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The World Bank

Report No: ICR00004367

IMPLEMENTATION COMPLETION AND RESULTS REPORT

TF 12073

ON A

GRANT

IN THE AMOUNT OF US$15.89 MILLION

TO THE

Brazilian Biodiversity Fund - FUNBIO

FOR THE

AMAZON REGION PROTECTED AREAS PROGRAM PHASE II (GEF) (P114810)

January 23, 2018

Environment and Natural Resources Global Practice
Latin America And Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective {October 27, 2017)

Currency Unit =   Brazilian Real (BRL)

BRL 3.27 =   US$1

US$0.31 =   BRL 1

FISCAL YEAR

July 1–June 30

ABBREVIATIONS AND ACRONYMS

APF	Amazon Partnership Framework
ARPA	Amazon Region Protected Areas
BAU	Business as Usual
ASL	Amazon Sustainable Landscape
BC	Benefit-Cost
CBD	Convention on Biological Diversity
CPS	Country Partnership Strategy
CSI	Core Sector Indicator
ECI	*Estratégia de Conservação e Investimento* Conservation and Investment Strategy
ESMF	Environmental and Social Monitoring Framework
Ex-ACT	Ex Ante Carbon Balance Tool
FAP	Protected Areas Trust Fund
FAUC	*Ferramenta de Avaliação das Unidades de Conservação* Protected Areas Evaluation Tool
FUNBIO	Brazilian Fund for Biodiversity
FT	*Fundo de Transição* Transition Fund
FTC	FUNBIO´s Technical Commissions
GEF	Global Environment Facility
GHG	Greenhouse Gas
GOB	Government of Brazil
ICMBio	Chico Mendes Institute for the Conservation of Biodiversity
IPAM	Institute for Environmental Research in the Amazon
IPPF	Indigenous People Policy Framework
IRR	Internal Rate of Return
ISR	Implementation Status and Results Report
KfW	*Kreditanstalt Fur Wiederaufbau*
M&E	Monitoring and Evaluation
METT	Management Effectiveness Tracking Tool
MMA	*Ministério do Meio Ambiente*

	Ministry of Environment
NPV	Net Present Value
PA	Protected Area
PADS	*Plano de Ação para o Desenvolvimento Sustentável* Sustainable Development Action Plan
PCU	Project Coordination Unit
PFP	*Projeto de Financiamento para Permanência* Finance for Permanence
PIU	Project Implementation Unit
POA	*Plano Anual Operativo* Annual Operating Plan
PPI	*Plano de Povos Indigenas* Indigenous Peoples Action Plan
RPF	Resettlement Policy Framework
SNUC	*Sistema Nacional de Unidades de Conservação* National Protected Area System
STAP	Scientific and Technical Advisory Panel
TFC	Transition Fund Committee
TTL	Task Team Leader
WWF	World Wide Fund for Nature

Regional Vice President: Jorge Familiar Calderon

Country Director: Martin Raiser

Senior Global Practice Director: Karin Kemper

Practice Manager: Valerie Hickey

Task Team Leader(s): Adriana Gonsalves Moreira

ICR Main Contributor: Tanya Yudelman and Claudia Sobrevila

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A. BASIC INFORMATION

Country:	Brazil	Project Name:	Amazon Region Protected Areas Program Phase II (GEF)
Project ID:	P114810	L/C/TF Number(s):	TF-12073
ICR Date:	01/23/2018	ICR Type:	Core ICR
Financing Instrument:	SIL	Borrower:	FUNBIO
Original GEF grant amount	USD 15.89M	Disbursed Amount:	USD 15.89M
Revised Amount:	USD 15.89M		

Environmental Category: B		**Global Focal Area:** B

Implementing Agencies:
Brazilian Ministry of Environment (MMA)

Cofinanciers and Other External Partners:

B. KEY DATES

Process	Date	Process	Original Date	Revised / Actual Date(s)
Concept Review:	04/07/2010	Effectiveness:	06/19/2012	06/19/2012
Appraisal:	04/26/2011	Restructuring(s):		
Approval:	02/23/2012	Mid-term Review:	11/30/2013	01/27/2015
		Closing:	11/30/2015	07/31/2017

C. RATINGS SUMMARY

C.1 Performance Rating by ICR

Outcomes:	Moderately Satisfactory
Risk to Global Environment Outcome	Substantial
Bank Performance:	Satisfactory
Borrower Performance:	Satisfactory

C.2 Detailed Ratings of Bank and Borrower Performance (by ICR)

Bank	Ratings	Borrower	Ratings
Quality at Entry:	Satisfactory	Government:	Satisfactory
Quality of Supervision:	Satisfactory	Implementing Agency/Agencies:	Satisfactory

Overall Bank Performance:	Satisfactory	Overall Borrower Performance:	Satisfactory

C.3 Quality at Entry and Implementation Performance Indicators

Implementation Performance	Indicators	QAG Assessments (if any)	Rating
Potential Problem Project at any time (Yes/No):	No	Quality at Entry (QEA):	None
Problem Project at any time (Yes/No):	No	Quality of Supervision (QSA):	None
GEO rating before Closing/Inactive status	Satisfactory		

D. SECTOR AND THEME CODES

	Original	Actual
Sector Code (as % of total Bank financing)		
Agriculture, Fishing and Forestry		
Forestry	74	74
Public Administration		
Sub-National Government	13	13
Central Government (Central Agencies)	13	13
Theme Code (as % of total Bank financing)		
Environment and Natural Resource Management	77	77
Environmental policies and institutions	23	23
Renewable Natural Resources Asset Management	54	54
Biodiversity	54	54
Private Sector Development	100	100
Jobs	100	100
Social Development and Protection	14	14
Social Inclusion	14	14
Participation and Civic Engagement	14	14
Urban and Rural Development	9	9
Rural Development	9	9
Land Administration and Management	9	9

E. BANK STAFF

Positions	At ICR	At Approval
Vice President:	Jorge Familiar Calderon	Hasan A. Tuluy
Country Director:	Martin Raiser	Makhtar Diop
Practice Manager/Manager:	Valerie Hickey	Karin Erika Kemper
Project Team Leader:	Adriana Goncalves Moreira	Adriana Goncalves Moreira
ICR Team Leader:	Adriana Goncalves Moreira	
ICR Primary Author:	Tanya Lisa Yudelman	
	Claudia Sobrevila	

The World Bank
P114810

I. PROJECT CONTEXT AND DEVELOPMENT OBJECTIVES

A. CONTEXT AT APPRAISAL

Context

Country Context

1.   At the time of appraisal, Brazil had achieved impressive gains in economic growth and poverty reduction in recent years. Low inflation, tight fiscal management, and targeted transfer programs resulted in poverty reduction and increased economic equality in Brazil. The poverty rate, which had been above 40 percent in the 1990s, had fallen to 13 percent in 2008.[1] Brazil weathered the 2008 global financial crisis well and the Government of Brazil (GOB) reported that the Brazilian economy grew by 7.5 percent in 2010.

2.   Brazil depended on its natural resources for economic growth, in which agricultural expansion and large hydroelectricity plants played important roles, yet new infrastructure projects continued to threaten its ecosystems. Natural resources, in general, were the base for a large portion of production and exports from Brazil. In 2008, agriculture accounted for 6.7 percent of gross domestic product (GDP). In 2007, timber exports totaled US$373.2 million, and agriculture and livestock exports exceeded US$10 billion.[2] Brazil faced the ongoing challenge of balancing conservation of the largest tropical rain forest on the planet with regional economic development, particularly within the Amazon biome.

Sectoral and Institutional Context

3.   The Amazon region represents the largest area of remaining tropical rain forest in the world (approximately 30 percent) and is estimated to contain carbon stores of around 120 billion tons. Because the area is still relatively intact, it is thought to exert a significant influence on regional and global climate. The region has been classified into 23 ecoregions and supports biodiversity of global significance. Despite the region's global importance, it is threatened by deforestation associated with economic development dominated by agriculture expansion, ranching, logging, mining, and settlement policies. Poorly planned and managed economic development in the area has contributed to increasing loss of tropical forest, degradation of watersheds, and overexploitation of wildlife and fisheries.

4.   The 24 million people of the Amazon region are characteristically poorer and less urbanized than the rest of Brazil. This rural population consists of farmers and traditional peoples including indigenous peoples, some of whom are isolated or have been recently contacted. The Amazon region contained 13 percent of Brazil's population, with a GDP share of only 7 percent. The indigenous population in the Amazon comprises 450,000 people, 170 known ethnic groups, and 160 indigenous languages, reflecting the region's rich cultural diversity.[3] Indigenous peoples and traditional communities depend on natural resources for their livelihoods and their land-use practices are considered to have little negative impact on the forest compared with other land-use practices.

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[1] Poverty headcount ratio at US$2.00 a day (purchasing power parity [PPP], %), World Bank. Country at a Glance tables: Brazil. 02/25/2010.

[2] Institute for Applied Economic Research (IPEA) Data. Available August 2010: http://www.ipeadata.gov.br.

[3] Country Partnership Strategy (CPS) Brazil, 2008–2011 Annex page 33.

5.   The economy of the Amazon region was dynamic despite regional poverty. The region's low GDP per capita reflected a high rural population share (45 percent)[4] with larger and less productive agricultural and forestry sectors than the rest of Brazil. Overall, 45 percent of the population lived below the poverty line, primarily in rural areas. The Human Development Index for the states in the Amazon region was roughly 10–15 percent below the average for Brazil, with the notable exception of the Amazonas and Mato Grosso states.

6.   The Amazon Region Protected Areas (ARPA) program is the largest tropical forest conservation program in the world and the largest project for conservation of protected areas (PAs) in Brazil. ARPA was conceived in 2002 as a long-term, multiphase, and ambitious program with the goal of expanding and strengthening the Brazilian National Protected Area System (SNUC) in the Amazon, through the protection of 60 million ha, and ensuring financial resources for the management of those areas in the short and long run while promoting sustainable development in that region. A map showing the location of participating PAs is presented in annex 9. The major financier is the Global Environment Facility (GEF) and the World Bank has been the implementing agency for all phases. Phase 1 lasted eight years (2002–2009), Phase 2 (2010–2017) is the current project, and Phase 3 (2017–2024) was recently approved by the GOB and the World Bank (2017). Under Phase 1, nearly 24 million ha of new PAs were created, exceeding the original target of 18 million by 33 percent. During this phase, activities for the effective management of PAs were established, but none of the PAs of the program reached full consolidation status. At the time of appraisal, ARPA Phase 1 had made significant progress in protecting the Amazon biodiversity and carbon stocks and had provided livelihood opportunities to local inhabitants. Expanding the ARPA program with a second phase (this project) was planned in the first project phase in an attempt to further consolidate and expand.

Rationale for Bank Involvement

7.   The World Bank is one of the largest international financiers of biodiversity investments and draws on substantial international experience which no other international financial institution has. The World Bank, drawing on its technical experience in biodiversity conservation and sustainable development as well as its convening power and experience, played a significant role in the success of ARPA Phase 1 and was the natural partner to continue with Phase 2. Additionally, the GOB specifically requested that the World Bank continue its support, based on highly successful earlier collaboration in Brazil on Phase 1 of the ARPA program.

Higher Level Objectives

8.   Brazil has been at the forefront of the international debate on climate change and sustainable development, and for land-use change and forests. The project fully supported government policy and legislative objectives related to maintaining and expanding efforts to protect and restore the Amazon forest, its associated biodiversity, ecosystem services, and climate resilience.

9.   Since 1997, the GOB has been establishing and implementing policies to expand the system of PAs and reduce deforestation and greenhouse gas (GHG) emissions as evidenced by, among others, (a) the passage of SNUC, Law No. 9.985/2000 in 2000 was a major advance for environmental conservation in Brazil because it placed the management of federal, state, and municipal PAs within a single national system; (b) establishment in 2006 of the 2010 National Goals for Biodiversity (Resolution No. 3 in December 2006); (c) launch of the ARPA program in 2002; (d) adoption in 2009 of a National Policy for

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[4] According to the 2000 National Census with the definition of rural as living agglomerations of less than 10,000.

Climate Change (Law 12.187/2009) committing Brazil to a 36.1 percent to 38.9 percent reduction in GHG emissions by 2020, relative to an agreed baseline scenario; and (e) in 2012, the approval of a new Law for Protection of Native Vegetation (Law 12.651/2012), which extends these efforts to regulation of land use and management on private properties.

10.   This project also furthered the objectives detailed in the World Bank Group's Country Partnership Strategy (CPS), approved by the Executive Directors on May 1, 2008 (CPS 2008–2011) (Report No. 42677-BR). The CPS called for reducing social and environmental problems in the least-developed areas of the country and for promoting a more competitive Brazil by encouraging more efficient use of resources including land, water, and human resources. Additionally, the project remained highly relevant to the subsequent CPS (2012–2015), particularly Results Area 4.3 is to 'improve environmental management, biodiversity conservation, and climate change mitigation'. Lastly, the project was consistent with the GEF 4 strategy, strengthening the policy and regulatory framework for mainstreaming biodiversity and relevant to GEF 6 Programming Directions, contributing to the biodiversity focal area strategy.

Theory of Change (Results Chain)

11.   The overall goal of the ARPA program is to ensure the conservation of a representative sample of biodiversity and the maintenance of environmental services in the Amazon biome, including those related to the mitigation and adaptation to climate change, through the expansion and consolidation[5] of SNUC, and by incorporating local beneficiaries and residents in buffer zones in the management of the PAs. The project focused on three major areas of support that would help the country achieve the desired outcomes (see figure 1). The ARPA program's Theory of Change builds on the notion that if an adequate area of the Amazon is conserved under various regimes, if the PAs that are created are managed effectively with the participation of local communities and indigenous peoples and if long-term financing of PAs is improved, the protection of significant biodiversity of the Amazon region can be achieved, global GHG emissions can be avoided, and the resilience of local communities and indigenous peoples can be improved. The detailed Theory of Change is described in annex 7.

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[5] A consolidated PA is one in which all necessary material, financial, and human resources are in place to ensure that their protected status is respected and land-use restrictions are enforced (see annex 8).

Figure 1. Theory of Change
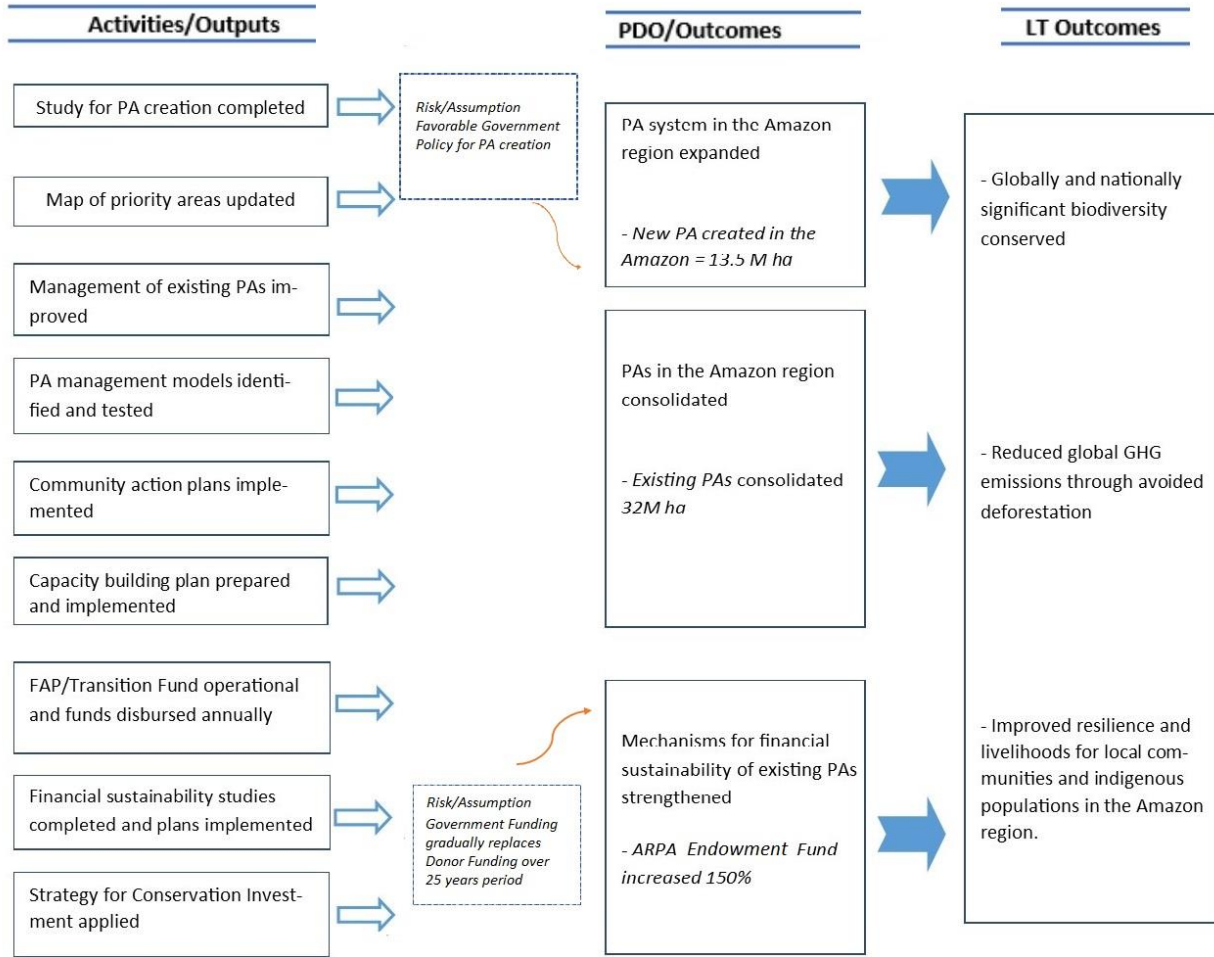
Project Development Objectives (PDOs)

12.   The PDO was (a) to expand and consolidate the system of Protected Areas in the Amazon region and (b) to strengthen mechanisms for its financial sustainability.

Key Expected Outcomes and Outcome Indicators

13.   Three key expected outcomes were identified and were measured by the following PDO indicators and their targets:

- Area of new protected areas created in the Brazilian Amazon: 13.5 million ha

- Area of protected areas consolidated in the Brazilian Amazon: 32 million ha

- Capitalization of the protected areas fund: 150 percent increase over the level of current funds

Components

14.   The project had four interrelated components.

15.   **Component 1. Creation of New Protected Areas (estimated: US$1.0 million GEF, actual: US$0.3 million GEF).** Creation of an additional 13.5 million ha of new PAs in the Amazon region to those created under ARPA 1, by, among others, (a) identifying new areas in the Amazon region to be designated as PAs; (b) carrying out environmental, socioeconomic, and land tenure assessments as needed, including public consultations and workshops, with regard to the new areas identified in the Amazon region to be designated as PAs; and (c) establishing new PAs by enacting the necessary decrees, followed by demarcation of the boundaries of the PAs in question. These PAs include parks, biological reserves, ecological stations, extractive reserves, and sustainable development reserves. These areas were divided between strict protection and sustainable-use PAs.

16.   **Component 2. Consolidation of Protected Areas (estimated: US$11.0 million GEF, actual: US$12.08 million GEF).** Consolidation of approximately 32 million ha of PAs, including new PAs established under Component 1 of the project and other PAs already established before implementation of this project, by, among others, (a) providing technical assistance to strengthen the recipient's capacity in managing the consolidation of PAs and carrying out works to build certain structures such as visitor centers, office space, and guard posts, to support consolidation in selected PAs; (b) preparing, implementing, and evaluating management plans for PAs; (c) promoting better coordination and institutional enhancement of local communities and organizations; and (d) providing training to relevant staff in the management of PAs (see annex 8). This component would carry out community integration actions to promote better coordination and institutional enhancement of the local communities and organizations, fostering their participation in PA management and access to public and private policies, programs, and financing for the sustainable use of resources inside the PAs. New management plans were to be produced with a special focus on the impacts of climate change, community-based management, and the protection of threatened species. Actions taken in the consolidation process would depend on the type of PA and the current level of management capacity. PA management councils were to be created to foster more participatory management. ARPA Phase 1 focused primarily on consolidating strict protection PAs. The second phase focused on replicating consolidation activities in sustainable-use PAs.[6]

17.   **Component 3. Long-term Sustainability of Protected Areas (estimated: US$0.4 million GEF, actual: US$0.26 million GEF).** Generation of additional revenue for the FAP Endowment Fund and development of innovative alternatives for the financing of PA, by, among others, (a) providing technical assistance to (i) develop and implement strategies to raise additional revenue for the Endowment Fund and (ii) strengthen the recipient's capacity to carry out procurement of goods, works, and services related to investments (acceptable to the World Bank) to be financed out of the proceeds of the Endowment Fund and develop effective and transparent mechanisms for disbursement of the proceeds of the Endowment Fund and a long-term sustainability plan for projecting the financing of the Endowment Fund, including

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[6] 'Strict protection' PAs (for example, national parks, biological reserves, and ecological stations), which are those areas created primarily for conservation objectives and prohibit the exploitation of natural resources and other productive activities. 'Sustainable use' PAs (for example, extractive reserves and sustainable use reserves) that allow for the direct use and exploitation of natural resources following norms stipulated in their respective management plan.

improvement of relevant information technology tools; and (b) carrying out studies to identify management and funding options to support the long-term economic sustainability of PAs.

18. **Component 4. Project Coordination, Monitoring, Management, and Communication (estimated: US$ 3.49 million GEF, actual: US$ 3.25 million GEF)**. Strengthening coordination, monitoring, management, and communication for the carrying out of the project, by, among others, (a) establishing efficient management arrangements and strengthening the dialogue and coordination among stakeholders under the project; (b) providing technical assistance for strengthening management of financial resources, procurement and budget allocation, and monitoring under the project; (c) developing and implementing a communication strategy, including improving and maintaining the program's website, and preparing, disseminating, and publishing materials promoting the program; and (d) monitoring and evaluation (M&E) of the effectiveness of project activities.

B. SIGNIFICANT CHANGES DURING IMPLEMENTATION (IF APPLICABLE)

Revised PDOs and Outcome Targets

19.   Not applicable.

Revised PDO Indicators

20.   Original PDO indicators were retained through the life of the project. In addition, the World Bank team tracked the core sector indicators (CSIs) on biodiversity conservation. This included the indicator 'Areas brought under enhanced biodiversity protection (ha)' that uses management effectiveness and the GEF Management Effectiveness Tracking Tool (METT). In Brazil, the equivalent tool is the Rapid Assessment and Prioritization of Protected Area Management (RAPPAM).

Revised Components

21.   None.

Other Changes

22.   The closing date of the project was extended twice, for a total of 19 months, and from an original closing date of November 30, 2015 to July 31, 2017.

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

23.   Two restructurings were completed. The first restructuring in November 2015, entailed an extension of the closing date from November 30, 2015 to November 30, 2016, increasing the implementation period by 12 months. A second restructuring was approved extending the project closing date by a further 8 months to July 31, 2017, and reallocating the remaining grant proceeds between disbursement categories to (a) allow the grant co-recipients to finalize ongoing project activities and conduct final independent project evaluation, (b) execute remaining grant resources, and (c) achieve the proposed targets and results.

24.   The two closing date extensions were requested to allow time for the project grant resources to be fully disbursed. The reasons for disbursement challenges were twofold: (a) implementation delays

were incurred due to (i) a government transition that gave rise to changes in internal procedures for the creation of new PAs and (ii) the limited availability of PA staff, both of which meant that completion of project activities and the full disbursement of grant resources by the original closing date was not possible, and (b) U.S. dollar-Brazilian Real exchange rate variations during the contract period (2012–2016) resulted in a significant increase in grant resources denominated in Brazilian reais.

25.   Additionally, a reallocation of grant proceeds between disbursement categories was requested as consultancy services originally to be financed from grant proceeds were decided to be covered with other sources of funding of the program. The reallocated grant resources were used for priority activities, including creation of PAs; procurement of goods for PA consolidation; works to improve infrastructure; continuity of biodiversity monitoring activities, among other activities under Subcomponents 1.1, 1.2, 2.2, 2.3, and 2.4; and the final independent technical evaluation and audit.

26.   These changes were consistent with the original Theory of Change.

II. OUTCOME

A. RELEVANCE OF PDOs

Assessment of Relevance of PDOs and Rating

27.   The project objectives remain fully relevant to country's current development priorities and successive World Bank country assistance strategies and are rated **High.** The ARPA program remains fully aligned with the World Bank Group's most recent Country Partnership Framework FY18–23 (Report No.113259-BR), especially Focus Area 3: Inclusive and Sustainable Development, by supporting achievement of Brazil's NDC) land-use targets, and promoting inclusive rural development and protection of vulnerable groups. ARPA´s focus on improving the sustainable management of natural resources in the Amazon is also consistent with the 2016 Systematic Country Diagnostic (SCD) (Report No. 101431-BR) which notes that, if well managed, the country's land, forest, and water resources can yield ample economic returns, provide livelihoods, render environmental services, and buttress Brazil's global reputation.

28.   Project objectives and approaches are also aligned with the World Bank's overarching Biodiversity Roadmap (Report No. 88753-GB) which highlights the contribution of sustainable use and conservation of biodiversity to attaining the corporate goals of ending extreme and promoting shared prosperity, especially at the rural frontier, as well as the need to secure sustainable financing sources for biodiversity conservation efforts. They are also well aligned with the World Bank's Climate Change Action Plan 2016–2020, which emphasizes, among others, climate-smart land use, water, and food security as one of six high-impact action areas. The project also supports two focal areas identified in the World Bank's Forest Action Plan FY16–20, namely, sustainable forestry and forest-smart interventions. The project interventions also directly contribute to the UN Convention on Biological Diversity Strategic Plan for Biodiversity 2011-2020, including the Aichi Biodiversity Targets to reduce the direct pressures on biodiversity and promote sustainable use, improve the status of biodiversity by safeguarding systems, species and genetic diversity, and Strategic enhance the benefits to all from biodiversity and ecosystem services. Additionally, the project supported key elements of what has now become the GEF Amazon Sustainable Landscape (ASL) program, a regional initiative approved by the GEF Council in 2015 which aims to protect globally significant biodiversity and implement policies to foster sustainable land use and restoration of native vegetation cover in Brazil, Colombia and Peru. This program seeks to maintain 73

million ha of forest lands, promote sustainable land management in 52.7 million ha, and support actions that will help reduce 300 million tons of CO_2 equivalent emissions by 2030. Based on the above considerations, the project's objectives were relevant at the time it was approved, and continue to be highly relevant.

B. ACHIEVEMENT OF PDOs (EFFICACY)
Assessment of Achievement of Each Objective/Outcome

29.   One of the most salient features of this ARPA Phase 2 project is that it was designed within the framework of the ARPA program. The ARPA program was conceived as a long-term effort to be implemented in three phases. The long-term goal is the consolidation of the Brazilian Amazon PA system. To adequately assess this project, the life span of the ARPA program becomes a necessary part of the evaluation.

30.   The project was partially successful in achieving its PDO to (a) expand and consolidate the system of PAs in the Amazon region and (b) strengthen mechanisms for its financial sustainability. The overall achievement of the PDO (Efficacy) is Substantial, because progress toward the first outcome is considered moderate, while progress toward the second and third outcome is considered satisfactory.

PDO Outcome 1: Area of new protected areas created in the Brazilian Amazon: 13.5 million ha.

31.   Progress toward the first outcome is Modest. As defined by the abovementioned indicator, the project resulted in establishing 16 new PAs encompassing 3,753,366 ha compared to the set target of 13.5 million. However, as discussed below, this indicator tracked only a subset of PA categories and hence did not fully capture the area brought under protection because of the project's investments.

32.   The process of creating PAs follows a five-stage process: environmental diagnosis, socioeconomic diagnosis, land tenure diagnosis, public consultation, and creation of a decree or law; with all but the last phase under the responsibility of the ARPA project. Once a process of PA creation is initiated, however, there is no guarantee that it will be passed by Congress. Furthermore, there have been circumstances where the technical studies recommend that a given area is declared as a 'strict protection' but after the consultation process, it ends in a different category.

33.   In ARPA Phase 2, the project delivered detailed processes to identify and recognize 48 PAs with significant importance for biological conservation in the Amazon covering 10,507,415 ha. Of these, 5,575,759 ha have been created officially and resulted in decrees establishing 24 new PAs. However, only 16 PAs, covering 3,753,366 ha, were eligible to be counted toward the ARPA targets according to the program guidelines, which only recognize strict protection categories[7] and two sustainable use categories[8] of PAs as defined by the Brazilian legislation. The other types of PAs such as National Forest and Areas for Environmental Protection were not eligible toward the target.

34.   Twenty-four of the proposals for creating new PAs, covering 4,931,656 ha, have been submitted for GOB approval. Given the recent commitment by the GOB to initiate the third phase of ARPA (approved by the World Bank Board and signed on December 19, 2017), there is a positive outlook for these new PAs to be approved in the near future. It is important to recognize that although the final decree is

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[7] Ecological Stations, Biological Reserves, National Parks, Natural Monuments, and Wildlife Reserves.
[8] Extractive Reserves and Sustainable Development Reserves.

fundamental for completing the creation process, the lengthy process of identifying, carrying out the scientific and socioeconomic studies, and consulting represents a very large investment and a significant benchmark toward the end target.

35.   After the great success of PA creation in ARPA Phase 1, in which initial targets were surpassed, Phase 2 encountered more challenges due to the changes in the economic and political conditions present during implementation, which created a level of uncertainty that directly affected this indicator. The midterm evaluation recognized the challenges posed by the new political environment but the World Bank team purposefully chose not to restructure the project to modify this indicator, agreeing with donors and Government partners that it was important to maintain the integrity of the ARPA program.

PDO Outcome 2: Area of protected areas consolidated in the Brazilian Amazon: 32 million ha.

36.   Progress toward the second outcome is High. The project surpassed its target by 106 percent, successfully 'consolidating' over 33.9 million ha of PAs (70 PAs) compared to the target of 32 million ha.

37.   A consolidated PA is one in which all necessary material, financial, and human resources need to be in place to ensure that their protected status is respected and land-use restrictions are enforced. ARPA has implemented a sophisticated system for the consolidation of PAs that is divided into Stages 1 and 2, with each level having an extensive list of actions to be performed for a PA to obtain consolidation status at that level (see annex 8). The optimal level of consolidation will vary for each PA but aims to ensure that all PAs are secure, more specifically, ensuring adequate levels of human and financial resources, infrastructure, support of local communities, technical capacity for strategic planning, and ecological information for the long-term conservation of PAs.

38.   Under the project, 30,053,550 ha (61 PAs) have been consolidated in Stage 1 and 3,835,278 ha (9 PAs) in Stage 2. The project also developed and tested six integrated PA Management Models surpassing the original target of three models for this output. Additionally, 30 community-level subprojects were implemented in two distinct modalities: Sustainable Development Action Plans (PADS) and Indigenous Peoples Action Plan (PPI), all in accordance with the Indigenous Peoples Policy Framework (IPPF) and Resettlement Policy Framework (RPF). The 23 PADS and 7 PPIs implemented during this phase were evaluated as highly successful according to beneficiary surveys. This approach constitutes an important pillar of the ARPA program's social and environmental safeguards mechanisms. The original target for this output was 20 community-level subprojects.

39.   The High rating of efficacy of this outcome is further reinforced by findings of an independent evaluation of management effectives conducted by World Wide Fund For Nature (WWF)-Brazil using the RAPPAM methodology[9]. This evaluation compared the management effectiveness of ARPA and non-ARPA PA (counterfactual) in 2005, 2010, and 2015, across the following 10 key indicators: management effectiveness, planning, financial resources, human resources, infrastructure, communication and information, management planning, decision making, research, and M&E. This longitudinal analysis demonstrated significant positive impacts of ARPA PAs for the indicators of management effectiveness, financial resources, infrastructure, decision making, and management planning when compared with non-ARPA PAs in the same region (see annex 9 for details).

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[9] WWF-Brazil. 2017. *O impacto do Programa ARPA na efetividade de gestão das UCs federais da Amazônia*. Brasilia

PDO Outcome 3: Capitalization of the Protected Areas Fund (FAP): 150 percent increase over the level of current funds.

40.   Progress toward the third outcome is High. The project surpassed its initial targets by 173 percent, successfully securing over US$94.1 million in additional capital resulting in a total capitalization of US$121.3 million for the Trust Fund. The 'end target' originally proposed for this indicator should have been stated on a cumulative basis, by adding the baseline of US$27.2 million to the expected capitalization of US$42.8 million, to a total of US$70.0 million. Based on this rationale, US$121.1 million achieved represents 173 percent of the proposed target.

41.   This success is related to an innovative change in fund-raising strategy during ARPA 2 when donors and the Government jointly decided to convert the original endowment fund, FAP, into a 25-year sinking fund. This shift included an agreement to front-load donor funds while simultaneously significantly increasing Government budgetary allocations over the 25-year period, creating the 'ARPA for Life Initiative' and the 'Transition Fund (FT)". This landmark agreement was signed in 2012 during the Rio +20 conference. The underlying strategic thinking was to guarantee a gradual transition from donor funds to Government budgetary resources to ensure the long-term sustainability of the ARPA PAs and reduce dependency on donor resources.

42.   In parallel, other mechanisms have been tested and are under implementation for generating additional revenue flows for PA financing. Emphasis was given to establishing state-level financial mechanisms with a view to ensuring sustainability of the respective PA systems. These included studies of environmental compensation mechanisms for the states of Pará, Rondônia, Acre, Amazonas, and Amapá. A series of 'Sustainability Dialogues' were convened throughout Phase 2 to seek more local involvement in financial sustainability mechanisms. Additionally, a model for a new governance and financing strategy for the Lower Negro River Mosaic was developed and a study of the possibilities of creating environmental tax credits for the financing of conservation work was undertaken. The third phase of the ARPA program establishes a total capitalization goal of US$215 million by 2023 based on realistic financial projections and budget increase scenarios

Justification of Overall Efficacy Rating

43.   The project has achieved its overarching objectives of securing large-scale biodiversity conservation in the Brazilian Amazon and contributing to the reduction of GHG emissions through reduced rates of deforestation in the region. The project operated under a broad Theory of Change that postulated that formally established PAs, when they are well funded and managed, are an effective method for conserving biodiversity. Based on the fact that one outcomes was rated Modest, while two others were rated High, the rating of the overall efficacy is **Substantial**.

C. EFFICIENCY
Assessment of Efficiency and Rating

44.   Instead of a traditional economic cost benefit analysis, a GEF incremental cost analysis was completed during project preparation. This analysis identified significant anticipated benefits from the project (see annex 4), reinforced by an analysis of ARPA Phase 1 (completed at the time of appraisal) which indicated an internal rate of return (IRR) of 22 percent based on avoided carbon emission benefits alone. A second financial, economic, and incremental cost analysis for the Brazil Amazon Sustainable

Landscapes (Br-ASL) Project, which incorporates a third phase of the ARPA program, shows that the ARPA program is economically viable even when only simulated over the life of the project. The total cost of the Br-ASL Project is US$60.3 million, including both ARPA Phase 3 (US$30 million) and landscape approaches to sustainable forest managed outside of PAs (US$30.3 million), with the analysis concluding that the benefits arising from ARPA Phase 3 activities alone surpassed the project costs in their entirety. The analysis for ARPA Phase 1 and Phase 3 both conclude that investments in sustainable natural resource management inside and outside PAs can significantly contribute to the economic development ambitions of a developing country with a large forest area such as Brazil and clearly support the conclusion that ARPA Phase 2's financial and economic efficiency was rated Substantial.

45.   Additionally, the project's operational design and implementation built upon the overarching ARPA program. This complex and large-scale program operates over an area of 5.5 million km^2, including 9 states and 114 PAs. To facilitate this, an innovative system, comprising 'Cerebro' (a centralized financial management and procurement system) and 'Contas Vinculadas' (local PA accounts), was established under ARPA Phase 1, and subsequently enhanced under ARPA Phase 2. These systems allow for local PA management needs for goods and services to be processed at the central level. Efficiency of the operational process was increased significantly under ARPA Phase 2, particularly due to the improvements introduced in the Cerebro 2.0 system. The upgraded system has an user interface mechanism by which ARPA implementers can input information and view the status of their requests and currently (2017) has over 800 active users, processing over 1 million requests per year.

46.   Finally, although two restructurings were required these were principally due to factors beyond the project's control (government transition and currency exchange rate).

47.   Given the substantial public and private benefits derived from the biodiversity conservation, avoided carbon emissions, and institutional capacity building, the project's rating for overall efficiency is **Modest**.

D. JUSTIFICATION OF OVERALL OUTCOME RATING

48   Based on the ongoing relevance of project objectives, the achievement of all but one of the PDO outcomes under efficacy, including intermediate results indicators, and the significantly positive short and long-term impacts for efficiency the project is rated as Moderately Satisfactory**.**

E. OTHER OUTCOMES AND IMPACTS (IF ANY)

Institutional Strengthening

49   The project brought together all key institutions at federal and state level dealing with PA management and secured the largest funding contribution that the country has received for biodiversity conservation and PA management. The project was instrumental in bringing civil servants together with local community leaders and indigenous groups through organization of many workshops and training events for capacity building and improved cooperation. Additionally, ARPA Phase 2 was one of the main supporting instruments for consolidating the newly created (2012) PA agency, Chico Mendes Institute for the Conservation of Biodiversity (ICMBio). Lastly, the new funding approach, under the ARPA for Life Initiative, was adopted at the highest level through a Presidential Decree 8.505/2015, reinforcing MMA and its related agencies capacity to implement the program. Article 2 of this decree states: "The Federal

Government committed through this decree to develop mechanisms for the gradual provision of resources to attend to the necessities of the implementation of federal protected areas of the ARPA Program."

Mobilizing Private Sector Financing

50   During the project, the ARPA for Life Initiative was launched, transforming the FAP Endowment Fund into a 25-year Transition Fund (FT), a sinking fund that would gradually spend down its capital as PAs were consolidated and graduated from the program to become an integral part of SNUC. The fund was controlled by the newly established Transition Fund Committee (FTC), comprising six representatives of donors and two representatives of the Brazilian Federal Government. The Brazilian Fund for Biodiversity (FUNBIO) was designated as the manager of the FT. The implementation of the FT, beginning in 2014, inaugurated the operations of Phase 3 of ARPA, even though Phase 2 would not expire until 2017. A capitalization goal of US$215 million was established and the first deposit into the FT was the 2014 transfer of the total amount of FAP funds. Fundraising for the FT began shortly after Rio+20 and has garnered significant financial support from both prior and new donors. At the end of Phase 2, the FT has over US$123 million and is 58 percent on the way toward its capitalization goal. Approximately 90 percent of the FT capital comprising funds drawn from the traditional donor community, namely GEF, bilaterals, and private foundations, but increasingly funds are being contributed by private sector companies, with approximately 10 percent coming from Natura and Boticario (Brazilian) and Anglo-American (international).

Empowerment of Local Communities

51.   Proponents of the strict PAs that do not allow for human presence have often been at odds with traditional communities that practice sustainable extraction of natural resources in PAs. One of the merits of the ARPA program is the incorporation of both strict protection and sustainable-use PAs within a single administrative system that has a broad set of common guidelines. This approach has brought local communities directly into the PA management process, both through the establishment of PA management councils and through community-level subprojects designed to strengthen sustainable resource use. This hybrid approach provided benefits to both conservationists and local communities in which they are working collaboratively to conserve and sustainably use biodiversity.

III. KEY FACTORS THAT AFFECTED IMPLEMENTATION AND OUTCOME

A. KEY FACTORS DURING PREPARATION

52.   The objectives in the PDO were realistic, clear, and at the right level of ambition given the institutional capacity of the Government as demonstrated by the excellent results of ARPA Phase 1. The set of PDO and intermediate results indicators were appropriately selected to reflect actions that would lead to the achievement of outcomes. The targets were set realistically in the context of ARPA Phase 1 but turned out to be optimistic in the political context which changed dramatically during project implementation. The project's design was structured logically among the four complementary components with investments directed to the principal outcome indicators, as well as harmonizing with other project financiers such as *Kreditanstalt Fur Wiederaufbau* (KfW), the Gordon and Betty Moore Foundation, and National Economic and Social Development Bank. Design built on Phase 1 achievements refined and strengthened financial execution of funds, as well as M&E arrangements. Most of the

identified risks were manageable because of the prior experience of the Project Coordination Unit (PCU) in World Bank procedures and projects, and thus Phase 2 was largely a replication of Phase 1 operational procedures.

53.   The estimate of the long-term consolidation and maintenance costs of ARPA program PAs prepared during Phase 1 was refined under Phase 2, based upon which the Project Finance for Permanence (PFP) approach was devised to replace the endowment fund as the long-term sustainable financing strategy for the ARPA PA system. This arrangement, its governance, conditions and functioning, became known as the 'ARPA for Life Initiative' which created the FT, a 25-year sinking fund. This shift included an agreement to front-load donor funds while simultaneously significantly increasing Government budgetary allocations over the 25-year period. This experience and other studies financed by the program to diversify sources of long-term funding for PAs, such as environmental compensation, conversion of tax credits, and so on have been captured in a book published by the program.[10] The ARPA long-term financing model has been adopted by PA programs in Colombia and Peru.

54.   The monitoring plan was well developed. An M&E Unit was created in Phase 1 within the MMA to implement activities independent of the PCU. The ARPA program consolidated many of its planning and monitoring instruments during Phase 2 and refined others. The Protected Areas Evaluation Tool (FAUC) provides annually updated information on the state of consolidation of each PA and serves as the linchpin for planning process and the development of biennial PA operating plans. Multiple and timely reporting processes were designed to provide for a consistent, structured overview of program performance. The varied reporting mechanisms—Biennial Technical-Financial reports, Biannual World Bank Mission supervision reports, midterm evaluation, and detailed minutes from the Program Committee and FTC meetings—provided for an adequate accounting of -program activities.

55.   Project stakeholders were well identified, with MMA, ICMBio, and the state PA agencies being the most important due to their responsibilities for managing all PAs in Brazil. Additionally, the inclusion of local communities and indigenous peoples' groups was important for the successful implementation of the project as they are key users of the PA resources.

56.   The assessment of risks during preparation was accurate given the prior experience of the executing agency, FUNBIO, and government staff involved in the project. However, the likelihood of significant increases in political risk was not foreseen at preparation and particularly affected the formal approval of the proposed new PAs.

57.   The project's readiness for implementation was good. Design and implementation arrangements built upon those established under ARPA Phase 1 and were largely operational before effectiveness.

B. KEY FACTORS DURING IMPLEMENTATION

Factors Subject to Government and/or Implementing Entities Control

58.   The GOB showed strong commitment to ARPA Phase 2 implementation as well as to the ARPA for Life Initiative, increasing its commitments to PA conservation and enacting several policies that favored legalization of land tenure and creation of PAs. Additionally, although political difficulties were

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[10] Geluda, et al. 2015. *Desvendando a compensação ambiental: aspectos jurídicos, operacionais e financeiros*. Rio de Janeiro, FUNBIO. https://www.funbio.org.br/wp-content/uploads/2017/08/Desvendando-a-compensação-Ambiental-aspectos-jur%C3%ADdicos-operacionais-e-financeiros.pdf.

encountered in the legislative branch of government compared with the final approval of proposed new PAs after the government transition in 2014, the executive and judiciary branches of government have consistently shown strong commitment to project implementation.

59.   The PCU staff had worked with ARPA Phase 1 and World Bank procedures in the past and were knowledgeable. There was a high level of commitment and leadership demonstrated by the project team and a constructive collaboration that was developed with institutional partners and local stakeholders. This led to a smooth project implementation and few fiduciary issues as evidenced in the Implementation Status and Results Reports (ISRs) and a mostly Satisfactory rating throughout implementation.

60.   Understaffing of government agencies responsible for implementing ARPA continues to affect the program, requiring agencies to use consultants and interns to assist them in performing their numerous tasks. The quality of the existing staff, however, is high, and the team is composed of an array of dedicated and talented individuals. Training has been provided in a series of technical and managerial areas with positive results. Counterpart contributions have met their goals at the federal level but have had divergent results among the seven state environmental agencies.

Factors Subject to World Bank Control

61.   The project benefitted from the presence of the task team leader (TTL) (the same throughout) and several key team members who have been with the ARPA program since Phase 1, guaranteeing continuity. The team was based both in Brasilia and Washington, D.C., allowing for a closer supervision process. Any issues that arose were addressed quickly and promptly and were reflected in the ISRs. No serious management issues were raised.

62.   Although recognizing the risks to creation of new PAs associated with the political crisis mentioned above, the World Bank team deliberately chose not to restructure the first project outcome indicator, agreeing with donors and Government partners that it was important to maintain the integrity and level of ambition of the ARPA program both for long-term global and national biodiversity conservation outcomes and for attaining financial sustainability goals.

Factors Outside the Control of Government and/or Implementing Entities

63.   Fluctuations in the U.S. dollar-Brazilian real exchange rate during the project implementation period (2012–2017) significantly increased the amount of grant resources denominated in Brazilian reais, implying changes in the disbursement time frame. Consequently, two closing date extensions were granted. The first restructuring in November 2015 entailed an extension of the closing date from November 30, 2015 to November 30, 2016, increasing the implementation period by 12 months. A second restructuring was approved extending the project closing date by a further 8 months to July 31, 2017, and reallocating the remaining grant proceeds between disbursement categories to (a) allow the grant co-recipients to finalize ongoing project activities and conduct final independent project evaluation, (b) execute remaining grant resources, and (c) achieve the proposed targets and results.

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

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

M&E Design

64.   The ARPA Phase 2 M&E system design is found adequate. A set of PDO and intermediate results indicators were identified to track progress toward targets. Each PDO objective had a dedicated indicator and a set of Intermediate indicators that reflected progress. Baselines were established based on the results of ARPA Phase 1.

65.   In addition to the regular project reporting, it was agreed at design stage that the FAUC, which is based on the GEF METT, would be used annually to report on the status of consolidation of each PA and serve as the linchpin for the planning process and the development of biennial PA operating plans.

M&E Implementation

66.   The Results Framework indicators were tracked regularly and updates provided by the Project Implementation Unit (PIU) on every supervision mission. At the last ISR stage, differences in interpretation regarding numbers of the baseline when compared to the wording of the indicators were identified and corrected. This did not affect the project impact on the ground. Indicators were also complemented by information collected through the WWF RAPPAM Tool at a system-wide level and the GEF METT at the PA level. All PAs are using the METT to track their management effectiveness. The PIU also maintained a full-time M&E specialist for data collection, tracking, and monitoring progress of the Results Framework.

67.   The ARPA program developed a systematic reporting system providing regular data regarding all program activities. A technical-financial report was presented every two years on progress in each of the program's four components as well as financial execution. Biannual missions generated regular progress Reports that updated the status of World Bank project indicators. A midterm external evaluation was conducted in 2014–2015 that presented a specific set of recommendations for improving operations for the remaining years of Phase 2. With the establishment of the FT, a new set of reporting requirements was established to activate the disbursement mechanisms of the FT. A system of seven distinct reports (labeled A, B, C, D E, F, and G) was devised. Due to the high degree of overlapping information contained in each of these reports, a biennial system for presentation of these reports was approved by the FTC in 2017.

M&E Utilization

68.   The PIU and World Bank team regularly used the indicators to manage the project and track progress toward its objectives. The M&E data was essential to inform project management and the program's decision-making processes. For example, the FT operation is based on the results achieved by the individual PA. The decision on funding made by the FT's Board is based on achievement of established consolidation benchmarks (annex 8) for different types of PAs. The annual application of the FAUC which reports on the status of consolidation of each PA is used to define the amount of funding allocated to the biennial PA operating plans.

69.   In addition to monitoring the results framework indicators, the project implemented a comprehensive system of biodiversity monitoring that is currently implemented in 45 ARPA PAs with basic

monitoring protocols established for forest cover, butterflies, mammals, and birds. It is expected that by 2019, all PAs under ARPA will be implementing these protocols. This biodiversity monitoring effort is already generating massive amounts of data which are being used by researchers and will provide new insights into Amazon biodiversity. The program is also testing innovative monitoring technologies for data collection and processing, including the use of self-learning software which are expected to serve as the backbone for the development of an advanced biodiversity monitoring system. The FT performance and operations were also subject to regular monitoring under the project, with regular reports on endowment status and its related asset management. The resultant transparency and clarity contributed significantly to donor confidence and the fund-raising success demonstrated under Outcome 3.

Justification of Overall Rating of Quality of M&E

70.   The rating for the quality of the M&E system is **Substantial**. Despite some minor shortcomings such as definition of the baselines, the design, implementation, and utilization of the system was sufficient to assess the achievement of the objectives and the links in the results chain.

B. ENVIRONMENTAL, SOCIAL, AND FIDUCIARY COMPLIANCE

71.   Project safeguard and fiduciary compliance was Satisfactory throughout the project. The project was rated as Category B project, given that its impact was limited in scope, localized, temporary, and reversible. The borrower's safeguard capacity was considered Satisfactory by the project safeguards team.

72.   Regarding environmental and social safeguards compliance, the project was rated as Category B. The following safeguard policies were triggered: Environmental Assessment (OP 4.01), Natural Habitats (OP 4.04), Forests (OP/BP 4.36), Physical Cultural Resources (OP 4.11), Indigenous Peoples (OP/BP 4.10), and Involuntary Resettlement (OP/BP 4.12). An Environmental Assessment and Environmental Management Framework (ESMF), an IPPF, and an RPF were prepared, consulted, and disclosed by the recipient during the preparation phase. Project implementation complied fully with the overall project safeguard framework and with federal and state laws. Specifically, with respect to social safeguards, no involuntary resettlement was incurred because of ARPA implementation. In cases where there have been some restrictions of access to natural resources by neighboring communities, these groups have been brought into the management councils of the PAs where these issues are addressed. In addition, the participation of indigenous peoples and other local communities in ARPA has occurred through officially sanctioned mechanisms, such as the PPIs, and the PADS. In Phase 3, ARPA will continue to expand spaces for interaction and support of local communities to strengthen long-term conservation partnerships.

73.   A Financial Management Assessment for the project was undertaken by FUNBIO and was considered Satisfactory, based on FUNBIO´s adequate staffing, accounting, and financial management systems. Expenditure and ex post procurement reviews were regularly carried out by the World Bank's procurement and financial management specialists. Issues raised by these reviews were clarified and efficiently resolved. The project has complied with the World Bank's policies and guidelines. The project team at FUNBIO maintained detailed accounts throughout implementation, which were submitted periodically to the World Bank. The procurement capacity was rated as Moderately Satisfactory, during the 11th supervision period. Training and additional assistance from the World Bank's team was provided immediately and the procurement performance improved and was rated as Satisfactory by project closing. Moreover, the procurement assessment conducted as part of the preparation of the new project GEF 6 (ASL project) also indicated a Satisfactory rating. With the establishment of the FTC, a new set of

reporting requirements was established. The direct input of data from the annual operating plans (POA) into the Cérebro system represents another important refinement of ARPA planning and monitoring process, which occurred for the first time in 2017, because it effectively integrated the ARPA Monitoring and Management System into the Cérebro system and provided the program with a unified operating system.

74.   In sum, fiduciary compliance was rated as Satisfactory throughout the life of the project. All IFRs were submitted on time and all external financial audits were found to be satisfactory. No audits were overdue. The FT adopted a series of standardized financial and technical reports to meet the requirements of its donors, ensuring greater transparency and efficiency. The FT adopted FUNBIO´s procurement rules, detailed in FUNBIO's Procurement Manual, for all acquisitions and contracts, streamlining the FT's operations. Decentralized execution was conducted through *conta vinculadas*, a bank account under FUNBIO's name and managed by PA staff, to cover small expenses. FUNBIO reviewed reported expenses and monitored (through the Cérebro system and field visits) and approved new requests for advances of grant funds. A copy of all supporting documentation was maintained.

C. BANK PERFORMANCE

Quality at Entry

75.   The World Bank was requested by the GOB to continue to expand the ARPA program through Phase 2, maintaining the previous institutional, monitoring, and implementation arrangements. As stated in the Project Appraisal Document, this project built on the achievements of the Pilot program to conserve the Brazilian rain forest (PPG7) and earlier GEF operations in Brazil. As part of the CPS, the World Bank developed the Amazon Partnership Framework (APF). The APF aimed to achieve both local and global environmental benefits based on the World Bank's experience and capacity and the full objectives of the Government's Sustainable Amazon Program. In addition, the institutional arrangements used by ARPA Phase 1, with a public-private partnership, in which the Government carried out most of the technical execution while the financial management and procurement activities were carried out by FUNBIO, had proven to be effective and were replicated. The World Bank team evaluated and supported the following capacity-building actions: (a) strengthening the government teams, (b) establishing greater financial monitoring and reporting capacity, and (c) implementing more flexible procurement rules in FUNBIO.

76.   Additionally, the World Bank preparation team, building on experience gained during ARPA Phase 1, ensured that project activities supported local populations, including targeted support for sustainable action plans and support for structured, local participation in decision making related to PAs (formal participation PA management councils). Poverty, gender, and social development aspects were also considered during preparation, particularly aspects related to securing community rights to land and resource access, contributing to formalizing land tenure, considering indigenous peoples interests, and providing opportunities for income generation associated with the PAs.

Quality of Supervision

77.   Regular supervision missions were undertaken twice a year to review progress and identify any issues. Supervision was enhanced by the continuity of the ARPA Phase 1 TTL with support from the fiduciary team both based in Brasilia. The consistent presence of country office-based staff enabled fast responsiveness to the client's needs that contributed greatly to successful project implementation, as did

maintaining the same project leadership and team composition throughout the project´s lifetime.

78.   ISRs provided a candid review of project implementation and assessed whether the project was achieving the PDOs. ISRs were completed on time and any management issues raised were addressed promptly by the team. Social and environmental safeguards were reviewed regularly throughout implementation. The midterm evaluation identified that the growing political crisis might affect the creation of new PAs; however, as discussed earlier, a decision was taken in consultation with the Government and the donors to maintain the project's goal and not to change the indicator targets.

79.   The World Bank team also played an active role in securing new GEF resources in support of the third phase of the ARPA program which is now part of the Br-ASL Project (P158000), signed on December 19, 2017, and to shortly become effective. This US$60.33 million GEF grant will provide an additional US$30 million to the ARPA program, which will contribute toward attainment of the US$215 million capitalization target of the FT.

Justification of Overall Rating of Bank Performance

80.   Based on the quality at entry and supervision, overall World Bank performance is rated as Satisfactory.

D. RISK TO DEVELOPMENT OUTCOME

81.   The policy environment continues to be less favorable for creation of new PAs in the Amazon. In May 2017, the Brazilian Congress, for the first time since the 1988 Constitution, approved the reduction and degazetting of federal PAs. Although this was vetoed by the President on June 19, 2017, under pressure from national and international civil society, this risk persists.

82.   Another factor that has emerged since the establishment of these goals was the passing of Constitutional Amendment 95/2016 which freezes federal spending for the next 20 years and requires that any increases in budget line items—in this case ARPA PAs—be accompanied by an equal amount of budget cuts from other line items, thus making the federal budget a zero-sum game for the next two decades. This act is a setback to the Government's commitment to yearly budget increases for ARPA and poses a future risk to ARPA's sustainability that will need to be closely tracked. The expectation is that if this risk materializes, the ARPA FT could somehow develop certain criteria to support critical activities in the PAs under budgetary constraints and play an important role in fundraising from private sector and bilateral donors to finance any gaps till the situation improves.

83.   It is important to note that ARPA's long-term vision and strategy was designed to mitigate these types of concerns with firm donor commitments, cohesion of the management teams at the Government and FUNBIO and the growing international recognition of the program that ensures a broader constituency in support of its goals.

84.   Based on the above factors, the risk to development outcomes is rated as Substantial.

V. LESSONS AND RECOMMENDATIONS

85.   **Adaptive management approach is critical for the management of large PAs or network of PAs**

because it allows development of customized instruments for long-term planning and implementation. Over its first 15 years of operation, ARPA developed different types of arrangements and methodological tools that were designed to address budgetary, institutional, and political changes. Key adaptive management changes made by ARPA include extending the time frame of Phase 3 to 25 years, the transformation of the FAP endowment fund into the sinking FT, the establishment of a new co-governance institutional arrangement between the ARPA Program Committee and the FTC, and the development of consolidation plans to accelerate the PA consolidation process. This adaptive management approach was made possible because of the long-term time frame of the program which allowed for experimentation to take place and through the consistent, long-term investments made by the GOB and donors.

86.   **Systematic conservation planning** can be implemented at a regional level using multiple, interlinked methodological tools that are applied gradually and sequentially over the long term. The creation, implementation, and consolidation of PAs is a highly complex process that involves many different steps. ARPA introduced into the Brazilian SNUC system a multifaceted approach in which each step had a specific methodology and technical support system. The creation of PAs, for example, followed a sequential five-part program involving studies and evaluations that led to the selection and establishment of those PAs that were most appropriate for the conservation of Amazonian biodiversity. Once created, the PAs followed an extensive set of guidelines and requirements that would provide for their effective management and consolidation, first at Stage 1 (basic) and then at Stage 2 (advanced) consolidation. This process was monitored annually through the systemwide FAUC that not only identified strong and weak points but also served as a guide for the biennial planning and budgeting process. The development and application of these and other tools was supplemented by ongoing training and capacity building. In this way, ARPA avoided a haphazard, piecemeal approach to PAs and could consolidate systematic conservation planning.

87.   **Cost modelling of PA management and of conservation fund dynamics are essential tools for long-term conservation planning.** Once the systemic conservation planning process is in place, policy makers can more adequately calculate the overall costs of effective PA management. ARPA, with the help of highly trained consultants, conducted extensive cost modelling on Amazonian PAs to establish a more accurate overall budget for the program. Then, it proceeded to the next step and conducted cost modelling for the dynamics of a long-term conservation fund. When considered together, these calculations provided the necessary information for the establishment of the FT: projecting its total capitalization needs, establishing an adequate time limit for the sinking fund, and estimating the amount of yearly increases in the GOB's PA budget that would be needed to achieve total incorporation of the ARPA program.

88.   **Governance models are central to the public-private partnerships** and can provide a viable, long-term arrangement for the conservation of PAs. The public-private partnership between MMA and FUNBIO was a highly innovative arrangement when it was launched in 2002. After the successful completion of Phase 1, however, it ran into some interinstitutional tensions. A new co-governance arrangement was established and the private-public partnership not only survived but reestablished a robust institutional framework for the remaining 25 years of the program. The maintenance of this public-private partnership over the 15 years of the life of the program, including weathering a time of interinstitutional difficulties, shows the resilience of the arrangement and can provide a model for other such arrangements. It needs to be stated, however, that this result was only possible due to the highly skilled work of many dedicated policy makers and technicians who believed in the ARPA program and were willing to put in the extra effort to make it a success.

89.	**Financial sustainability lessons** from ARPA Phases 1 and 2 led to the elaboration of a PFP approach for ARPA ('ARPA for Life Initiative'). Implemented through the establishment of the FT, it concentrates organizational and financial resources in support of a large-scale, long-term conservation program. The ARPA FT seeks to gradually increase resources provided by federal and state governments while decreasing donor-based investments, so that, after 25 years, these governments will finance 100 percent of ARPA costs without any support from the FT itself or any other donor funds.

90.	**Traditional income-generation activities for PAs**—ecotourism, concession agreements, and entrance fees— do not offer a viable option for most Amazonian PAs. During the early years of ARPA, there were a host of efforts to implant a series of income-generation activities at the individual PA level that had been successful in other countries. After many setbacks, the ARPA program arrived at the conclusion that this model, which included ecotourism, concession agreements, and park entrance fees, was not well adapted to Amazonian PAs due to their remoteness, the lack of an adequate transportation infrastructure, health and sanitation concerns, and high costs. Even though this model was to be experimented with in Phase 2, it was soon abandoned in favor of other revenue-generating mechanisms such as efforts to procure compensation monies from large-scale development projects. In sum, each region and nation need to find the most locally appropriate mechanisms for financing its PAs.

ANNEX 1. RESULTS FRAMEWORK AND KEY OUTPUTS

A. RESULTS INDICATORS

A.1 PDO Indicators

Objective/Outcome:

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
New protected areas created in Amazon.	Hectare	24,000,000.00	13,500,000.00		3,753,366.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target was partially achieved (28 percent). A total of 3,753,366 ha of new PAs were created since 2012 in the Brazilian Amazon. No newly created PAs overlapped with indigenous or *quilombolas* lands, and no physical resettlement of local population was required. The project supported elaboration of proposals for 48 new PAs covering 10,507,415 ha. Of these, 24 have been officially created, covering 5,575,759 ha. However, only a subset of these are eligible to be counted towards the target as defined by the project indicator. So, only 16 PAs can be accounted for, encompassing 3,753,366 ha. Additionally, the remaining 24 proposals for new PAs covering 4,931,656 ha have been submitted for GOB approval and may be designated as PAs in the near future. Based on the wording of the indicator, the baseline should have been set at zero, to account for the accrual of new PAs created under the life of the current project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Existing protected areas consolidated.	Hectares	8,500,000.00	32,000,000.00		33,888,828.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (106 percent). Of the 114 PAs supported by the ARPA program, 30,053,550 ha (61 PAs) were consolidated in Stage 1 and 3,835,278 ha (9 PAs) in Stage 2. The definition of PA consolidation includes adequate levels of human and financial resources, infrastructure, support of local communities, technical capacity for strategic planning, and ecological information for the long-term conservation of PAs. The activities financed for consolidation of PAs include, among others, preparation and implementation of PA management plans, PA infrastructure, equipment, surveillance and control plans, social participation in PA councils, and biodiversity monitoring. Based on the wording of the indicator, the baseline should have been set at zero, to account for the accrual of existing PAs consolidated during the life of the current project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
ARPA endowment fund (FAP) increased by 150 percent above its current level of funds Target: US$42.8 million	US$	27,200,000.00	42,800,000.00		121,301,000.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (173 percent). The capitalization of the FAP, currently called FT, increased from US$27.2 million in 2012 to US$121.3 million during the life of the current project, more than quadrupling the original baseline value. The 'end target' originally proposed for this indicator should have been stated on a cumulative basis, by adding the baseline of US$27.2 million to the expected capitalization of US$42.8 million, to a total of US$70.0 million. Based on this rationale, the US$121.1 million achieved represents 173 percent of the proposed target.

A.2 Intermediate Results Indicators

Component: 1: Creation of new protected areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Area studied for the creation of PAs	Hectares	5,000,000.00	30,000,000.00		30,000,000.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target achieved (100 percent). Approximately 30 million ha of areas within the Amazon region were

independently studied and/or assessed by academia and independent research institutions for potential creation of new PAs. The studies include analysis of integrity of ecosystems, presence of local communities and indigenous peoples, and land tenure status. Based on the wording of the indicator, the baseline should have been set at zero, to account for the accrual of area studied during the life of the current project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Map of Priority Areas updated	Date of Map Update	30-Dec-2007	31-Jul-2017		30-May-2016
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target partially achieved (70 percent). The map of priority areas is being updated, based on evaluation of the representation of the current system of PAs, public areas without destination, endangered species, traditional communities, and indigenous peoples' areas, adopting the Systematic Conservation Planning methodology.

Component: 2: Consolidation of protected areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Consolidation of 23 million hectares in consolidation stage 1 and 9 million hectares in stage 2	Number of hectares of PAs consolidated in each consolidation stage	8,500,000.00	32,000,000.00		38,888,828.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (106 percent). Of the 114 PAs currently supported by the ARPA program, 30,053,550 ha (61 PAs) have been consolidated in Stage 1 and 3,835,278 ha (9 PAs) in Stage 2. The definition of the consolidation Stages 1 and 2 is based on a series of technical criteria related to preparation and implementation of PA management plans, PA infrastructure, equipment, surveillance and control plans, social participation in PA councils, and biodiversity monitoring. Based on the wording of the indicator, the baseline should have been set at zero, to account for

the accrual of existing PAs consolidated in Stages 1 and 2 during the life of the current project.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
At least three PA management models tested and described in case studies	Number of PA management models tested	0.00	3.00		7.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (233 percent). The project tested seven innovative models for PA management adapted for the particularities of the Brazilian Amazon region, five at the federal level and two at the state level. The models are focused on integrated participatory management, including mosaics of different types of PAs and jurisdictional levels with a view to increasing complementarity and management efficiency. These models have been field tested, with the more successful approaches being scaling up and adopted elsewhere including in other Brazilian biomes such as the Cerrado (for example, mosaic approach) and other Amazonian countries such as Colombia and Peru.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
At least 20 PA Action Plans implemented with communities and indigenous peoples in accordance with IPPF and Process Framework	Number of action plans	0.00	20.00		23.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (115 percent). The project supported the development and implementation of 23 action plans with traditional communities and indigenous peoples in and around PAs. These action plans focus on increasing capacity of traditional communities and indigenous peoples to participate in PA management and to improve the sustainability of their natural resource use. Actions plans include specific activities, indicators, and budgets, all of which are monitored to ensure the achievement of results. These plans were key project instruments for safeguard implementation. Seven additional new action plans are under preparation and will be financed with resources from the FT.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Consolidated Capacity Building Plan prepared and at least 80 percent of activities successfully executed	Activities included in the capacity building plan	0.00	80.00		100.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target surpassed (125 percent). The project's capacity-building plan was prepared and initiated implementation in 2014. The original capacity-building plan was fully implemented. To date, 692 PA staff (federal and state level) have been trained in technical and administrative capacity.

Component: 3. Long term sustainability of ARPA protected areas

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
FAP operational and making annual disbursements to selected PAs	Total amount (US$) disbursed per year	0	100 percent of FAP's approved budget		100 percent of annual disbursements
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target achieved (100 percent). The FAP, currently named FT, is fully operational with its Board meeting regularly to review fund investment performance and oversee disbursement of fund revenues to PAs. The fund has been capitalized with US$120 million, which based on the associated annual revenues is being disbursed to the program's 114 PAs (65 federal and 49 state) in accordance with the level conservation priority set in the Conservation and Investment Strategy (ECI) and the management performance as measured by the FAUC in accordance with the procedures described in the FT Operational Manual.

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

			Target	Completion
6 strategic studies and 4 PA financial sustainability plans implemented	Number of studies developed and financial plans implemented	0.00	6.00	10.00
		27-Jan-2012	31-Jul-2017	06-Jun-2017

Comments (achievements against targets): Target surpassed (167 percent). The project supported four financial sustainability plans by developing financial mechanisms for implementation of environmental compensation in the States of Pará, Rondônia, Amazonas, and Amapá. Environmental compensation in Brazil refers to a system of biodiversity offsets, where private companies pay compensation for mitigation of project impacts as part of the environmental licensing process. While by law these funds are to be allocated to PA management, in practice this has been challenging. The project has successfully supported activities to help overcome the barriers to implementation of this law at the state level. Additionally, it supported the development of new strategies of conservation financing involving the Amazon private sector (Manaus free trade zone) with a view to identifying new and/or strengthening existing mechanisms for ensuring long term financing of PA consolidation and maintenance. These mechanisms aim to complement the ongoing financing of specific PAs currently provided through government budget and the FT. The project also supported six strategic studies leading to (a) publication of the book 'Unveiling the environmental compensation: legal, operational, and financial aspects;' (b) modeling of a new governance arrangement and a financial strategy for the Lower Rio Negro Mosaic; (c) assessing the correlation between ARPA investments and the management effectiveness of PAs (RAPPAM); (d) assessing ICMBio and States 'financial systems, aiming at the improvement of management and financial reports';(e) proposing conversion of private tax credits into conservation financing strategies; and (f) establishing of the Working Group on PA Sustainability within the Pro-PA Coalition and creating the PAD Sustainable Dialogues (focused on the Amazon).

Component: 4. Project Coordination, Management, Monitoring and Communication

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Strategy for Conservation and Investment (ECI) applied and information updated in FAUC	Application of ECI and information updated in	Quality assessment of strategy	ECI and FAUC being used to guide operations		ECI and FAUC updated annually and being used to guide operations

	FAUC				
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target achieved (100 percent). The ECI—which assesses, among others, the biodiversity significance of and level of threat to individual PAs—and the FAUC, based on the GEF PA-level METT which assesses management performance, were updated annually and used to guide project operation and management decisions such as the preparation of POA, defining FT revenue distribution to each PA. The ECI was enhanced by adding a cost model to estimate long-term financial needs of the PA system. These tools have been adopted by other countries in the region (Colombia and Peru).

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Project management efficiency improved with real time tracking system (Cerebro II) implemented	Survey results and reports	Cerebro II tracking system in place	Survey results used to improved management efficiency		Cerebro II tracking system fully operational
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target achieved (100 percent). Cérebro is the administrative and operational system for the project, tracking the detailed implementation of project activities, procurement, disbursement, and so on. It is used by PA administrators and PA agency managers to plan, implement, and monitor project activities and budgets. Improvements in FUNBIO's Cérebro II System included the development of new functionalities (adjustment of financial information, batch purchases, tutorials, service templates); expansion of standard specifications; optimization of the flow of approvals and adjustments; and integration of the accounting system (Totvs/RM) and the Cérebro II System. In addition, FUNBIO expanded its staff team of buyers. In addition, other measures were taken to further increase efficiency in operations and resource management, such as the implementation of pilot initiatives with prepaid expense cards and debit cards.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Program Communication Strategy developed and at least	Strategy	ARPA Phase 1 communication strategy	At least 80 percent of planned activities		Communication Strategy 100 percent implemented

80 percent of planned activities executed	document and actions implemented		executed		
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): Target achieved (100 percent). A communication strategy was prepared with the view to ensure the capture and dissemination of the project achievements, including extracting lessons learned from the ARPA approach and promoting knowledge exchange with national and international partners and stakeholders. The underlying objective was to improve project management and integration with related initiatives in the Brazilian Amazon, as well as to inform similar initiatives elsewhere in Brazil and other Amazonian countries. Multiple communication products have been developed including, among others, ARPA Handbook, presentation for UN Convention on Biological Diversity (CBD) events, videos, newspaper articles, segments for TV broadcasts, and so on. The program's website is fully functional in 3 languages; social media sites (Facebook and Twitter) are also functional with over 72,000 followers.

Indicator Name	Unit of Measure	Baseline	Original Target	Formally Revised Target	Actual Achieved at Completion
Environment and Social Monitoring Framework developed and being updated on an annual basis including in situ information for PAs in Stage 2 of consolidation	Project implementation reports	Environmental framework developed	Environment and Social Monitoring Framework developed and implemented		Environmental and social monitoring framework developed and 100 percent implemented
		27-Jan-2012	31-Jul-2017		09-Jun-2016

Comments (achievements against targets): Target achieved (100 percent). The ESMF was fully implemented and satisfactorily evaluated, with 23 action plans implemented and biodiversity monitoring protocols established in 29 PAs. The fact that during project implementation, and in fact 15 years of program implementation, no formal complaints have been registered provides further indirect evidence of the appropriateness of the design and implementation of the ESMF.

Additional World Bank Corporate Indicator

Indicator Name					Unit of Me
Areas brought under enhanced biodiversity protection		8,500,000.00	24,000,000.00		33,888,828.00
		27-Jan-2012	31-Jul-2017		06-Jun-2017

Comments (achievements against targets): The World Bank Implementation Support Team tracked the CSIs on biodiversity conservation to evaluate the corporate achievements on biodiversity. It is important to note that this indicator is not stated in the original PAD. This indicator is based on the METT scores which states that an enhanced biodiversity protection results from the establishment or upgrading of a functioning management system in PAs, which includes, among others, a functioning management system, management plan and the capacity and resources to implement the plan, a PA evaluation system, staffing, basic facilities, and so on to achieve the area's biodiversity protection goals. The improved management of PAs as measured by METT assessment indicated that moderate to high management effectiveness with an average of 52 percent for these areas. This indicator refers to PAs where long-term biodiversity monitoring transects are implemented and data is being collected on an annual basis. The biodiversity data collection includes monitoring of key groups (birds, butterflies, mammals, and vegetation). Biodiversity monitoring will be expanded to additional areas under the next phase of the program.

ANNEX 2. BANK LENDING AND IMPLEMENTATION SUPPORT/SUPERVISION

A. TASK TEAM MEMBERS

Name	Role
Preparation	
Supervision/ICR	
Adriana Goncalves Moreira	Task Team Leader(s)
Frederico Rabello T. Costa, Luciano Wuerzius	Procurement Specialist(s)
Susana Amaral	Financial Management Specialist
Alberto Coelho Gomes Costa	Social Safeguards Specialist
Agnes Velloso	Environmental Safeguards Specialist
Michele Martins	Team Member
Marcelo Hector Acerbi	Team Member
Sofia De Abreu Ferreira	Counsel
Claudia Sobrevila	Main ICR Contributor
Tanya Yudelman	Main ICR Contributor
Sofia Keller Neiva	Team Member

1. STAFF TIME AND COST

Stage of Project Cycle	Staff Time and Cost	
	No. of staff weeks	US$ (including travel and consultant costs)
Preparation		
FY10	0	11,962.92
FY11	0	120,645.62
FY12	0	52,190.74
FY14	0	- 32.85
Total	**0.00**	**184,766.43**
Supervision/ICR		
FY12	0	17.02

FY13	0	32,449.45
FY14	2.767	48,920.45
FY15	7.860	56,768.67
FY16	11.311	73,070.93
FY17	6.201	34,514.04
FY18	0	- 36.53
Total	**28.14**	**245,704.03**

ANNEX 3. PROJECT COST BY COMPONENT

Components	Amount at Approval (US$, millions)	Actual at Project Closing (US$, millions)	Percentage of Approval (US$, millions)
Component 1: Creation of New Protected Areas	1.00	0.30	30
Component 2: Consolidation of Protected Areas	11.00	12.08	110
Component 3: Long-term Sustainability of Protected Areas	0.40	0.26	65
Component 4: Project Coordination, Monitoring, Management, and Communication	3.49	3.25	93
Total	**15.89**	**15.89**	**100**

ANNEX 4. EFFICIENCY ANALYSIS

1.   **Economic analysis at project appraisal.** The original project completed a traditional GEF incremental cost analysis at appraisal which demonstrated the incremental benefits expected to be realized by the project when compared with the business-as-usual (BAU) scenario. This is presented in table 4.1. There were no ARPA 2 specific estimates of net present value (NPV) or ERR; however, an analysis of ARPA 1, its predecessor, also completed at the time of appraisal, indicated an IRR of 22 percent based on benefits associated with the avoided carbon emission alone. This analysis was based on Soares-Filho et al. (2008), which predicted that the creation of 13 PAs in the Amazon from 2003 to 2007 would offset emissions equivalent to 430 million tons of carbon by 2050.[11] Considering the value of US$5 per ton of carbon,[12] this was calculated to account for US$2.15 billion dollars by 2050 or about US$54 million dollars per year. Considering that the ARPA Phase 1 project's total cost was US$84.5 million, the IRR for this investment was estimated at 22 percent.

Table 4.1. Efficiency Analysis at Project Appraisal

Cost Category	US$, millions	Domestic Benefit	Global Benefit
Component 1: Creation of New Protected Areas			
Baseline	2.0	Consultation and planning is likely to be limited by scarce resources restraining the creation of PAs.	Global benefit in the long term; yet the creation of the PAs is not guaranteed.
With GEF Alternative	3.5	Support the creation of 13.5 million ha of new PAs in the Amazonian biome over a four-year period	Protection of globally significant biodiversity; mitigate climate change within forest areas
Incremental	**1.5**		
Component 2: Consolidation of Protected Areas			
Baseline	23.0	Limited resources for PA consolidation	The consolidation of PAs would be achieved at a slow rate and over a considerably long period.
With GEF Alternative	67.0	Support the consolidation of 32 million ha involving staffing, the creation of management councils, elaboration of management plans, provision of basic equipment for PA management and enforcement, land demarcation, infrastructure, capacity building for staff, and involvement of local communities with the PA management	Streamlined protection of globally important biodiversity
Incremental	**44.0 million**		

[11] Soares-Filho, B. S., et al. 2008. "Reducing Carbon Emissions from Deforestation: the Role of ARPA's Protected Areas in the Brazilian Amazon" UFMG, Institute for Environmental Research in the Amazon (IPAM), WWF.
[12] For this analysis, a very conservative value was adopted due to the recent oscillations on the Carbon Credits Market.

Component 3: Long-term Sustainability of Protected Areas			
Baseline	0.0	Limited and uncertain resources for PA maintenance and investments	Reduced impact of PAs on the Amazon biome conservation
With GEF Alternative	1.9 million	Improve the financial sustainability of the PAs created and consolidated through (a) an increase in 150 percent of the endowment fund (FAP) resources, (b) development of mechanisms to generate new resources for FAP and the PAs, and (c) development of effective and transparent mechanisms for the disbursement of FAP resources	Establishment of a solid foundation for the effective financial sustainability and management of PAs
Incremental	**1.9 million**		
Component 4: Project Coordination, Monitoring, Management, and Communication			
Baseline	0.5 million	Limited resources for PA monitoring	PA consolidation and sustainability indicators tracked satisfactorily
With GEF Alternative	13.5 million	Efficient execution of the project	
Incremental	13.5 million		
Total Baseline: US$25.5 million			
Total GEF Alternative: US$85.9 million			
Total Incremental Costs: US$60.9 million, of which US$15.9 million is being requested from the GEF			

2.   **Economic analysis at project completion.** A more recent financial, economic, and incremental cost analysis was completed in preparation of the Br-ASL Project. This coincided with the closing of ARPA 2 and included evaluation of the ARPA program. The proposed Br-ASL Project seeks to continue to strengthen and expand the activities under ARPA 2 and to introduce forest restoration activities in and around these PAs as part of a broader integrated landscape approach. The analysis tested the economic feasibility of the proposed project, as well as of the individual components, yielding positive results not only under the baseline assumptions but even under conservative assumptions and throughout different scenarios (see table 4.2). It also clearly demonstrated that the benefits generated by the ARPA component alone (US$30 million) cover and exceed the estimated costs of all proposed project components (US$60.3 million), including the opportunity costs of avoided deforestation, corroborating the finding of the earlier ARPA 1 economic analysis. The analysis is robust as it includes varying discount rates and tests for changes in anticipated results and concludes that investments in sustainable natural resource management inside and outside PAs can significantly contribute to the economic development ambitions of a developing country with a large forest area such as Brazil.

3.   More specifically, the analysis contrasts the generated welfare benefits from a with-project situation to a without-project situation that accounts for opportunity costs of alternative agricultural use. The project costs and benefits are assessed on (a) the area of newly created ARPA PAs (3,000,000 ha) and on ARPA PAs that are brought under improved forest management (57,000,000 ha) and (b) on the area that benefits from investments under the integrated landscape restoration component. For the latter

area, it is assumed that the project reduces the current annual deforestation rate by 20 percent (120,293 ha) for six years. Benefits are assumed to be generated from carbon sequestration, fire prevention, erosion control, recreation, non-timber forest products, and existence value. Benefits from improved forest management are assumed to increase the economic value of the PAs by 5 percent (of the total economic value for 1 ha forest). The costs include the project costs as well as opportunity cost of forest conservation defined as the net income per hectare per year that is sacrificed because of not putting the land to agriculture use (soy or cattle). For the without-project situation, a baseline case is used that assumes that future development trends follow those of the recent past and no changes in policies will take place.

4.   **Error! Reference source not found.** compares the without-project case (BAU scenario) to the w ith-project case. The graph clearly shows that the project generates large benefits, by looking at the area that will benefit from the project. This includes areas of avoided deforestation, areas that are converted into a PA, and areas in PAs that are sustainably managed. Other economic benefits such as increased human capital, improved governance structures, and bequest values were not included. Further, the economic benefits included in the analysis were strictly limited to those immediately generated and associated with the project. Other benefit effects such as future improvements of forest management due to the capacity building in the administration are not included.

Figure 4.1. Comparison of the Sum of the Area Established as New PAs, the Area of Existing PAs Brought under Improved Forest Management, and the Area That Benefits from Integrated Landscape Restoration, With- and Without-Project (BAU) Scenario until 2022
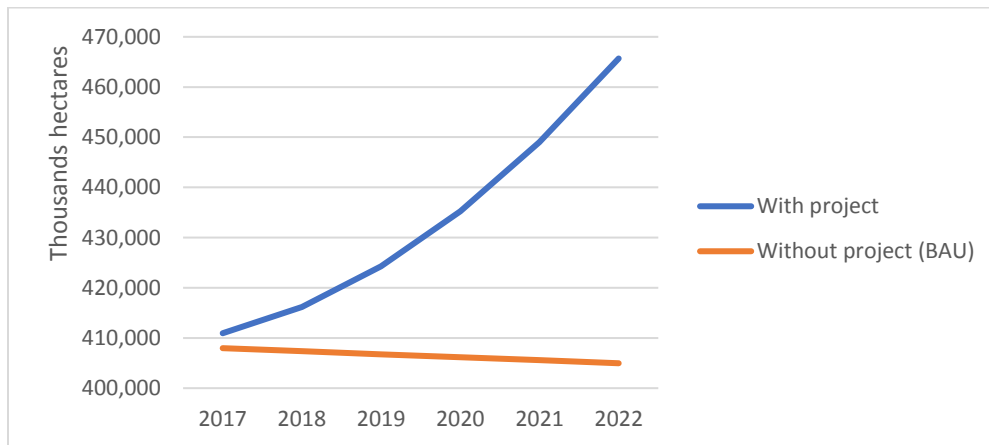
Note: The area is the sum of the forest area, PAs, and PAs under sustainable management. It is assumed that the current five-year deforestation rate prevails in the without-project scenario, while in the with-project scenario the deforestation rates are reduced by 20 percent. In the without-project scenario, the PA and the share of sustainably managed areas remains constant, while in the with-project scenario they are expanded by the target value (World Bank, 2017).

5.   The NPV, when analyzed over 15 years, is estimated to be US$5.6 billion, and the benefit-cost (BC) ratio is 2.1. To verify the result's robustness, different discount rates (5 percent, 10 percent, and 20 percent) are applied and a reduction of the economic benefits by 20 percent and 50 percent in subsequent analyses is used (see table 4.2). The benefits are more than twice the costs in all scenarios. The NPV remains positive even if only the six years of project implementation are analyzed and if all the financing costs are included. The net welfare outcome is negative only if the benefits are reduced by 50 percent and a six-year period is examined. The project benefits are probably far greater, because this analysis

disregards benefits from new policies, monitoring tools, capacity building, or guidelines which are all likely to result in benefits and to trigger further positive developments in sustainable resource management in the future, thereby enhancing the conservation of biodiversity in the Amazon.

Table 4.2. Results of BC Analysis between 2008 and 2023

	Baseline		Baseline (−20%)		Baseline (−50%)	
	NPV (US$)	BC Ratio	NPV (US$)	BC Ratio	NPV (US$)	BC Ratio
Discount Rate 5%	5,458,930,029	2.32	3,537,267,558	1.85	654,773,852	1.16
Discount Rate 10%	3,574,068,481	2.30	2,311,404,168	1.84	417,407,699	1.15
Discount Rate 20%	1,752,220,812	2.28	1,127,678,841	1.82	190,865,884	1.14

6.   Finally, analysis results have shown that the ARPA component is economically viable as a separate component, even when all GEF and financing costs are included. These results apply across all simulated discount rates and even apply under the assumption that only 50 percent of the anticipated project benefits can be achieved. Even if only simulated over a 6-year project period, this component yields mostly positive results. Only under an extremely pessimistic scenario that reduces the benefits by 50 percent, the net welfare becomes negative.

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

1.   The following project description was provided by the PIU at the end of the project.

GENERAL PROJECT INFORMATION

Comments Received from the MMA

2.   The ARPA program is considered one of the most important components of the Brazilian effort to combat deforestation and to conserve biological diversity and ecological process in the Amazon region.

3.   Created in 2002, ARPA is coordinated by the Brazilian Ministry of Environment and implemented by the (ICMBio, the Amazon States, and FUNBIO. With financial resources coming from the GOB (federal and state) and the ARPA FT (with contributions from KfW; WWF-Brasil, *Fundo Mundial para a Natureza*; WWF for Nature, WWF-US; Gordon and Betty Moore Foundation; Linden Trust for Conservation; Margaret A. Cargill Foundation; Anglo American Minerio de Ferro Brasil, S.A.; Natura; and O Boticário), ARPA completed the execution of the second phase of the program (2012–2017) with a strong track record of success and innovations.

4.   During this phase, ARPA continued to use innovative management arrangements initially adopted under ARPA Phase 1 and the synchronization between policies and donated resources, as well as the decentralized execution were the elements that contributed to reaching the majority of the goals of the program's Phase 2. It is important to highlight that part of these innovations were pushed by the need to adopt the rules and apply the recommendations made by the donors, particularly by the World Bank. These innovations effectively contributed to the establishment and consolidation of conservation units supported by the program. Despite the problems encountered with the formal creation of PAs since 2014 due to the government transition, the project team, with support from the donors, including the World Bank, were able to successfully reorient the creation efforts to other forms of PAs thus helping continue to move toward the overarching goals for the area of standing Amazon forest. Additionally, the international community helped avoid the declassification of important PAs proposed by the new legislature, in part due to the project's long-term support for communication and sensitization on the ARPA program.

5.   ARPA PAs cover approximately 57.8 million ha in the Amazon distributed in 114 conservation units (federal and states), and new goals were established for the third phase of the program: the total area to be protected through the program will increase from 57.8 million ha to 60 million ha.

6.   The continuation of World Bank support to the ARPA program is fundamental to the continuity of this initiative which is the largest effort, on record, to protect tropical forests.

Comments Received from FUNBIO

7.   FUNBIO's participation in the ARPA program was a major transformational experience for the institution. After 15 years of implementation of this complex and innovative program, FUNBIO has changed and improved in many different aspects. The task of executing the program has given the institution the opportunity to master a new capacities by delivering large-scale procurement in remote

areas and handling complex financial management issues from of *contas vinculadas* at the local level through to management of funds from international and overseeing asset managers performance for investments in national and international markets. FUNBIO also learned how to manage large-scale projects with complex institutional arrangement including different donors and government agencies from federal, state, and civil society organizations.

8.   One of the most important aspects of the ARPA program is the cooperative work achieved by such different institutions, which made it possible to overcome the huge implementation challenges ARPA faced at a continental scale which is the day-to-day reality of PA management over a 5.5 million km^2 area. The overall results of the ARPA program have had a considerable impact on global conservation of tropical forests and in the development of new tools and technologies for PA management and biodiversity monitoring. Many lessons were learned and applied during the last two phases and will certainly be contribute to increasing the implementation effectiveness of the third phase, which is about to be launched.

9.   FUNBIO would like to express its gratitude to the World Bank, particularly to the project team and team leader, for their extraordinary work in the project and program. Without their support, professionalism, persistence, understanding, and much-needed flexibility, the successful implementation of this program would not have been possible.

ANNEX 6. SUPPORTING DOCUMENTS (IF ANY)

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20. Tengberg, A., and S. Valencia. 2017. "Science of Integrated Approaches to Natural Resources Management." A STAP Information Document. Global Environment Facility, Washington, DC.

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22. WWF-Brazil. *O impacto do Programa ARPA na efetividade de gestão das UCs federais da Amazônia*. Brasilia, 2017.

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Annex 7: Theory of Change

**Theory of Change (Results Chain)**

1.   The overall goal of the ARPA program is to ensure the conservation of a representative sample of biodiversity and the maintenance of environmental services in the Amazon biome, including those related to the mitigation and adaptation to climate change, through the expansion and consolidation[13] of SNUC, and by incorporating local beneficiaries and residents in buffer zones in the management of the PAs. The project focused on three major areas of support that would help the country lead to the desired outcomes (see figure 7.1). The ARPA program's Theory of Change builds on the notion that if an adequate area of the Amazon is conserved under various regimes, if the PAs that are created are managed effectively with the participation of local communities and indigenous peoples, and if long-term financing of PAs is improved, the protection of significant biodiversity of the Amazon region can be achieved, global GHG

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[13] A consolidated PA is one in which all necessary material, financial, and human resources are in place to ensure that their protected status is respected and land-use restrictions are enforced (see annex 8).

emission can be avoided, and the resilience of local communities and indigenous peoples can be improved.

Figure 7.1. Theory of Change of ARPA Phase 2
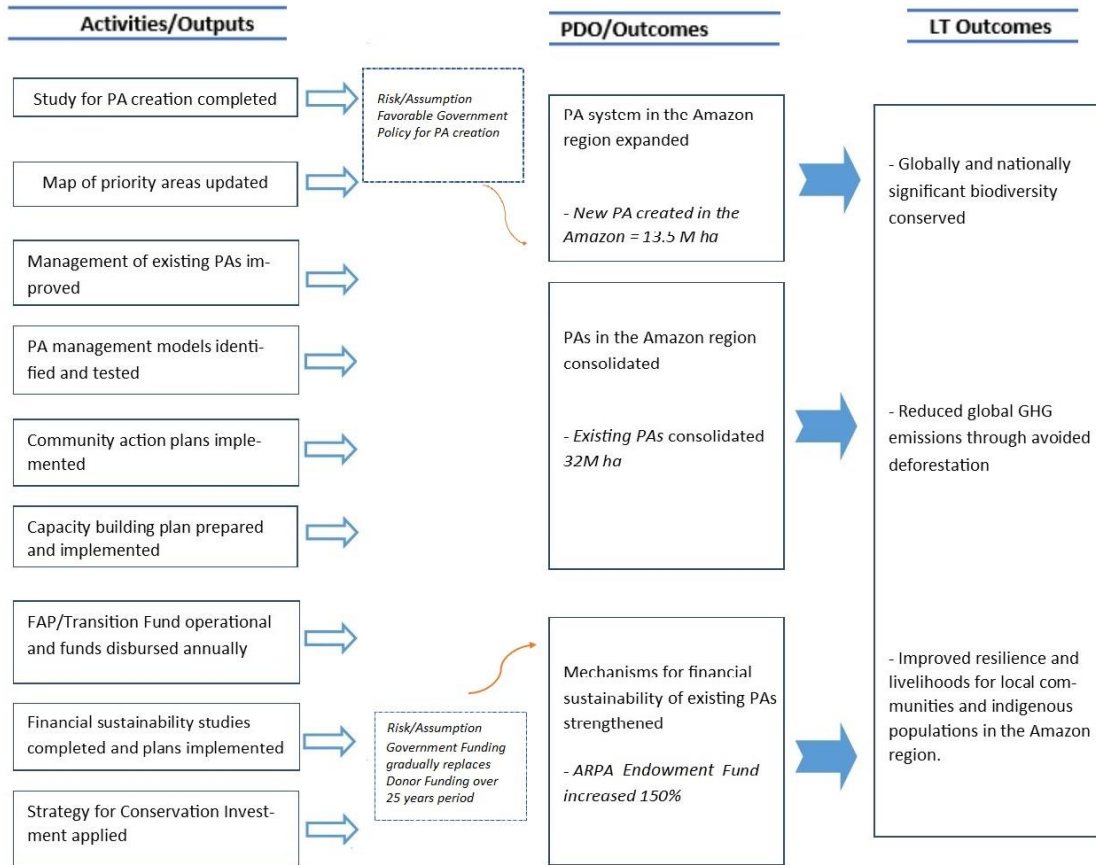
2.   The first area of support was to expand the PA system in the Amazon region through the creation of 13.5 million ha of new PAs. If more areas in the Amazon receive a legal status under different forms of protection, then reduction of deforestation and degradation of the Brazilian Amazon can be achieved. ARPA Phase 1 successfully brought an additional 24 million ha of forest under formal protection. The second phase of ARPA would serve to strengthen the mandate and the capacity of SNUC, because in practice, implementation and legal enforcement were still in their initial phases at the end of Phase 1. Once potential PA areas are identified, the project would support the following activities: (a) preparation of an environmental and socioeconomic evaluation and public consultations, including consultations with indigenous peoples; (b) formal designation of PAs as specified in the SNUC legislation followed by the execution of a decree of creation of the PA; and (c) analysis of environmental, socioeconomic, and land tenure issues in the selected priority areas to minimize the necessity of land acquisition with governmental funds and resettlement. Selected priority areas based on the existing official Map of Priority

Areas would result from this process. This approach was successful in ARPA Phase 1 and was replicated in this project.

3.   The second area of support was to consolidate PAs in the Amazon region by helping establish conditions necessary to ensure that their protected status is respected and land-use restrictions are enforced. To this end, the project sought to consolidate 32 million ha of existing PAs. Consolidation would take place following the program's two consolidation stages that would be determined according to specific degrees of human and financial resources, infrastructure, support of local communities, technical capacity for strategic planning, and ecological information. This process would be monitored annually through the systemwide FAUC that would identify strong and weak points and also serve as a guide for the biennial planning and budgeting process. Once the PAs had undergone a first stage of consolidation, they would be selected for a second stage, in which PAs would continue to improve management and monitoring in line with the plans and budgets established in Stage 1. Given the limited resources of the ARPA program, not all PAs created or supported under the project could complete the second stage of consolidation.

4.   The third area of support was to support the long-term financial sustainability of the ARPA PAs by increasing the ARPA endowment fund. To this end, the project sought to increase the ARPA fund endowment by 150 percent to US$42.8 million. Cumulative experiences learned during Phase 1 led to the elaboration of a PFP strategy for ARPA, going beyond initial project commitments to establish a long-term capitalization target of US$215 million. This component would support the establishment of the FT and concentrate organizational and financial resources in support of a large-scale, long-term conservation program. The ARPA FT would gradually increase resources provided by federal and state governments while decreasing donor-based investments, so that, after 25 years, these governments would be expected to finance 100 percent of ARPA costs without any support from the FT itself or any other donor funds.

<div align="center">**Annex 8: ARPA Consolidation Stages**</div>

1.　　The ARPA program categorizes PAs by stage of consolidation. Tables 8.1 and 8.2 describe the benchmarks for each of the ARPA PA consolidation stages. The optimal level of consolidation will vary for each PA but aims to ensure that all PAs are secure, the necessary material, financial, and human resources to ensure that their protected status is respected and land-use restrictions are enforced, more specifically this includes ensuring adequate levels of human and financial resources, infrastructure, support of local communities, technical capacity for strategic planning, and ecological information for the long-term conservation of PAs. The activities financed for consolidation of PAs include, among others, preparation and implementation of PA management plans, PA infrastructure, equipment, surveillance and control plans, social participation in PA councils, and biodiversity monitoring.

<div align="center">**Table 8.1. PA Consolidation Benchmarks - Grade 1**</div>

Indicator	Verification Mechanism
Technical team of at least 2 employees working in the PA	Form completed in the Protected Areas Evaluation system[a] and National Registry of Protected Areas
Management council officially created	Form completed in the Protected Areas Evaluation system Administrative Ruling for the creation of a management council under the managerial organization
Management plan developed and discussed by the management council	Form completed in the Protected Areas Evaluation system Administrative Ruling for publication of management plans
Identifying the main points of access to the PA	Form completed in the Protected Areas Evaluation system
Protection plan developed	Form completed in the Protected Areas Evaluation system Technical inputs provided by the managerial organization
Basic equipment provided for the PA operation	Form completed in the Protected Areas Evaluation system and the National Registry of Protected Areas
Update the information in the National Registry of Protected Areas related to basic information, access to PA, human resources, and infrastructure	Form completed in the Protected Areas Evaluation system and National Registry of Protected Areas
Government budget allocation disbursed	Annual budget report approved by the ARPA Program Committee

Note: a. Form completed in the Protected Areas Evaluation tool - FAUC/ARPA.

<div align="center">**Table 8.2. PA Consolidation Benchmarks - Grade 2**</div>

Indicator	Verification Mechanism
Technical team with a minimum of 5 staff members, working in the PA	Form completed in the Protected Areas Evaluation system and National Registry of Protected Areas
Advisory Councils functioning and meeting regularly	Form completed in the Protected Areas Evaluation system Minutes of Meetings of the Advisory Councils, certifying the achievement of regular meetings in accordance with the bylaws
Identification of strategic issues for the PA, as identified in the management plan	Form completed in the Protected Areas Evaluation system
Demarcation points and priority corridors identified, as in the management plan	Form completed in the Protected Areas Evaluation system
Land tenure survey carried out	Form completed in the Protected Areas Evaluation system

Indicator	Verification Mechanism
Signing of the Terms of Agreement with indigenous and local peoples residing in and around PAs. Terms of Concessions for land-use rights agreements for populations in sustainable-use PAs	Form completed in the Protected Areas Evaluation system Terms of Agreement or Concessions for land-use rights
Research projects implemented in PAs in accordance with the management plan	Form completed in the Protected Areas Evaluation system
Monitoring of at least one biodiversity or social-environmental indicator in each PA	Form completed in the Protected Areas Evaluation system
Procurement of necessary equipment for each PA	Form completed in the Protected Areas Evaluation system and the National Registry of Protected Areas
Basic facilities for the operation of each PA established in accordance with the management plan	Form completed in the Protected Areas Evaluation system
National Registry of Protected Areas fully updated	National Registry of Protected Areas
Operating plan drafted based on the management plan and discussed within each local Advisory Council	Management plans for PA Minutes from board meetings from Advisory Councils
Yearly budgets allocated	Annual budget report from the managerial organization, approved by the ARPA Program Committee

Annex 9: Summary of the 2017 WWF RAPPAM Comparison of ARPA and non-ARPA PAs.

Executive Summary

How Is Brazil Contributing to Global Conservation Efforts?

1.   Brazil accounted for 74 percent of the total PAs in the world between 2003 and 2008. In the Amazon alone, 176 PAs have been treated since 2000, a total of 70.5 million ha.

2.   As a result, the country has been contributing to the achievement of one of the Aichi Biodiversity Targets. By adopting these goals, Brazil defined that 30 percent of the Amazon should be covered by PAs.

3.   In this context, ARPA, created in 2002 by the Federal Government, coordinated by the Environmental Ministry and implemented in partnership with state agencies, private institutions, and civil society, stands out.

What Is the ARPA Program?

4.   ARPA is the world's largest conservation and sustainability initiative on tropical forests, and represents the main biodiversity conservation strategy for the Amazon biome. ARPA has become an internationally acknowledged state policy.

Do You Know its Origin?

5.   The story goes back to 1998, with the establishment of an alliance between the WWF and the World Bank. The goal was to protect Amazon biodiversity and to face the increasing deforestation threats through the creation of a network of PAs.

6.   The program was initially structured with donations from external agencies (GEF, German government, and WWF); financial and operational management of the Brazilian Biodiversity Fund (FUNBIO); and technical partnership with German Agency for Technical Cooperation (GTZ) (currently German Development Assistance Agency).

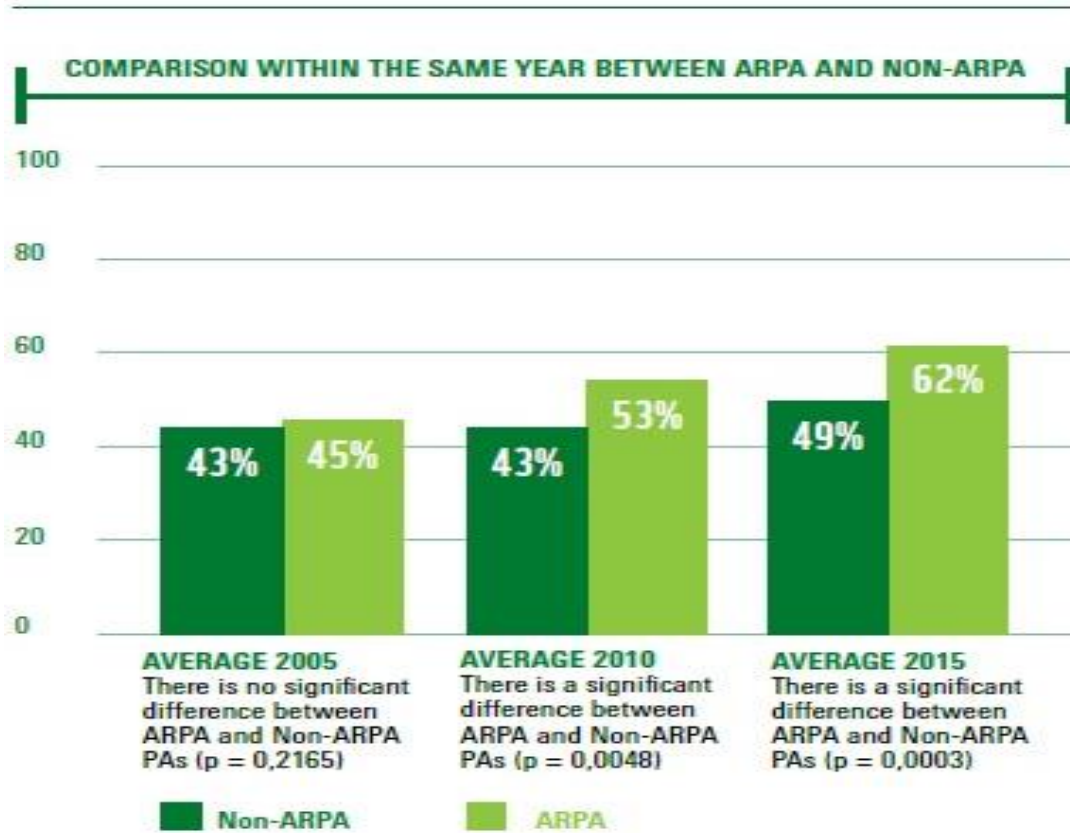**Figure 9.1. Map of ARPA Protected Areas**
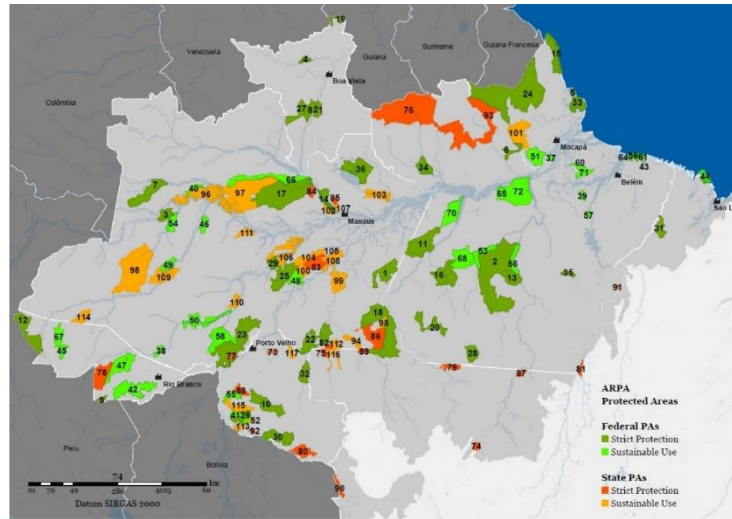
How Does ARPA Work?

7.   Through an innovative operational arrangement, it links public and private entities, including donors, the Ministry of the Environment, FUNBIO, and executing agencies. Its activities, which are carried out in 3 stages (2003–2010, 2010–2017, and 2014–2039), are focused on 5 of the 12 categories of PAs: parks, biological reserves, ecological stations, extractive reserves, and sustainable development reserves. The program supports the creation, consolidation, and maintenance of PAs.

How Do We Know if the Program Is Effective?

8.   The success of PAs as conservation tools is based on the assumption that they are created and managed to protect their values (biological, cultural, and so on). Thus, all investments made in PAs should contribute to improve their effectiveness in conserving and securing the fulfillment of the objectives of these areas. It is important to assess whether PA systems are being managed effectively is needed to continuously improve management and guide future investments. The RAPPAM method developed by the WWF network in 2003 is among the most widely adopted assessment methods in the world.

Figure 9.2. Evaluation of Total Management Effectiveness Levels

COMPARISON WITHIN THE SAME YEAR BETWEEN ARPA AND NON-ARPA

AVERAGE 2005
There is no significant difference between ARPA and Non-ARPA PAs (p = 0,2165)

AVERAGE 2010
There is a significant difference between ARPA and Non-ARPA PAs (p = 0,0048)

AVERAGE 2015
There is a significant difference between ARPA and Non-ARPA PAs (p = 0,0003)

Non-ARPA   ARPA

9.   RAPPAM has been applied 2,276 times in about 1,930 PAs with 322 replications, covering over 50 countries in Europe, Asia, Africa, and Latin America and the Caribbean.

10.   It is aimed at providing decision makers and policy makers with simple information on trends and management aspects that enable them to achieve better effectiveness in a system or group of PAs. Its application is based on questionnaires filled out by PA managers. RAPPAM contributes to the following:

- Identify management strengths and weaknesses

- Analyze the characteristics and distribution of the various threats and pressures

- Identify areas of high ecological and social importance and vulnerability issues

- Indicate the urgency and priorities for PA management and resource allocation

- Assist in the development and prioritization of policy interventions

How Was the RAPPAM Method Applied to Evaluate the Impact of the ARPA program?

11.   RAPPAM results were adopted to analyze the effect of ARPA in PA management effectiveness between 2005 and 2015, by comparing the group of federal PAs supported by the program (ARPA PAs) to

the group that did not have such support (non-ARPA PAs).

12.　　The performance of both groups was compared in terms of the overall management effectiveness and each module's evolution from 2005 to 2015 (Objectives; Legal status; Area design and planning; Human resources; Communication and information; Infrastructure; Financial resources; Planning; Decision making; Research, evaluation, and monitoring; and Results).

What Were the Study Findings?

13.　　The analysis of the temporal evolution of the two groups indicates that the investments, structuring, and operational mechanisms of the ARPA program had a significant impact on the overall management effectiveness results, as well as in the financial resources, infrastructure, decision making, and management planning. Starting from similar levels, PAs supported by the program had a significantly better performance between 2005, 2010, and 2015 when compared to non-ARPA areas.

What Conclusions Can We Draw?

14.　　The positive results from the past 15 years represent a major indicator to all partners and donors who have invested time, technical capacity, and financial resources in the program. They also indicate the success that only long-term programs can achieve, overcoming political and institutional transitions, national and global financial crises, and all the challenges of managing and operating a program of this scale.

15.　　When it comes to RAPPAM results, it is important to see how ARPA stands out in some aspects due to the adoption of specific patterns and mechanisms, which have already been incorporated to the national system of PAs.

16.　　The ARPA model has also been seen as a reference for other countries—Bhutan, Peru, and Colombia are creating similar programs.

Are There Still Any Challenges?

17.　　ARPA needs to find ways to achieve more robust results in some areas, including management planning, participatory and shared management, establishment of partnerships, and additional public resources. By increasing its management capacity, higher management effectiveness standards can be achieved (>60 percent), especially in legal status, planning, research, evaluation, and monitoring. In addition, the improvement in some management aspects, such as human resources and legal status, depends on a broader context that goes beyond the program.

18.　　The consolidation of SNUC as a whole should be a factor to be considered when designing the strategies of the program to ensure the sustainability of the results achieved in the long term.

Final Message

19.　　Long-term investments in PAs have proven to result in greater levels of management effectiveness, which in turn, make PAs more able to achieve their conservation objectives, providing society with a variety of goods and services essential for their well-being and income generation. It is essential to recognize the benefits that PAs offer, so that the effort to support, politically and financially,

initiatives such as ARPA is disseminated for other regions.

20.   Beyond the financial support to PAs, which includes goods, services, and infrastructure, ARPA program is investing in the sustainable development of the Amazon region through a decentralized and participatory approach, resulting in better social conditions for communities living inside and around PAs.

21.   ARPA results demonstrate that the program must be maintained to amplify its contributions to biodiversity conservation and social development.

Reference:
WWF-Brazil. 2017. *The Impact of the ARPA Program on the Management Effectiveness of Amazon Protected Areas*. Brazilia. https://d3nehc6yl9qzo4.cloudfront.net/downloads/wwf_folder_ingles_paginas_2.pdf.