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Report No: PAD2600

INTERNATIONAL BANK FOR RECONSTRUCTION AND DEVELOPMENT *AND/OR*
INTERNATIONAL DEVELOPMENT ASSOCIATION

PROJECT APPRAISAL DOCUMENT

ON A

PROPOSED STRATEGIC CLIMATE FUND – FOREST INVESTMENT PROGRAM GRANT

IN THE AMOUNT OF US$25 MILLION

TO THE

BRAZIL - DEUTSCHE GESELLSCHAFT FÜR INTERNATIONALE ZUSAMMENARBEIT (GIZ)

FOR A

FIP: BRAZIL INVESTMENT PLAN: INTEGRATED LANDSCAPE MANAGEMENT IN THE CERRADO BIOME PROJECT

November 22, 2017

Environment & Natural Resources Global Practice
Latin America And Caribbean Region

CURRENCY EQUIVALENTS

(Exchange Rate Effective Oct 18, 2017)

Currency Unit	=	Brazilian Reais
BRL3.17	=	US$1
BRL1.00	=	US$0.32

FISCAL YEAR
January 1 - December 31

Regional Vice President:	Jorge Familiar
Country Director:	Martin Raiser
Senior Global Practice Director:	Karin Erika Kemper
Practice Manager:	Valerie Hickey
Task Team Leader(s):	Bernadete Lange, Barbara Farinelli

ABBREVIATIONS AND ACRONYMS

ABC Plan	*Plano ABC–Agricultura de Baixa Emissão de Carbono* (Sectoral Plan for the Mitigation and Adaptation to Climate Change for a Low Carbon Emission Economy in Agriculture)
APP	*Áreas de Preservação Permanente* (Permanent Preservation Areas)
ATER	Assistência Técnica Rural (Rural Technical Assistance)
BIP	Brazil Investment Plan
BIP-EC	Brazil Investment Plan Executive Committee
BNDES	*Banco Nacional do Desenvolvimento,* (Brazilian National Development Bank)
BMZ	Bundesministerium für Wirtschaftliche Zusammenarbeit und Entwicklung (German Federal Ministry for Economic Cooperation and Development)
CAR	*Cadastro Ambiental Rural* (Rural Environmental Cadaster)
CH_4	Methane
CIF	Climate Investment Funds
CLFI	Crop, Livestock and Forest Integration System
CLI	Crop, Livestock Integration System
CNA	*Confederação da Agricultura e Pecuária do Brasil* (Brazilian Confederation of Agriculture and Livestock)
CO_2	Carbon dioxide
CONACER	*Comissão Nacional do Programa Cerrado Sustentável* (National Commission for the Sustainable Cerrado Program)
CPF	Country Partnership Framework
CRA	*Cotas de Reserva Ambiental* (Environmental Reserve Quotas)
DGM	Dedicated Grant Mechanism for Indigenous Peoples and Local Communities
DGP	Gross Domestic Product
EMBRAPA	*Empresa Brasileira de Pesquisa Agropecuária* (Brazilian Agricultural Research Corporation)
ESMF	Environmental and Social Management Framework
FAP	Forest Action Plan
FIP	Forest Investment Program
FMA	Financial Management Assessment
FM	Financial Management
GAP	Gender Action Plan
GDP	Gross Domestic Product
GHG	Greenhouse Gas
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) GmbH (German Technical Cooperation Agency)
GoB	Government of Brazil
GRS	Grievance Redress Service
IDB	Inter-American Development Bank

IBGE	*Instituto Brasileiro de Geografia e Estatística* (Brazilian Institute of Geography and Statistics)
IBRD	International Bank for Reconstruction and Development/The World Bank
ICL	Integrated Crop-livestock System
IFR	Interim Financial Report
ILM	Integrated Landscape Management
INPE	*Instituto Nacional de Pesquisas Espaciais* (National Institute for Space Research)
IPCC	Intergovernmental Panel on Climate Change
IRR	*Internal Rate of Return*
ISA	*Indicadores de Sustentabilidade em Agroecossistemas* (Sustainability Indicators in Agroecosystems)
LUCF	Land Use Change and Forestry
M&E	Monitoring and Evaluation
MAPA	*Ministério da Agricultura, Pecuária e Abastecimento* (Ministry of Agriculture, Livestock and Food Supply)
MCTIC	*Ministério da Ciência, Tecnologia, Inovações e Comunicação* (Ministry of Science, Technology, Innovation and Communication)
MDB	Multilateral Development Bank
Mha	Million hectares
M&E	Monitoring and Evaluation
MMA	*Ministério do Meio Ambiente* (Ministry of Environment)
NDC	Nationally Determined Contribution
NPCC	Brazil's National Climate Change Policy
N_2O	Nitrous
OEMA	*Órgão Estadual do Meio Ambiente* (State Environmental Agency)
PC	Project Committee
PCU	*Unidade de Coordenação do Projeto* (Project Coordination Unit)
PDF	*Pecuária Plantio Direto* Livestock no-tillage system
PDO	Project Development Objective
PEU	*Unidade de Execução do Projeto* *(Project Executing Unit)*
PNMC	*Política Nacional de Mudanças Climáticas* (National Policy on Climate Change)
POA	Annual Operating Plan
POM	Project Operational Manual
PPCerrado	*Plano de Ação para Prevenção e Controle do Desmatamento e das Queimadas: Cerrado* (Action Plan to Prevent and Control Deforestation and Fires in the Cerrado Biome)
PRA	*Programa de Regularização Ambiental* (Environmental Regularization Program)
PRADA	*Plano de Recuperação de Áreas Degradadas* (Plan to Rehabilitate Degraded Areas)
PROVEG	*Política Nacional de Recuperação da Vegetação Nativa* (National Policy for the Recovery of Native Vegetation)

REDD+	Reducing emissions from deforestation and forest degradation; and the role of conservation, sustainable forest management and enhancement of forest carbon stocks
RL	*Reserva Legal* (Legal Reserve)
SCD	Strategic Country Diagnostic
SCF	Strategic Climate Fund
SCF-FIP	Strategic Climate Fund – Forest Investment Program
SENAR	*Serviço Nacional de Aprendizagem Rural* (National Rural Learning Service)
SFB	*Serviço Florestal Brasileiro* (*Brazilian Forest Service)*
SICAR	*Sistema Nacional de Cadastro Ambiental Rural* (Rural Environmental Cadaster System)
SINIMA	*Sistema Nacional de Informação sobre Meio Ambiente* (National Environmental Information System)
tCO_{2eq}	Tons of Carbon Dioxide equivalent
TORs	Terms of Reference
UCP	*Unidade de Coordenação do Projeto* (Project Coordination Unit)
PEU	Project Executing Unit
UNFCCC	United Nations Framework Convention on Climate Change
WBG	World Bank Group

BASIC INFORMATION

Is this a regionally tagged project?	Country(ies)	Financing Instrument
No		Investment Project Financing

[ ] Situations of Urgent Need of Assistance or Capacity Constraints

[ ] Financial Intermediaries

[ ] Series of Projects

Approval Date	Closing Date	Environmental Assessment Category
07-Mar-2018	31-Mar-2023	B - Partial Assessment

Bank/IFC Collaboration
No

Proposed Development Objective(s)

To strengthen adoption of environmental conservation and restoration practices, and low-carbon emission agricultural practices in selected watersheds of Brazil's Cerrado Biome.

Components

Component Name	Cost (US$, millions)
Institutional Development and Capacity Building for Landscape Management	5.50
Mainstreaning Landscape Practices into Selected Wtersheds	16.00
Project Management, Monitoring and Evaluation	3.50

Organizations

Borrower :	Brazil - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ)
Implementing Agency :	Ministry of Agriculture, Livestock, and Food Supply (MAPA) Serviço Nacional de Aprendizagem Rural

Ministry of Environment / Brazilian Forest Service

PROJECT FINANCING DATA (US$, Millions)

[ ] Counterpart Funding	[✓] Trust Funds	[ ] Parallel Financing

Total Project Cost:	Total Financing:	Financing Gap:
25.00	25.00	0.00
	Of Which Bank Financing (IBRD/IDA):	
	0.00	

Financing (in US$, millions)

Financing Source	Amount
Climate Investment Funds	25.00
Total	**25.00**

Expected Disbursements (in US$, millions)

Fiscal Year	2018	2019	2020	2021	2022	2023
Annual	1.00	5.50	8.00	7.00	3.00	0.50
Cumulative	1.00	6.50	14.50	21.50	24.50	25.00

INSTITUTIONAL DATA

Practice Area (Lead)

Environment & Natural Resources

Contributing Practice Areas

Agriculture

Climate Change

Gender Tag

Does the project plan to undertake any of the following?

a. Analysis to identify Project-relevant gaps between males and females, especially in light of country gaps identified through SCD and CPF

Yes

b. Specific action(s) to address the gender gaps identified in (a) and/or to improve women or men's empowerment

Yes

c. Include Indicators in results framework to monitor outcomes from actions identified in (b)

Yes

SYSTEMATIC OPERATIONS RISK-RATING TOOL (SORT)

Risk Category	Rating
1. Political and Governance	Substantial
2. Macroeconomic	Moderate
3. Sector Strategies and Policies	Low
4. Technical Design of Project or Program	Moderate
5. Institutional Capacity for Implementation and Sustainability	Moderate
6. Fiduciary	High
7. Environment and Social	Low
8. Stakeholders	Moderate
9. Other	
10. Overall	Substantial

COMPLIANCE

Policy

Does the project depart from the CPF in content or in other significant respects?

[ ] Yes [☑] No

Does the project require any waivers of Bank policies?

[ ] Yes [✓] No

Safeguard Policies Triggered by the Project	Yes	No
Environmental Assessment OP/BP 4.01	✓	
Natural Habitats OP/BP 4.04	✓	
Forests OP/BP 4.36	✓	
Pest Management OP 4.09	✓	
Physical Cultural Resources OP/BP 4.11		✓
Indigenous Peoples OP/BP 4.10		✓
Involuntary Resettlement OP/BP 4.12		✓
Safety of Dams OP/BP 4.37		✓
Projects on International Waterways OP/BP 7.50		✓
Projects in Disputed Areas OP/BP 7.60		✓

Legal Covenants

Conditions

Type	Description
Effectiveness	The Grant Agreement shall not become effective until evidence satisfactory to the World Bank has been furnished that: (a) the execution and delivery of this Agreement on behalf of the Recipient have been duly authorized or ratified by all necessary administrative or corporate action; (b) the Cooperation Agreements and Subsidiary Agreements have been duly signed and delivered on behalf of the Recipient and the Project Implementing Entities and have been duly authorized or ratified by all necessary administrative or corporate action; and (c) the Project Operation Manual (POM) has been adopted by the Recipient in a manner and with contents acceptable to the World Bank.

PROJECT TEAM

Bank Staff

Name	Role	Specialization	Unit
Maria Bernadete Ribas Lange	Team Leader(ADM Responsible)	Environment Specialist	GEN04
Frederico Rabello T. Costa	Procurement Specialist(ADM Responsible)	Procurement Specialist	GGO04
Miguel-Santiago da Silva Oliveira	Financial Management Specialist	Financial Specialist	GGO22
Alberto Coelho Gomes Costa	Social Safeguards Specialist	Social Specialist	GSU04
Anders Jensen	Team Member	Monitoring and Evaluation	GENOS
Andre Rodrigues de Aquino	Peer Reviewer	Natural Resources Specialist	GEN01
Barbara Cristina Noronha Farinelli	Team Member	Agriculture Economist	GFA04
Caroline Barreto Moreira	Team Member	Operations	GEN01
Daniella Ziller Arruda Karagiannis	Team Member	Operations	GEN04
Gabriela Grinsteins	Counsel	Counsel	LEGLE
Garo J. Batmanian	Program Manager	FIP Coordinator	GENGE
Isabella Micali Drossos	Counsel	Counsel	LEGLE
Marcio Cerqueira Batitucci	Environmental Safeguards Specialist	Environmental Specialist	GEN04
Maurizio Guadagni	Peer Reviewer	Agriculture Specialist	GFA04
Meerim Shakirova	Team Member	Operations	GENGE
Sofia Keller Neiva	Team Member	Assistant	GFA04
Tatiana Cristina O. de Abreu Souza	Team Member	Disbursement	WFALA
Veronica Yolanda Jarrin	Team Member	Operations	GEN04
Waleska Magalhaes Pedrosa	Team Member	Paralegal	LCC5C
Wanessa De Matos Firmino Silva	Team Member	Assistant	LCC5C
Werner L. Kornexl	Peer Reviewer	Forest Specialist	GENGE

Extended Team

Name	Title	Organization	Location

BRAZIL
FIP: BRAZIL INVESTMENT PLAN: INTEGRATED LANDSCAPE MANAGEMENT IN THE CERRADO BIOME PROJECT

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I. STRATEGIC CONTEXT

A. Country Context

1. **Brazil experienced an unprecedented reduction in poverty and inequality over the past decade. A decade of sound macro policies and a favorable external environment contributed to fast economic and social progress between 2001 and 2015, when 24.2 million Brazilians escaped poverty**. Access to social services and basic infrastructure also improved significantly. Average years of schooling rose from 4.6 in 1995 to 8.2 in 2015 with larger improvements among the poor. In 2016, Brazil's gross domestic product (GDP) totaled nearly US$1.7 trillion with a per capita GDP of US$8,649.95, 3.6 percentage points lower than that in 2015.

2. **In 2016, during the economy's retraction, the agricultural sector increased its contribution from 21.5 percent to 23 percent of the GDP.** The sector represents 48 percent of the country's total exports. Endowed with diverse landscapes and substantial natural and land resources appropriate for forest, agricultural and livestock production, the country ranks third among the world's leading agricultural exporters, fourth in food production and second in bioethanol production. It has the world's second largest cattle herd and is the largest exporter of poultry, sugar cane and ethanol. However, the current economic crisis is rekindling conflicts over land and natural resources, especially in Brazil's Amazon and Cerrado Biomes, and highlighting the challenges the country faces in balancing the need for continued growth, the importance of the agricultural sector, and meeting international environmental commitments.

3. **Nonetheless, Brazil remains one of the world's most unequal countries, with significant areas of poverty both geographically and in terms of gender and race**. Brazil needs a different growth model to sustain past social gains. The World Bank Group (WBG) Systematic Country Diagnostic (SCD[1]) for Brazil identified three challenges for sustaining poverty reduction and shared prosperity in the future. The first challenge is the creation of sufficient productive and well-remunerated jobs to provide employment opportunities for all working-age Brazilians. A second challenge for continued poverty reduction and shared prosperity is more efficient and better-targeted government spending. The third challenge for improved livelihoods and economic opportunities is the smarter management of Brazil's natural resources and the better mitigation of environmental pollution and the risk of natural disasters. Three principal issues in natural resource management stand out and affect the bottom 40 percent of the income distribution (B40) directly and indirectly through their effects on growth and incomes: access to land and secure property rights, water management, and, more broadly, environmental management.

4. **In 2015, Brazil submitted its Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC)**. Brazil is committed to reducing greenhouse gas (GHG) emissions by 37 percent below 2005 levels by 2025 and, as a subsequent indicative contribution, to reducing GHGs by 43 percent below 2005 levels by 2030. The Government of Brazil (GoB) is committed to its NDC's implementation, with full respect for human rights and the rights of vulnerable communities, indigenous peoples, traditional communities and workers in sectors affected by corresponding policies

[1] Retaking the Path to Inclusion, Growth and Sustainability. Brazil Systematic Country Diagnostic. World Bank Group. Report N 101431-BR

and plans, and is promoting gender-sensitive measures.[2] The GoB is equally committed to achieving its NDC targets as it works to eliminate extreme poverty and reduce inequality. A large part of the NDC target is based on reducing emissions from deforestation and degradation (REDD).

B. Sectoral and Institutional Context

5. **The Cerrado, a large geographic area, is a strategic biome for economic and environmental reasons as well as for food security.** It covers a large area that contains significant carbon stocks and water resources, as well as substantial biodiversity. The Cerrado Biome covers approximately 200 million hectares (ha) of the Brazilian Central Plateau (24 percent of the country's total land area). As the second-largest biome in South America, it is home to the headwaters of three major South American river basins: Tocantins–Araguaia, Paraná–Plata, and São Francisco. The Cerrado is responsible for more than half of Brazil's soybean production. Agriculture occupies around 22 million ha, involving mechanized farming on large tracts of land and the widespread use of chemical inputs to correct soil acidity and enhance fertility. The Cerrado has an estimated 50 million head of cattle, nearly 33 percent of the national herd, on 54 million ha of grassland.

6. **The Brazil Investment Plan (BIP), endorsed by the Forest Investment Program (FIP) Subcommittee on May 18, 2012, represents an important tool for achieving Brazil's NDC commitments in the Cerrado Biome.** The BIP seeks to promote sustainable land use and forest management improvement in the Cerrado and to contribute toward reducing pressure on the remaining forests, reducing GHG emissions, and increasing carbon dioxide (CO2) sequestration.

7. **The BIP comprises coordinated actions among three ministries** Ministry of Environment (*Ministério do Meio Ambiente*, MMA); Ministry of Science, Technology and Innovation (*Ministério da Ciência, Tecnologia e Inovação,* MCTIC); and Ministry of Agriculture and Livestock and Food Supply (*Ministério da Agricultura, Pecuária e Abastecimento,* MAPA).

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[2] Brazil's NDC Restoration and Reforestation Target. Analysis of INDC land-use targets. World Bank. 2017. Report No. AUS19554.

8. **The BIP covers two thematic areas and includes interrelated pro**jects. Theme 1: Management and Use Already Anthropized Areas, aims to promote sustainable use on privately run farms. Better land use will result in reduced emissions and improved carbon sequestration, and will ease pressures for deforestation on the remaining forests. Theme 2: Production and Management of Forest Information, aims to generate and make available spatially and temporally consistent environmental information for the biome. In addition, complementary contributions to the BIP include a Dedicated Grant Mechanism for Indigenous People and Local Communities (DGM) and a private-sector window specifically designed to promote private-sector investment in Brazil.

9. Project 1.1: Environmental Regularization of Rural Lands (P143334) supports activities in selected municipalities within the nine states and the Federal District. Project 1.2: Sustainable production in areas previously converted to agricultural use (P143184) aims to test and evaluate the effect of training activities and technical assistance on the adoption of low-carbon emission practices by participating rural producers in Brazil's Cerrado region. Project 2.1: Forest Information aims to implement the national forest inventory in the Cerrado Biome. Project 2.2: Implementation of an early-warning system for preventing forest fires and a system for monitoring vegetation cover (P143185) aims to manage all the data needed for associated projects, including a system to monitor plant-cover changes through remote sensing and a conceptual model for calculating GHG emissions from deforestation. The BIP also includes a BIP Coordination Project (P152285) to coordinate projects and improve the sustainability and efficiency of forest resource management and land use in the Cerrado.

10. **This proposed project is complementary to those already under implementation**, which will scale up BIP results by supporting environmental regularization and low-carbon emission agricultural practices for landholders and traditional communities in selected watersheds, promoting landscape restoration, and enhancing forest carbon stock in the Cerrado Biome's private rural landholdings.

11. **The project will also contribute to the achievement of objectives of the National Policy on Climate Change (NPCC) and the Plan to Prevent and Control Deforestation and Fires in the Cerrado.** It will also ensure that rural properties assisted by the project are in environmental compliance with Brazilian Forest Code rules. The Brazil Low Carbon Agriculture Plan(ABC) is one of the sector plans stipulated by the NPCC. The program's ambitious goals include rehabilitating 15 million ha of degraded pastures and increasing the area under zero tillage from 25 million ha to 33 million hectares by 2020. The ABC Plan is also a credit initiative that provides low-interest loans to farmers who want to implement sustainable agriculture practices. These include no-till agriculture, the restoration of degraded pasture, the planting of commercial forests, biological nitrogen fixation, treatment of animal waste, and the integration of crops, livestock and forest.

12. The Brazilian Forest Code (Law 12.651 of 2012) requires that all private rural landholdings maintain a percentage of native vegetation as Legal Reserves (*Reservas Legais*, RLs);[3] and Areas of Permanent Preservation (*Áreas de Preservação Permanente*, APPs), such as riparian forests along watercourses, steep slopes, mountain tops, etc., also be maintained by landholders. The Forest Code also obliges landholders to register their landholdings in the Rural Environmental Cadaster (Cadastro

[3] The percentage to be held as Legal Reserves varies from 80 percent in the Amazon to 35 percent in the Cerrado within the Legal Amazon, to 20 percent in the rest of Brazil.

Ambiental Rural, CAR). CAR is an electronic registry of rural landholdings maintained by an official environmental entity. Its aim is to effectively monitor, supervise, control, plan and ensure the environmental compliance of landholdings. This registry contains details of the total area of individual farms, the areas earmarked for alternative land use, APPs and RLs. CAR provides essential information for monitoring and controlling private rural land use, including compliance with reforestation obligations. The system will be able to distinguish between legal and illegal land clearing, and will facilitate land use planning.

C. Higher Level Objectives to which the Project Contributes

13. **The proposed project objectives and strategy are in full alignment with the Bank's twin goals of ending extreme poverty and sharing prosperity in a sustainable manner**. The project will assist rural landowners in complying with national environmental legislation and consequently enable them to access government rural credit and technical assistance services, which may lead to: (i) improvements in land-use systems and the management of natural resources on which they principally depend for their livelihoods, food security, income and quality of life; and (ii) increased job and income opportunities for landowners and other stakeholders in the value chains generated by agricultural activities. In addition, the project will develop the capacity of public authorities to sustainably manage the natural resources of the Cerrado Biome, to protect the interests of future generations, and promote social resilience in the face of the expected effects of climate change.

14. **The objectives of the proposed project are also fully in line with the World Bank Group's Country Partnership Framework (CPF) 2018-2023 for the Federative Republic of Brazil (Report N° 113259-BR)** discussed by the Executive Directors on July 16, 2017. The project would specifically support Funder Focus Area 3: Inclusive and Sustainable Development, whose objective is to support the achievement of Brazil's NDC by focusing particularly on land use. As mentioned in the CPF, Brazil committed to a 43 percent reduction in GHG at the Paris Climate Conference in 2015. In doing so, Brazil affirmed its leadership in the international environmental agenda.

15. **The project also supports the two focus areas identified in the Bank's Forest Action Plan (FAP) FY16–20.** Under the Focus Area: Sustainable Forestry, the project seeks to contribute to the recovery and sustainable management of forests and their associated value chains. Under the Focus Area: Forest-Smart Interventions, the project fosters the adoption of integrated landscape planning, promotes agrosilvopastoral practices, informs decision making on land use, and builds stakeholder capacity.

16. **The project seeks to contribute to the achievement of Brazil's goals for the reduction of GHG emissions and for climate balance, as presented in the NDC during the UNFCCC negotiations**. This implies: (i) increasing CO2 sequestration through the restoration of the biome's native forests through the implementation of Law No. 12.651/12 (Forest Code), especially in the Environmental Regularization Program and the National Policy for the Recovery of Native Vegetation (*Política Nacional de Recuperação da Vegetação Nativa,* PROVEG, among other policies; (ii) consolidating the ABC Plan as the main strategy for sustainable agricultural development; (iii) reducing the pressure of deforestation on the biome by improving innovative land-use practices for agricultural production and forestry; (iv) promoting work and income generation while structuring production chains and land restoration for the environmental regularization of rural properties; (v) encouraging and facilitating the conservation and sustainable

management of natural ecosystems; and (vi) improving forest management in the Cerrado.

II. PROJECT DEVELOPMENT OBJECTIVES

A. PDO

17. To strengthen adoption of environmental conservation and restoration practices, and low-carbon emission agricultural practices in selected watersheds of Brazil's Cerrado Biome.

B. Project Beneficiaries

18. The direct project beneficiaries are the landholders living in the selected watersheds. It is expected that 4,000 landholders will benefit from technical assistance activities. The project will also provide training to enable the scale-up of low-carbon emission agricultural practices and land-restoration practices to an additional 5,200 people.

19. In defining beneficiaries, the project will consider the gender issue and encourage the participation of women in the activities and eventual generation of income and work resulting from the project. Some of the gender-focused activities will include gender assessments, the facilitation of women's participation in formal and informal decision-making structures and governance processes related to the equitable provision of inputs for restoration, and training for capacity strengthening to ensure effective participation in activities to be implemented through the cash-for-work scheme.

20. Other direct beneficiaries include national and local institutions. At the national level, the project will strengthen and help sustain cross-sectoral collaboration among: the Brazilian Forest Service (*Serviço Florestal Brasileiro,* SFB), MAPA, National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais,* INPE), Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária,* EMBRAPA), and National Rural Learning Service (*Serviço Nacional de Aprendizagem Rural*, SENAR). At the watershed level, state environmental agencies and local associations will be provided with the training and logistical support needed to mobilize and monitor project interventions. Enhancing knowledge generation and the management and functioning of institutions would facilitate the implementation of other projects and investments which would build upon and continue integrated landscape management (ILM).

21. The total number of beneficiaries is expected to reach at least 15,000 (including landholders' families, jobs created, and government officials), of who 25 percent are expected to be women.

C. PDO-Level Results Indicators

22. The successes of the project interventions will be measured through the following indicators:

- Land area where conservation and restoration practices have been adopted. (ha)
- Landholders adopting environmental conservation and restoration practices. (number, disaggregated by gender).

- Land area where low carbon agricultural practices have been adopted. (ha)
- Farmers adopting improved agricultural technology. (number, disaggregated by gender)

23. These indicators are consistent with the World Bank's corporate results indicators, the World Bank Group Forest Action Plan's core sector indicators, and the Brazil Partnership Framework 2018–2023 progress indicators.

III. PROJECT DESCRIPTION

24. **Project Approach.** The integrated landscape management approach (ILM) will be central to this project, in which conservation and production units within the agricultural matrix will be managed jointly for long-term sustainability. A landscape is a socio-ecological system that consists of a mosaic of natural and/or human-modified ecosystems, with a characteristic configuration of topography, vegetation, land use, and settlements, that is influenced by the ecological, historical, economic and cultural processes and activities of the area. The mix of land cover and use types (landscape composition) usually includes agricultural lands, native vegetation, and human dwellings, villages and/or urban areas.

25. ILM is an approach to forest restoration that seeks to balance human needs with those of biodiversity, thus aiming to restore a range of forest functions and accepting and negotiating the trade-offs among them. ILM not only allows a better balance between native and human-dominated areas, but can also define and impose a new landscape configuration that makes it possible to take maximum advantage of the services that landscapes can provide, whether these are targeted to agricultural production, biodiversity conservation, provision or regulation services, or a combination of these services (Metzger and Brancalion 2013[4]).

26. The elements of the proposed ILM are: (i) improving the implementation of the environmental regularization of rural landholdings through the rural environmental cadaster, thus enabling more effective supervision and monitoring of the deforestation and degradation of natural vegetation; (ii) restoring and protecting critical habitats within private landholdings (APPs and RLs), including: the re-establishment of biological and hydrological flows; the reconnection of fragmented habitats; and the restoration of multiple ecological process; (iii) promoting on-farm sustainable agricultural management, including the restoration of degraded pastures and an integrated crop–livestock–forestry system; and (iv) promoting land-use planning and integrating agricultural production with biodiversity conservation.

27. Forest restoration and low-carbon emission agricultural practices not only allow a better balance between native and human-dominated areas, but can also define and impose a new landscape configuration that enables agricultural production,[14] biodiversity conservation, carbon sequestration and provision of environmental services.

28. **Project Site Selection.** The project priority areas for ILM were defined based on multi-criteria analyses and a multi-stage processes to maximize environmental and agricultural benefits. These spatial analyses help to achieve scale in the project, and would reduce costs per landholding and hectare and

[4] Metzger and Brancalion. 2013. Challenges and opportunities in applying a landscape ecology perspective in ecological restoration: a powerful approach to shape neolandscapes. Natureza e Conservação 11(2):103–107, December 2013.

increase environmental benefits. The following criteria were used to pre-select priority watersheds: (i) an Otto watershed[5] with at least 90 percent of its territory located within the Cerrado Biome; (ii) density of cattle per watershed; (iii) deficit of APPs and RLs in each watershed; (iv) natural vegetation cover rate; (v) productive area open after 2008 (farmed area); and (vi) areas of APPs deforested before July 22, 2008 (considered consolidated areas by the Forest Code Law).

29. The potential project area encompasses up to 53 pre-selected watersheds in nine states (Bahia, Goiás, Maranhão, Minas Gerais, Mato Grosso do Sul, Mato Grosso, Piauí, São Paulo and Tocantins) within the Cerrado Biome. These watersheds cover an area of nearly 12.7 million ha, of which 48.6 percent are pasturelands holding an average of 10.98 cattle heads per ha. There are 55,051 landholdings within this potential project area; 83.4 percent of them are small landholdings or family agricultural landholdings, whereas medium-size and large landholdings account for 12.4 percent and 4.3 percent, respectively. A family landholder or rural family entrepreneur is one who carries out activities in rural areas, simultaneously meeting the following requirements: (i) he or she does not hold, in any capacity, an area of up to four fiscal modules; (ii) he or she mostly uses the manual labor of his or her own family in the economic activities of his or her establishment or undertaking; (iii) he or she has a minimum percentage of household income arising from economic activities of his or her establishment or enterprise, i.e., those defined by the Executive Authority (wording of Law No 12.512 of 2011); and (iv) he or she directs his or her establishment or undertaking with his or her family. Law11.326/2006.

30. The final watershed selection will be completed during the first stage of project implementation when the following additional criteria will be used to narrow the final list of sites: (i) number of landholders interested in adopting low-carbon emission agricultural and restoration practices; (ii) local institutional capacity and engagement; (iii) stakeholders' participation; (iv) local infrastructure, including roads and communication facilities; and (v) landscape dynamics and functions.

A. Project Components

31. The project will be implemented through three distinctive and complementary components: (i) Institutional Development and Capacity Building for Landscape Management; (ii) Mainstreaming Landscape Practices into Selected Watersheds; and (iii) Project Management, Monitoring, Evaluation and Communication.

32. **Component 1: Institutional Development and Capacity Building for Landscape Management (Estimated Cost: US$ 5.5 million).** The application of the ILM approach requires thorough and careful knowledge of the action's focus area. An understanding of land use is essential for having a strategic vision and creating scenarios for the future of the Cerrado's agriculture and the conservation. The aims of this component are to support the development of capacities at the national and local levels to plan and implement a landscape approach in the selected watersheds, create legitimacy for the project and secure the support of local stakeholders.

[5] *http://dados.gov.br/dataset/inde_1* Otto basins are contributing areas along stretches of the hydrographic network coded according to Otto Pfafstetter's method for basin classification. Pfafstetter developed a method for numerical coding of river basins, considering as a main input the areas of direct contribution in each section of the hydrographic network. The hydrographic basins correspond to the aggregation of areas of hydrographic contribution, known as *ottobacias*.

33. The main activities would include: mapping of classes of use and land cover (secondary vegetation, agriculture, livestock, mosaic occupation, forestry, urban areas) in all states of the Cerrado Biome and selected watersheds (TerraClass mapping); studies and information on the Cerrado; and strengthening of governance capacity of the MAPA, SFB, INPE, EMBRAPA, and SENAR. This component would finance consultancies, non-consulting services (e.g., vehicles rental, maintenance, and information technology [IT] services), infrastructure and civil works, the purchase of goods and equipment, the purchase of satellite images, the conduction of workshops and training, and the preparation and production of materials.

34. **Component 2: Mainstreaming Landscape Practices into Selected Watersheds (Estimated Cost: US$ 16 million).** The aims of this component are to promote the adoption of low-carbon emission agricultural practices as well as restoration practices within private landholdings and help improve production efficiency and environmental compliance. This component introduces a new strategy for technology transfer to landholders through field technicians trained in low-carbon emission agricultural practices for the restoration of environmental liabilities and productive landholding management.

35. The main activities would include: (i) an action plan for the selected watersheds; (ii) mobilization and engagement of producers and public environmental institutions; (iii) training; (iii) technical assistance for landholders; (iv) monitoring of landholdings' performance; and (v) support for the forest-restoration supply chain. This component would finance civil works, consultancies and trainers, non-consulting services, travel, technical assistance, technical supervisors and field technicians, purchase of goods and equipment, demonstration units, organization of events such as field days, and experience sharing.

36. **Component 3: Project Management, Monitoring, Evaluation and Communication (Estimated Cost: US$3.5 million).** The aim of this component is provide support for the project's technical and administrative management, including communication, monitoring, evaluation, reporting and auditing activities.

37. It will finance studies, workshops, training, travel, technical advice, consulting, administrative services, limited software and equipment, and operating costs.

B. Project Cost and Financing

38. The project will be financed by a US$25 million Strategic Climate Fund–Forest Investment Program (SCF–FIP) grant. The project costs are summarized below.

Project Components	Project cost US$	Trust Funds
Institutional Development and Capacity Building for Landscape Management	5,500,000	5,500,000
Mainstreaming Landscape Practices into Selected Watersheds	16,000,000	16,000,000
Project Management, Monitoring, Evaluation and Communication	3,500,000	3,500,000
Total Costs	25,000,000	25,000,000

C. Lessons Learned and Reflected in the Project Design

39. The project is based on the experience and lessons learned from several other projects6 that have been implemented by Brazil and its partners, such as the BMZ-financed German Cooperation Project Land and Environmental Management that is implemented through the GIZ; the Environmental Regulation Project for Rural Properties in the Cerrado of Brazil, financed by the FIP–World Bank; Sustainable Production in Areas Previously Converted to Agricultural Use, funded by the FIP–World Bank; Development of Systems for Forest-Fire Prevention and Monitoring of Vegetation Cover in the Brazilian Cerrado Biome, also financed by the FIP–World Bank; and the Amazon Land Use Mapping (TerraClass Amazon) and Cerrado Land Use Mapping (TerraClass Cerrado) Projects, which received financial support from several partners, including the Pilot Program to Conserve the Brazilian Rainforest (PPG7), the World Bank and the Brazilian National Development Bank (Banco Nacional do Desenvolvimento, BNDES).

40. Some of the specific lessons learned from these projects are that: (i) it is essencial to develop and implement spatial planning and monitoring platforms that assist governments, the private sector, non-governmental organizations (NGOs), landowners and others in planning for the prioritization and monitoring of native vegetation recovery in Brazil; (ii) integrated information contributes to decision making on landscape management; (iii) landholders' willingness to register in CAR is as much linked to the project's credibility and positive image as to the opportunity for environmental regularization and access to credit; (iv) communication investments, partnership developments, and strong, clear publicity regarding the legal and market requirements for environmental regulation are essential for awareness and engagement in the project; (v) collaboration at all levels of government and with the most influential institutions is essential for the successful implementation of CAR and the Environmental Regularization Program (*Programa de Regularização Ambiental,* PRA); (vi) georeferenced information with quality and technical precision are extremely important for the project's strategic planning; (vii) the engagement of public authority technicians and managers is necessary for the project's effective execution; (viii) rural technical assistance (*Assistência Técnica Rural,* ATER) with technical quality and results-based management contribute to the efficient management of rural properties; (ix) monitoring and evaluation (M&E) of projects allow for ongoing project execution improvement, focus on project objectives and optimum use of project resources; and, (x) forest restoration can encourage the structuring of a productive chain that generates income and work for rural and forest producers.

41. Most of these lessons have been combined successfully in the approach of the German Cooperation Project "Land- and Environmental Management" in the context of the Amazon Biome. Experiences of the German Cooperation Project serves as a reference for this project.

IV. IMPLEMENTATION

A. Institutional and Implementation Arrangements

42. The project will be implemented by MAPA and the SFB in partnership with the following key executing agencies: Brazil - Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) and SENAR.

[6] Cerrado Program's projects: P143376; P143362; P145822; P150892; Brazil Investment Plan's projects: P143334; P143185; P143184.

MAPA and the SFB have the overarching policy level responsibility for carrying out the overall institutional coordination required to implement project activities. The Brazil Investment Plan Executive Committee (BIP-EC) has appointed GIZ to manage grant resources.

43. To this end, the GIZ will sign a grant agreement with the World Bank to carry out project implementation. The grant agreement shall set forth the specific terms and agreements for grant management, and shall include the following responsibilities procurement of goods and contracting services needed for project execution with grant resources; carrying out disbursements and the financial execution and accounting of the project; and provision of the technical support to carry out the project activities.

44. A Subsidiary Agreement will be signed by the GIZ and SENAR on activities to promote low carbon agricultural practices (Component 2). Cooperation Agreements will be signed, as appropriate, by the GIZ, MAPA, SFB, SENAR, INPE, and EMBRPA on landscape monitoring, training, technical assistance and other landscape management activities.

45. The project's day-to-day implementation will be undertaken in close partnership among the agencies involved:

- The SFB, together with MAPA, will play a leadership role in project coordination. The SFB will be responsible for providing overall strategic advice and ensuring implementation of all activities related to CAR, and for environmental and restoration practices (RLs and APPs); and MAPA will provide overall strategic advice and support on the Low Carbon Emission Agriculture Plan's implementation
- As the grant recipient, the GIZ will act as MAPA, SFB and SENAR's partner under the terms of a Technical Cooperation Agreement to be signed. The GIZ will have financial management (FM) and fiduciary responsibility for the project, including day-to-day FM operations, budget execution and transaction processing. In addition, the GIZ will work closely with the SFB on all activities related to CAR and environmental and restoration practices. It will have primary responsibility for monitoring, evaluating and reporting on project implementation progress.
- SENAR, a private institution housed in the Brazilian Confederation of Agriculture and Livestock (*Confederação da Agricultura e Pecuária do Brasil,* CNA), will be one of the implementing agencies It will be responsible for overall rural extension activities and direct relationships with farmers and producers' organizations. Its project management team will include a general manager, a technical manager, an administrative manager and support staff, as well as ad hoc advisory services for management and specialized services. SENAR's central office will be responsible for all contracting and procurement and will provide the procured goods and services to SENAR's regional offices for seminars, workshops, courses and other activities.
- INPE, a research institution associated with the MCTIC, will be the leader for mapping of land clearing and land-use changes in the Cerrado Biome and selected watersheds.
- EMBRAPA will be involved in the preparation of the technical content of the training courses. Its researchers will validate all technologies disseminated by the project (restoration and low-carbon agricultural practices). EMBRAPA will also be involved in mapping and monitoring land-use changes in the overall Cerrado Biome and selected watersheds.

46. The Project Operational Manual (POM) will describe the roles and responsibilities of each

implementing agency as well as the decision-making process and structure.

47. The project has developed a management arrangement to ensure synergies among the different implementing partners during the implementation phase.

- **Project Advisory Committee (PAC).** An advisory body comprising representatives of implementing and executing agencies will be established to provide strategic guidance, ensure linkages with relevant sectoral policies and programs, assist in the resolution of any inter-sectorial debate, and monitor the project's targets and indicators. Its purpose is to articulate, align and integrate project implementation. This committee will comprise representatives from the GIZ, SENAR, EMBRAPA, MAPA, SFB and INPE. It will meet at least once every six months or whenever necessary, with the GIZ serving as the committee's secretary. The committee will determine the overall implementation strategy and changes to it; review and agree on annual project implementation plans; and review M&E reporting. It will continually evaluate the project, using the implementation monitoring data and recommended additional monitoring.
- **Project Coordination Unit (PCU).** The PCU is the lead implementing body under the SFB. The PCU will be responsible for coordinating project implementation; technically supervising the development of project activities, including effective coordination of research and development activities at the project level; coordinating the project's different actors; and monitoring and evaluation the project. This unit will be the Bank's main liaison during project implementation. As the formal project manager, it will compile all project-related information provided by the implementing agencies, and will produce technical and safeguard reports as required by World Bank policies. The PCU will also act as the chair for the PAC. The unit will be headed by a project coordinator and supported by technical specialists and administrative staff.
- **Project Executing Units (PEUs)**. Two PEUs will be established: one in the GIZ (PEU–GIZ) and the other in SENAR (PEU–SENAR). Each PEU will have dedicated personnel to ensure the planning and budgeting of project activities, FM and procurement, technical supervision and quality control, gender and social inclusion, environmental and social safeguards compliance, and M&E.
- **Technical Working Groups.** Specific Technical Working Groups would be established to analyze and provide technical guidance on issues that may arise with respect to implementation. These groups will typically include a subset of PAC members complemented by additional technical experts drawn from universities, research institutions, and/or stakeholders relevant to the question at hand.

B. Results Monitoring and Evaluation

48. With an increasing number of projects investing in landscape-level initiatives, the call for methods and indicators to understand and assess their success is growing (e.g., Sayer 2006; Tropenbos International 2015). Nevertheless, the assessment of environmental and development outcomes in a conservation landscape remains a challenge. The project adopts a multi-scale M&E approach, i.e., at watershed and landholding scales.

49. The selection of indicators was designed to reflect the landscape approach within landholding activities, conservation objectives, as well as stakeholders' participation. In addition, the use of corporate core indicators, FAP performance indicators, and Brazil CPF progress indicators will allow the results and impacts to be aggregated at BIP, FIP, and World Bank Group corporate levels.

50. The project's outcomes and outputs will be evaluated through the PDO and intermediate-level indicators described in the Results Framework. The development of a Results and Monitoring Framework provided specificity in terms of indicators, data-collection methodology, reporting responsibilities and frequency of M&E activities (Annexes 1 and 2). The POM will provide relevant details for M&E methodology and implementation. The monitoring of project outputs will be conducted in partnership with the various implementing agencies. Project execution and results monitoring will use the reports of systems that are already in use, such as SICAR, Sustainability Indicators in Agroecosystems (Indicadores de Sustentabilidade em Agroecossistemas, ISA), TerraClass and others.

51. The GIZ, with the support of the Project Committee, will be responsible for monitoring the progress of the project's results and impacts. To monitor and evaluate the project's execution, the GIZ will develop and make available an electronic system for monitoring and evaluating project execution. This monitoring approach will be complementary to the commissioned arrangement with the German Cooperation Project "Land-and Environmental Management.

52. The Project's M&E includes PDO and intermediate results indicators to monitor implementation progress. See Section VII Results Framework and Monitoring for further information.

53. Project progress reports will be submitted to the World Bank twice a year. In addition, project M&E will be conducted in accordance with BIP monitoring and evaluation; and established FIP rules and procedures.

54. The monitoring of project outputs will be conducted in partnership with the various implementing agencies. The PCU (when preparing the annual work plan and budget) and supervision missions will use the annual monitoring reports to ensure that the project is on track. The BIP-EC will also oversee the communication of monitored information and provide inputs to the BIP M&E system.

C. Sustainability

55. Overall, the proposed project will help MAPA and the SFB to implement the Low-Carbon Emission Agricultural Plan and the Forest Code, which are priorities for the Federal Government. Project sustainability will be found in the long-term financial and non-financial benefits that will be achieved as a result of activities that the project will implement in selected watersheds.

- Producers' involvement will contribute to the sustainability of investments that are mutually beneficial to them and the government agencies. Environmental compliance certification will incentivize farmers'/landowners' interest in investing in the medium- to long-term productivity of their landholdings.
- Producers' application of sustainable practices and best practices for soil use and management on their rural properties will enable ILM and the reconciliation of agriculture and livestock raising with ecosystem conservation in the Cerrado Biome.
- The use of ATER with quality- and results-based management will increase producers' access to credit for simultaneously increasing agricultural production and forest restoration.
- Improvement and expansion of natural vegetation will ensure long-term provision of ecosystem services (generating local, national and global environmental benefits) that come from such areas.

- The structuring of forest-restoration productive chains in the region will provide financial autonomy to rural producers who supply raw materials (seeds, seedlings, planting and maintenance services).

D. Role of Partners

56. Although several agencies and institutions will participate in project implementation, the SFB and MAPA will conduct overall coordination. The project's day-to-day implementation will be undertaken in close partnership among the following:

- MAPA, together with the SFB, will play a leadership role in project coordination. It will also provide overall strategic advice and support on Low Carbon Emission Agriculture Plan Implementation.
- The SFB, together with MAPA, will play a leadership role in project coordination. The SFB will be responsible for providing overall strategic advice and ensuring implementation of all activities related to CAR, and for environmental and restoration practices (RLs and APPs).
- As the grant recipient, the GIZ will be the grant recipient. It will act as MAPA, SFB and SENAR's partner under the terms of a Technical Cooperation Agreement to be signed. The GIZ will have financial management (FM) and fiduciary responsibility for the project, including day-to-day FM operations, budget execution and transaction processing. In addition, the GIZ will work closely with the SFB on all activities related to CAR and environmental and restoration practices. It will have primary responsibility for monitoring, evaluating and reporting on project implementation progress.
- **SENAR** will be one of the implementing agencies. It will be responsible for overall rural extension activities and direct relationships with farmers and producers' organizations. Its project management team will include a general manager, a technical manager, an administrative manager and support staff, as well as ad hoc advisory services for management and specialized services. SENAR's central office will be responsible for all contracting and procurement and will provide the procured goods and services to SENAR's regional offices for seminars, workshops, courses and other activities.
- INPE will be the leader for mapping of land clearing and land-use changes in the Cerrado Biome and selected watersheds.
- EMBRAPA will be involved in the preparation of technical material for the training courses. Its researchers will validate all the practices disseminated by the project (restoration and low carbon agricultural practices). EMBRAPA will also be involved in mapping and monitoring land-use changes in the overall Cerrado Biome and selected watersheds.
- UFLA – The Federal University of Lavras will be involved in the information and technology solutions of SICAR. This partnership is established through a formal cooperation agreement instrument in the Brazilian legislation, between UFLA and SFB.

57. Under the institutional leadership of MAPA and the SFB, institutional arrangements and possible future partnerships will be formalized, published and communicated to all those involved in the project's execution. The POM will detail the roles and responsibilities of each implementing agency as well as the decision-making process and structure.

V. KEY RISKS

A. Overall Risk Rating and Explanation of Key Risks

58. **The overall risk rating for the proposed project is Substantial.** The key factors underlying this rating are related to the issues highlighted in the following paragraphs.

59. **Political and Governance Risk is rated Substantial**. Governance risk is related to the significant number of implementing agencies. Furthermore, the current political situation poses a risk to the project due to the potential changes to key political appointees in federal and state agencies (including MAPA, SFB, INPE, and state environmental agencies). To mitigate this risk, the key personnel involved in the project are public servants and will most likely not rotate. Continuity of the proposed activities is foreseeable, even in the event of political changes, because the project focuses on the implementation of national and international commitments such as the NDC, Low-Carbon Emission Plan, and Forest Code; and has a strong focus on private landholdings and productivity.

60. **Macroeconomic Risks are rated Moderate.** Brazil's current macroeconomic situation could potentially impact the government implementing agencies funding due to the potential decreased budget to federal and state agencies. These factors may slow implementation of the national policies related to the NDC. The project will monitor and adapt to the extent feasible. This risk is mitigated because the project's fiduciary responsibility will be under the responsibility of non-Brazilian-government institutions (GIZ and SENAR).

61. **Sector Strategies and Policies Risk is rated Low**. In 2015, the GoB announced at the United Nations Climate Conference in Paris its NDC to the global effort of mitigating climate change. The NDC reaffirms the National Plan on Climate Change and the National Policy on Climate Change, Law 12.187/2009 (*Política Nacional de Mudanças Climáticas*, PNMC). The NDC states that Brazil will comply with its Native Vegetation Protection Law (Law 12.651/2012, the Forest Code). In addition, the implementation of the Forest Code and the Low-Carbon Agriculture Plan are priorities for the Federal Government.

62. **Technical Design of Project Risk is rated Moderate.** The main technical issues are associated with the fact that ILM involves coordination of multiple institutional partners, policies and a participatory process. To mitigate the risk, project design includes activities to strengthen the capacity of stakeholders and enhance landscape monitoring capacity. A solid M&E process was designed and agreed during project preparation. The existing legal framework and government commitment are also mitigating factors.

63. **Institutional Capacity for Implementation and Sustainability Risks are rated Moderate.** There is a risk that project implementation may be affected by management difficulties, thus compromising the desired quality and compliance with agreed timelines. To mitigate the risk, the project will support capacity building at national and local levels in support of planning and implementing a landscape approach across economic sectors by focusing on development challenges at the appropriate scale, minimizing trade-offs and reaping more value from existing resources.

64. **Stakeholder Participation Risk is rated Moderate.** Strong stakeholder participation is key both to

the successful adoption of conservation and agricultural practices and to the implementation of an integrated landscape approach in the selected watersheds. To mitigate the risk of low stakeholder engagement, the project will seek to actively involve a wide range and number of landholders through training activities, communication campaigns and mobilization activities, rural extension and services, and to actively promote dialogue among productive associations and local leaders. It will reinforce the ongoing CAR, PRA and Plan to Rehabilitate Degraded Areas (*Plano de Recuperação de Áreas Degradadas*, PRADA) processes, and improve dialogue focus on national legislation and climate-change policies.

65. **Fiduciary Risk is rated High.** Overall, the procurement risk associated with the project, for the time being, has been assessed as High, due to the lack of experience with Bank's rules. The residual FM risk associated with the project is rated as Substantial. Due to the limited experience of the GIZ, with Bank financed Projects and the close coordination that will be required between the GIZ and SENAR.

66. **Environmental and Social Risks are rated Low.** The project is rated an Environmental Category B. It is expected to have an overall positive impact on the environment because it seeks to promote the protection of APPs and RLs, reforestation, recovery of degraded pastures, and reduction in the environmental impacts of agricultural activities mainly through rural extension activities. To mitigate the risk, the project will adopt an integrated landscape approach aimed at sustainably managing land for multiple purposes and functions. An Environmental and Social Management Framework (ESMF), including social and environmental assessments, will provide guidance on potential issues that could arise during project implementation. Periodic Bank supervision missions to the project will verify compliance with Bank safeguards and recommend corrective actions when applicable.

VI. APPRAISAL SUMMARY

A. Economic and Financial (if applicable) Analysis

67. **Approach.** Financial and macroeconomic assessments were carried out to estimate the cash flow and price sensitivity for low-carbon emission agricultural practices and forest recovery, as well as the project's macroeconomic viability through shadow prices and value of potential CO2 captured. For the financial evaluation, the projections had multi-year investments, including the first-year project costs, using an annual interest rate of 7.5 percent. The same applied for the credit line of the BNDES–ABC Program, assuming an average farm size of 1,000 ha with 200 ha of RL that can be restored and 800 ha of agricultural and/or livestock production. For the purpose of this analysis, two scenarios were considered (Scenario 1: 100 percent investment; Scenario 2: partial investment) and technical production assumptions were made for four different activity levels expected to be implemented by farmers after project interventions:

Level I: Conventional livestock pasture systems, grazing soils with high level of degradation;
Level II: Adoption of no-tillage system;
Level III: Adoption of crop and livestock integration system (CLI);
Level IV: Adoption of crop, livestock and forest integration system (CLFI).

68. In addition, two technical scenarios were considered for the RL recovery projections: mechanized and not mechanized.

69. For the macroeconomic analysis, the private and social projections used an annual discounted rate of 10 percent, as well as shadow prices, value of potential CO_2 capture, option value plus existence value, and hedonic pricing. The analysis also considered the expected consolidation of Level I, II, III and IV activities under the project, spread over 1,600,000 ha where 44,000 project-targeted properties are located. Projections were made for four scenarios[7] using the following technologies: (i) Livestock No-tillage—*PDF (Pecuária Plantio Direto,*); (ii) CLI 3 Areas—PDF; and (iii) CLFI Simple Row 2x22—PDF. All the scenarios considered that the producer has already made part of the investments as well as a 25 percent recovery of the RL.

70. **Findings.** For the financial analysis, the results of the different activity levels have used specific premises and should not be extrapolated to particular cases. Among the projections under Scenario 1, with 100 percent of investments, all practices were attractive except for pasture-recovery technology, considering the adopted minimum attractiveness rate of 7.5 percent. The price-variation sensitivity analysis showed the robustness of the investments and that with a 10 percent increase in the price of bovine arroba, all projections for livestock production become attractive (Table 1). In the projections for Scenario 2, with partial investment in improvements, machinery and livestock, all projections present viability and financial attractiveness (Table 2). In both investment scenarios, the CLFI activities stand out due to the lower risk associated with price variation. The CLFI simple row 4x10–PDF presented more attractive returns than the 2x22–PDF spacing option, due to the higher income provided by the greater number of trees per area in the tenth planting year.

71. Both the integrated crop–livestock (ICL) 3 and 4 areas–PDF presented economic viability in all scenarios. The ICL 3 areas model did not show attractiveness except in Scenario 1 of 100 percent of the investments combined with the 10 percent reduction in the sale price of the products. All projections are characterized by consistently positive cumulative cash flow.

72. In most cases, cattle producers will find it difficult to implement the ICL 4 areas—PDF because they will require greater managerial and technological capacity to absorb the risk associated with annual crops. The average cattle producer in Brazil would migrate to the ICL 3 areas—PDF model, planting corn or sorghum which would require fewer technological needs.

73. For all the projections, the expenditures for the recovery of RLs had little impact on the economic indicators. This shows that all the attractive projects could absorb the costs of environmental recovery.

[7] Scenario 1: 100% of the project's area of coverage; Scenario 2: 50% of the areas covered in a 2-year period, 50% per year–800,000 ha; Scenario 3: 25% of the areas covered in a 2-year period, 50% per year–400,000 ha; Scenario 4: 10% of the areas covered in a 2-year period, 50% per year–160,000 ha.

Table 1. Financial projections for 20-year period under Scenario 1 with 100% of investments financed, in R$.

Level	Description	Investment	NPV (20th year)	IRR Agriculture (%) 20th year	IRR Livestock (%) 20th year	IRR Forest (%) 20th year	IRR Global (%) 20th year	Payback (years)
I	Conventional livestock	5,153,935.05	-3,007,878.77	-	0.08%		0.08%	20
II	Livestock no-tillage	5,153,935.05	-2,750,590.39	-	0.79%	-	0.79%	20
	Livestock no-tillage	5,003,534.09	-2,394,724.48	-	1.58%	-	1.58%	19
III	ICL 3 areas-Livestock no-tillage	5,212,255.60	2,169,563.24	-0.81%	23.38%	-	11.87%	10
	ICL 4 areas–Livestock no-tillage	6,952,540.57	4,009,953.45	17.80%	9.65%	-	14.22%	9
IV	CLFI simple row 2x2– Livestock no-tillage	5,925,560.43	3,780,836.13	-1.15%	7.15%	25.07 %	13.08%	10
	CLFI simple row 4x10– Livestock no-tillage	5,940,079.86	7,186,128.33	-2.88%	0.59%	26.41 %	15.20%	10

Source: FIP Landscape Project, Financial and Economic Analysis Report.

Table 2. Financial projections for 20-year period under Scenario 2 with partial investments in improvements, machinery and livestock, in R$.

Level	Description	Investment	NPV (20th year)	IRR Agriculture (%) 20th year	IRR Livestock (%) 20th year	IRR Forest (%) 20th year	IRR Global (%) 20th year	Payback (years)
I	Conventional livestock	3,006,171.54	1,188,727.06	-	13.13%	-	13.13%	8
II	Livestock no-tillage–PDA	3,006,171.54	1,446,594.40	-	14.28%	-	14.28%	7
	Livestock no-tillage–PDF	2,889,944.60	1,803,667.57	-	16.27%	-	16.27%	6
III	ICL 3 areas–PDF	3,055,323.09	6,533,667.57	6.05%	63.84%	-	33.42%	3
	ICL 4 areas–PDF	4,622,504.60	8,837,236.41	30.40%	69.95%	-	37.04%	2
IV	CLFI simple row 2x22–PDF	3,938,178.06	9,958,375.39	-1.15%	96.31%	25.11%	39.05%	2
	CLFI simple row 4x10–PDF	3,952,697.48	19,705,703.04	14.82%	96.16%	27.76%	41.65%	3

Source: FIP Landscape Project, Financial and Economic Analysis Report.

74. For the macroeconomic analysis, results indicated that, from a private perspective, the project as a whole is perfectly viable: on the one hand, as verified in the analysis at property level, there is an incentive for its adoption by producers; from an aggregate standpoint, an internal rate of return (IRR) of less than 20 percent is perfectly acceptable in all the simulations.

75. From a social perspective, using shadow-prices, the IRRs for all scenarios indicated that the project is macroeconomically feasible (Table 3). According to projections, the total project investment of US$25 million will have returns in terms of the benefits of sequestered carbon, considering the hypothesis that 12 percent of the project area will be implemented and valuing CO2 at US$3/ton or 2.4 percent of the area if the value of CO2 is US$15/ton. Conversely, in order to pay the project amount of US$25 million, it would require an annual investment of US$3.17 million for 20 years discounted at an annual rate of 10

percent.

Table 3. Global NPV and IRR estimates for the project by scenario.

Scenarios	Global NPV 7.5%	Global IRR
Scenario 1: 100% of the project's area of coverage	R$ 10,792.68	39.0%
Scenario 2: 50% of the areas covered in a 2-year period	R$ 5,089.36	35.6%
Scenario 3: 25% of the areas covered in a 2-year period	R$ 2,544.68	35.6%
Scenario 4: 10% of the areas covered in a 2-year period	R$ 1,017.87	35.6%

Source: FIP Landscape Project, Financial and Economic Analysis Report.

76. **Non-quantified benefits**. Because of the theoretical and technical limitations characteristic of environmental projects, various side effects can be generated and difficult to quantify, such as:

- The national image, through concrete demonstration of the political will to comply with the commitments made in the Paris Agreement;
- The project's impact on the preservation of water quality and availability, due to its indirect and direct effects on springs;
- Preservation of the affected biome's biodiversity;
- The "demonstration effect" to producers in general of environmentally correct and profitable practices; and
- The dissemination of conservation-oriented awareness among producers, even those who cannot be integrated in the project.

B. Technical

77. This project will focus on critical watersheds in the Cerrado Biome, thus making it possible to scale up ILM to other watersheds through the application of lessons learned from its implementation.

78. The project's theory of change is built around the following core pillars:

- Improving the implementation of the environmental regularization of rural landholdings through the rural environmental cadaster to enable more effective supervision and monitoring of the deforestation and degradation of natural vegetation;
- Promoting restoration and protection of critical habitats within private landholdings (APPs, RLs), including re-establishment of biological and hydrological flows; reconnection of fragmented habitats; and restoration of multiple ecological processes;
- Promoting on-farm sustainable agricultural management, including restoration of degraded pastures and integrated crop–livestock–forestry system; and
- Promoting land-use planning and integrating agricultural production with biodiversity conservation.

79. The project will act in synergy with other BIP projects and contribute to the achievement of objectives of the National Policy on Climate Change and the Plan to Prevent and Control Deforestation and Fires in the Cerrado. It will also ensure that rural properties assisted by the project are in environmental compliance with Brazilian Forest Code rules. The income of rural properties, especially those that raise dairy and beef cattle, are expected to increase.

80. The project's transformational impact will result in a better balance between agricultural productivity and guaranteed natural areas for biodiversity conservation and environmental quality.

C. Financial Management

81. During various meetings held in September and October 2017, the Bank performed a financial management assessment (FMA) of the FM arrangements for the project to be implemented by the GIZ and SENAR. The FMA was carried out in accordance with Bank Policy: Investment Project Financing and Bank Directive: Investment Project Financing and the Financial Management Manual for World Bank-Financed Investment Operations (effective March 1, 2010 and revised February 10, 2017).

82. The scope of the FMA included: (i) an evaluation of existing FM systems to be used for Project monitoring, accounting and reporting; (ii) a review of staffing arrangements; (iii) a review of the flow of funds arrangements and disbursement methods to be used; (iv) a review of internal control mechanisms in place, including internal audit; (v) a discussion with regards to reporting requirements, including the format and content of Unaudited Interim Financial Reports (IFRs); and (vi) a review of the external audit arrangements.

83. The FMA's overall conclusion are that the FM arrangements for the proposed Project are considered adequate; the funds flow, disbursements, monitoring, auditing and supervision arrangements have been designed in a way to respond to the Project's implementation arrangements; and the residual FM risk associated with the Project is rated as Substantial.

84. The FMA identified the following risks to the achievement of the Project Development Objective: the limited experience of the GIZ, with Bank financed Projects; and the close coordination that will be required between GIZ and SENAR, both of which will be mitigated by close Bank support and supervision.

D. Procurement

85. Assessment of SENAR's capacity to implement procurement: SENAR currently implements another FIP grant and a full capacity assessment was prepared in 2014. Their execution track record is acceptable and an assessment update is not deemed necessary.

86. A full assessment of the GIZ's capacity to implement procurement following Bank regulations has been conducted. Its procurement department is adequately staffed, but it lacks prior experience with Bank procurement regulations. A need for training and intensive hands-on support is anticipated.

87. The Procurement Assessment identified the following risks to the achievement of the Project Development Objective: (i) the limited experience of the GIZ, with Bank financed Projects; and (ii) the close coordination that will be required between GIZ and SENAR, both of which will be mitigated by close Bank support and supervision.

E. Social (including Safeguards)

88. The project is expected to yield the following socio-economic benefits: (i) enablement of landholders to access the resources and other assistance services provided under the ABC Plan; (ii) assurance to landholders that they are fulfilling part of the environmental legislation requirements, thus enabling them to undertake investments in agricultural products that will allow them to access a range of markets which require such compliance; (iii) establishment of enabling requirements for landholders,

(including land reform settlers and traditional communities) to access target rural credit as PRONAF, and (iv) increase of employment and income for landholders (including land reform settlers and traditional communities) and other partners in the business chain generated by farming activities, thereby contributing to poverty alleviation.

89. **Safeguards.** Operational Policies OP/BP 4.10 (Indigenous Peoples) and OP/BP 4.12 (Involuntary Resettlement) are not triggered. The project will not interfere with indigenous peoples because there are no indigenous lands within its area of influence (the geographic area of the 53 preselected watersheds). Meanwhile, indirect benefits are expected for traditional communities and indigenous peoples because project activities may contribute toward reducing pressures on remaining forests and/or native forest areas, protecting headwaters and riparian zones, improving the physical, chemical and biological conditions of the soil, and reducing water and soil pollution. Project activities will not require land acquisition or imply creation of protected areas. Therefore, involuntary population displacement and/or negative impacts on livelihoods due to land acquisition are not envisaged.

90. **Key stakeholders** (family and non-family landholders' representative organizations, research, technical assistance, rural extension services, state and municipal governments, and other entities represented in the ABC Plan's State Management Groups) will be consulted during project preparation through individual interviews and focus group as well as through a broadly disseminated consultation process on implementing agencies' websites. The results of this consultation process will be reported and included as an annex to the project's Social and Environmental Management Framework. The experience gained by the MMA (P143334) and MAPA (P1431284) in previous projects shows that conducting the process in close consultation and cooperation with landholders minimizes the potential conflicts and better responds to their needs and demands. The implementing agencies (SFB, SENAR and MAPA) have demonstrated adequate procedures and capacity to identify and mitigate impacts under Bank-funded operations.

91. **Consultation**. The project forms part of the BIP, which has been widely and publicly submitted for the consideration of diverse stakeholders through informational and consultation sessions. To date, representatives of the private sector, academia, NGOs, social movements, state environmental agencies, indigenous peoples and traditional communities have been consulted. Project specific consultations are being held with key stakeholders (NGO, specialists from Universities, research centers and civil society organizations).

92. **Citizen Engagement and Beneficiary Feedback**. The project's approach to integrate landscape management requires active engagement for land users to adopt low-carbon agricultural and forest restoration practices. The project will mobilize local producers' groups and focus on social inclusion of all beneficiaries in these practices. This will require consistent and transparent messaging to avoid misinformation and ensure equitable access to project benefits. The specific elements of the framework for citizen engagement comprise support for the engagement of local landholders in the planning and management of selected watersheds, including monitoring; and support for a feedback mechanism from beneficiaries and stakeholders to be designed to process concerns and questions from beneficiaries and other stakeholders at different levels (from watershed to local), with a view to resolving these concerns and questions within certain time frames. The protocol and mechanisms for elements of this citizen engagement framework will be detailed in the POM. Quality of its implementation and progress will be

monitored through supervision and dialogue.

93. **Gender.** By focusing on capacity-building and extension-service activities that will foster opportunities to access credit lines and apply low-carbon agricultural technologies, the project can contribute toward addressing some of the key challenges that hinder gender equity in the Cerrado Biome, because it includes a set of activities that the literature considers critical to overcome gender inequalities and empower women. These activities are related to the project's communication strategy; the preparation of Action Plans for integrated landscape management in selected watersheds; the project's training and capacity-building activities; and the project's technical assistance and extension services.

94. The project communication strategy will take the appropriate steps to inform women in the selected watersheds about project activities and include venues that women producers frequent or to which they have access. Furthermore, the socioeconomic diagnostic of the watershed will incorporate a gender lens to assess the differences in men's and women's development needs and preferences; their differences in access to and control over resources; and the potential distributive impacts of a development intervention on women and men. The process of preparation of the "watershed action plans" will promote the participation of both men and women in their preparation meetings and workshops. The planning workshops will be planned and carried out at times and in places that are well aligned with women's needs, productive tasks and domestic and family responsibilities to encourage their more active participation. Training and capacity building events will seek the enrollment of both men and women. The rural extension and technical assistance events will be organized at times and in places that are well aligned with women's needs to ensure their enrollment and participation. These events will include targets related to the share of farms owned by women to receive visits from extension service agents and the share of women farmers to receive orientation. The Project aims to reach at least 30 percent of female-headed landholdings and/or women producers' enrollment in its capacity building activities and at least 25 percent of female-headed landholdings' participation in rural extension and technical assistance events.

95. A Gender Action Plan (GAP) has been developed for the project aim to promote the participation of women farmers in project activities. The GAP focuses on four areas that are commonly pointed out by the literature as critical for women's empowerment and gender equity in rural development: (i) access to information; (ii) participation in policy planning; (iii) access to training and capacity building activities; and (iv) access to technical assistance and extension services. The GAP will be monitored and evaluated according to gender sensitive indicators. This M&E system will allow the PCU to periodically assess the efficiency of the project approach to promote participation of women farmers in its activities and to benefit from them as well as to take additional measures to enhance participation and improve benefit sharing. See Annex 7 for further information.

96. **Grievance Redress Mechanisms.** To handle grievances, the project will rely on a standalone platform of communication and citizen engagement with stakeholders and beneficiaries that is being developed and will be broadly disseminated in the project's areas of intervention. This platform will be integrated with the ombudsman's offices of all the implementing agencies.

F. Environment (including Safeguards)

97. The project is expected to have a positive environmental impact because it seeks to promote the rural environmental cadaster, native vegetation restoration, and the adoption of low-carbon emission agricultural practices. The practices to be promoted are more environmentally sustainable than conventional production practices.

98. Component 1: Landscape Approach will focus on: (i) producing maps, digital data and information; (ii) designing and implementing a communication strategy; (iii) producing monitoring reports; and (iv) mainstreaming the integrated landscape approach in public policies as well as land use monitoring. As such, this component will focus on technical assistance, institutional strengthening and capacity building activities that would not make any investment in physical works. Component 2 would support a set of actions focusing on reforestation, agroforestry, seed nurseries, livestock production, training activities, and technical assistance. Component 3 will focus on project management, M&E of its implementation and communication activities.

99. Based on assessments undertaken and previous projects, no significant negative impact is expected because all proposed activities are intended to promote and consolidate the adoption of sustainable natural resources and land management practices that would contribute toward reducing carbon emissions.

100. **Regulatory Framework.** The GoB's environmental laws reflects a political culture of strong environmental protection. The proposed project will assist landholders in implementing the Forest Code (Law 12.651/2012) and promote low-carbon emission agricultural technologies, the recovery of degraded pasture land, and the implementation of integrated crop–livestock–forestry systems under the Low-Carbon Emission Agriculture Plan (Plano ABC–Agricultura de Baixa Emissão de Carbono) in selected municipalities by scaling up the BIP's actions to reduce deforestation, forest degradation and GHG in the Cerrado Biome.

101. **Safeguard Polices.** Thus, the project essentially comprises a conservation and agricultural technology transfer project. It is therefore rated as Category B. The project will support a set of actions focused on reforestation, agroforestry, nurseries, livestock production, training activities, technical assistance, and land-use monitoring.

102. The following environmental safeguards are triggered: Environmental Assessment OP/BP 4.01; Natural Habitats OP/BP 4.04; Forests OP/BP 4.36; and Pest Management OP 4.09. Because actual project activity sites are not known, and in view of the type of works to be carried out, an ESMF is being prepared, including social and environmental assessments.

103. Activities under the proposed project should lead to positive impacts on natural habitats and forests, such as their conservation and the recovery of natural habitats and forests. Because OP/BP 4.04 and OP/BP 4.36 are triggered, all planning activities must follow World Bank policies. The ESMF considers the requirements of OB/BP4.36 whenever restoration and plantation activities are being planned, and include screening criteria to ensure that project activities identify potential adverse impacts on forest resources or on the social risks associated with any proposed changes to forest management.

104. The agricultural practices and conservation and restoration practices s to be promoted are more environmentally sustainable than conventional production practices. Although project funds will not be applied to purchase any agricultural chemicals, these practices can involve their use. The project will train rural extension agents to support producers in agricultural practices. Therefore, OP 4.09 is triggered and the project's ESMF will include guidance on OP/BP 4.09 requirements for field interventions and for leveraging these requirements through extension agents trained under the project.

105. The ESMF will provide guidance on potential issues that could arise during project implementation. Periodic Bank supervision missions to the project will verify compliance with Bank safeguards and recommend corrective actions when applicable.

106. **Safeguard Management Performance**. The implementing agencies (SFB, MAPA, SENAR and INPE) have demonstrated adequate procedures and capacity to identify and mitigate impacts under Bank-funded operations. The experience gained by the MMA (P143334) and MAPA (P1431284) in previous projects shows that conducting the process in close consultation and cooperation with landholders minimizes potential conflicts and better responds to their needs and demands.

G. World Bank Grievance Redress

107. Communities and individuals who believe that they are adversely affected by a World Bank (WB) supported project may submit complaints to existing project-level grievance redress mechanisms or the WB's Grievance Redress Service (GRS). The GRS ensures that complaints received are promptly reviewed in order to address project-related concerns. Project affected communities and individuals may submit their complaint to the WB's independent Inspection Panel which determines whether harm occurred, or could occur, as a result of WB non-compliance with its policies and procedures. Complaints may be submitted at any time after concerns have been brought directly to the World Bank's attention, and Bank Management has been given an opportunity to respond. For information on how to submit complaints to the World Bank's corporate Grievance Redress Service (GRS), please visit *http://www.worldbank.org/en/projects-operations/products-and-services/grievance-redress-service*. For information on how to submit complaints to the World Bank Inspection Panel, please visit www.inspectionpanel.org.

108. To handle grievances, the project will rely on the MAPA and SENAR systems, thus avoiding inefficient duplication of structures. MAPA maintains two main channels to obtain citizen feedback and complaints: a Citizen Engagement Service and a Grievance Redress Mechanism under the responsibility of the ministry's ombudsman. Citizens can access the Citizen Engagement Service through a hotline (08007041995), a facsimile line (61-32182401), by mail, through an electronic form available on MAPA's website, and in person. Complaints can also be filed through MAPA's Ombudsman channels: an electronic form available on the following site: http://www.agricultura.gov.br/ouvidoria/contatos-com-a-ouvidoria/por-formulario-web/formulario and the following e-mail address: ouvidoria@agricultura.gov.br. SENAR maintains a channel for citizen feedback through its website: http://www.senar.org.br/fale-conosco.

VII. RESULTS FRAMEWORK AND MONITORING

Results Framework
COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Project Development Objectives

To strengthen adoption of environmental conservation and restoration practices, and low-carbon emission agricultural practices in selected watersheds of Brazil's Cerrado Biome.

Project Development Objective Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Land area where conservation and restoration practices have been adopted.		Hectare(Ha)	0.00	7000.00	Annual.	Technical reports; SICAR data; land-use watershed maps.	SFB, SENAR.
Description: This indicator measures the cumulative area of Legal Reserves (RL) and/or Areas of Permanent Protection (APP) within private landholdings that as a result of the project incorporated and/or improved at least one of the following conservation or restoration practices: RL and/or APP enrichment; fencing; natural regeneration; assisted regeneration; planting or direct seeding of natives or non-natives trees species; sylvicultural systems; erosion control; invasive species control; fertilizing; remove disturbance; fuel reduction by mechanical means; re-introduce prescribe fire; fire surrogates. The expected average area where conservation and/or restoration practices have been adopted during project time life per landholding is 2 ha on landholdings that with an average total area of 300 ha. Relate to FAP's indicator: area restored or re/afforested							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Landholders adopting enrionmental conservation and restoration practices.		Number	0.00	3500.00	Annual.	SICAR and ISA systems.	SFB and SENAR.
Landholders adopting conservation and restoration practices - Female		Number	0.00	875.00	Annual.	CAR system and technical reports.	SFB and SENAR.
Landholders adopting conservation and restoration practices - Male		Number	0.00	2625.00	Annual.	SICAR system; technical reports.	SFB and SENAR.

Description: This indicator measures the cumulative number of private landholdings which have legal Reserves (RL) and/or Areas of Permanent Protection (APP) that as a result of the project incorporated and/or improved practices. The following conservation or restoration practices are envisaged: Restoration Plans (PRAs) approved; RL and APP maintenance and /or enrichment; fencing; natural regeneration; assisted regeneration; planting or direct seeding of natives or non-natives tree species; sylvicultural systems; erosion control; terraces; runoff management; invasive species control; fertilizing; remove disturbance; fuel reduction by mechanical means; re-introduce prescribe fire; fire surrogates.

The Project aims for at least 25 percent out of all participants in rural extension and technical assistance services will be female-headed landholdings.

The expected average area where conservation and/or restoration practices have been adopted per landholding is 2 ha, for an average landholding area of 300 ha.

Relate to FAP's indicator: Land users adopting sustainable land management practices as a result of the project.

Relate to CPF's indicators: number of farms holdings adopting landscape management and/or sustainable agricultural practices as a result of WBG support; number of proprieties where LR and/or APP are implemented and /or land restoration adopted.

Name: Land area where low carbon emission agriculture		Hectare(Ha)	0.00	100000.00	Annual.	Technical reports; ISA data;	SENAR and MAPA.

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
practices have been adopted.						land-use watersheds maps.	
Description: This indicator measures the cumulative land area within private landholdings that as a result of the project incorporated and/or improved at least one of the following practices: restoration of degraded pasture, livestock intensification, crop-livestock-forestry integration system and crop-livestock system. The expected average area where low carbon practices have been adopted per landholding is 25ha, for an average landholding area of 300 ha.							
Name: Farmers adopting improved agricultural technology	✓	Number	0.00	4000.00	Annual.	ISA system and technical reports.	SENAR and MAPA.
Farmers adopting improved agricultural technology - Female	✓	Number	0.00	1000.00	Annual.	ISA system, technical reports.	SENAR.
Farmers adopting improved agricultural technology - male	✓	Number	0.00	3000.00	Annual.	ISA system, technical reports.	SENAR.
Description:							

Intermediate Results Indicators

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Institutions provided with capacity building support to improve management of landscapes.		Number	0.00	5.00	Annual.	Technical reports.	GIZ.
Description: This indicator covers capacity-building activities aimed at strengthening partner institutions to deliver monitoring and planning services to the environmental and agricultural sector in the Cerrado Biome and selected watersheds. These include support to the training of officials, information and monitoring management systems, or investments in facilities. The assessment also includes mechanisms in place and functioning for cross-sectorial interaction at landscape scale, norms and values supporting integrated landscape. The following institutions would be supported: MAPA, SFB, SENAR, EMBRAPA and INPE. Relate to FAP's indicator: Government institutions provided with capacity support to improve management of forest resources. Relate to CPF's indicators: number of institutions provide by Bank project with capacity building to improve environmental management at the landscape level and/or to enact polices to reduce deforestation and forest fire in the Amazon abs Cerrado biome including REDD+ polices.							
Name: Maps on land use and land cover in the Cerrado Biome are made available (TerraClass Cerrado 2016, 2018 and 2020).		Yes/No	N	Y	Biennial.	INPE website.	INPE and Embrapa.
Description: This indicator measures the Cerrado Biome land use data made available as a result of the project. TerraClass Cerrado maps available on INPE´s Cerrado Web portal for the following years: 2016 and 2018. TerraClass Cerrado Biome will ensure continuity in the evaluation of the land use and land cover dynamics of the Cerrado Biome. The maps will be jointly prepared by Embrapa and INPE as a result of the project.							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
Name: Maps on land use and land cover changes in selected watersheds available are made available.		Yes/No	N	Y	Biennial.	INPE website.	INPE and EMBRAPA.
Description: This indicator measures the selected watersheds land use data made available as a result of the project. It aimed a continuous and systematic monitoring system for tracking APP and RL restoration and land use changes within private landholdings in selected watersheds. The maps will be jointly prepared by Embrapa and INPE as a result of the project.							
Name: Watersheds where Action Plans have been prepared.		Number	0.00	10.00	Biennial.	Technical reports.	SFB and Embrapa.
Description: This indicator measures the number of watersheds under Action Plans as a result of the project. Based on the results of Action Plans decisions will be made on where and which land restoration and/or low carbon practices must be carried out. The Action Plans include geospatial data and detailed information regarding landholdings assisted and socio economic data. The Actions Plans will be jointly prepared by MAPA, SENAR, Embrapa, and SFB as a result of the project. Cumulative targets.							
Name: Land area under land use planning for landscape management.		Hectare(Ha)	0.00	1200000.00	Annual	Technical Reports, SICAR system, ISA system, land-use maps.	SFB, SENAR and GIZ.
Description: This indicator measures the cumulative land area under newly established or improved landscape management as a result of the project. Land area under landscape management include some cumulative areas of selected watersheds with actions plans that are under implementation. The following are the SLP practices to be promoted: watershed management (planning, monitoring, participatory governance); ecological corridors planning and implementation; landholdings land use or							

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
restoration plans under implementation. This indicator can track progress toward adoption of management practices at landscape scales within ecoregions and watersheds. The estimated area is based on 4,000 landholdings with an average area per property of 300 ha and average of on 238,000 ha per watershed. Relate to FAP's indicator: Land area brought under catchment system as a result of the project.							
Name: Landholdings adopting land use planning tools for landscape management.		Number	0.00	4200.00	Annual.	Technical reports, SICAR and ISA data.	SFB and SENAR.
Description: This indicator measures the cumulative number of landholdings that have adopted one or more tools of land use planning as a result of the project. The land use tools include: rural environmental cadaster registry; APP and RL restoration plans; land-use plans; productive business plans; restoration supply business plans; environmental reserve quota (CRA, the acronyms in Portuguese); compensation plans. Relate to CPF's indicators: number of farms holdings adopting landscape management and/or sustainable agricultural practices as a result of WBG support; number of proprieties where LR and/or APP are implemented and /or land restoration adopted.							
Name: People employed in agricultural services and/or restoration practices as a result of the project.		Number	0.00	150.00	Annual.	Technical reports.	SENAR and GIZ.
People employed in agricultural services and/or restoration practices as		Number	0.00	37.00	Annual	Technical reports.	SENAR and SFB.

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
result of project -- Female.							
People employed in agricultural services and/or restoration practices - Male		Number	0.00	113.00	Annual.	Technical reports.	SENAR and SFB.
Description: This indicator measures the cumulative number of people employed by the project. The project will recruit instructors (seasonally), technical supervisors and field technicians for the provision of technical assistance to landholders (paid by landholders assisted). The project will carry out an open selection process of technicians per watershed. The supervisors and technicians will follow a training course in low carbon agricultural and restoration practices. The Project aims to reach at least 25 percent of women's hired in its capacity activities, including instructors; technical supervisors and field technicians.							
Name: Farmers reached with agricultural assets or services	✓	Number	0.00	5200.00	Annual.	Technical Reports, ISA data.	SENAR.
Farmers reached with agricultural assets or services - Female	✓	Number	0.00	1560.00	Annual.	Technical reports; training events lists. This indicator measures the cumulative number of farmers who were provided with agricultural services as a result of the project. Agricultural services include training events in all aspects of low carbon agricultural and conservation and restoration practices and	SENAR and EMBRAPA.

Indicator Name	Core	Unit of Measure	Baseline	End Target	Frequency	Data Source/Methodology	Responsibility for Data Collection
						landholdings management; rural extension and technical assistance events; restoration support services.	
Description:							
Name: Share of landholders satisfied with agricultural and /or restoration services provided by the project.		Percentage	0.00	70.00	Biennial.	Technical reports. Surveys reports.	SENAR and SFB.
Description: This indicator measures the percentage of landholders supported by the project who expressed satisfaction with the agricultural and /or restoration services based on surveys. The scale is Highly Satisfied, Satisfied, Moderately Satisfied, Moderately Unsatisfied, Unsatisfied, Highly Unsatisfied. The indicator will be measured by a scorecard administered biennially. The following key aspects will be included in the scorecard: environmental benefits; livelihood; economic and financial costs; governance arrangements. A feedback loop will be established.							

Target Values

Project Development Objective Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target
Land area where conservation and restoration practices have been adopted.	0.00	0.00	4000.00	5000.00	6000.00	7000.00	7000.00
Landholders adopting enrionmental conservation and restoration practices.	0.00	0.00	2000.00	2500.00	3000.00	3520.00	3500.00
Landholders adopting conservation and restoration practices - Female	0.00	0.00	500.00	625.00	750.00	875.00	875.00
Landholders adopting conservation and restoration practices - Male	0.00	0.00	1500.00	1875.00	2250.00	2625.00	2625.00
Land area where low carbon emission agriculture practices have been adopted.	0.00	0.00	12500.00	50000.00	87500.00	100000.00	100000.00
Farmers adopting improved agricultural technology	0.00	100.00	500.00	2000.00	3500.00	4000.00	4000.00
Farmers adopting improved agricultural technology - Female	0.00	25.00	125.00	500.00	875.00	1000.00	1000.00
Farmers adopting improved agricultural technology - male	0.00	75.00	375.00	1500.00	2625.00	3000.00	3000.00

Intermediate Results Indicators

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target
Institutions provided with capacity building support to improve management of landscapes.	0.00	2.00	3.00	5.00	5.00	5.00	5.00
Maps on land use and land cover in the Cerrado Biome are made available (TerraClass Cerrado 2016, 2018 and 2020).	N	N	Y	Y	Y	Y	Y
Maps on land use and land cover changes in selected watersheds available are made available.	N	N	Y	Y	Y	Y	Y
Watersheds where Action Plans have been prepared.	0.00	0.00	10.00	10.00	10.00	10.00	10.00
Land area under land use planning for landscape management.	0.00	0.00	0.00	600000.00	1050000.00	1200000.00	1200000.00
Landholdings adopting land use planning tools for landscape management.	0.00	0.00	500.00	2000.00	3500.00	4200.00	4200.00
People employed in agricultural services and/or restoration practices as a result of the project.	0.00	0.00	50.00	100.00	150.00	150.00	150.00
People employed in agricultural services and/or restoration practices as result of	0.00	12.00	25.00	25.00	37.00	37.00	37.00

Indicator Name	Baseline	YR1	YR2	YR3	YR4	YR5	End Target
project -- Female.							
People employed in agricultural services and/or restoration practices - Male	0.00	38.00	75.00	75.00	113.00	113.00	113.00
Farmers reached with agricultural assets or services	0.00	50.00	1500.00	3500.00	4500.00	5200.00	5200.00
Farmers reached with agricultural assets or services - Female	0.00	15.00	450.00	1050.00	1350.00	1560.00	1560.00
Share of landholders satisfied with agricultural and /or restoration services provided by the project.	0.00	10.00	50.00	60.00	65.00	70.00	70.00

ANNEX 1: DETAILED PROJECT DESCRIPTION

COUNTRY : Brazil

FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Cerrado Biome Context

1. Brazil is a country with continental dimensions (8.5 million square kilometers [km^2]) and a population of 208 million (Brazilian Institute of Geography and Statistics [*Instituto Brasileiro de Geografia e Estatística,* IBGE] 2017). Most of the population (84.4 percent) lives in urban centers. The country is also home to an extremely rich variety of flora and fauna; it holds one third of the planet's tropical forests—the Amazon Biome—and other extensive phytochemical territories, such as the Cerrado (savanna), the Atlantic Rainforest (coastal rainforest), the Caatinga (semi-arid regions), and the Pantanal (wetlands).

2. Stretching over 10 states (Goiás, Tocantins, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Bahia, Maranhão, Piauí, Paraná, São Paulo) and the Federal District, the Cerrado Biome covers approximately 200 million ha (Mha; 2.04 million km^2) of the Brazilian Central Plateau, or 24 percent of the country's total land area. Twenty-two percent of the Brazilian population (42.7 million) lives in the Cerrado; 14 percent of this population resides in rural areas. Most of the Cerrado Biome is occupied by private lands and only 8.2 percent of the biome comprises protected areas. Another 4.3 percent is in indigenous lands.

3. The Cerrado is a large area with significant reserves of carbon and water resources and with substantial biodiversity. It holds the sources of South America's three largest hydrographic basins (Amazon/Tocantins, São Francisco and Prata), resulting in the region's high aquifer potential and rich biodiversity. The Brazilian Cerrado is considered the world's most biodiverse savanna region and one of the world's biodiversity hotspots. Its great diversity of habitats, which determine a remarkable alternation of species among different phyto-physiognomies, i.e., 11,627 registered species of native plants. The Cerrado is home to an enormous abundance of endemic species, although these are currently suffering epic habitat loss.

4. Much of this consolidation of agricultural production has occurred in the Cerrado Biome: a mosaic of savanna–forest with 23 types of vegetation comprising tropical savannas, pastures and forests. Crop agriculture occupies about 22 Mha of the Cerrado (11 percent of the land area). Cattle ranching occupies 54 Mha of pastureland (25 percent of the land area), of which approximately 40 to 80 percent are degraded to a greater or lesser degree, with approximately 50 million head of cattle (nearly 33 percent of the national herd). Findings of the Land Use and Land Cover Mapping of the Cerrado Biome (TerraClass Cerrado report, 2013)[8] indicate that pasture areas occupy 29.5 percent of the biome, while crop agriculture occupies 11.6 percent. Annual agriculture accounts for 8.5 percent and perennial crops for 3.1 percent of the biome's lands.

5. The Cerrado has been the stage for an expansion of agricultural production, mainly through cattle ranching, since the 1940s, and for the commercial production of soybeans, corn and cotton since the

[8] http://www.dpi.inpe.br/tccerrado/

1970s. Livestock farming plays a historical and significant role in the Cerrado's occupation. According to Ferreira Ribeiro (2002), as bovine cattle were spread throughout Central Brazil, cattle raising became the Cerrado's most important and longest-lasting economic activity. It has remained so for the last three centuries. In the eighteenth century, its expansion was favored by the availability of the meat and leather consumer market in the region's mining centers. This contributed decisively to the consolidation and permanence of cattle raising in later periods (Ferreira Ribeiro 2002).

6. The findings of the TerraClass Cerrado report (2013) indicate that only 54.5 percent of the Cerrado has maintained its natural vegetation. Estimates show that deforestation in the Cerrado is proportionately more severe than in the Amazon. During 2002–2008, deforestation in the Amazon represented 3.3 percent of the biome's area (1.89 Mha/year), with 82 percent of the original forest area remaining, while in the same period the Cerrado lost 7.8 percent of its coverage (2.2 Mha/year) and only 52 percent of the area covered by native vegetation remained (about 10 Mha). In 2010, the size of the deforested area in the Cerrado (1 Mha) was 1.49 times greater than in the Amazon (700,000 ha), representing a higher percentage in relative terms: 0.51 percent in the Cerrado vs. 0.17 percent in the Amazon (Ministry of Environment [*Ministério do Meio Ambiente,* MMA] 2015). In 2014–2015, deforestation of the Cerrado totaled 1.8 Mha, which translates to an average of 948,300 ha/year, while in the Legal Amazon the average annual deforestation rate in the same period was 560,950 ha.

7. Agricultural activity is likely to continue to increase in the Cerrado region because it still has very large areas with agricultural and forestry potential. These areas are likely to become more accessible and therefore more attractive to investment, which can take advantage of rising prices in agricultural commodity markets.

8. Brazil's greenhouse gas emissions (GHG) in 2014 dropped 3.8 percent from a year earlier. In fact, the bulk of Brazil's emissions comes from land-use change and forestry (LUCF). In 2014, 33 percent of Brazil's GHG net emissions came from the agricultural and livestock sector, and 18 percent from LUCF-sector activities. Agricultural and livestock activities represent a significant source of GHG emissions in Brazil, mainly due to methane (CH4) emissions from enteric fermentation in animals, accounting for 87 percent, and nitrous oxide (N2O) emissions from agricultural soils (mostly from soil fertilization and animal waste disposal[9]).

Project Strategy and Theory of Change

9. The major challenge in the Cerrado Biome's management is to meet the ever-growing demand for agricultural products while conserving natural vegetation, providing critical ecosystem services (such as biodiversity and, water for human consumption), and maintaining rural livelihoods. It is necessary to ensure that agriculture can continue to increase while responding to incentives to adopt more sustainable practices that can maintain or increase productivity and profitability while preserving natural resources, critical ecosystem services, and reducing GHG emissions.

10. The complexity of this challenge is due to multiple factors: (i) poor integration and dissemination

[9] Ministério da Ciência, Tecnologia e Inovação (MCTI), 2016. Estimativas anuais de emissões de gases de efeito estufa no Brasil. 3a edição. Available at:. http://sirene.mcti.gov.br/documents/1686653/1706227/Estimativa+1ed.pdf/64d58e8a-1bc8-4fa6-aa5c-1d23dfeb9020

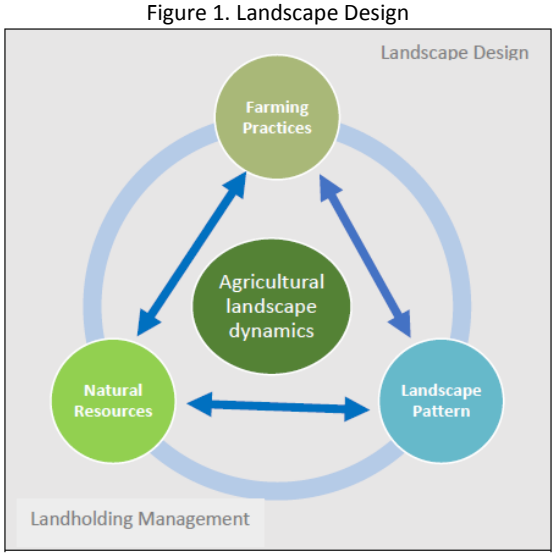
of knowledge about the region; (ii) limited adoption of low-carbon emission agricultural technologies; (iii) the incipient native vegetation restoration supply chain; (iv) inadequate technical assistance and rural extension; and (v) landholders' resistance to the implementation of the Forest Code.

11. In this context, the project will adopt an integrated landscape management (ILM) approach in which conservation and production units within the agricultural matrix are managed jointly for long-term sustainability. ILM is an approach to forest restoration that seeks to balance human needs with those of biodiversity, thus aiming to restore a range of forest functions and accepting and negotiating the trade-offs among them. ILM not only allows for a better balance between native and human-dominated areas, but can also define and impose a new landscape configuration that makes it possible to take maximum advantage of the services that landscapes can provide, whether these are targeted to agricultural production, biodiversity conservation, provision of regulation services, or a combination of these services (Metzger and Brancalion 2013[10]).

12. Incorporating social aspects in environmental decision making is what makes this approach different, and landscapes are seen to provide the setting where trade-offs between different land uses and different stakeholders can be resolved (Reed et al. 2016). In addition, this approach signals a strong move away from a narrowly focused conservation-oriented approach to environmental protection to achieve a broad integration of poverty-alleviation goals. In other words, the concerns of people are placed at the center in a landscape approach: it is not just about the "land" or land management.[11]

13. Figure 1, taken from Benoît et al. 2012, shows schematically how interaction between the environment and different farming practices gives rise to a specific landscape.

Figure 1. Landscape Design



[10] Metzger and Brancalion. 2013. Challenges and opportunities in applying a landscape ecology perspective in ecological restoration: a powerful approach to shape neolandscapes. Natureza e Conservação 11(2):103–107, December 2013.
[11] Brazil's NDC Restoration and Reforestation Target. Analysis of INDC land-use targets. World Bank. 2017. Report No. AUS19554.

14. Figure 2 summarizes the project's theory of change and its strategy. In this context, forest restoration and low-carbon emission agricultural practices not only allow for a better balance between native and human-dominated areas, but can also define and impose a new landscape configuration that enables agricultural production, biodiversity conservation, carbon sequestration and provision of environmental services.

15. The project's theory change is based on the following intervention strategies:

- Strengthening of the capacities of producers, technicians and institutions;
- Managing, monitoring, evaluating and promoting continuous improvement of ILM: continued learning;
- Integrating agricultural production and compliance with legislation and environmental conservation in the rural environment: multi-functionality of geographic and multi-scale; and
- Engaging and empowering different social actors: multiple stakeholders, participation, capacity building.

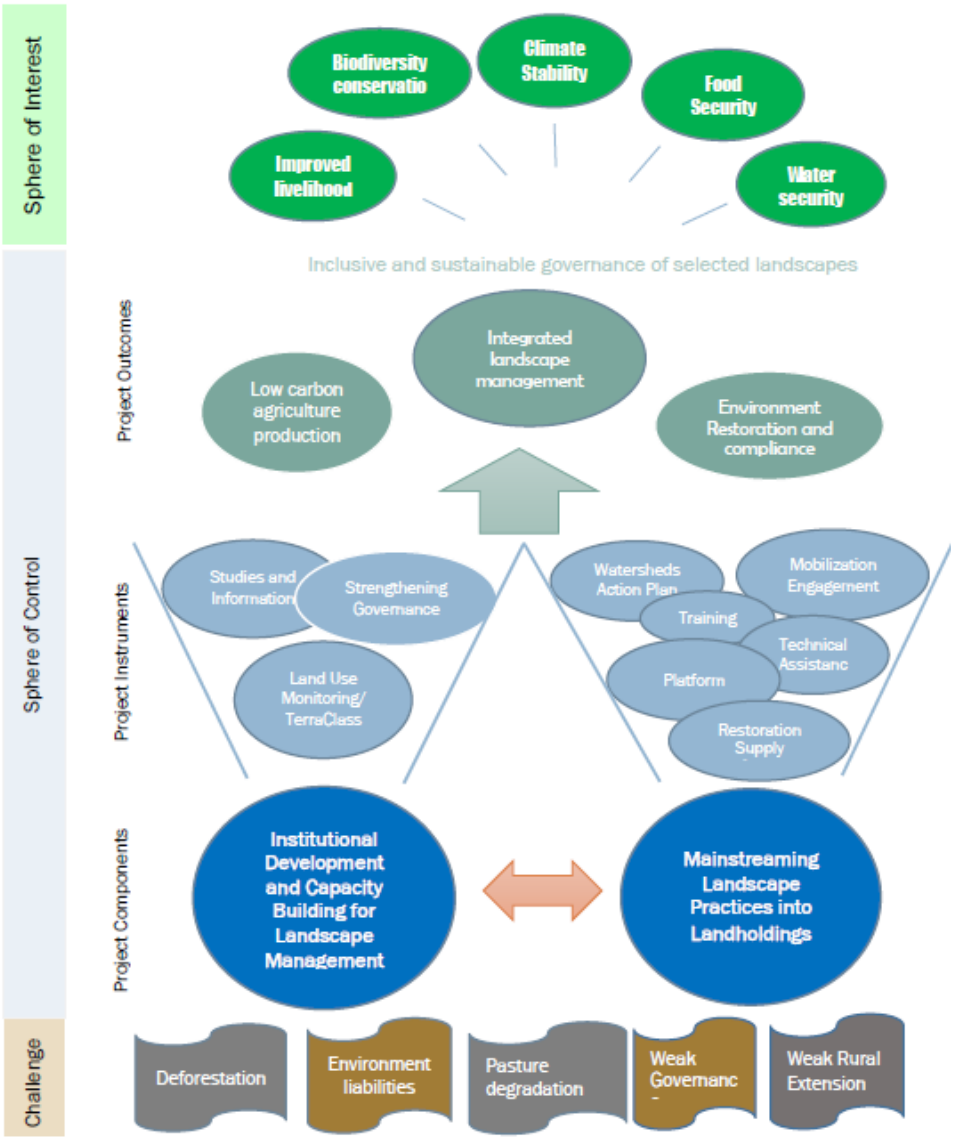
16. These strategies will allow the project to increase knowledge about the Cerrado landscape, promote low-carbon farming practices and practices in the region with environmental liabilities, and conserve vegetation. Concrete actions for the recovery of native vegetation, especially RLs and APPs within ILM, will also promote the maintenance and availability of critical ecosystem services, such as biodiversity, water for human consumption, connectivity of vegetation areas, and sustainability of the population's means of production in rural areas. For this approach, the involvement of local actors will be key: producers and public agencies such as the SFB, MAPA, SENAR, INPE, EMBRAPA, and state environmental agencies (*Órgãos Estaduais de Meio Ambiente,* OEMAs).

17. The theory of change is built around the following core pillars:

- Improving the implementation of the environmental regularization of rural landholdings through the rural environmental cadaster to enable more effective supervision and monitoring of the deforestation and degradation of natural vegetation;
- Promoting restoration and protection of critical habitats within private landholdings (APPs, RLs), including re-establishment of biological and hydrological flows; reconnection of fragmented habitats; and restoration of multiple ecological processes;
- Promoting on-farm sustainable agricultural management, including restoration of degraded pastures and integrated crop–livestock–forestry system; and
- Promoting land-use planning and integrating agricultural production with biodiversity conservation.

18. The project's transformational impact will result in a better balance between agricultural productivity and guaranteed natural areas for biodiversity conservation and environmental quality.

Figure 2. Project's theory of change



Project Site Selection

19. The project priority areas for ILM were defined based on multi-criteria analyses and a multi-stage processes to maximize environmental and agricultural benefits. These spatial analyses help to achieve scale in the project, and would reduce costs per landholding and hectare, and increase environmental benefits. The following criteria were used to pre-select priority watersheds: (i) Otto watershed[12] with at

[12] *http://dados.gov.br/dataset/inde_1* Otto basins are contributing areas along stretches of the hydrographic network coded according to Otto Pfafstetter's method for basin classification. Pfafstetter developed a method for numerical coding of river basins, considering as a main input the areas of direct contribution in each section of the hydrographic network. The hydrographic basins correspond to the aggregation of areas of hydrographic contribution, known as *ottobacias*.

least 90 percent of its territory located within the Cerrado Biome; (ii) stocking density of cattle per watershed; (iii) deficit of APPs and RLs in each watershed; (iv) natural vegetation cover rate; (v) productive area open after 2008 (anthropized area); and (vi) productive areas open until 2008 (consolidated areas).

20. The potential project area encompasses up to 53 pre-selected watersheds in nine states (Bahia, Goiás, Maranhão, Minas Gerais, Mato Grosso do Sul, Mato Grosso, Piauí, São Paulo and Tocantins) within the Cerrado Biome. These watersheds cover an area of nearly 12.7 M ha, of which 48.6 percent are pasturelands holding an average of 10.98 head of cattle per ha. There are 55,051 landholdings within this potential project area; 83.4 percent of them are small landholdings, whereas medium-size and large landholdings count for 12.4 percent and 4.3 percent, respectively. The average area per landholding equals 130.6 hectares and, only 52 percent of these landholdings have been registered in CAR to date. It is estimated that 67.7 percent of the landholdings within these watersheds comply with the requirements of the Brazilian legislation for Legal Reserves, but 62.3 percent of them have no areas of native vegetation besides the minimum legal requirements.[13]

21. The final watershed selection will be completed during the first stage of implementation and the following additional criteria will be used: (i) number of landholders interested in adopting low-carbon emission agricultural and restoration practices; (ii) local institutional capacity and engagement; (iii) stakeholders' participation; (iv) local infrastructure, including roads and communication facilities; and (v) landscape dynamics and functions.

Project Components

22. The project will be implemented through three distinctive and complementary components: (i) Institutional Development and Capacity Building for Landscape Management; (ii) Mainstreaming Landscape Practices into Selected Watersheds; and (iii) Project Management, Monitoring, Evaluation and Communication.

23. **Component 1: Institutional Development and Capacity Building for Landscape Management (Estimated Cost: US$ 5.5 million)**. The application of the ILM approach requires thorough and careful knowledge of the action's focus area. An understanding of land use is essential for having a strategic vision and creating scenarios for the Cerrado's future agriculture and conservation. The aims of this component are to support the development of capacities at the national and local levels to plan and implement a landscape approach in the selected watersheds.

24. **Land Use Mapping:** TerraClass aims to map classes of use and land cover (secondary vegetation, agriculture, livestock, mosaic occupation, forestry, urban areas) in all states of the Cerrado Biome and selected watersheds. It includes: (i) characterization of the watersheds' representativeness using the map of the Cerrado Biome's ecoregions and the relief obtained from the SRTM (90 m); (ii) mapping of land-use patterns at various temporal and spatial scales from the MODIS time-series study; (iii) torbital mapping of soil and its use in deforested areas in the Cerrado Biome for 2016 (retroactive), 2018 and 2020; (iv) analysis of the landscape with identification of the main productive systems and their evolution in 2013, 2016 and 2018; (v) remote sensing actions carried out with specialists from INPE and EMBRAPA; (vi) acquisition of 118 Landsat 8/OLI scenes, with a minimum mapping area of 6.25 ha and cartographic

[13] FIP: Paisagem. Atlas de Seleção de Bacias Hidrográficas. Serviço Florestal. 2017. Relatório de uso restrito.

scale compatible with 1:250,000; and (vi) workshops, presentations, discussions and dissemination of TerraClass results.

25. **Studies and Information on the Cerrado:** These are aimed at strengthening capacity for strategic planning and landscape management, which would include: (i) conduction of technical studies focused on restoration, degradation and rural environmental cadaster issues; (ii) analysis of environmental, socioeconomic, gender and land-use issues in selected watersheds; (iii) support for implementation and promotion of collaboration with universities and other research institutions in developing capacity and the required technical expertise; (iv) promotion of better coordination with and institutional enhancement of organizations; and (v) providing training to relevant staff.

26. **Strengthening of Governance:** A landscape governance arrangement may be formal or informal (ad hoc). In the literature, opinions vary about the effectiveness of different types of landscape governance arrangements. In general, effective landscape governance is aided by the following tools: platform for decision-making, permanent communication channels, forums, formal and voluntary networks, as well as existing spatial or jurisdictional structures (e.g., watershed committees, territorial committees). The aim is to support the development of capacities at the national and local levels to plan and implement a landscape approach in the selected watersheds, thus creating legitimacy for the project and securing the support of local stakeholders. The project would provide support to facilitate structured watershed committees and participatory mechanisms, and to promote collaboration with local producers' associations.

27. This component would finance consultancies, non-consulting services (e.g., vehicle rental, **maintenance**, IT services); infrastructure and civil works; the purchase of goods, equipment and satellite images; workshops and training; and the preparation and production of materials.

28. **Component 2: Mainstreaming Landscape Practices into Selected Watersheds (Estimated Cost: US$ 16 million).** The aim of this component is to promote the adoption of low carbon emission agricultural practices and restoration practices within private landholdings, and to help improve production efficiency and environmental compliance. This component introduces a new strategy for technology transfer to landholders through field technicians trained in low-carbon emission agricultural practices for the restoration of environmental liabilities and productive landholding management.

29. **Action Plan of the Selected Watersheds:** The action plan for the selected area is essential for **defining** the strategic performance of project executors and partners, working on forest restoration, applying sustainable practices for agriculture and forestry, as well as guiding and optimizing the application of resources. This subcomponent includes: (i) systemization of information on the selected areas; (ii) definition of the plan's structure and scope; (iii) participatory workshops to prepare and agree on the plan; and (iv) launch and dissemination of the action plan.

30. **Mobilization and Engagement of Producers and Environmental Institutions:** Awareness, **participation** and effective engagement of rural producers and of technicians and managers of municipal, state and federal public authorities are of great importance for the achievement of project objectives. The following actions are envisaged: awareness-raising and engagement workshops; media awareness and engagement campaign; definition of strategies and protocols for the formalization of the engagement

and participation of producers and technicians of the public authorities; and the development of an information platform and communication tools.

31. **Training:** Distance and in-person training activities will be carried out, especially, but not exclusively, by EMBRAPA, SENAR and the SFB. The following actions are envisaged: (i) planning and preparation of training courses; (ii) identification of demands, practices and best practices to be prioritized and applied; (iii) production of technical and teaching materials (printed and audiovisual) for the courses; (iv) selection and training of course instructors; (v) Forest Code training for public officials, especially on CAR and PRA, environmental legislation and licensing; (vi) training of rural producers and their technicians in ABC practices and property management, including courses on: (a) no-till farming systems; (b) recovery of degraded pastures; (c) crop–livestock–forestry integration; (d) cultivated commercial forests; (e) farm management and formulation of project proposals for funding under the ABC Plan; and (f) controlled fire management and use.

32. **Provision of Technical Assistance:** This is one of the main challenges for the implementation of ILM, forest restoration, production best practices in agriculture and forestry, technical assistance and rural extension. Technical assistance is an informal, ongoing educational service in rural areas. It promotes the management, production, processing and marketing of agricultural and non-agricultural activities and services, including agro-extractive activities, forestry and handicrafts. The technical assistance that SENAR will provide includes: (i) individualized productive diagnostic and environmental compliance diagnosis; (ii) annual strategic planning when productive, environmental, social and economic information is necessary to establish goals and a schedule for effective action; (iii) technological suitability; (iv) complementary professional training; and (v) systematic evaluation of results.

33. **Landholdings Platform:** The aim is to develop and implement EMBRAPA's environmental Web monitoring platform at the regional level, and level of ownership, beginning with Component 1, to support the decision-making process for the recovery of native vegetation and incorporate existing data and systems. This platform will consider compatibility and integration with the SBF's SICAR monitoring module. Actions include: the definition of the platform's structure, scope and governance; survey and systemization of data and information; the development of the platform; and training in the use of the platform.

34. **Restoration Supply Chain**: The aim is to encourage the productive chain of native vegetation **recovery** by increasing the capacity of nurseries and other structures to produce native species, and to analyze policies for improving the quantity, quality and accessibility of native species seeds and seedlings. Incentives under this subcomponent include: (i) mapping of the productive-chain structure of the existing restoration in the region covered by the project (e.g., seedling suppliers, nurseries); (ii) seed collection; (iii) support to nurseries, including provision of equipment and inputs; (iv) training for extension agents and rural producers in subjects such as seed collection and improvement, seedling generation, and restoration techniques; (v) vegetation recovery activities (e.g., planting, agroforestry, maintenance of restored areas); and (vi) monitoring of restored areas. To strengthen underdeveloped local productive chains, business plans would also need to be developed and implemented, and nurseries' performance and/or productivity would need to be scaled up or improved.

35. This component would finance civil works, consultancies and trainers, non-consulting services,

travel, **technical** assistance, technical supervisors and field technicians, the purchase of goods and equipment, demonstration units, the organization of events such as field days, and experience sharing.

36. **Component 3: Project Management, Monitoring, Evaluation and Communication (Estimated Cost: US$ 3.5 million).** The aim of this component is to provide support for the project's technical and administrative management, including communication, M&E, and auditing activities.

37. This **component** will finance studies, workshops, training, travel, technical advice, consulting, administrative services, limited software and equipment, and operating costs.

ANNEX 2: IMPLEMENTATION ARRANGEMENTS

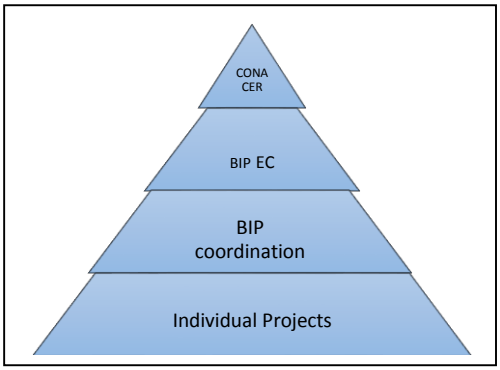
COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Project Institutional and Implementation Arrangements

Brazil Investment Plan (BIP) Arrangements

1. The BIP has developed a management arrangement to ensure synergies among the different projects and institutions during its implementation phase.

2. According to the BIP, the National Commission for the Sustainable Cerrado Program (*Comissão Nacional do Programa Cerrado Sustentável,* CONACER), established in 2006, should act as the consultative committee for the BIP. It will monitor and review the BIP's progress and results, and will advise the BIP's Executive Committee (BIP–EC) on how to improve actions mandated to promote the integration of programs, projects and sectoral policies related to the Cerrado Biome. CONACER is composed of representatives from: (i) the MMA; (ii) the Chico Mendes Institute for Biodiversity Conservation (*Instituto Chico Mendes de Conservação da Biodiversidade,* ICMBio); (iii) the Ministry of Agrarian Development (*Ministério do Desenvolvimento Agrário,* MDA); (iv) the Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária,* EMBRAPA); (v) the Brazilian Society for the Progress of Science (*Sociedade Brasileira para o Progresso da Ciência,* SBPC); (vi) the Brazilian Association of State Environmental Entities (*Associação Brasileira de Entidades Estaduais de Meio Ambiente,* ABEMA); (vii) civil society organizations (including representatives of NGO networks of indigenous and local communities); and (viii) the rural productive sector.



3. The BIP–EC is responsible for the BIP's implementation through the coordination of actions of the different ministries involved and the interaction of FIP projects with other government programs. The EC should stimulate synergies among FIP projects and the involvement of different stakeholders. The EC will include representatives from the MMA, MAPA, and Ministry of Science, Technology, Innovation and Communication (*Ministério da Ciência, Tecnologia, Inovações e Comunicação*, MCTIC). It reports periodically to CONACER about IP progress and results and will also receive feedback and guidance on improving IP execution.

Project's Institutional Partners

4. Although several agencies and institutions will participate in project implementation, the SFB and MAPA will conduct the project's overall coordination.

5. Under the institutional leadership of MAPA and the SFB, institutional arrangements and possible future partnerships will be formalized, published and communicated to all those involved in project execution. The Project Operational Manual (POM) will describe the roles and responsibilities of each implementing agency as well as the decision-making process and structure. The project's day-to-day implementation will be undertaken in close partnership among the following:

- MAPA and the SFB will play a leadership role in project coordination. MAPA will provide overall strategic advice and support for the Low Carbon Emission Agriculture Plan's implementation. The SFB will be responsible for providing overall strategic advice and ensuring implementation of all activities related to CAR, and for environmental and restoration practices (RLs and APPs).
- As the grant agreement recipient, the GIZ will act as MAPA, SFB and SENAR's partner under the terms of a Technical Cooperation Agreement to be signed. The GIZ will have financial management (FM) and fiduciary responsibility for the project, including day-to-day FM operations, budget execution and transaction processing. In addition, it will work closely with the SFB on all activities related to CAR and environmental and restoration practices. It will have primary responsibility for monitoring, evaluating and reporting on project implementation progress.
- SENAR, a private institution housed in the Brazilian Confederation of Agriculture and Livestock (*Confederação da Agricultura e Pecuária do Brasil,* CNA), will be one of the implementing agencies. It will be responsible for overall rural extension activities and direct relationships with farmers and producers' organizations. Its project management team will include a general manager, a technical manager, an administrative manager and support staff, as well as ad hoc advisory services for management and specialized services. SENAR's central office will be responsible for all contracting and procurement and will provide the procured goods and services to SENAR's regional offices for seminars, workshops, courses and other activities.
- INPE, a research institution associated with the MCTIC, will be the leader for mapping of land clearing and land-use changes in the Cerrado Biome and selected watersheds.
- EMBRAPA will be involved in the preparation of the technical content of the training courses. Its researchers will validate all the technologies disseminated by the project (low-carbon agricultural and restoration practices). EMBRAPA will also be involved in mapping and monitoring land-use changes in the overall Cerrado Biome and selected watersheds

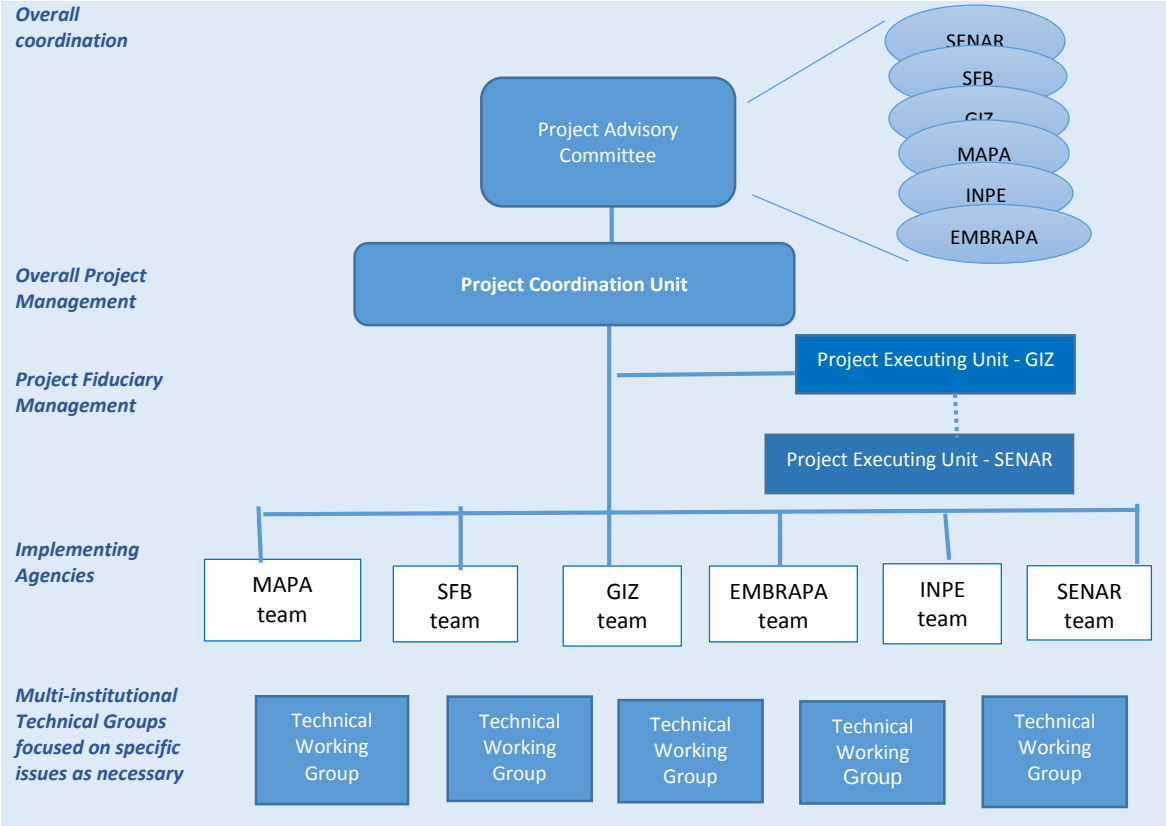
Project Organizational Structure

6. MAPA and the SFB have the overarching policy-level responsibility for carrying out the overall institutional coordination required to implement project activities. The Brazil Investment Plan Executive Committee (BIP–EC) has appointed the GIZ to manage the grant resources.

7. To this end, the GIZ will sign a grant agreement with the World Bank to conduct project implementation. This agreement will set forth the specific terms and agreements for grant management and include the following responsibilities: procuring goods and contracting services needed for project execution with grant resources; conducting disbursements and the projects' financial execution and accounting; and providing technical support to carry out project activities.

8. Subsidiary agreements will be signed by the GIZ and SENAR on activities to promote low-carbon agricultural practices (Component 2). Cooperation agreements will be signed, as appropriate, by MAPA, SFB, SENAR, INPE, and EMBRAPA on landscape monitoring, training, technical assistance, and other landscape management activities.

9. The figure below represents the project Implementation arrangement.



10. **Project Advisory Committee (PAC)**. An advisory body comprising representatives of implementing and executing agencies will be established with the aims of providing strategic guidance, ensuring linkages to relevant sectoral policies and programs, assisting in the resolution of any inter-sectoral debate, and monitoring the project's targets and indicators. Its purpose is to articulate, align and integrate project implementation. This committee will comprise representatives from the GIZ, SENAR, EMBRAPA, MAPA, SFB and INPE. It will meet at least once every six months or whenever necessary, with the GIZ serving as the committee's secretary. The committee will: (a) determine the overall implementation strategy and changes to it; (b) review and approve the operational manual; (c) review and agree on annual project implementation plans; and (d) review M&E reporting. It will continually evaluate the project, using the implementation monitoring data and recommended additional monitoring. The committee's monitoring of results indicators will also guide project implementation. It will be responsible for the integration of other partners, such as states, municipalities, civil society and other potential collaborators. It will be chaired by the SFB or MAPA, and will comprise the following members of the advisory council: two representatives of the SFB; two representatives of MAPA; two representatives of SENAR; two representatives of EMBRAPA; two representatives of the GIZ; and two representatives of INPE.

11. **Project Coordination Unit (PCU).** The PCU is the lead implementing body under the SFB. The PCU will be responsible for coordinating project implementation; technically supervising the development of project activities, including effective coordination of research and development activities at the project level; coordinating the project's different actors; and project M&E. The PCU will be the Bank's main liaison during project implementation. As the formal project manager, it will compile all project-related information provided by the implementing agencies, and will produce technical and safeguard reports as

required by World Bank policies. The PCU will also act as the chair for the PAC. The unit will be headed by a project coordinator and supported by technical specialists and administrative staff. The project Coordinator will work closely with the two Project Executing Units (PEUs) to ensure smooth coordination on questions related to finances and procurement

12. **Project Executing Units (PEU).** Two PEUs will be established: one in the GIZ (PEU–GIZ) and the other in SENAR (PEU–SENAR). Each PEU will have dedicated personnel to ensure the planning and budgeting of project activities, FM and procurement, technical supervision and quality control, gender and social inclusion, environmental and social safeguards compliance, and M&E.

13. The GIZ will be responsible for the overall administrative and financial management of project execution, including systematic reporting to the World Bank. Working closely with the Project Committee, the GIZ will be responsible for all documentation related to project planning, execution, and M&E. Other specific management duties include the acquisition of certain goods and services; selection of individual and corporate consultants under the scope of the project, in accordance with the provisions set forth in the operational manual; and the maintenance of separate records and accounts in relation to individual assets, services and consultants in order to assist the World Bank in meeting its obligations.

14. **Technical Working Groups:** Specific Technical Working Groups would be established to analyze and provide technical guidance on issues that may arise with respect to implementation. These groups will typically include a subset of the members of the PAC complemented by additional technical experts drawn from universities, research institutions, and/or stakeholders relevant to the question at hand.

Financial Management

15. **Planning and Budgeting**. The GIZ will prepare an Annual Operating Plan (*Plano Operativo Anual* POA) which will include the following information: activities to be implemented and their detailed budget (financing needs, the categories of expenditures to be charged with linkages to the procurement plan); annual goals; and deliverables. The POA for the first implementation year should be prepared and be approved by the Bank as effectiveness conditions (and thereafter annually). The procedures in place to plan project activities, prepare related budgets, and to collect information from the units in charge of the different components is adequate, but will require close monitoring. The Project plans and budgets (to be reflected in the POA) will be realistic, based on valid assumptions and will be prepared for all significant activities in sufficient detail to provide a meaningful tool to monitor subsequent performance (budget vs. actual variance analysis). This Project does not require counterpart funding, so no monitoring of counterpart funding is required.

16. **Accounting.** The GIZ applies the accrual accounting convention. A double bookkeeping system is used and a chart of accounts is used for all postings.

17. The GIZ Orientation & Rules (O+R) Manual provides a comprehensive library of advice, regulations and policies. These GIZ regulations are mandatory. Deviations from the standards, are decided on/approved and documented by the line manager with management/executive management status. This manual has sections that detail the accounting policies and procedures to be followed, including the procedures in place to ensure that only authorized persons may change or establish new accounting principles, policies or procedures and the controls for the preparation and approval of transactions, to ensure that these transactions are properly executed and recorded.

18. The GIZ's computerized accounting and financial system, allows for the adequate recording of financial transactions, including the allocation of expenses according to their components, disbursement categories and sources of funds. The GIZ's accounting and financial system is based on SAP ECC 6.0 standard software. The local postings (cost entries, supply of funds, etc.) are entered using SAP and monitored using WINPACCS software. SAP and WINPACCS have strict access controls and audit logs. To ensure operating transparency, the GIZ will open a separate bank account and GIZ will keep a separate journal/ledger exclusively for the project. In this project journal, all receipts and expenditures related to the measures and/or expenditure categories to be financed from the Grant will be recorded in chronological order and according to the regulations for GAAP. The systems are able to produce the necessary financial reports for the Project and accounting and financial staff are adequately trained to use and maintain the systems, to guarantee the confidentiality, integrity and availability of data.

19. Sub-ledgers or subsidiary records are reconciled and verified with the general ledger control accounts and all accounting and support documents are retained on a permanent basis, using the IT system called, Document Management System (DMS). Document management at GIZ is intended to enable company-wide access to documents, that contain important information and ensures that documents can be properly processed, stored, filed and retrieved by authorized staff members.

20. As a company owned by the German Federal Government, the GIZ is subject to a number of requirements under the German "price law" which regulates the pricing in governmental contracts. The GIZ accounting system, is organized in accordance with these requirements. This ensures the transparent allocation of costs in accordance with the causality principle. The GIZ is only allowed to pass on reasonable costs (of an efficiently-managed enterprise) to its clients.

21. The GIZ's cost accounting system differentiates and tracks costs of a project as follows:

- **Directly charged project costs -Costs** that can be directly charged to a project include costs for experts assigned to the mission (GIZ internal and external personnel), travel costs, procurement of materials and equipment, grants and local subsidies, training costs and other operating and administration costs;
- **Allocated project costs** - A number of costs that are in direct causal relation with the action are allocated to projects based on timesheets or other allocation formulas, e.g. when resources or services are shared. These allocated costs include time-sheets/ hourly rates for internal technical and administrative services, allocation of costs for the overall security in the country, compensation payments to national personnel, staff HIV/AIDS-Policy and other costs. The allocation systems used, take into account that not all projects require the same type and amount of services. Services rendered and therefore costs booked to a project vary, depending on the project's and the country's individual situation; and
- **Overhead costs - Costs** for which a direct causal relation cannot be established are also allocated to all projects based on percentage allocation rates. The nature and amount of work needed for services such as financing, procurement, HR and general administration is reflected through different percentage markups. There are 4 different percentage allocation rates[14] to ensure that overheads are billed to projects in line with the causality principle, taking into consideration that not all units in GIZ HQ are involved in certain business transactions. These percentages are recalculated annually.

[14] Current percentage rates: Personnel cost of approximately 4.9%; Equipment Cost of approximately 4%, General cost of approximately 12.7% and subsidiary pass through cost of approximately 4.1%. These percentages are not applied to the total Grant amount, but to the indicated classifications or subsets of expenditures.

22. The GIZ also bills a risk markup of (currently) 2% of the production costs of a project (= all direct costs + indirect costs + all overheads). In contrast to commercial companies, any profit in the annual financial statements is not distributed to the shareholders (German Federal Government). In accordance with the Articles of Association, it is used for GIZ-financed projects in development cooperation.

23. The GIZ will have access to the Bank's Client Connection system for up to date information relating to the disbursement of the proceeds of the Grant. The Project's accounting records will be reconciled on a regular basis with this information.

24. **Internal Controls.** Segregation of duties is a core principle within GIZ's internal control system laid down in GIZ's Orientation and Rules (O+R) Manual. Different departments and groups are responsible for IT, Finance, HR etc. At least two organizational units must deal with each transaction/procedure, and this leads to reciprocal control. Under the cross-check principle, a procedure is checked and co-signed by a second person. There is also the rotation of duties. Additionally, there is also a horizontal division segregation of duties between HQ in Germany and the Offices in the partner countries. With regards to procurement, contracts, financial transactions, Country Offices also have limited authorization and have to seek approval from GIZ-HQ for pre-defined transactions. For all transactions and processes the following functions are performed by different units or persons: (a) authorization to execute a transaction; (b) recording of the transaction, and (c) safeguarding of the assets resulting from the transaction. If these principles cannot be adequately applied, e.g. because of restricted staff capacities, management must compensate through additional controls.

25. As mentioned previously, the GIZ has its own internal Manual (GIZ's Orientation and Rules (O+R) Manual) codifying amongst others accounting, financial management, controlling, internal auditing, procurement and control rules and procedures for HQ, Country Offices and projects. This Manual has been translated to Portuguese and adapted for local application.

26. Through its Code of Conduct, GIZ has also set itself a framework of ethical standards and rules, which is binding for all staff. The Code of Conduct lays down provisions that help to deal with conflicts of interests and to prevent corruption at an early stage. It contains clear rules on avoiding active and passive bribery, accepting or giving gifts and other advantages, employing and awarding contracts to closely connected or related persons, and other conflicts of interest. The Code of Conduct can be viewed on the GIZ-website: http://www.giz.de/en/aboutgiz/code_of_conduct.html. GIZ staff must agree to adhere to the Code of Conduct under the terms of their employment contracts. The completion of an online-training on "GIZ: Acting with Integrity" is mandatory for all new staff members within 100 days of their employment.

27. Bank reconciliations are prepared by someone other than, those who process or approve payments and all unusual items on the bank reconciliation are reviewed and approved by a responsible official. There is also an adequate system for protecting assets from fraud, waste and abuse. Equipment purchased is listed in an inventory record, using onSITE Asset Software. Each asset is given an individual master record and number, i.e. it is recorded as an individual asset and depreciated according to its individual useful life. A physical inventory control is performed regularly for these assets and reconciled with the respective control accounts annually. If assets are no longer needed, they can be sold to a third party (public tender) or handed over to a project or to a third party or retired. Detailed procedures to document the disposal, including the amending of the status in onSITE and in SAP, exist for each eventuality. The annual statement of accounts contains a balance sheet, where all the fixed assets owned by GIZ are reflected, with adequate insurance coverage for these assets.

28. The GIZ Corporate Unit for Auditing (StS Revision or Unit) i.e. the Internal Audit Department, is an integral part of the internal control system providing the following core services:

- auditing and assessing the adequacy and effectiveness of the internal control system;
- auditing the clarity, comprehensibility, reliability and correctness of records kept by the financial and accounting divisions (financial audit);
- auditing the organizational structure and organization of operations and the effectiveness of steering and control mechanisms (operational audit); and
- special investigations (audits and other activities) carried out at the request of the Management Board.

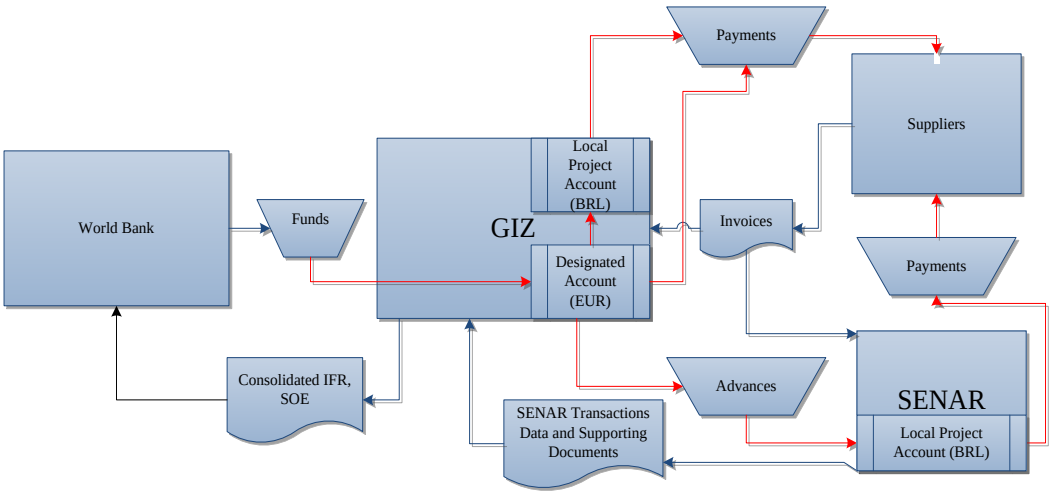
29. The Unit can carry out its audits, after prior notification as well as unannounced; it documents any violations of the rules and reports directly and continuously to the Management Board. The Unit has unlimited right to information within the scope of their audit mandates. They have access to all company premises and facilities and are authorized to conduct talks with any member of the organizational unit being audited in order to clarify questions. The Unit consists of fifteen staff members, with adequate qualifications and experience. The Unit will include the Project in its work program. Recommendations of the Unit are monitored using an IT system, with the audited business manager having to report back to the Unit, after an appropriate period of time, whether the audit recommendations have been implemented or not.

30. The Project's internal control system will be documented in a simplified Project Operational Manual (POM) to be prepared by PCU. The POM will comprise descriptions, flow charts, policies, templates and forms, user-friendly tools, tips and techniques to ensure that the approval and authorization controls continue to be adequate and are properly documented and followed with adequate safeguarding of the Project's assets. The POM should be prepared by the GIZ and be approved by the Bank.

31. **Funds Flow.** The disbursement of project funds will be processed in accordance with Bank procedures as stipulated in the Legal Agreement and Disbursement Letter. During Project implementation, the following disbursement methods will be available for use: Reimbursement Direct Payment, and Advances. The primary disbursement method will be Advances.

32. The following diagram indicates the flow of funds for the Advance disbursement method from the Bank to GIZ, and the subsequent the flow of funds to SENAR:

Disbursement Diagram



(1) The funds will be transferred to a specific segregated bank account (Designated Account) for the project and administered by GIZ-HQ. This account will be opened at a commercial bank (*Commerzbank- based in Germany*) acceptable to the Bank. The account will be denominated in Euros (EUR or €). A separate bank account, denominated in local currency (BRL or R$) will be established at a local bank in Brazil (*Banco Rendimento*) to receive funds from the Designated Account and pay for local Project expenditures[15]. Based on GIZ regulations, the balance on the local bank account (liquid funds) may at most be the estimated spending of the Project, for half a month. Funds will also be advanced from this account to SENAR, to implement its' activities.

(2) Payments and invoices will be registered in the accounting system once incurred, and the records will be reconciled at the end of each month. The payment requests are submitted by the finance assistants and approved by the Project coordinator.

(3) The IFRs and Statement of Expenditures (SOEs) will be prepared directly from SAP and they will be supported by the accounting records. The General Conditions require the Borrower/Recipient to retain all records (contracts, orders, invoices, bills, receipts, and other documents) evidencing eligible expenditures and to enable the Bank's representative to examine such records. They also require the records to be retained for at least one year following receipt by the Bank of the final audited financial statement required in accordance with the Legal Agreement or two years after the Closing Date, whichever is later. Borrowers/Recipients are responsible for ensuring that document

[15] These local expenditures will be accounted for using the Weighted Average Exchange Cost (and not on a First-In First Out Basis). Per IPSAS 4 a foreign currency transaction (BRL) shall be recorded, on initial recognition in the functional currency (€), by applying to the foreign currency amount the spot exchange rate between the functional currency and the foreign currency at the date of the transaction. For practical reasons, IPSAS 4 permits the use of a rate that approximates the actual rate, at the date of the transaction, for example, an average rate for a week or a month for all transactions in each foreign currency occurring during that period. This is what the Weighted Average Exchange Cost would approximate. As the exchange rates between BRL and € have not recently fluctuated significantly, the use of the average rate or Weighted Average Exchange Cost for a period is appropriate.

retention beyond the period required by the Legal Agreement complies with their government's regulations.

33. The proposed Fixed Ceiling for the Designated Account will be € 5,000,000. The Minimum Application Size for Direct Payment and Reimbursement withdrawal applications will be € 1,000,000 equivalent. This Minimum Application Size is not applicable for the retroactive expenditures withdrawal application.

34. The documentation of the use of Advances and Reimbursement withdrawal applications will be through SOEs. Direct payments will be documented by Records. GIZ will be responsible for preparing and sending withdrawal applications to the Bank. The Project will also have a four-month Grace Period to document expenditures incurred prior to the Closing Date. Project expenditures will be reported only after they are approved by GIZ and fully documented, ensuring that the Grant proceeds were exclusively used for eligible expenditures. The frequency for the presentation of eligible expenditures paid from the Designated Account is at least once every six months.

35. No withdrawal shall be made for payments made prior to the date of the Legal Agreement, except that withdrawals up to an aggregate amount not to exceed USD 2,500,000 equivalent may be made for payments made prior to the Signing Date, but in no case, more than one year prior to the Signing Date, for Eligible Expenditures as set out in the Legal Agreement.

36. **Financial Reporting.** GIZ already prepares regular financial reports for other projects with these reports used by management on a monthly basis to compare actual expenditures with budgeted expenditures and programmed allocations. For this Grant, GIZ will prepare and submit to the Bank semiannual IFRs no later than 45 days after the end of each semester. The IFRs will be prepared by GIZ via SAP directly, using information registered in SAP and WINPACCS, using the cash basis.

37. At the end of each fiscal year, GIZ will prepare the annual financial statements for the Project that will be audited. The final semester IFRs will serve as the Projects' annual financial statements, with accompanying notes.

38. The following semiannual IFRs (to be prepared in €) (see Annex 1 for format) will be prepared for management purposes and be submitted to the Bank:

- IFR 1 –Sources and Uses of funds by Category (period to date, year-to-date, Project-to-date) showing budgeted amounts versus actual expenditures, (i.e., documented expenditures), including a variance analysis;
- IFR 2 –Uses of Funds by Project Component (period to date, year-to-date, Project-to-date) showing budgeted amounts versus actual expenditures, (i.e., documented expenditures), including a variance analysis; and
- IFR 3 – Designated Account bank reconciliation.

39. **External Auditing.** The GIZ is subject to a substantial amount of different external audits: audits are conducted by German federal and state authorities, European Union authorities, clients and external auditors hired by GIZ itself. The audit of the Annual Statement of Accounts is conducted in accordance with section 317 of the German Commercial Code and generally accepted standards for the audit of financial statements, promulgated by the Institut der Wirtschaftsprüfer (Institute of Public Auditors in Germany, IDW). There have been no qualifications or disclaimers of opinion or emphasis of matter reported in any of the audit reports in the last three years (reports analyzed up to the end of 2015). The auditing firm for the audit of the annual accounts for the period 2016-2019 is KPMG. Entity financial

statements will not be needed to be submitted to the Bank.

40. For project purposes, the external audit of the Project, will be performed by a private firm following agreed Terms of Reference (TOR) acceptable to the Bank, and in accordance with International Standards on Auditing (ISAs) (issued by The International Auditing and Assurance Standards Board (IAASB) of the International Federation of Accountants (IFAC)) (or national auditing standards if, as determined by the Bank, these do not significantly depart from international standards). The audited financial statements will also be prepared in accordance with accounting standards acceptable to the Bank (i.e. IPSAS issued by the International Public Sector Accounting Standards Board of the International Federation of Accountants (IFAC-IPSASB) or national accounting standards where, as determined by the Bank, they do not significantly depart from international standards). The TOR should be prepared by the GIZ and be approved by the Bank with a view to appointing the auditors within 4 months after the Signing Date

41. The audit report (and any accompanying management letter) should be submitted to the Bank no more than six months after the end of the fiscal year. The Bank will review the audit report and will periodically determine whether the audit recommendations are satisfactorily implemented. The Bank also requires that the Borrower/Recipient disclose the audited financial statements in a manner acceptable to the Bank and following the Bank's formal receipt of these statements from the Borrower/Recipient, the Bank will also make them available to the public in accordance with The World Bank Policy on Access to Information.

42. An audit exception to combine the 2018 and 2019 audits may be necessary, depending on the Signing Date of the Grant. The cost of the financial statement audit will be financed from the Grant.

43. **Financial Management Assessment of SENAR**. SENAR is currently the implementing agency for another Bank project, P143184 Grant for the Promotion of Low Carbon Agriculture in the Brazilian Cerrado (TF014225). The FM performance of SENAR under this project, has consistently been Satisfactory. As a FMA has previously been conducted on SENAR, in the context of a previous Bank project, it was not necessary to conduct a full FMA for this new Project. For the purposes of this Project, the Bank visited SENAR's offices to confirm the continuing adequacy of SENAR's planning and budgeting, accounting, internal controls, funds flow, financial reporting, and auditing arrangements, including a demonstration of the robustness and functionality of the computerized information systems, RM TOTVS and SGO, used by SENAR.

44. A Project Executing Unit (PEU- SENAR) will be established in SENAR. This PEU-SENAR will include a general manager, a technical manager, an administrative manager and support staff, as well as ad hoc advisory services for management and specialized services. SENAR's central office will be responsible for all contracting and procurement and will provide the procured goods and services to SENAR's regional offices for seminars, workshops, courses and other activities.

45. Summary of detailed arrangements between SENAR and GIZ-Funds Flow and Financial Reporting-Still to be defined.

46. **Conditions or Nonstandard/Significant Financial Covenants (i.e. Relevant issues to be included in the Legal Documents).** There are no FM-related conditions for Board and/or Effectiveness. It is proposed that the POA, be submitted for the Bank's No Objection in November of each year, before the commencement of the next year's activities.

47. **Plan for FM Supervision during Implementation.** The Bank will undertake formal supervision of the Project based on a risk profile. Supervision missions will involve amongst other steps: (i) the review of

the IFRs; (ii) a review of the auditors' reports and follow-up on issues raised by auditors, as appropriate; (iii) the follow up on any financial reporting and disbursement issues; (iv) a discussion of FM issues with the Project team; and (v) an update of the FM risk and performance rating in the Implementation Status and Results Report (ISR).

Procurement

48. Procurement for the proposed project will be carried out in accordance with the World Bank Procurement Regulations for IPF Borrowers dated July 2016 and the provisions stipulated in the Legal Agreement. The various items under different expenditure categories are described in general terms below. For each contract to be financed by the Grant, the different procurement methods or consultant selection methods, the need for pre-qualification, estimated costs, prior review requirements, and timeframe will be agreed between the Borrower and the Bank in the Procurement Plan.

49. The World Bank's Standard Procurement Documents will govern the procurement of World Bank-financed Open International Competitive Procurement. For procurement involving National Open Competitive Procurement, the Recipient will use Standard Procurement Documents acceptable to the World Bank that will be included in the Operational Manuals.

50. **Procurement of works.** Not anticipated under the project.

51. **Procurement of goods.** Goods procured under the Project will include, among others: vehicles, boats, satellite images, IT and electronic equipment, household supplies. Depending on the estimated amounts, they will be carried out through Open National Requests for Quotations – RFQ or Requests for Bids – RFB. It may be carried out in accordance with the method known as "*Pregão Eletrônico*", as set forth in the Brazilian Law No. 10.520, dated July 17, 2002, provided (i) documents are acceptable to the Bank, (ii) documents include anti-corruption clauses, and (iii) the process is carried out under an e-procurement system previously approved by the Bank.

52. **Procurement of non-consulting services**. Non-consulting services under the Project will include, among others: the cost of installation of equipment, repairs and/or maintenance services, demarcation surveys capacity building support to the implementation and beneficiaries agencies, monitoring, reporting and evaluation-related services, events, training, workshops, seminars, logistics, travel services, etc. Depending on the estimated amounts, they will be carried out through Open National Requests for Quotations – RFQ or Requests for Bids – RFB. It may be carried out in accordance with the method known as "*Pregão Eletrônico*", as set forth in the Brazilian Law No. 10.520, dated July 17, 2002, provided (i) documents are acceptable to the Bank, (ii) documents include anti-corruption clauses, and (iii) the process is carried out under an e-procurement system previously approved by the Bank.

53. **Selection of consultants**. Consulting services under the Project will include preparation of management plans, land tenure studies, works supervision, engineering designs, communication and marketing plans, asset management, conservation finance studies, development of conservation financing mechanisms, legal advice, and preliminary studies to create PAs, etc. The following methods will be used for selecting consulting firms depending on the nature, estimated amounts and complexity of assignments, attractiveness to foreign firms and need for international expertise: Quality and Cost Based Selection (QCBS), Least Cost Selection (LCS), Selection under a Fixed Budget (SFB), Selection Based on Consultant's Qualification (QBS), Single-Source Selection (SSS) both for consulting firms and individual consultants, and Selection of Individual Consultants (IC). The threshold for international advertisement will be in the procurement plan.

54. **Operating costs**. During Project preparation, it was agreed that operating costs are the ones associated with the coordination and implementation of the Project, including: (a) operation and maintenance of vehicles, repairs, fuel and spare parts (except those covered under surveillance activities); (b) equipment and computer maintenance; (c) shipment costs (whenever these costs are not included in the costs of goods); (d) office supplies; (e) rent for office facilities; (f) utilities; (g) travel and per diem costs for technical staff carrying out supervisory and quality control activities (except those covered under surveillance activities); (h) communication costs, including advertisement for procurement proposals); (i) salaries for the Recipient's operational staff; and (j) all costs associated with audits. Procurable expenses under operating costs to be financed by the project will be procured following the World Bank Procurement Regulations for IPF Borrowers dated July 2016 or using implementing agencies' administrative procedures found acceptable to the Bank and will be listed in the procurement plan.

55. **Others**. The need for special arrangements for scholarships, grants, etc. was identified during Project preparation. The procurement procedures and standard bidding documents to be used for each procurement method, as well as model contracts, are presented in the Project's Operational Manuals.

56. **Procurement assessment**. There are two implementing agencies. (1) Assessment of SENAR's capacity to implement procurement: SENAR currently implements another FIP grant and a full capacity assessment is not necessary. (2) Assessment of GIZ: A full capacity assessment of GIZ to implement procurement following Bank Regulations has been carried out. Their procurement department is adequately staffed, with no o experience in Bank's procurement rules. It is anticipated that training and intensive hands on support will be needed in the beginning of the Project.

57. Overall, the procurement risk associated with the Project, for the time being, has been assessed as "High", due to the lack of experience with Bank's rules.

Table A3-2: Procurement Action Plan

Act	Description	Action	Timeframe
1	Lack of procurement personnel and experience by CIB.	Strengthening capacity through ongoing Bank support and specific procurement training.	By effectiveness.
2	Quality of TORs and Technical Specifications	Reach out for experts' advice on the definitions of the ToRs and specifications. Technical concurrences to technical documents to be issued by the TTL.	Throughout implementation. Before launching of each procurement process.
3	Weak and imprecise cost estimates	Base estimates on market data and not only on official tables issued by the government.	Throughout implementation.
4	Companies involved in fraud and corruption issues	Maintain a strict control over the companies and individuals that are debarred by multilateral development banks.	Throughout implementation.

58. All bidding documents and contracts, regardless of the amount and procurement method, are required to have the anticorruption (A/C) clause as an eligibility condition.

Procurement Plan

59. Both executing agencies must prepare a Procurement Plan in STEP for the first 18 months of Project implementation, which provides the basis for the procurement processes. This plan will be agreed upon between the Borrower and the Bank Team before negotiations. The Procurement Plan will be updated in agreement with the Bank on a biannual basis or as required to reflect the actual Project implementation needs and improvements in institutional capacity.

Environmental and Social

Environmental

60. The project is rated as Environmental Category B. The proposed project will assist landholders in implementing the Forest Code (Law 12.651/2012) and promote low-carbon emission agricultural technologies, the recovery of degraded pasture land, and the implementation of integrated crop–livestock–forestry systems under the Low-Carbon Emission Agricultural Plan (*Plano ABC – Agricultura de Baixa Emissão de Carbono*) in selected watersheds.

61. The project is expected to have an overall positive impact on the environment because it seeks to promote the protection of APPs and RLs, reforestation, recovery of degraded pastures, and reduction in the environmental impacts of agricultural activities mainly through rural extension activities. The agricultural and restoration practices to be promoted are more environmentally sustainable than conventional production practices. The project's expected benefits, which include better soil fertility, increased agricultural productivity and food security, greater availability and quality of water resources, reduced deforestation, enhanced biodiversity, and climate-change mitigation, will greatly outweigh the negative impacts likely to be generated. The project will adopt an integrated landscape approach aimed at sustainably managing land for multiple purposes and functions.

62. Potentially adverse environmental impacts are not expected because these will be avoided or minimized through appropriate preventive and mitigation measures. Therefore, the following environmental safeguards are triggered: Environmental Assessment OP/BP 4.01; Natural Habitats OP/BP 4.04; Forests OP/BP 4.36; and Pest Management OP 4.09.

63. An Environmental and Social Management Framework (ESMF), including social and environmental assessments, will provide guidance on potential issues that could arise during project implementation. Periodic Bank supervision missions to the project will verify compliance with Bank safeguards and recommend corrective actions when applicable.

Social

64. **Safeguards**. Operational Policy OP/BP 4.10 (Indigenous Peoples) is not triggered. The project will not interfere with indigenous peoples because there are no indigenous lands within its area of influence (the geographic area of the 53 preselected watersheds). Indirect benefits are expected for traditional communities and indigenous peoples because project activities may contribute toward reducing pressures on remaining forests and/or native forest areas, protecting headwaters and riparian zones, improving the physical, chemical and biological conditions of the soil, and reducing water and soil pollution.

65. Operational Policy OP/BP 4.12 (Involuntary Resettlement) is not triggered. Project activities will not require land acquisition or imply creation of protected areas. Therefore, involuntary population displacement and/or negative impacts on livelihoods due to land acquisition are not envisaged.

66. **Gender.** A gender analysis was previously conducted during preparation of the FIP: Sustainable Production in Areas Previously Converted to Agricultural Use (P143184) and the FIP: Environmental Regularization of Rural Lands in the Cerrado of Brazil (P143334) in order to understand the role of women in the Cerrado's small and medium farming systems. According to the 2006 Agricultural Census (IBGE), 27 percent of landholders in the Cerrado area are women. Detailed data on ownership by farm size were not available but empirical evidence indicates that male ownership and professional management tend to

increase with property size. Nearly 30 percent of total participants in SENAR's training events are women. Since 2010, over 10,000 women have participated in the abovementioned trainings in 12 Brazilian states, five of which are part of the project's targeted areas. The participation of women increases significantly in nutrition, food safety, health, and handicraft courses provided by SENAR. Since 2010, SENAR has promoted trainings specifically designed for women in rural areas, with the aim of strengthening their participation in the business decision-making process, including topics on business and financial management, leadership, public relations and planning, as well as information on labor rights, environmental, and plant and livestock health issues.

67. A Gender Action Plan (GAP) has been developed for the project with the aim of encouraging the participation of women farmers in project activities. The GAP focuses on four areas that are commonly pointed out by the literature as critical for women's empowerment and gender equity in rural development: (i) access to information; (ii) participation in policy planning; (iii) access to training and capacity-building activities; and (iv) access to technical assistance and extension services. The GAP will be monitored and evaluated according to gender-sensitive indicators. This M&E will allow the Project Technical Unit to periodically assess the efficiency of the project approach to promote participation of women farmers in its activities, benefit from them, and take additional measures to enhance participation and improve benefit sharing.

68. **Consultation.** Key stakeholders (including family and non-family landholders' representative organizations, research, technical assistance, rural extension services, state and municipal governments) are being consulted. The results of this process of consultation process will be reported and will be included as an Annex of the Project's Social and Environmental Management Framework.

69. **Citizen Engagement and Beneficiary Feedback.** The project approach to integrate landscape management requires active engagement for land users to adopt low-carbon agricultural and forest restoration practices. The project will mobilize local producers' groups and focus on social inclusion of all beneficiaries in these practices. This will require consistent and transparent messaging to avoid misinformation and ensure equitable access to project benefits. The specific elements of the framework for citizen engagement include support for the engagement of local landholders in the planning and management of selected watersheds, including monitoring; and support for a feedback mechanism from stakeholders and beneficiaries to be designed to process concerns and questions from beneficiaries and other stakeholders at different levels (from watershed to local), with a view to resolving these concerns and questions within certain time frames. The protocol and mechanisms for elements of this citizen engagement framework will be detailed in the POM. The quality of its implementation and progress will be monitored through supervision and dialogue

70. **Grievance Redress Mechanisms.** To handle grievances, the project will rely on a stand-alone platform of communication and citizen engagement with stakeholders and beneficiaries that is being developed and will be broadly disseminated in the project's areas of intervention. This platform will be integrated with the ombudsman's offices of all the implementing agencies.

Monitoring and Evaluation

M&E arrangements

71. The monitoring of project outputs will be conducted in partnership with the various implementing agencies. The GIZ, with the support of the Project Committee, will be responsible for monitoring the progress of the project's results and impacts. To monitor and evaluate the project's execution, the GIZ will

develop and make available an electronic system for monitoring and evaluating project execution.

72. A Results and Monitoring Framework was fully developed and provided specificity in terms of indicators, data-collection methodology, reporting responsibilities, and frequency of M&E activities. The POM will provide relevant details of M&E methodology and implementation.

73. Project progress reports will be submitted to the World Bank annually. Project execution and results monitoring will employ the reports of systems that are already in use, such as the SICAR, ISA, TerraClass and others. Project M&E will be conducted in accordance with the BIP's M&E plan, and established FIP rules and procedures.

M&E at Landscape level

74. Component 1 focuses on enhancing monitoring capacity at Cerrado Biome and selected watershed levels, currently considered a bottleneck in the ILM's long-term implementation.

75. Land use mapping in the selected watersheds (1:50.000 scale) will map classes, use and land cover m(secondary vegetation, agriculture, livestock, mosaic occupation, forestry, and urban areas). These data will provide biennial information on producers' adoption of agricultural and restoration practices.

76. This mapping will be integrated in the existing Terrabrasilis platform and the Program for Environmental Monitoring of Biomes *(Programa de Monitoramento Ambiental dos Biomas Brasileiros*[16]*).* INPE and EMBRAPA will be responsible for mapping and monitoring land-use changes in the selected watersheds.

M&E at Landholding Level

77. The PCU will conduct surveys to evaluate the impact of the communication process, trainings and dissemination campaigns on participants' awareness of CAR, proactive conservation and restoration, and low-carbon emission agricultural practices, with the objective of improving the project's messages and local participation.

78. Technical supervisors, in collaboration with field technicians, will collect monthly data on overall performance and activities, social and environmental safeguards compliance, and will visit participants during field days. These data will provide up-to-date information on producers' adoption of practices, issues that may arise, and solutions that need to be identified.

79. **Assessment of Sustainability Indicators in Agroecosystems (ISA[17]).** The ISA tool will monitor these indicators in assisted landholdings. ISA includes economic indicators (farm income, profitability and productivity), environmental indicators (biodiversity, animal welfare, water use, soil health) and social indicators (disaggregated by gender where appropriate). Field technicians will assist with ISA data collection. SENAR will have primary responsibility for tracking progress related to ISA.

80. **Rural Environmental Registry System (SICAR).** In terms of the number of landholdings and the area registered in CAR, adherence to the Recovery Program, and establishment of the Recovery Plans, SICAR will automatically generate progress reports and statistics, disaggregated by landholding type (family or non-family). Baseline data for monitoring each selected watershed are already available in the

[16]Portaria No. 365, November 27, 2015.
[17]For more information on ISA, see Agroecosystems Sustainability Indicators Analysis – H. Gunsu Emesi, Iowa State University http://www.extension.iastate.edu/NR/rdonlyres/1067F46A-3C8B-4BBD-A9DB678ED320C962/82665/9_ppp_gunsu08_421.pdf

system. The SFB will have primary responsibility for tracking progress related to SICAR.

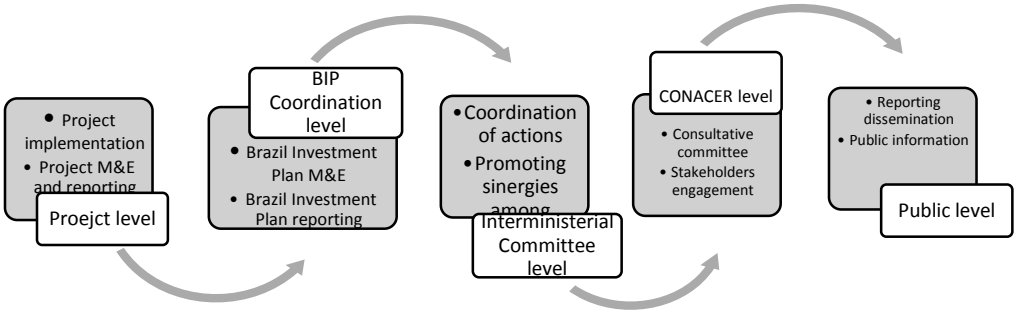
81. Spatial and alphanumeric data from the registration and rectification of rural properties in CAR, conducted by ATER agents, will be inputted in SICAR. These data include: registration/rectification: perimeter of property, consolidated areas, remnants of native vegetation, rivers and springs (the system generates APPs), proposed RLs, etc.; and consolidated areas to be compiled in APPs and RLs, alternatives for re-composition, schedule, etc. Project progress results related to the recovery of APPs and RLs in rural properties registered in CAR will be monitored through the SICAR Monitoring Module, which has high spatial-resolution satellite images classified according to the characteristics defined in the Forest Code (Law 12.651/2012).

M&E Reporting

82. Project progress reports will be submitted to the World Bank twice a year. In addition, project M&E will be conducted in accordance with BIP and FIP's rules and procedures.

83. The monitoring of project outputs will be conducted in partnership with the various implementing agencies. The annual monitoring reports will be used by the PCU (when preparing the annual work plan and budget) and the supervision missions to ensure that the project is on track. The Brazil Investment Plan Executive Committee (BIP–EC) will also oversee the communication of monitored information and will provide input to the BIP M&E system.

84. The diagram below shows the BIP's simplified monitoring, evaluation, and reporting chain.



Role of Partners (if applicable)

85. As mentioned previously, the main partners will establish a Technical Cooperation Agreement specifying each partner's responsibilities:

- As the grant recipient, the GIZ will act as MAPA, SFB and SENAR's partner under the terms of a Technical Cooperation Agreement to be signed. This agreement will co-finance the ongoing BMZ-financed CAR project to enlarge and upscale its scope. The GIZ will have FM and fiduciary responsibility for the project, including day-to-day FM operations, budget execution and transaction processing. In addition, the GIZ will work closely with the SFB on all activities related to the ongoing BMZ-financed CAR project and environmental and restoration practices.
- MAPA, together with the SFB, will play a leadership role in project coordination. It will also provide overall strategic advice and support for the Low-Carbon Emission Agriculture Plan implementation.

- The SFB, together with MAPA, will play a leadership role in project coordination. The SFB will be responsible for providing overall strategic advice and ensuring implementation of all activities related to SICAR, and for the training methodology with SENAR and EMBRAPA on environmental and restoration practices (RLs and APPs).
- SENAR, the agricultural sector's leading national rural extension and development agency, will support the production, extension and applied research activities envisaged as part of all components. SENAR uses a training methodology focused on the participation of trainees, in which their experience and expectations are valued. All SENAR agents, instructors, supervisors and technical staff are trained in this methodology. Trainers develop instructional plans to make the learning process efficient and effective. The plans include the educational goals, content, instructional techniques and resources to be used. They stipulate the procedures for evaluation and calculate the lead-time required for implementation.
- INPE will be the leader in the mapping of land clearing and land-use changes in the Cerrado Biome and in selected watersheds.
- EMBRAPA will be involved in the preparation of the technical content of the training courses and in training. EMBRAPA research will validate all the practices disseminated by the project (restoration and low-carbon agricultural practices). EMBRAPA will also be involved in mapping and monitoring land-use changes in the overall Cerrado Biome and in the selected watershed.
- OEMAs, universities, watershed committees and rural associations will be engaged in this initiative.

ANNEX 3: IMPLEMENTATION SUPPORT PLAN

COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Strategy and Approach for Implementation Support

1. Implementation support for the project will focus on the functions and activities typically monitored by World Bank task teams during supervision, including monitoring of technical activities, management functions (administration, FM, procurement), and compliance with safeguards policies.

2. The project is expected to have an overall positive environmental and social impact because it seeks to promote the protection of APPs, RLs, reforestation, recovery of degraded pastures, and reduction of the environmental impacts of agricultural activities mainly through rural extension activities. In this context, the environmental and social risks are rated Low.

3. MAPA and the SFB, which are involved in overall project management, have a mandate and experience in previous Bank projects. The implementation support strategy envisages taking advantage of SFB, MAPA, SENAR and INPE's existing knowledge and experience with Bank projects.

4. The successful collaboration among implementing agencies will be critical for the project's progress and success. Although the governance risk is Substantial, the relationship among implementing agencies is expected to be strengthened during implementation. Two factors will be especially important during the implementation phase of the project's life cycle: (i) managing communications among agencies, and (ii) maintaining trust among them.

5. The strategy for implementation support has been developed based on the previous FIP Brazil projects, project design, and measures required during implementation. The strategy remains a flexible tool that may be amended during project supervision in response to learning from the project's implementation process.

6. The Project Executing Units (PEUs) will be responsible for developing, setting up, and maintaining the project's management system, which will systematically collect information needed to track progress achieved, generate financial information, and document compliance with safeguards policies. Information generated by the CAR and ISA systems, as well as by Component 1 activities, complemented by information emerging at the time of the midterm review, will be used to adjust operational procedures and make any necessary midterm corrections to project implementation.

7. It is often crucial for project success to have staff with extensive experience in the country as well as a social scientist to help develop the dialogue with stakeholders. The World Bank's office in Brasília will be the main source of project support: it has qualified technical, environmental, agricultural, social, safeguards and fiduciary staff available to follow up on the project's implementation.

Implementation Support Plan and Resource Requirements

8. The project will require ongoing implementation support for fiduciary management; governance and institutional arrangements; monitoring, evaluation and reporting management; and stakeholder engagement, gender participation and communication.

9. FM supervision: project supervision will involve: (i) review of IFRs; (ii) review of auditors' reports and follow-up on issues raised by auditors, as appropriate; (iii) follow-up on any financial reporting and disbursement issues and on capacity development and support; (iv) discussion of FM issues with the project team; and (v) updating of the FM risk and performance rating in the Implementation Status and Results Report (ISR).

10. The Bank team will conduct at least annual supervision missions, desk reviews and field visits to follow up on project implementation, supported by FM, procurement, agricultural, social and environmental specialists, as well as safeguards, IT and climate-change specialists whose specific support missions may be required during the implementation period.

11. The table below summarizes the focus of implementation support.

Time	Focus	Skills Needed	Resource Estimate SW/year	Partner Role
First 12 months	Selecting and detailing the assessment of watersheds and planning field interventions in each selected area.	Environmental and agricultural technical expertise	4 SW	Provide staff, conduct analyses
	Project implementation progress: technical review, operations management	Project management (TTLs), operational expertise	23 SW	Project management: staff capacity, space and equipment
	Fiduciary implementation support and training for GIZ, SFB, SENAR and MAPA	Financial and procurement expertise	4 SW 2 SW	Fiduciary management: staff capacity, space and equipment, systems
	Interinstitutional communication and stakeholder engagement	Social expertise	3 SW	Provide staff and communications channels
	Monitoring, evaluation and report process	M&E expertise	2 SW	M&E arrangements and responsibility
12 to 48 months	Conducting site visits	Environmental and agricultural technical expertise	4 SW	
	Reporting, publicizing outputs and lessons leaned	Reporting and communication expertise	3 SW	
	Safeguards supervision missions	Safeguards expertise: social and environmental	4 SW	Follow safeguards policies, M&E
	Financial and procurement process reviews, implementation support	Financial and procurement expertise	5 SW 4 SW	Provide staff, systems
	Project implementation progress: technical review, operations	Project management (TTLs), operational expertise	15 SW	Project management

	management			
	Preparation of Midterm Review: economic analyses; M&E; communication materials	M&E and reporting expertise	3 SW	

Skills Mix Required

Skills Needed	Number of Staff Weeks	Number of Trips	Comments
TTL, environmental, agricultural, operations, M&E, social, communications	Bank supervision will require 32 SWs for first FY and 29 for subsequent FYs (mainly senior technical staff)	Two field trips in Brazil per fiscal year; two international trips per fiscal year	Trips may include participation in FIP international meetings and FIP exchange missions
FM	4 SWs for first FY, 5 SW for FY2 and 3 SW for subsequent FYs (mainly senior technical staff)	Two field trips in Brazil per fiscal year	
Procurement and disbursement	4 SWs for first FY and 3 SW for subsequent FYs (mainly senior technical staff)	Two field trips in Brazil per fiscal year	
Technical expertise enhancement: IT; M&E, landscape, climate change	6 SWs per FY	Two field trips in Brazil per fiscal year	

ANNEX 4: PROJECT RELATIONSHIP WITH FIP INVESTMENT CRITERIA

COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

REDD+ equivalent in Brazil

1. Brazil's National REDD+ Strategy is the outcome of a preparation process that involved ample participation from stakeholders between 2010 and 2015. From a strategic perspective, the main reference points for Brazil's REDD+ type actions are the National Plan on Climate Change (NPCC) and the National Policy on Climate Change Law enacted in 2009. It legally defines Brazil's commitment to reduce emissions, which could generate a reduction of 38.9 percent in projected emissions for 2020. In the context of the NPCC, the Ministry of Agriculture, Livestock and Food Supply (MAPA) developed the "Sectoral Plan for Mitigation and Adaptation to Climate Change for the Consolidation of a Low-Carbon Emissions Agricultural Economy," also known as the ABC Plan. Its overall objective is to promote the reduction of GHG emissions and the increase of carbon sequestration in agriculture by improving efficiency in the use of natural resources, increasing the resilience of production systems, and enabling the agricultural sector's adaptation to climate change.

2. In 2015, the GoB announced at the United Nations Climate Conference in Paris (COP21) the country's Nationally Determined Contribution (NDC) to the global effort of mitigating climate change. The NDC includes a combined target of restoration (return of ecosystems as close as possible to the original "reference" ecosystem) and reforestation (any process that returns complete or partial tree cover on forest land through planting or natural or assisted regeneration processes) of 12 Mha, along with zero net emissions from land-use change, zero illegal deforestation and other land-based targets by 2030. Moreover, in late 2016, the GoB committed to restoring 12 Mha of deforested land under the Bonn Challenge, a global effort to restore 150 Mha of the world's deforested and degraded lands by 2020, and 350 Mha by 2030. The Bonn Challenge is not a new global commitment but rather a practical means of realizing many existing international commitments, including the Convention on Biological Diversity (CBD) Aichi Target 15, the REDD+ goal, and the Rio+20 land degradation neutrality goal.

3. The GoB also plans to implement integrated crop, livestock and forestry initiatives on an additional five Mha under the country's low-carbon initiatives and restore five Mha of pastureland. Along with the 12 Mha under the Bonn Challenge, these pledges will be counted as part of the 20x20 Initiative, a regional platform to drive action on the Bonn Challenge led by the World Resources Institute (WRI). The NDC and Bonn goals reaffirm Brazil's various prior commitments and update others. Most of Brazil's targets are already included in existing laws, regulations and national plans.

4. In this context, the Brazil Investment Plan (BIP), endorsed by the FIP Subcommittee on May 18, 2012, is fully in line with the international and Brazilian framework on climate change.

Alignment with Country Investment Plan

5. The BIP complies with the FIP's four specific objectives. It was built on existing climate-change-

related policies and practices in Brazil and supports the instruments that guide federal and state financing policies in the land-use sector, thus overcoming key barriers to their implementation. As such, the BIP invests in replicable models that will catalyze transformational changes in the Cerrado Biome's land-use, forestry and agricultural sectors, generate new knowledge, and build the foundations to leverage additional financial resources in the context of an eventual future REDD+ mechanism under the UNFCCC.

6. The FIP–BIP adopts both the integrated landscape initiative (ILI) approach and a programmatic approach. These are defined as projects, programs, platforms, initiatives or sets of activities that: (i) seek to simultaneously improve food production, biodiversity or ecosystem conservation, and rural livelihoods; (ii) work at a landscape scale and include planning, policy and management, or support activities at this scale; (iii) involve inter-sectoral coordination or alignment of activities, policies or investments at the level of ministries, local government entities, farmer and community organizations, NGOs, donors, and/or the private sector; and (iv) are highly participatory and support adaptive, collaborative management within a social learning framework (Milder, Hart, Dobie, Minai and Zaleski 2014, 10).

7. The BIP's specific objectives are to: (i) improve environmental management in previously converted areas of the Cerrado Biome, and (ii) produce and disseminate environmental information at the biome scale. As part of the BIP, the overall objective of this project is to promote the adoption of environmental conservation and restoration practices and sustainable low-carbon emission agricultural practices in selected watersheds of the Cerrado Biome. It will be complementary and will scale up BIP results by supporting environmental regularization and low-carbon emission agricultural practices to landholders and traditional communities in selected watersheds.

8. The following long-term outcomes are expected through project implementation: (i) restoration and increase in pasture productivity in areas suitable for cattle ranching; (ii) restoration of the structure, function and ecosystem services of riparian forests located in the selected watersheds; (iii) enhancement of the biodiversity of degraded pastures and riparian areas, further contributing to the creation and enhancement of ecological corridor connectivity along the rivers; (iv) removal of CO_2 from the atmosphere by increasing carbon sequestration in riparian and RL forests; (v) improvement of soil and erosion control; and (vi) halting and reversal of land degradation processes by rural landholders, with special focus on riparian ecosystems.

Climate-change mitigation potential

9. The low-carbon emission agricultural practices and forest restoration practices promoted by the project have a proven effect on generating GHG emission reductions in the agricultural sector, through soil carbon sequestration. This is particularly important for the Cerrado Biome, where soil organic carbon represents the most substantial carbon pool (estimated to account for up to 70 percent of total carbon stocks per hectare). Therefore, small changes in the Cerrado's soil organic carbon pool could have dramatic impacts on the concentration of CO_2 in the atmosphere. Significant amounts of this carbon are emitted when forests are converted to cropland and pastures, while additional amounts are further released by the subsequent application of unsustainable land management practices.

10. By increasing the adoption rate of low-carbon emission agricultural practices and the implementation of natural vegetation restoration practices in the Cerrado, the project will make a direct

contribution to carbon sequestration in this biome while also contributing to the stabilization of the agricultural frontier through increased productivity gains in existing lands. Additional environmental benefits include nutrient cycling, rainfall regulation, improved water quality and flows, habitat provision, and river conservation.

11. Brazil's NDC Restoration and Reforestation Target study (2017[18]) recommends integrating restoration programs with actions for the agricultural sector to increase productivity.

Demonstration of potential scale

12. The project focuses on the selected watersheds, given their advanced stage of anthropization and the need to restore their natural vegetation. The project will mobilize local landholders and provide training and technical support to enable uptake and scale-up of land restoration practices and low-carbon emission agricultural technologies.

13. Therefore, the technical-assistance nature of this project will support the definition of tools and methodologies that can then be scaled up in the context of the landscape approach in the Cerrado Biome. The success of this project is expected to trigger similar initiatives in other Cerrado watersheds**.**

Potential to generate co-benefits

Improvement in social and economic well-being

14. ILM is inherently people-centered and may, therefore, generate multiple outputs in a sustainable manner with the least trade-off costs and with maximized synergies. The landscape approach is the only way to ensure long-term (multi-generational) environmental change, landscape-scale restoration and/or improved land management.[19]

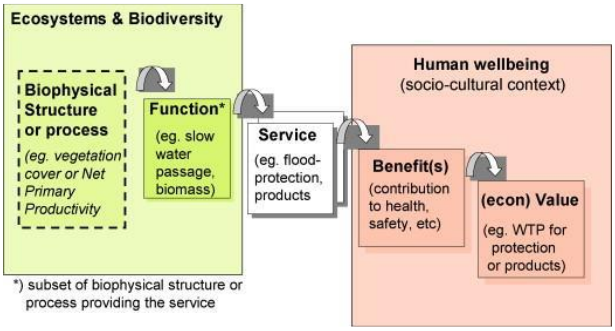
15. The project will bring benefits both for the government and for the landholders. For landholders, the benefits include: (i) greater legal certainty: the ability to demonstrate environmental compliance; (ii) suspension of fines (in some cases); (iii) access to technical assistance for recovering degraded pastures and increasing productivity; (iv) input for better planning of a landholding's land use; (iv) use of up to half of RLs for economic benefits; (v) increase in cattle ranch productivity. Productivity increases can sustain the economic performance of agriculture, even during a crisis.

16. In addition, the project is expected to increase job creation through the rural extension service[20] and more labor-intensive technologies, and to increase capacity and knowledge retained at the farmer level for the application of improved agricultural, land-use and management practices and production systems (i.e., ABC practices and APP and RL reforestation). A new "culture of restoration" would invigorate and strengthen local communities and give them a renewed sense of identity, purpose and place. The

[18] Brazil's INDC Restoration and Reforestation Target–Analysis of INDC Land-Use Targets. World Bank, June 2017. Report No. AUS19554.
[19] Brazil's INDC Restoration and Reforestation Target–Analysis of INDC Land-Use Targets. World Bank, June 2017. Report No. AUS19554.
[20] The agricultural extension system provides advisory and support services that make farming activities more productive and environmentally friendly and help farmers to overcome poverty and/or improve their productivity.

project will work closely with landholders and support their efforts to increase productivity in ways that are sustainable and protective of the environment, and that enable the rural poor to overcome poverty.

17. As demonstrated by Groot et al., the figure below summarizes the framework for linking ecosystems to human well-being:[21]



Gender-Related Co-benefits

18. In the Cerrado Biome (as well as in the selected watersheds), women play a critical but often unrecognized role in the survival strategies and economy of poor rural households. Many women contribute to the labor and generate income through agroforestry and animal husbandry activities. Most of the women's traditional production is: (i) often limited to marginal soils in rainfed agricultural systems that are highly susceptible to climate-change impacts; (ii) reliant on their traditional knowledge of biodiversity, non-timber forest products, seed varieties and drought-resistant species; and (iii) based on techniques of low-cost farming and land-management practices such as the use of compost, agroforestry, rotational grazing, or small-scale conservation tillage.

19. The project is expected to bring positive co-benefits for poor rural women and men. Women may particularly benefit because: (i) the project is expected to contribute to biodiversity conservation and enhancement, as well as to forest restoration and management; women's traditional production may directly and largely benefit from these outcomes; and (ii) when low-carbon pathways for agricultural development are implemented, the project is expected to encourage the participation of small farmers in low-carbon agriculture by making training venues, agricultural extension services, and credit accessible to them and, consequently, also to rural women who have experience with "climate-smart agriculture" that would no longer be neglected.

Protection of biodiversity

20. The Cerrado Biome has significant biodiversity and is one of Brazil's most endangered biomes. It covers nearly one quarter, or 200 Mha, of the country, with a mosaic of 23 types of vegetation composed of tropical savannas, woodlands, grasslands and forests. It covers a large area with significant carbon stocks and water resources, and with substantial biodiversity.

21. The Cerrado is home to 935 species of birds and nearly 300 mammals, including such endangered species as the giant anteater *(Myrmecophaga tridactyla)*, the jaguar *(Panthera onca)*, the maned wolf

[21] R.S. Groot, R. Alkemade, L. Braat, L. Hein, L. Willemen. 2010. Challenges in integrating the concept of ecosystem services and values in landscape planning, management and decision making. Ecological Complexity. Vol 7. Issue 3.

(*Chrysocyon brachyurus)*, and the pampas deer *(Ozotoceros bezoarticus)*. The main co-benefits envisaged are: (i) enhancement of the biodiversity of riparian areas and RLs; (ii) creation and enhancement of ecological corridor connectivity along rivers; (iii) enhanced biodiversity conservation through reduced loss of native vegetation cover in the selected areas; (iv) combined sustainable cattle ranching and farming with conservation of rural landscapes; (v) improvement of soil and erosion control; and (vi) reduction of pressure for the conversion of native vegetation areas to agricultural use, thereby protecting existing biodiversity and ecosystem services. Moreover, biodiversity conservation in agricultural landscapes embraces all three elements of agricultural biodiversity defined by the Convention on Biological Diversity (2002): (i) genetic diversity of domesticated crops, animals, fish and trees; (ii) diversity of wild species on which agricultural production depends (such as wild pollinators, soil micro-organisms and predators of agricultural pests); and (iii) diversity of wild species and ecological communities that use agricultural landscapes as their habitat.

Strengthened resilience of ecosystems, with associated ecosystem services

22. As mentioned in the BIP, changes in the Cerrado landscape have already increased wet-season river discharge (Costa et al. 2003:21); pastures and crops have replaced the deep-rooted native vegetation that can tap water from deep soil layers (Oliveira et al. 2005:22; Ferreira et al. 2006:23). Regional CO_2 and energy balances have also changed (Potter et al. 2009:24). Well-managed cultivated pastures may provide sufficient organic carbon to maintain soil carbon contents (Roscoe et al. 2001:25; Santos et al. 2004:26). However, most pastures are at an advanced stage of degradation and carbon inputs from degraded low-productive pastures may be too low to sustain the high soil-carbon storage under native Cerrado vegetation (100 Mg C ha-1 per 100 cm soil depth).

23. In this context, the regeneration of degraded pastures and integrated crop–livestock–forestry management would contribute to the maintenance of natural ecosystems, together with their biodiversity and associated environmental services.

Financial Sustainability of Intended Results

24. The transformation of agricultural production from one of the greatest threats to global biodiversity and ecosystem services to a major contributor to ecosystem integrity is unquestionably a key challenge of the twenty-first century. Under this scenario, the use of land and land resources plays a fundamental role in delivering national economic growth in Brazil, and will continue to do so in the future. Agricultural business-sector leadership is imperative if Brazil is to continue its agricultural expansion and become more ecologically sustainable.

25. Incentives for increasing carbon stocks in vegetation, as provided by the Forest Code and the Low-Carbon Emissions Agriculture Plan, are a major impetus for a wide range of forest restoration interventions, as well as for the conservation of existing forests.

26. The project's results and institutional sustainability will be guaranteed through the implementation of the National Policy Framework in order to improve the Cerrado Biome's management.

27. Furthermore, sustainability of the project will be found in the long-term financial and non-financial benefits to be achieved as a result of activities that the project will implement in selected

watersheds:

- Land-use planning and the mainstreaming of environmental and low-carbon emission agricultural practices will be a tool for short-, medium-, and long-term decision-making for all stakeholders involved;
- The ownership, implementation, and mainstreaming of the program across government institutions will make ILM an integral part of national land-use planning and development efforts.
- Environmental compliance certification will encourage farmers' and landowners' interest in investing in the medium- to long-term productivity of their landholdings;
- Rural extension and technical assistance will support the definition of tools and methodologies that can then be scaled up in the context of the landscape approach;
- Private-sector involvement will contribute to the sustainability of such investments, which are mutually beneficial to private-sector actors and local communities;
- Financial incentives in the form of livelihood benefits, cash for work, and access to natural resources will further sustain landholders' engagement during and beyond the project; and
- Improvement and expansion of natural vegetation within private landholdings will ensure long-term provision of the ecosystem services (generating local, national and global environmental benefits) from such areas.

Safeguards

28. The proposed project will assist landholders in implementing the Forest Code (Law 12.651/2012) and promote low-carbon emission agricultural technologies, the recovery of degraded pasture land, and the implementation of integrated crop–livestock–forestry systems under the Low-Carbon Emission Agricultural Plan *(Plano ABC)* in selected watersheds.

29. The project is expected to have an overall positive impact on the environment because it seeks to promote protection of APPs and RLs, reforestation, recovery of degraded pastures, and reduction in the environmental impacts of agricultural activities mainly through rural extension activities. The agricultural and restoration practices to be promoted are more environmentally sustainable than conventional production practices. The project's expected benefits, which include better soil fertility, increased agricultural productivity and food security, greater availability and quality of water resources, reduced deforestation, enhanced biodiversity, and climate-change mitigation, will greatly outweigh the negative impacts likely to be generated. The project will adopt an integrated landscape approach aimed at sustainably managing land for multiple purposes and functions.

30. Potentially adverse environmental impacts are not expected because these will be avoided or minimized through appropriate preventive and mitigation measures. Therefore, the following environmental safeguards are triggered: Environmental Assessment OP/BP 4.01; Natural Habitats OP/BP 4.04; Forests OP/BP 4.36; and Pest Management OP 4.09.

31. An Environmental and Social Management Framework (ESMF), including environmental social assessments, will provide guidance on potential issues that could arise during project implementation. Periodic Bank supervision missions to the project will verify compliance with Bank safeguards and recommend corrective actions when applicable.

ANNEX 5: Brazil Investment Plan and Projects

COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Brazil Investment Plan (BIP)

1. The BIP seeks to promote sustainable land use and forest management improvement in the Cerrado, the second-largest biome in Brazil and South America, and to contribute toward reducing pressure on the remaining forests, reducing GHG emissions, and increasing CO_2 sequestration.

2. The Cerrado is a strategic biome for economic and environmental reasons as well as for food security. It covers a large area with significant carbon stocks and water resources, and with substantial biodiversity.

3. The BIP comprises coordinated actions by three ministries (MMA, MCTI and MAPA). These actions are focused on building synergies in order to maximize the impact of a larger set of policies aimed at reducing deforestation in the Cerrado Biome by improving environmental management in areas previously anthropized, and producing and disseminating environmental information at the biome scale. Therefore, it is essential to take these actions forward in a joint effort to avoid the conversion processes that could occur if command-and-control actions are not accompanied by incentives in order to promote sustainable productive activities.

4. The BIP comprises two projects with complementary approaches (forests and land use): generation and promotion of new, updated and accurate information on forest resources and their use, with the aim of assisting public- and private-sector policy makers and enabling the environment for forest management best practices that may contribute to valuing forest resources as an important socioeconomic and environmental asset; and generation of information on deforestation, forest degradation and land use in a systematic and ongoing manner, as well as the development of an early-warning system for preventing forest fires and a system for monitoring vegetation cover.

5. The BIP also proposes coordinated and synergistic actions by different actors in order to improve the sustainability and efficiency of forest resource management and land use in the Cerrado, in particular on private landholdings which are prominent in this biome.

6. In addition, complementary contributions to the BIP include a Dedicated Grant Mechanism for Indigenous Peoples and Local Communities (DGM) and a private-sector window specifically designed to promote private-sector investment in Brazil.

<table>
<tr><th colspan="5">Brazil Investment Plan</th></tr>
<tr><td colspan="5">Project: Brazil Forest Investment Plan Management (P152285)
Grant:US$1 million MDB: IBRD</td></tr>
<tr><td>Special Window</td><td colspan="2">Theme 1: Management and Use of Already Anthropized Areas</td><td colspan="2">Theme 2: Generation and Management of Forest Information</td><td>Set-aside</td></tr>
<tr><td rowspan="3">Dedicated Grant Mechanism for Indigenous Peoples and Local Communities</td><td>Project 1.1.
Environmental regularization of rural lands (P143334)

MDB: IBRD</td><td>Project 1.2.
Sustainable production in areas previously converted to agricultural use (P143184)

MDB: IBRD</td><td>Project 2.1.
Forest information to support public and private sectors in managing initiatives

MDB: IDB</td><td>Project 2.2.
Development of systems to prevent forest fires and monitor vegetation cover (P143185)
MDB: IBRD</td><td rowspan="3">Private concessional funds</td></tr>
<tr><td colspan="4">Project: Integrated Landscape Management in the Cerrado Biome (P164602)
MDB: IBRD</td></tr>
<tr><td colspan="2">Improvement of producers’ access to resources available for Low Carbon Emission Agriculture</td><td colspan="2">Generation and availability of spatially and temporally consistent environmental information</td></tr>
</table>

7. Project 1.1: Environmental regularization of rural lands (P143334), at an early stage of implementation, supports activities in 47 selected municipalities within the nine states and the Federal District. Project 1.2: Sustainable production in areas previously converted to agricultural use (under the Low-Carbon Emission Agricultural Plan; P143184), under implementation, aims to test and evaluate the effect of training activities and technical assistance on the adoption of low-carbon emission practices by participating rural producers in Brazil’s Cerrado region.

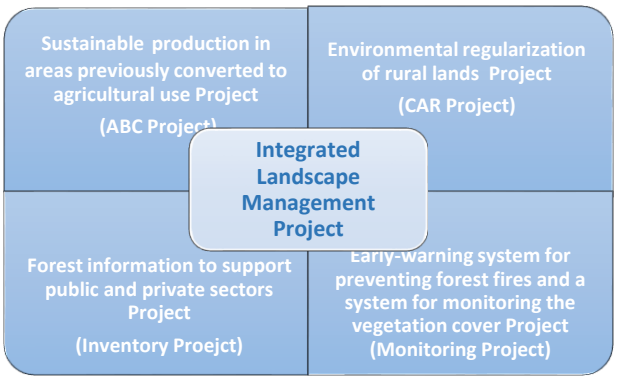
8. Project 2.1: Forest information to support public and private sectors in managing initiatives focused on conservation and valuation of forest resources, under implementation, aims to implement the national forest inventory in the Cerrado Biome; this inventory will produce timely, good-quality information for public- and private-sector decision makers on forest resources and their use, thereby contributing to sustainable programs focused on the mitigation of GHG emissions in the Cerrado. Project 2.2: Implementation of an early-warning system for preventing forest fires and a system for monitoring vegetation cover, under implementation, aims to manage all the data needed for associated projects, including a system to monitor plant-cover changes through remote sensing (in addition and complementary to a deforestation warning system) and a conceptual model for calculating GHG emissions from deforestation (high resolution).

9. Although these projects will be implemented in a complementary manner, each has its own pace, focus area and strategy. The BIP also includes a BIP Coordination Project (P152285) to coordinate projects and improve the sustainability and efficiency of forest resource management and land use in the Cerrado.

10. The BIP Integrated Landscape Management (ILM) in the Cerrado Biome Project will be complementary and will scale up BIP results by supporting environmental regularization and low-carbon emission agricultural practices for landholders and traditional communities in 61 additional selected municipalities, promote landscape restoration, and enhance forest carbon stock in the Cerrado Biome’s private rural landholdings.

11. The project will act in synergy with other BIP projects and contribute to the achievement of objectives of the National Policy on Climate Change and the Plan to Prevent and Control Deforestation

and Fires in the Cerrado. It will also ensure that rural properties assisted by the project are in environmental compliance with Brazilian Forest Code rules. The income of rural properties, especially those that raise dairy and beef cattle, are expected to increase. (see figure below).



National Policies, Programs and Projects related to REDD+: Synergies and Financing

12. The BIP projects are included in broader policies and national plans which the GoB considers priorities. In parallel with the FIP, the GoB continues to support initiatives related to its national policies and plans through annual budget allocations and other international funds.

13. It is important to highlight the fact that the BIP was designed to enable the development of a strategic approach to promote synergies not only among its projects, but also with ongoing Cerrado government plans and policies already under implementation at federal, state and municipal levels.

14. This section presents a summary of the government's strategy, programs and projects for the Cerrado Biome, their synergies, and financing sources which contribute to GHG emission reductions by reducing deforestation and forest degradation.

15. The following policies guide the Cerrado Biome approach as well as the project:

- Brazil's Nationally Determined Contribution (NDC), launched in 2015, calls for reducing GHG emissions by 37 percent below 2005 levels by 2025 and by 43 percent by 2030. The NDC includes a combined target of restoration and reforestation of 12 Mha (seven Mha of tree plantations plus five Mha of restoration), along with zero net emissions from land-use change, zero illegal deforestation and other land-based targets by 2030. The NDC reaffirms the National Plan on Climate Change and the National Policy on Climate Change, Law 12.187/2009 (*Política Nacional de Mudanças Climáticas,* PNMC).
- Through the PNMC (Law 12.187/2009 and Decree 7.390/2010), the GoB made a voluntary commitment to reduce annual deforestation rates of deforestation in the Cerrado Biome by 40 percent, based on average deforestation between 1999 and 2008.
- The Forest Code (Law 12.651/2012) requires landholders to ask their respective state environmental agency for prior authorization to use fire on vegetation in locations or regions whose characteristics justify its use in agro-pastoral or forestry practices. It also states that federal, state and municipal environmental agencies, which comprise the National Environmental System (*Sistema Nacional do Meio Ambiente,* SISNAMA), will update and deploy contingency plans for fighting forest fires, and that the Federal Government should establish a National Policy for Prevention and Control of Deforestation and Forest Fires.

- The National Policy for Recovery of Native Vegetation (PROVEG–Decree No. 8,972 dated January 23, 2017) aims to articulate, integrate and promote policies, programs and actions to foster the recovery of forests and other forms of native vegetation and boost the environmental regularization of Brazilian rural properties in at least 12 Mha by December 31, 2030.
- The aim of the Action Plan to Prevent and Control Deforestation in the Cerrado Biome (PPCerrado; Decree 5.577/2005) is to promote sustained reductions in deforestation and forest degradation rates, as well as in the incidence of burnings and forest fires in this biome.

16. The PPCerrado guidelines include: the integration and improvement of monitoring and control activities by federal agencies, aimed at the environmental regulation of rural landholdings; sustainable forest management and firefighting; land-use planning to conserve biodiversity, protect water resources and encourage the sustainable use of natural resources; and the promotion of environmentally sustainable economic activities, maintenance of natural areas, and restoration of degraded lands.

17. In addition to the BIP, the following initiatives are under the MMA's Cerrado Biome approach:

- The **Brazil Cerrado Climate Change Mitigation Trust Fund** (BCCMTF) (ProCerrado Program), launched in January 2012, is a single-donor trust fund with Bank- and recipient-executed components from the Department for Environment, Food and Rural Affairs (DEFRA) of the United Kingdom. The program's objective is to assist Brazil in mitigating climate change in the Cerrado Biome and in improving environmental and natural resource management in this biome through appropriate policies and practices.
- **Cerrado Jalapão Project.** Through the German Development Bank (KfW), Germany's financial cooperation seeks to support the implementation of CAR in municipalities of the Cerrado located in two states of the Legal Amazon: Maranhão and Mato Grosso. This cooperation does not include the strengthening of environmental agencies for CAR, but rather the landholdings' CAR registration in selected municipalities.

18. Furthermore, the MMA and World Bank are working in an integrated manner to avoid duplication, maximize synergies, and guide the resource-allocation activities that effectively contribute to the achievement of goals established in the PNMC, NDC, and PPCerrado.

19. The table below provides an estimate of current international financing resources to fund the Cerrado approach to date.

Program/Project	US$ Million	Type	Resource
Brazil Investment Plan	37.50	Grant	FIP–SCF–CIF
	32.48	Concessional Loan	
Cerrado–Jalapão Project	15.90	Grant	Germany
Cerrado Climate Change Mitigation Program	16.80	Grant	DEFRA
TOTAL	**102.68**		

ANNEX 6: Legal Framework

COUNTRY : Brazil

FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

1. In 2015, Brazil submitted its Nationally Determined Contribution (NDC) to the United Nations Framework Convention on Climate Change (UNFCCC). Brazil is committed to reducing GHG emissions by 37 percent below 2005 levels by 2025 and, as a subsequent indicative contribution, to reducing GHGs by 43 percent below 2005 levels by 2030. The Government of Brazil (GoB) is committed to the NDC's implementation, with full respect for human rights and the rights of vulnerable communities, indigenous peoples, traditional communities and workers in sectors affected by corresponding policies and plans, and is promoting gender-sensitive measures.[22] In this context, Cerrado forests are important because of the substantial amount of carbon stored in their biomass and soils. The structural diversity of vegetation types in the Cerrado involves a broad spectrum of total biomass amounts. The Brazil Investment Plan (BIP) estimates that organic matter includes up to 70 percent (185 tC/ha) of the total carbon stock. Therefore, changes in the Cerrado's soil organic carbon pool can have significant impacts on CO2 emissions.

2. Therefore, through its NDC, Brazil will seek to adopt consistent additional measures for the planet's climate balance, which will have a direct influence on integrated management of the Cerrado landscape. Measures in the energy, forestry and land-use change, and agricultural sectors must be highlighted. Measures will also be taken in the energy sector to increase the share of sustainable bioenergy in the Brazilian energy matrix to approximately 18 percent by 2030, expand biofuel consumption, increase the supply of ethanol by increasing the share of advanced biofuels (second generation), and increase the share of biodiesel in the diesel blend. In the forestry and land-use change sector, measures are envisaged to strengthen compliance with the Forest Code at federal, state and municipal levels; restore and reforest 12 Mha of forest for multiple uses by 2030; and expand the scale of sustainable forest management systems through geo-referencing and traceability systems applicable to the management of native forests, in order to discourage illegal and unsustainable practices. In the agricultural sector, measures are aimed at strengthening the Low-Carbon Agriculture Plan (ABC Plan) as the main strategy for sustainable development in agriculture; promoting the restoration of 15 Mha of degraded pasture by 2030; and implementing an increase of five Mha of crop-livestock-forest integration (iLPF) systems by 2030.

3. The enforcement of the Native Vegetation Protection Law (Law No. 12.651/2012) is critical for achieving Brazil's NDC commitments.[23] Known as the "Forest Code," this law provides for the protection of native vegetation, establishes general rules on vegetation protection, Permanent Preservation Areas (Áreas de Preservação Permanente, APPs) and Legal Reserve (Reserva Legal, RL) areas. It also rules on forest exploitation, the supply of forest raw materials, the control of the origin of forest products, and the control and prevention of forest fires. It establishes economic and financial instruments to achieve these objectives. The following instruments are highlighted: the Rural Environmental Cadaster (Cadastro Rural Ambiental, CAR), Environmental Regularization Program (*Programa de Regularizacão Ambiental,* PRA),

[22] http://www4.unfccc.int/submissions/INDC/Published%20Documents/Brazil/1/BRAZIL%20iNDC%20english%20FINAL.pdf
[23] Brazil's NDC Restoration and Reforestation Target. Analysis of INDC land-use targets. World Bank. 2017. Report No. AUS19554.

and Environmental Reserve Quotas (*Cotas de Reserva Ambiental*, CRA). The federal Executive Branch is authorized by the Forest Code (Federal Law 12.651/2012) to implement environmental preservation and restoration incentive and support program (PAI – chapter X of forest code) and to adopt sustainable practices and green practices that conciliate forest and farming productivity including the following categories: payment or incentive for environmental services; benefits for environmental conservancy acts; and incentive for trading, innovation and promote of forest restoration, conservation and sustainable practices. To finance the necessary environmental regularization activities of the rural properties the program must predict the destination of resources to scientific and technologic researches and rural extension related to the improvement of environmental quality.

4. CAR is a national electronic registry which is used in conjunction with the responsible environmental agencies and as part of the National Environmental Information System (S*istema Nacional de Informação sobre Meio Ambiente,* SINIMA). It is mandatory for all rural properties, with the purpose of integrating environmental information on all rural properties and landholdings and comprising a database for environmental and economic planning, monitoring and control and for combating deforestation. PRAs are used to fulfil legislation for the protection of native vegetation and other environmental regulations.

5. The recovery of RLs and APPs has great potential for carbon sequestration in Brazil. RLs are areas located within a delimited rural property or landholding that has the function of ensuring the sustainable economic use of the property's natural resources, aiding conservation and rehabilitation of ecological processes, promoting biodiversity conservation, and sheltering and protecting wildlife and native flora. They also serve as surplus natural forest areas used or traded to compensate for properties with forest liabilities. The APPs are established as protected areas, whether or not covered by native vegetation, with the environmental functions of preserving water resources, landscapes, geological stability and biodiversity; facilitating gene flow of flora and fauna; protecting soil; and ensuring the well-being of human populations. Considering the APP and RL areas that need to be recovered in accordance with current legislation, Brazil has a liability of approximately 21 Mha (SAE 2013). This liability is concentrated on the edges of the Amazon, along nearly the entire length of the Atlantic Rainforest, and in the southern portion of the Cerrado Biome where agricultural occupation is at its highest. The geographic regions with the highest environmental liabilities are: Amazon (eight Mha), Atlantic Forest (six Mha), and Cerrado (five Mha).[24] It is estimated that the recovery of this environmental liability of 21 ± 0.6 Mha has the potential of sequestering one billion tons of carbon within 20 years, the period stipulated for the recomposition of RLs in accordance with the Forest Code (SAE 2013).

6. The Sectoral Plan for Mitigation and Adaptation to Climate Change for the Consolidation of a Low-Carbon Economy, know as the ABC Plan (Decree No. 7,390/2010), also plays a critical role in the achievement of NDC commitments**.** The ABC Plan's aim is to promote the adoption of sustainable production technology. With the objective of responding to the country's commitments to reduce GHG emissions in the agricultural sector (Ministry of Agriculture, Livestock and Supply [*Ministério da Agricultura, Pecuária e Abastecimento*, MAPA] 2017), the ABC Plan comprises seven programs, six of which relate to mitigation practicesand one to climate-change adaptation. These programs and their targets for 2020 are: (i) Recovery of Degraded Pastures (15 Mha); (ii) Agricultural–Livestock–Forest Integration (iLPF) and Agroforestry Systems (SAFs) (four Mha); (iii) No-Till System (*Sistema de Plantio*

[24] Considering only the APPs, there are 4.8 Mha of liabilities, distributed mainly in the Cerrado (≈1.7 Mha), Atlantic Forest (≈1.5 Mha), and Amazon (≈1 Mha).

Direto, SPD) (eight Mha); (iv) Biological Nitrogen Fixation (BNF) (5.5 Mha); (v) Planted Forests (three Mha); (vi) Animal Waste Treatment; (vi) Land Use and Land Cover Mapping (4.4 million m³); and (vii) Climate-Change. Adaptation. A credit line was created as part of the ABC Program to assist in the process. Its aim is to motivate rural producers to invest in structuring a production system with practices that reduce GHG emissions from agriculture. Financing is offered for projects aimed at developing projects that will establish production systems based on the technological arrangements proposed by the ABC Plan, including the possibility of resources to recover APPs and RLs.[25] The use of this credit line increased from R$418 million in 2010–2011 to R$1.5 billion in 2011–2012 and R$3 billion in 2012–2013 (or 88 percent of planned credit commitments). The average size of the loans is about R$230,000 for an average area of 105 ha.

7. The National Plan for the Recovery of Native Vegetation (*Plano Nacional de Recuperação da Vegetação Nativa*, PLANAVEG) is also critical. Established by Decree No. 8,972/2017, the plan's objective is to broaden and strengthen public policies, financial incentives, markets, agricultural best practices, and other measures necessary for the recovery of native vegetation in at least 12.5 Mha over the next 20 years. This recovery will occur in APP and RL areas as well as in degraded areas with low productivity. The goal of the first five years of implementation is the recovery of 390,000 ha of native vegetation. To reinforce the plan, the Federal Government issued Decree No. 8,972 dated January 23, 2017, which established the *National Policy for the Recovery of Native Vegetation (Política* Nacional de Recuperação da Vegetação Nativa, PROVEG), who the following objectives are to: articulate, integrate and promote policies, programs and actions aimed at inducing the recovery of forests and other forms of native vegetation and to promote the environmental regularization of Brazilian rural properties under Law No. 12.651 dated May 25, 2012, in a total area of at least 12 Mha, by December 31, 2030. PROVEG's Article 4 established guidelines on: (i) promoting adaptation to climate change and the mitigation of its effects; (ii) preventing natural disasters; (iii) water resources protection and soil conservation; (iv) encouraging the conservation and restoration of biodiversity and ecosystem services; (v) encouraging the recovery of APPs, RLs and Areas of Restricted Use; and (vi) promoting the recovery of native vegetation with economic and social benefits.

Theme	Legal framework	Description
Climate Change and Low-Carbon Agriculture	Law No. 12,187 dated December 29, 2009	Institute the National Policy on Climate Change (PNMC).
	Decree No. 7,390 dated December 9, 2010.	Regulates arts. 6, 11 and 12 of Law No. 12,187, dated December 29, 2009, which establishes the PNMC.
Control of Deforestation and Environmental Regularization of Rural Property	Decree of September 15, 2010	Establishes the Action Plan for the Prevention and Control of Deforestation and Burnings in the Cerrado Biome (PPCerrado).
	Law No. 12.651 dated May 25, 2012 (Forest Code)	Provides for the protection of native vegetation, establishes general rules on vegetation protection, APP and RL areas; forest use and the supply of forest raw materials; control of the origin of forest products; control and prevention of forest fires; and provides economic and financial instruments to achieve these objectives.
	Decree No. 7.830 dated October 17, 2012	Provides for the Rural Environmental Registry System and the Rural Environmental Registry; establishes general norms for the

[25] 3rd National Communication of Brazil to the United Nations Framework Convention on Climate Change (BRAZIL, 2016). http://sirene.mcti.gov.br/documents/1686653/1706227/Estimativa+1ed.pdf/64d58e8a-1bc8-4fa6-aa5c-1d23dfeb9020

		Environmental Regularization Programs (PRA), as specified in Law 12.651 dated May 25, 2012; and makes other provisions.
	Decree No. 8,235 dated May 5, 2014	Establishes general norms complementary to the Environmental Regularization Programs of the States and the Federal District, as specified in Decree No. 7,830 dated October 17, 2012, establishing the *Mais Ambiente Brasil* Program; and provides other measures
	Decree No. 8,972 dated January 23, 2017	Institutes the National Policy for the Recovery of Native Vegetation.
Technical Assistance and Rural Extension	Law No. 12.188 dated January 11, 2010	Establishes the National Policy for Technical Assistance and Rural Extension for Family Agriculture and Agrarian Reform (PNATER) and the National Program for Technical Assistance and Rural Extension in Family Agriculture and Agrarian Reform (PRONATER).

ANNEX 7: Principles for Integrated Landscape Approach

COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

1. The terms "landscape approach" and "integrated landscape management (ILM)" are often used interchangeably. They seek to provide tools and concepts for allocating and managing land in order to achieve social, economic and environmental objectives (Minan et al. 2015). Along these same lines, Metzger and Brancalion (2013) argue that ILM not only allows for a better balance between native and human-dominated areas, but can also define and impose a new landscape configuration that makes it possible to take maximum advantage of the services that landscapes can provide, whether these are targeted to agricultural production, biodiversity conservation, provision of regulation services, or a combination of these services. Sayer et al. (2012) identified principles to guide the decision-making process in landscape contexts. The main elements are:

- **Ongoing learning, adaptive management, and resilience**. Because landscape processes are dynamic and complex, they require ongoing learning, reflection and adjustments. Wholesale unplanned system changes are usually detrimental and undesirable. System-level resilience can be increased through an active recognition of threats and vulnerabilities.

- **Multiple stakeholders and common-concern entry point.** All stakeholders should be recognized, even though an efficient pursuit of negotiated solutions may involve only a subset of stakeholders. Solutions should encompass a fair distribution of benefits and incentives. The various stakeholders in a landscape may have conflicting interests. Launching the process by focusing on easy-to-reach intermediate targets may provide a basis for stakeholders to begin to work together.

- **Multiple scales and multi-functionality.** Landscapes and their components have multiple uses and purposes, each of which is valued in different ways by different stakeholders. Trade-offs exist among the differing landscape uses and need to be reconciled. Landscapes provide multiple goods and services to agriculture, biodiversity, livelihoods, conservation and climate change. Outcomes at any scale are shaped by processes operating at other scales. An awareness of these higher- and lower-level processes can improve local interventions, inform higher-level policies and governance, and help coordinate administrative entities.

- **Clarification of rights and responsibilities.** Rules on resource access and land use shape social and conservation outcomes and need to be clear as a basis for good management.

- **Negotiated and transparent change logic.** The need to coordinate activities of diverse actors requires agreement on a shared vision. This requires broad consensus on general goals, challenges, and concerns, as well as on options and opportunities. Transparency is aided by good governance.

- **Participatory and user-friendly monitoring.** Spatial plans must be developed and implemented based on an analysis of the land's status and potential and on the needs and wishes of the human population, while balancing the importance of conservation and environmental service provision. To facilitate shared learning, information needs to be widely accessible. Systems that integrate different

kinds of information need to be developed, ongoing monitoring and learning need to be leveraged, and adjustments need to be made as the integrated management process progresses.

- **Strengthened stakeholder capacity.** The complex and changing nature of landscape processes requires competent and effective representation and institutions that are able to engage with all the issues raised by the process.

- **Integrated landscape initiatives are likely to have certain start-up costs** as well as ongoing, long-term process costs.

ANNEX 8: Gender Action Plan

COUNTRY : Brazil
FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project

Context

1. Over the last decades, Brazil has experienced significant improvements along several dimensions of gender equality. Challenges remain in terms of women's access to economic opportunities particularly in rural settings. In the agriculture sector, gender inequalities in access to and control over resources are persistent. Compared to men, women farmers face many disadvantages. They have lower access to tangible assets and credit than men. Traditional cultural norms and division of labor within the household, women have lower mobility and available time than men to participate in learning events and producer organizations. They have insufficient access to information, technical assistance and extension services, which hampers their ability to know about innovative practices and productive practices. Furthermore, women's participation in agriculture is oftentimes difficult to measure because agricultural data are usually collected at the farm level, and only the gender of the "principal farmer" is usually reported.

Objectives

2. Focusing on capacity building and extension services activities that will foster opportunities to access credit lines and apply low-carbon agriculture technologies, the Project can contribute to address some of the key challenges that hamper gender equity in the Cerrado Biome, because it includes a set of activities that the literature considers critical to overcome gender inequalities and empower women. These activities are related with: (i) the Project's communication strategy; (ii) the preparation of Action Plans for integrated landscape management in selected watersheds; (iii) the Project's training and capacity building activities; and (iv) the Project's technical assistance and extension services.

Activities

3. The following activities are envisaged to achieve this objective:

Key Challenges to Promote Gender Equity in the Agriculture and Forest Sectors	Project Instrument	Measures that will be taken
Women opportunities are constrained by insufficient information and knowledge about technological innovations and public policies.	Communication Strategy	The Project communication strategy will take the appropriate steps to inform women in the selected watersheds about project activities. The Project will target communication activities to include venues that women producers and/or female-headed landholdings frequent or have access to.
Women opportunities are constrained because most public institutions and implementing agencies do not involve men and women equally in the design, implementation, management, monitoring, and evaluation of policies or projects.	Watershed Action Plans for Integrated Landscape Management	The socioeconomic diagnostic of the watershed will incorporate a gender lens - assessing the differences in men's and women's development needs and preferences; their differences in access to and control over resources; and the potential distributive impacts of a development intervention on women and men. The process of preparation of the "watershed action plans" will promote the participation of both men and women in their preparation meetings and workshops. The organization of planning workshops will consider women producers and/or female-headed

		landholdings' time, spatial, and security constraints to participate. These planning workshops will be planned and carried out at times and in places that are well aligned with women's needs, productive tasks and domestic and familial responsibilities to foster their more active participation
Time, transportation and safety constraints, as well as cultural reservations, can hinder women from participating in training, capacity building, and extension activities.	Training and Capacity Building	Training and capacity building events will reach out for the enrollment of both men and women. These events will be organized at times and in places that are well aligned with women's needs to ensure their enrollment and participation.
Extension services for women remain rare and where they are available, women often tend to make less use of them than do men. Extension service agents tend to approach male farmers more often than female farmers because of the general misconception that women do not farm and that extension advice will eventually "trickle down" from the male household head to other members. The way in which extension services are delivered can also prevent women farmers from receiving information on innovations.	Extension Services	Technical assistance and extension services will include targets related to the share of farms owned by women to receive visits from extension service agents and share of women producers and/or female-headed landholdings to receive orientation.

Monitoring and Evaluation

4. The implementation of this Gender Action Plan will be monitored and evaluated according to the following gender-sensitive outcome and result indicators.

Outcome Indicators

- Share of female-headed landholdings and /or women producers enrolled in training and capacity-building activities provided by the Project;
- Share of female-headed landholdings and /or women producers concluding training and capacity-building activities provided by the Project;
- Share of female-headed landholdings and /or women producers who have access to extension services and/or received visit from extension agents provided by the Project; and,
- Share of female-headed landholdings and /or women producers satisfied with access to and quality of extension services provided by the Project.

Result Indicators

- Share of farms owned by women registered in CAR;
- Share of farms owned by women developing PRADs;
- Share of female-headed landholdings and /or women producers adopting a new technology and/or new farming practices; and

Share of female-headed landholdings and /or women producers accessing the ABC credit line for the adoption of low-carbon agriculture technologies.

ANNEX 9: Project Site Selection

COUNTRY : Brazil

FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project