetables & Plantain	111	215
Wood	441	-
Total general	192	207

Table 1: Incremental net benefits per producer and per hectare

Source: SPSCB Project data.

Financial indicators

6. Table 6 shows the average values for three key indicators, which are used for the financial evaluation of the subprojects for the two scenarios: with project implementation and without project implementation.



Table 2. Financial evaluation indicators, by productive system, for both scenarios							
Productive system	Average NPV	Average NPV	Average IRR	Average IRR	Average Payback	Average Payback	
	without	with project	without	with project	Period without	Period with	
	project (US\$)	(US\$)	project		project (years)	project (years)	
Molas (craft)	-	- 18,220	-	-10%	-	-	
Сасао	-73,164	- 33,108	0%	-5%	-	11.3	
Cacao & Banana	-9,025	64,960	14%	35%	4.3	4.7	
Coconut oil	-	108,928	-	67%	-	3.0	
Coffee	-43,204	174,105	-3%	35%	10.3	5.3	
Sugar & Honey	28,889	81,991	41%	56%	4.0	3.0	
Plantain	3,025	11,714	14%	19%	6.0	5.0	
Roast coffee	-	36,035	-	57%	-	2.0	
Tubers	-1,749	16,148	6%	50%	9.0	3.0	
Vegetables & Plantain	32,750	63,704	25%	34%	5.0	4.0	
Wood	-	219,369	-	59%	-	4.0	
Total	-8,925	65,966	14%	36%	5.5	4.5	

Table 2: Financial evaluation indicators, by productive system, for both scenarios

Source: SPSCB Project data.

7. For the scenario without project implementation, it can be seen that the average NPV is negative for four activities. In the scenario with project implementation, the only two activities that are not economically viable are *Molas* (a type of indigenous craft) and Cacao. Overall, the NPV averaged over all systems changes from negative to positive with the implementation of the Project. The average IRR also increases from 14% to 36% with the implementation of the project. Finally, the average payback period of the investment is reduced with project implementation.

Economic Value of Environmental Goods and Services

8. The subprojects generated environmental benefits by implementing biodiversity-friendly and sustainable practices and reforesting land. Based on the information on these activities for each of the 19 subprojects, flows of two environmental services (carbon sequestered and subsoil water filtered) were generated. Although at the time of project closing there were no markets for these environmental services, their economic value is calculated by estimating the carbon dioxide stored per year in reforested areas and the amount of water absorbed by certain changes in land use. These amounts are multiplied by their respective market prices. According to this analysis, the NPV of environmental benefits of the subprojects is estimated to be about US\$ 1.6 million for a period of 7 years, including about US\$.77 million for carbon sequestration and about US\$.84 million for water filtration. Since the reforested areas are largely located within the productive systems, those systems with the largest production area (coffee, cacao, and cacao and banana) are those that contribute most to the generation of these environmental benefits (see Table 7).



Productive Systems	NPV of Carbon	NPV of Water
	Sequestration	infiltration
	(US\$)	(US\$)
Molas (craft)	24,055	26,289
Сасао	155,020	169,421
Cacao & Banana	102,901	112,460
Coconut oil	9,355	10,224
Coffee	300,686	328,618
Sugar & Honey	20,046	21,908
Plantain	37,419	40,895
Roast coffee	-	-
Tubers	44,101	48,197
Vegetables & Plantain	29,400	32,132
Wood	48,110	52,579
Total	771,092	842,723

Table 3: Economic value of the Environmental Goods and Services

Source: SPSCB Project data.

Incremental Analysis

9. The project through Component 2 invested US\$ 1,084,080 in the 19 subprojects evaluated and the beneficiaries committed to disbursing approximately \$326,682 (30% out of the total on average). The counterpart disbursements are indicated in the subproject files but were not validated as part of the EFA; it is assumed that the beneficiaries contribute these counterpart funds in the form of operating costs and/or specific investments.

	Project	Counterpart	Counterpart
Productive System	Contribution	contribution	as a % of
	(US\$)	(US\$)	investment
Molas (craft)	43,850	7,350	17%
Cacao	291,342	102,996	35%
Cacao & Banana	196,657	43,980	22%
Coconut oil	29,503	34,000	115%
Coffee	274,918	60,630	22%
Sugar & Honey	47,072	8,700	18%
Plantain	24,949	12,522	50%
Roast coffee	20,730	8,150	39%
Tubers	25,252	14,507	57%
Vegetables & Plantain	99,875	25,538	26%
Wood	29,933	8,300	28%
Total	1,084,080	326,672	30%

Table 4: Project's Investment and Local Counterpart

Source: SPSCB Project data.

10. Regarding the aggregate NPV, Table 9 shows that in a scenario without the project, four systems present losses for the evaluation period and the total NPV is negative (approximately -US\$ 429,635). With project implementation, only two systems present losses (*molas* and cacao) and the NPV is positive for the evaluation period (about US\$ 1,278,536). The total incremental NPV with the project is about 1.7 million. Table 10 shows that the (financial) incremental NPV is estimated to be about US\$ 1.7 million and the incremental value of the environmental benefits is estimated to be about US\$ 1.6 million. This suggests that the returns of the analyzed



subprojects exceed the costs of investment and are economically viable, both considering the financial return without the environmental benefits (exceeding the cost by about US\$ 0.6 million) and with considering environmental benefits as well (exceeding the cost by about US\$ 2.2 million). This highlights the significant environmental added value of the subproject investments.

Productive System	Total NPV without a	Total NPV with a project	Incremental NPV (US\$)
	project (US\$)	(US\$)	
Molas (craft)	-	- 18,220	18,220
Сасао	- 292,657	- 132,433	160,224
Cacao & Banana	- 27,076	194,881	221,957
Coconut oil	-	108,928	108,928
Coffee	- 172,817	696,420	869,237
Sugar & Honey	28,889	81,991	53,101
Plantain	3,025	11,714	8,689
Roast coffee		36,035	36,035
Tubers	- 1,749	16,148	17,897
Vegetables & Plantain	32,750	63,704	30,954
Wood	-	219,369	219,369
Total	- 429,635	1,278,536	1,708,172

Table 5: Financial Return of the Investments based on the incremental NPV

Source: SPSCB Project data.

Table 6: Total Incremental Net Present Value of the Project

Productive system	Project	Incremental	Incremental NPV of	Total
	Investment	NPV	Environmental Good	Incremental
	(US\$)	(US\$)	and Services (US\$)	NPV of the
				Project (US\$)
Molas (craft)	43,850	- 18,220	50,344	32,124
Cacao	291,342	160,224	324,441	484,665
Cacao & Banana	196,657	221,957	215,362	437,319
Coconut oil	29,503	108,928	19,578	128,507
Coffee	274,918	869,237	629,304	1,498,541
Sugar & Honey	47,072	53,101	41,954	95,055
Plantain	24,949	8,689	78,313	87,002
Roast coffee	20,730	36,035	-	36,035
Tubers	25,252	17,897	92,298	110,195
Vegetables & Plantain	99,875	30,954	61,532	92,486
Wood	29,933	219,369	100,689	320,058
Total	1,084,080	1,708,172	1,613,815	3,321,987

Conclusions

Source: SPSCB Project data.

11. The EFA indicates the following conclusions: (i) A key limitation of the EFA is lack of data for the production records, operating costs, and the use of the counterpart contributions, as well as uncertainty regarding the expected yields, prices, and revenues over the period of evaluation considered; (ii) Based on the data available and assumptions made, it is concluded that the financial incremental NPV (\$1.7 million) allows the payback of the project investment (\$1.1 million). Moreover, the economic NPV (taking into consideration the value of environmental benefits as well) of an estimated \$3.3 million highlights the significant environmental benefits of the subproject investments.



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

REPÚBLICA DE PANAMÁ

MINISTERIO DE AMBIENTE

Panamá, 20 de agosto 2020 DM-0889-2020

Señor ABEL CAAMAÑO Gerente de País Banco Mundial-Oficina Panamá E S. D.

> REF/. Recibido Conforme sobre informe de Cierre de Implementación (ICR).

Respetado Señor Caamaño:

En relación al INFORME DE CIERRE DE IMPLEMENTACIÓN (ICR por sus siglas en inglés; Informe Número ICR00004905) preparado por el Banco Mundial sobre el Convenio de Donación TF-018972 y luego de haber realizado las revisiones correspondientes por parte del Ministerio de Ambiente y por la Unidad Ejecutora del Proyecto Sistemas de Producción Sostenible y Conservación de la Biodiversidad, informamos que estamos de acuerdo con el contenido del informe.

Desde nuestro punto de vista el documento ha sido elaborado considerando el fiel cumplimiento de los indicadores establecidos en el Marco de Resultados del proyecto, las lecciones aprendidas y los resultados exitosos.

Aprovechamos la oportunidad para manifestar nuestro agradecimiento al equipo del Banco Mundial por el apoyo y comprensión que hemos recibido durante la ejecución del proyecto y a la vez le informamos del compromiso de país para darle continuidad al logro de los indicadores:

- Acompañamiento para asegurar la sostenibilidad de los subproyectos.
- El Fideicomiso de Agua, Áreas protegidas y vida Silvestre lleva operando dos años. ٠
- Con base al éxito de este proyecto, estamos trabajando en la Preparación de un nuevo proyecto con miras a fortalecer las prioridades del Plan Estratégico del Gobierno (PEG) con una visión estratégica para activar la economía post COVID-19.

Aprovecho la oportunidad para reiterarle las seguridades de mi más alta consideración.

Atentamente.

ADA MILCIADES CONCEPCIO Ministro de Ambiente O DEL MC/SB/vr RIO DE AMP

Albrook, Calle Broberg, Edificio 804 República de Panamá Tel.: (507) 500-0855

www.miambiente.gob.pa

ANNEX 6. Global Significance of the 12 Project Protected Areas and Buffer Zones

Table 1: Key characteristics of the 12 project Protected Areas and productive subprojects in buffer zones

	Protected Area name and location	Area (ha)	МВС	International designation	IDs of subprojects (SP) in buffer zones of the PA	Municipalities (project-supported) in buffer zones of the PA
1	Corregimiento No. 1 de Narganá Wildlife Refuge, Comarca Guna Yala	100,000	Yes		 SP 10-17 (agro-forestry) SP 11-17 (agro-forestry) SP 19-18 (agro-forestry) SP 22-18 (agro-forestry) SP 25-18 (craftwork) SP 29-18 (environmental) 	
2	Palo Seco Protector Forest, Bocas del Toro y Ngäbe-Buglé	167,410	Yes	Reserva de la Biosfera La Amistad	 7. SP 01-17 (agro-forestry) 8. SP 03-17 (agro-forestry) 9. SP 07-17 (agro-forestry) 10. SP 08-17 (agro-forestry) 11. SP 14-17 (agro-forestry) 12. SP 18-18 (agro-forestry) 13. SP 20-18 (agro-forestry) 	
3	Damani-Guariviara Wetland, Comarca Ngäbe- Buglé	24,089	Yes	Ramsar Convention	 SP 04-17 (agro-forestry) SP 13-17 (craftwork/agro-forestry) 	
4	San San Pond Sak Wetland, Bocas del Toro	16,987	Yes	Reserva de la Biosfera La Amistad/Ramsar Convention	16. SP 02-17 (agro-forestry)17. SP 32-19 (conservation)	
5	La Amistad International Park, Bocas del Toro and Chiriquí	207,000	Yes	Reserva de la Biosfera La Amistad	 SP 15-17 (agro-forestry) SP 06-17 (agro-forestry) SP 31-19 (productive) 	
6	Altos de Campana National Park, Panamá	4,816	Yes		21. SP 23-18 (agro-forestry)	Chame
7	Cerro Hoya National Park, Veraguas and Los Santos	32,557	Yes			
8	General Omar Torrijos National Park, Coclé, Veraguas and Colón	25,275	Yes			



The World Bank Sustainable Production Systems and Conservation of Biodiversity (P145621)

	Protected Area name and location	Area (ha)	МВС	International designation	IDs of subprojects (SP) in buffer zones of the PA	Municipalities (project-supported) in buffer zones of the PA
9	Isla Bastimentos National Marine Park, Bocas del Toro	13,226	Yes	Reserva de la Biosfera La Amistad		
10	Santa Fe National Park, Veraguas	72,636	Yes		 SP 12-17 (agro-forestry) SP 16-18 (agro-forestry) SP 17-18 (eco-tourism) SP 24-18 (productive) SP 34-19 (agro-industry) 	
11	Parque Nacional Volcán Barú National Park, Chiriquí	14,322	Yes	Reserva de la Biosfera La Amistad	27. SP 05-17 (agro-forestry)	Renacimiento Tierras Altas Boquete
12	Fortuna Forest Reserve, Chiriquí	19,500	Yes			Gualaca San Lorenzo
	La Yeguada	n/a	n/a	n/a	28. SP 27-18 (agro-forestry)	
	n/a	n/a	n/a	n/a	29. SP 09-17 (agro-forestry)	
	National	n/a	n/a	n/a	30. SP 33-19 (conservation)	
Total:		697,818	12	6 PAs = 443,034 ha (63% of total)	30 subprojects	6 municipalities

Table 2: Beneficiaries of project activities

Type of beneficiary	Quantity benefited
Component 1	
Beneficiaries of PA area demarcation	18,513
Component 2	
Direct beneficiaries of subproject investments and TA in buffer zones	5,560 (47% women, 60% Indigenous)
Additional beneficiaries of subproject activities and TA in buffer zones	28,246
Populations of municipalities with project-supported municipal EMPs in buffer zones	99,800
Total beneficiaries	152,119
	(Target at appraisal: 48,450)
	(Revised MTR target: 80,000)



ANNEX 7. Existing and Discovered Biological Species in Project Protected Areas

Table 1: Species present in project PAs that are recognized by the International Union for Conservation of Nature (IUCN)

Birds							
Species	Common Name	Species	Common Name				
Selasphorus flammula	Estrella volcanera	Megascops clarkii	Autillo serranero				
Selasphorus scintilla	Estrella centelleante	Ciccaba virgata	Búho moteado				
Chlorostilbon assimilis	Esmeralda jardinera	Ciccaba nigrolineata	Búho blanquinegro				
Klais guimeti	Colibrí cabecivioleta	Pseudoscops clamator	Búho listado				
Phaeochroa cuvierii	Colibrí pechiescamado	Trogon clathratus	Trogón colirrayado				
Campylopterus hemileucurus	Alasable violáceo	Trogon collaris	Trogón collarejo				
Eupherusa eximia	Colibrí colirrayado	Trogon aurantiiventris	Trogón ventrianaranjado				
Elvira chionura	Esmeralda coliblanca	Pharomachrus mocinno	Quetzal resplandeciente				
Microchera albocoronata	Gorra nivosa	Semnornis frantzii	Barbudo cocora				
Chalybura buffonii	Calzonario de Buffon	Ramphastos sulfuratus	Tucán pico iris				
Chalybura urochrysia	Calzonario patirrojo	Aulacorhynchus caeruleogularis (prasinus)	Tucancillo verde				
Thalurania colombica	Ninfa coroniazul	Melanerpes formicivorus	Carpintero careto				
Amazilia decora	Amazilia hermosa	Picoides fumigatus	Carpintero pardo				
Amazilia edward	Amazilia ventrinivosa	Picoides villosus	Carpintero serranero				
Amazilia tzacatl	Amazilia colirrufa	Pyrrhura hoffmanni	Perico aliamarillo				
Lepidopyga coeruleogularis	Colibrí gorguizafiro	Eupsittula pertinax	Perico carisucio				
Eurypyga helias	Garza del Sol	Psittacara finschi	Perico frentirrojo				
Leptodon cayanensis	Elanio cabecigrís	Brotogeris jugularis	Perico barbinaranja				
Elanoides forficatus	Elanio tijereta	Touit costaricensis	Periquito frentirrojo				
Ictinia plumbea	Elanio plomizo	Pyrilia haematotis	Loro cabecipardo				
Accipiter bicolor	Gavilán bicolor	Pionus menstruus	Loro cabeciazul				
Morphnarchus princeps	Gavilán barreteado	Myrmeciza zeledoni	Hormiguero de Zeledon				
Geranoaetus albicaudatus	Gavilán coliblanco	Scytalopus argentifrons	Tapaculo frentiplateado				
Pseudastur albicollis	Gavilán blanco	Dendrocincla homochroa	Trepatroncos rojizo				
Buteo platypterus	Gavilán aludo	Campylorhamphus pusillus	Picoguadaña piquipardo				
Buteo brachyurus	Gavilán colicorto	Lepidocolaptes affinis	Trepatroncos coronipunteado				
Buteo albonotatus	Gavilán colifajeado	Pseudocolaptes lawrencii	Barbablanca anteada				
Buteo jamaicensis	Gavilán colirrojo	Anabacerthia variegaticeps	Limpiafronda gorguiescamosa				
Spizaetus tyrannus	Aguilillo negro	Thripadectes rufobrunneus	Trepamusgo pechirrayado				
Tyto alba	Lechuza común	Margarornis rubiginosus	Subepalo rojizo				
Megascops choliba	Autillo tropical	Serpophaga cinerea	Mosquerito guardarríos				



...Table 1 continued

E	Birds	Mammals				
Species	Common Name	Species	Common Name			
Mitrephanes phaeocercus	Mosquerito-moñudo común	Bradypus variegatus	perezoso de tres dedos			
Contopus cooperi	Pibí boreal	Didelphis marsupialis	zarigüeya común			
Myiodynastes hemichrysus	Mosquero ventridorado	Metachirus nudicaudatus	zarigüeya cuatro ojos chocolate			
Cephalopterus glabricollis	Ave-sombrilla cuellinuda	Tamandua mexicana	Hormiguero			
Procnias tricarunculatus	Campanero tricarunculado	Dasypus novemcinctus	Armadillo			
Dixiphia pipra	Saltarín coroniblanco	Cebus capucinus	mono cariblanco			
Vireo carmioli	Vireo aliamarillo	Alouatta palliata	mono aullador			
Cyanolyca argentigula	Urraca gorguiplateada	Sciurus granatensis	ardilla			
Troglodytes ochraceus	Sotorrey ocráceo	Microsiurus sp	ardilla enana			
Myadestes melanops	Solitario carinegro	Dasyprocta punctata	ñeque			
Myadestes coloratus	Solitario variado	Cuniculus paca	conejo pintado			
Catharus gracilirostris	Zorzal piquinegro	Hoplomys gymnurus	rata espinosa			
Catharus fuscater	Zorzal sombrío	Coendou mexicanus	puerco espín			
Catharus frantzii	Zorzal gorrirrojizo	Sylvilagus gobbii	muleto			
Turdus obsoletus	Mirlo ventripálido	Sylvilagus dicei	muleto chiricano			
Turdus assimilis	Mirlo gorguiblanco	Nasua narica	gato solo			
Phainoptila melanoxantha	Capulinero negriamarillo	Eira barbara	tayra			
Ptiliogonys caudatus	Capulinero colilargo	Leopardus tigrinus	oncilla			
Pselliophorus tibialis	Pinzón musliamarillo	Leopardus wiedii	tigrillo			
Pezopetes capitalis	Pinzón patigrande	Leopardus pardalis	ocelote			
Chlorospingus pileatus	Clorospingus cejiblanco	Puma yaguarudi	tigrillo congo			
Zeledonia coronata	Zeledonia	Puma concolor	puma			
Basileuterus melanogenys	Reinita carinegra	Panthera onca	jaguar			
Basileuterus culicivorus	Reinita coronidorada	Mazama temama	venado corzo			
Tangara dowii	Tangara carisalpicada	Odocoileus virginianus	Venado cola blanca			
Haplospiza rustica	Pinzón pizarroso	Pecari tajacu	saíno			
Diglossa plumbea	Pinchaflor pizarroso	Tapirus bairdii	macho de monte			
Amp	hibeans	Reptiles				
Species		Species				
Atelopus varius		Mesaspis monticola				
Dendrobates auratus		Anolis kemptoni				
Istmohyla picadoi		Boa constrictor				
Istmohyla rivularis		Sibon annulatus				
Bolitoglossa compacta		Micrurus stewarti				
Bolitoglossa minutula		Bothriechis nigroviridis				



Table 2: New species discovered and first sightings within Panama by the SPCB project

New species discovered			First-sightings in Panama					
	Species Common name			Species	Common Name			
1.	Alistotrichia coclensis Armitage and Harris*	Caddisfly	1.	Metrichia macrophallata Flint*	Caddisfly			
2.	<i>Cerasmatrichia</i> akanthos Armitage and Harris*	Caddisfly	2.	<i>Culoptila costaricensis</i> Flint**	Caddisfly			
3.	<i>Metrichia corazones</i> Armitage and Harris*	Caddisfly	3.	<i>Mortoniella opinionis</i> Blahnik and Holzenthal**	Caddisfly			
4.	Neotrichia espinosa Armitage and Harris*	Caddisfly	4.	<i>Protoptila spirifera</i> Flint**				
5.	Neotrichia michaeli Armitage and Harris*	Caddisfly						
6.	Neotrichia pierpointorum Armitage and Harris*	Caddisfly						
7.	Neotrichia yayas Armitage and Harris*	Caddisfly						
8.	Mortoniella (Mortoniella) calovebora Blahnik and Armitage**	Caddisfly						
9.	Mortoniella (Mortoniella) yayas Blahnik and Armitage**	Caddisfly						
10.	Protoptila inflata Blahnik and Armitage**	Caddisfly						
11.	Protoptila totumas Blahnik and Armitage**	Caddisfly						
12.	Protoptila rambala Blahnik and Armitage**	Caddisfly						

* Armitage & Harris 2020. The Trichoptera of Panama. XVI. New species of microcaddisflies (Trichoptera: Hydroptilidae) from Omar Torrijos Herrera National Park. Insecta Mundi: A Journal of World Insect Systematics. **Blahnik & Armitage 2019. The Trichoptera of Panama. XII. Contributions to the family Glossosomatidae (Insecta: Trichoptera) in Panama. Insecta Mundi: A Journal of World Insect Systematics.



ANNEX 8. Management Effectiveness Tracking Tool (METT) Methodology

1. The GEF Management Effectiveness Tracking Tool (METT) is one of the most widely used site-level tools for facilitating survey-based reporting over time. It was designed in 2003 by the World Bank/World Wildlife Fund Alliance for Forest Conservation and Sustainable Use and is one of a series of management effectiveness assessment tools aimed at supporting implementation of the "framework for assessment" of the World Commission on Protected Areas (WCPA). The METT score for a given PA is based on a survey that asks park staff to assess 30 key aspects of management effectiveness (including financial, business management, legal, regulatory, staff capacity, and communications) from 0-3. In a given assessment, the sum of the point values recorded on the questionnaire is divided by the total possible points to produce a percentage score. For each of the 3 METT evaluations conducted for the SPCB project (baseline, mid-term, and final), a workshop was held with regional park directors, park managers, park rangers, and various staff from MIAMBIENTE to evaluate each project PA according to the METT and attain its respective score. (See yellow columns in Table 1 below.)

2. According to the approach indicated in the PAD, if a PA showed an improved METT score relative to the baseline score, the total park area was counted toward the area brought under enhanced biodiversity protection under this PDO indicator; if no improvement or a negative improvement was recorded, the PA was not counted. (See green columns in Table 1 below.) Among the nine project PAs that showed improvements, higher METT scores were achieved for the *Fortuna* Forest Reserve, *Cerro Hoya* National Park, and other areas in which park boundary demarcation was undertaken, as demarcation significantly influences METT scores. Three project PAs (*Altos de Campana* National Park, *General Omar Torrijos* National Park, and *Isla Bastimentos* National Marine Park) showed lower METT scores in 2019 relative to 2014, due to an unexpected shortfall in national protected area funding from the Ecological Trust Fund of Panama (FIDECO) (the main financial supporter of the SINAP), which adversely impacted several aspects of management assessed by the METT.



Table 1: Evaluation method and results for PDO Indicator	1
--	---

Total Project Protected Area Area (ha)		Baseline (2014)			Mid-term (2017)			Final (2019)		
		Park Area (ha)	METT (%)	Parks in which METT score increased relative to baseline		METT (%)	Parks in which METT score increased relative to baseline		METT (%)	Parks in which METT score increased relative to baseline
1	Volcán Barú National Park	14,322	72.5%	(n/a)		76.3%	х		80.0%	x
2	San San Pond Sak Wetland	16,987	69.6%	(n/a)		69.0%			72.0%	x
3	Damani- Guariviara Wetland	24,089	61.7%	(n/a)		86.4%	x		65.4%	x
4	La Amistad International Park	207,000	66.7%	(n/a)		69.7%	x		77.4%	х
5	Altos de Campana National Park	4,816	76.5%	(n/a)		51.6%			75.6%	
6	General Omar Torrijos National Park	25,275	88.2%	(n/a)		93.5%	х		74.1%	
7	Santa Fe National Park	72,636	69.6%	(n/a)		72.0%	х		75.0%	x
8	Cerro Hoya National Park	32,557	60.8%	(n/a)		40.9%			70.2%	x
9	Palo Seco Protector Forest	167,410	66.7%	(n/a)		59.3%			69.4%	x
10	Fortuna Forest Reserve	19,500	63.7%	(n/a)		66.7%	x		96.6%	x
11	Isla Bastimentos National Marine Park	13,226	78.4%	(n/a)		72.0%			72.6%	
12	Narganá Wildlife Refuge	100,000	75.5%	(n/a)		73.3%			86.9%	x
Tota	ls:	697,818		0 (n/a)			362,822 (sum of total park areas for those parks with increases)			654,501 (sum of total park areas for those parks with increases)

Sources: SPCB Project AMs



ANNEX 9. Biodiversity-friendly Practices Implemented in Productive Areas

Table 1: Biodiversity-friendly practices included in the selection criteria for subprojects, by subproject type

Type of subproject	Eligible subproject	Biodiversity-friendly Practices				
	Production of organic coffee or cacao through diversification into shade-growing.	i. ii. iii.	Ensure the conservation of biodiversity, which means that the crop is under diversified shade. Arboreal plant coverage is 40%. Varieties and plants must be adapted to the local climate and be resistant as possible to pests and resistant to climate change. The coffee farm must maintain three distinct layers: arboreal, shrub and herbaceous (stocks of epiphytic orchids, bromeliads, ferns, mosses, lichens and others) use tree species that are food sources for birds, insects, among others.			
Organic Agriculture and Agroforestry	Improving soil fertility techniques compatible with organic production.	i. ii. iii. iv.	Techniques to improve the content of the organic nutrients and soil microorganisms. Techniques that leave soil untilled. Integrated pest management, weeds and diseases without the use of agrochemicals. Ecological management of pests and diseases through cultural practices (pruning, shade control, weed control). Separate storage places free of contaminants, protected			
	harvesting, organic, and biodiversity-friendly practices.	ii.	from rain and without contact with the ground. Dried without contact with the ground, away from roads to prevent contamination from smoke.			
	Plant renewal (renewal of planting material)	i. ii. iii.	Ensure continuity of production based on pruning and renewal programs. Management of seedbed and nursery with organic techniques. Incorporation of native varieties.			
Ecotourism - Handicrafts	Environmental management systems (energy, water and waste) in care facilities visitors.	i.	Development of competitive tourism opportunities that value local natural resources and conservation.			
(Services for on-site visitors including natural attractions, food, lodging, and recreational	Management of species of flora and fauna	i.	Use of native species in restoration and establishment of green areas and measures to prevent the introduction of exotic species and avoid adversely impacting the natural environment.			
activities.)	Strengthening value chain relationships with other sustainable production systems	i. ii.	Purchase goods and services from local environmental investments or other subprojects. Provide local entrepreneurs, development and sale of sustainable products based on nature, history and culture of the area.			

ANNEX 10. Images of Select Project Activities

Images of activities to support project Protected Areas





Images of subprojects and business alliances supported by the SPCB project





Images of the activities to support the National Network of Private Reserves



Sustainable Production Systems and Conservation of Biodiversity (P145621)

