

Cover Page for Project/Program Approval Request			
1. Country/Region:	Brazil	2. CIF Project ID#:	(Trustee will assign ID)
3. Source of Funding:	<input checked="" type="checkbox"/> FIP	<input type="checkbox"/> PPCR	<input type="checkbox"/> SREP
4. Project/Program Title:	<i>FIP: Brazil Investment Plan: Integrated Landscape Management in the Cerrado Biome Project</i>		
5. Type of CIF Investment:	<input checked="" type="checkbox"/> Public	<input type="checkbox"/> Private	<input type="checkbox"/> Mixed
6. Funding Request in million USD equivalent:	<i>Grant:</i> \$25.00	<i>Non-Grant:</i> \$0	
7. Implementing MDB(s):	<i>IBRD</i>		
8. National Implementing Agency:	<i>Federative Republic of Brazil – Ministry of Environment/National forest Service and Ministry of Agriculture, Livestock, and Food Supply</i>		
9. MDB Focal Point and Project/Program Task Team Leader (TTL):	<i>Headquarters-Focal Point:</i> Garo Batmanian	<i>TTL:</i> Bernadete Lange	
10. Project Description (including objectives and expected outcomes):			
<p><b>Alignment with Brazil Investment Plan</b></p> <p>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 Nationally Determined Contribution (NDC) commitments in Brazil's Cerrado Biome. 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<sub>2</sub> sequestration.</p> <p>The BIP's specific objectives are to improve environmental management in previously converted areas of the Cerrado Biome, and produce and disseminate environmental information at the biome scale. The BIP covers two thematic areas and includes interrelated projects. Theme 1: Management and use of previously farmed 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 Peoples and Local Communities (DGM) and a private-sector window specifically designed to promote private-sector investment in Brazil.</p> <p>The following projects are currently under implementation: (a) Environmental Regularization of Rural Lands Project, which supports activities in selected municipalities within the nine states and the Federal District; (b) Sustainable Production in Areas Previously Converted to Agricultural Use Project, which 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; (c) Forest Information Project, which 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; and (d) Development of Systems to Prevent Forest Fires and Monitor Vegetation Cover in the Brazilian Cerrado Project, which aims to manage all the data</p>			

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 to coordinate projects and improve the sustainability and efficiency of forest resource management and land use in the Cerrado.

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

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 Plan) is one of the sector plans stipulated by the NPCC. The program's ambitious goals include rehabilitating 15 million hectares (ha) of degraded pastures and increasing the area under zero tillage from 25 million ha to 33 million ha by 2020. The ABC Plan promotes the following low-carbon agricultural practices: no-till agriculture; the restoration of degraded pastures; the planting of commercial forests; biological nitrogen fixation; treatment of animal wastes; and the integration of crops, livestock and forests.

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), and that Areas of Permanent Preservation (*Áreas de Preservação Permanente*, APPs), such as riparian forests along watercourses, steep slopes, mountaintops, etc., also be maintained by landholders. The Forest Code also obliges landholders to register their landholdings in the Rural Environmental Cadaster (*Cadastro Ambiental Rural*, CAR). CAR is an electronic registry of rural landholdings maintained by an official environmental entity whose aim is to effectively monitor, supervise, control, plan and ensure the environmental compliance of landholdings. This registry contains details on 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.

### **Theory of Change**

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), maintaining rural livelihoods, and ensuring that agriculture can continue to grow 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.

The complexity of this challenge is due to multiple factors: (a) poor integration and dissemination of knowledge about the region; (b) low adoption of low-carbon emission agricultural technologies; (c) incipient native vegetation restoration supply chain; (d) inadequate technical assistance and rural extension; and (e) resistance of landholders to the implementation of the Forest Code.

The BIP adopts both the integrated landscape initiative approach and a programmatic approach. These are defined as projects, programs, platforms, initiatives or sets of activities that: (a) seek to simultaneously improve food production, biodiversity or ecosystem conservation, and rural livelihoods; (b) work at a landscape scale and include planning, policy and management, or support activities at this scale; (c) involve intersectoral 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 (d) are highly participatory and support adaptive, collaborative management within a social learning framework.

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 scale up BIP results by supporting environmental regularization and low-carbon emission agricultural practices for landholders and traditional communities in selected watersheds.

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.

The project's theory of change is based on the following intervention strategies: (a) strengthening of the capacities of producers, technicians and institutions; (b) managing, monitoring, evaluating and promoting ongoing improvement of ILM: continued learning; (c) integrating agricultural production and compliance with legislation and environmental conservation in the rural environment: multi-functionality of geographic and multi-scale; and (d) engaging and empowering different social actors: multiple stakeholders, participation, capacity building.

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, especially by meeting environmental standards, Rural Environmental Registry, Recovery of Changed Areas and implementation of ABC Plan actions. 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 National Forest Service (*Serviço Florestal Brasileiro*, SFB), Ministry of Agriculture, Livestock and Food Supply (*Ministério da Agricultura, Pecuária e Abastecimento*, MAPA), National Rural Learning Service (*Serviço Nacional de Aprendizagem Rural*, SENAR), National Institute for Space Research (*Instituto Nacional de Pesquisas Espaciais*, INPE), Brazilian Agricultural Research Corporation (*Empresa Brasileira de Pesquisa Agropecuária*, EMBRAPA), and state environmental agencies.

### **Project Development Objective**

The project development objective is to strengthen adoption of environmental conservation and restoration practices, and low-carbon emission agricultural practices in selected watersheds of Brazil's Cerrado Biome.

### **Project Site Selection**

The project priority areas for ILM were defined based on multi-criteria analyses and multi-stage processes to maximize environmental and agricultural benefits. These spatial analyses help to achieve scale in the project, would reduce costs per landholding and hectare, and increase environmental benefits. The following criteria were used to pre-select priority watersheds: (a) an Otto watershed with at least 90 percent of its territory located

within the Cerrado Biome; (b) density of cattle per watershed; (c) deficit of APPs and RLs in each watershed; (d) natural vegetation cover rate; (e) productive area open after 2008 (farmed area); and (f) areas of APPs deforested before July 22, 2008 (considered consolidated areas by the Forest Code Law).

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 pasture lands holding an average of 10.98 head of cattle per hectare. There are 55,051 landholdings within this potential project area: 83.4 percent of them are small or family agricultural landholdings, whereas mid-size and large landholdings account for 12.4 percent and 4.3 percent, respectively. 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: (a) number of landholders interested in adopting low-carbon emission agricultural and restoration practices; (b) local institutional capacity and engagement; (c) stakeholders' participation; (d) local infrastructure, including roads and communication facilities; and (e) landscape dynamics and functions.

### **Project Components**

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.

**Component 1: Institutional Development and Capacity Building for Landscape Management.** The application of the ILM approach requires thorough and careful knowledge of the action's focus area. Understanding land use is essential for having a strategic vision and creating scenarios for the future of agriculture and the conservation of the Cerrado. 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.

The main activities would include: (a) 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); (b) studies and information on the Cerrado; and (c) strengthening of the governance capacity of MAPA, SFB, INPE, EMBRAPA, and SENAR. This component would finance consultancies, non-consulting services (e.g., vehicle 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.

**Component 2: Mainstreaming Landscape Practices into Selected Watersheds.** The aim of this component is to promote the adoption of low-carbon emission agricultural practices and 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.

The main activities would include: (a) an action plan for the selected watersheds; (b) mobilization and engagement of producers and public environmental institutions; (c) training; (d) technical assistance for landholders; (d) monitoring of landholdings' performance; and (e) 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.

**Component 3: Project Management, Monitoring, Evaluation and Communication.** This component aims to provide support for the project’s technical and administrative management, including communication, monitoring, evaluation, reporting, and auditing activities. It will finance studies, workshops, training, travel, technical advice, consulting, administrative services, limited software and equipment, and operating costs.

## 11. Consistency with Investment Criteria:

### Climate-change mitigation potential

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 by 2020. In the context of the NPCC, 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.

In 2015, the Government of Brazil (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 million ha (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.

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.

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<sub>2</sub> 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.

By increasing the adoption rate of low-carbon emission agricultural practices (100,000 ha) and the

implementation of natural vegetation restoration practices (7,000 ha) 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 on existing lands.

### **Demonstration of potential scale**

The project focuses on the selected watersheds, given their advanced stage of land use 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.

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.

### **Cost effectiveness**

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.

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.

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.

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 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;
- Ownership: implementation, and mainstreaming of the project across government and private institutions will make integrated landscape management an integral part of national land-use planning and development efforts.
- Environmental compliance certification will encourage producers' and landholders' interest in investing 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 ecosystem services (generating local, national and global environmental benefits from such areas).

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 CO<sub>2</sub> captured. 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 CO<sub>2</sub> at US\$3/ton or 2.4 percent of the area if the value of CO<sub>2</sub> is US\$15/ton. Conversely, in order to pay the project amount of US\$25 million, an annual investment of US\$3.17 million for 20 years would be required, discounted at an annual rate of 10 percent

### **Implementation potential**

The project will be implemented over a five-year period. It will be managed by MAPA and the SFB in partnership with the following key executing agencies: Brazil–*Deutsche Gesellschaft für Internationale Zusammenarbeit* (GIZ) and SENAR. 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 grant resources.

To this end, the GIZ will sign a grant agreement with the World Bank to carry out the implementation of the project. This agreement will stipulate 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; carrying out disbursements and the financial execution and accounting of the project; and provide technical support to conduct project activities.

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

### **Integrating sustainable development (co-benefits)**

#### *Protection of biodiversity*

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 comprising tropical savannas, woodlands, grasslands and forests. It covers a large area with significant carbon stocks and water resources, and with substantial biodiversity.

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 (*Chrysocyon brachyurus*), and the pampas deer (*Ozotoceros bezoarticus*). The main co-benefits envisaged are: (a) enhancement of the biodiversity of riparian areas and RLs; (b) creation and enhancement of ecological corridor connectivity along rivers; (c) enhanced biodiversity conservation through reduced loss of native vegetation cover in the selected areas; (d) combined sustainable cattle ranching and farming with conservation of rural landscapes; (e) improvement of soil and erosion control; and (f) 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*

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<sub>2</sub> 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<sup>-1</sup> per 100 cm soil depth).

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.

#### *Improvement in social and economic well-being*

ILM is inherently people-centered and may 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.

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

In addition, the project is expected to increase job creation through the rural extension service 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 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.

#### **Safeguards**

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 (*Agricultura de Baixa Emissão de Carbono, Plano ABC*) in selected watersheds.

The project is expected to have an overall positive impact on the environment because it seeks to promote the protection and restoration 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.

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.

The project is expected to yield the following socioeconomic benefits: (a) enabling landholders to access the resources and other assistance services provided under the ABC Plan; (b) assurance to landholders that they are fulfilling part of the environmental legislation requirements, thus enabling them to undertake investment in agricultural products that will allow them to access a range of markets which require such compliance; (c) establishment of requirements enabling landholders (including land-reform settlers and traditional communities) to access target rural credit as PRONAF, and (d) increase of both employment and income for landholders (including land-reform settlers and traditional communities) and other partners in the business chain generated by farming activities, thus contributing to poverty alleviation.

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 interference (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 the creation of protected areas. Therefore, involuntary population displacement and/or negative impacts on livelihoods due to land acquisition are not envisaged.

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.

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 the social inclusion of all beneficiaries in these practices. This will require consistent, 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 (watershed to local), with the aim of resolving these concerns and questions within certain time frames. The quality of its implementation and progress will be monitored through supervision and dialogue.

## **12. Gender considerations:**

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 often limited to marginal soils in agricultural systems that are highly susceptible to climate-change impacts; reliant on their traditional knowledge of biodiversity, non-timber forest products, seed varieties and drought-resistant species; and 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.

The project is expected to bring positive co-benefits for poor rural women and men. Women may particularly benefit because 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 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.

By focusing on capacity-building and extension-service activities that will promote opportunities to access credit lines and apply low-carbon agriculture 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: (a) the project's communication strategy; (b) the preparation of action plans for integrated landscape management in selected watersheds; (c) the project's training and capacity-building activities; and (d) the project's technical assistance and extension services.

The project's 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 preparing 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 in order 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 in order to ensure their enrollment and participation. They 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.

A gender analysis was previously conducted during the preparation of the FIP: Sustainable Production in Areas Previously Converted to Agricultural Use (P143184) and 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 mid-sized 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 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.

A Gender Action Plan (GAP) developed for the project aims 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 monitoring and evaluation (M&E) system will allow the Project Technical Unit to periodically assess the efficiency of the project approach to promote the 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.

**13. Indicators and Targets (consistent with results framework):**

<b>Core Indicator</b>	<b>Target</b>
Land area where conservation and restoration practices have been adopted.	7,000 ha
Landholders adopting environmental conservation and restoration practices. (disaggregated by gender)	3,520 landholders
Land area where low-carbon emission agriculture practices have been adopted.	100,000 ha
Farmers adopting improved agricultural technology (disaggregated by gender)	4,000 farmers
<b>Intermediate Results Indicators</b>	
Institutions provided with capacity-building support to improve management of landscapes	5 institutions
Maps on land use and land cover in the Cerrado Biome are made available	2016, 2018 and 2020 maps
Maps on land use and land-cover changes in selected watersheds are made available.	2016 and 2020 maps
Watersheds where action plans have been prepared	10 action plans
Land area under land-use planning for landscape management	1.2 million ha
Landholdings adopting land-use planning tools for landscape management	4,200 landholders
People employed in agricultural services and/or restoration practices as a result of the project (disaggregated by gender)	150 people
Farmers reached with agricultural assets or services (disaggregated by gender)	5,200 people
Share of landholders satisfied with agricultural and/or restoration services provided by the project	75% satisfaction

**14. Co-Financing:**

	<i>Amount (in USD million):</i>	<i>Type of contribution:</i>
Staff of partner institutions: MAPA; SFB; EMBRAPA; INPE; SENAR;		In-kind

**15. Expected Board/MDB Management approval date:**

On or around March 7, 2018