

**Common Format for Project/Program Concept Note for the Use of Resources from the FIP Competitive Set-Aside**

<b>1. Country/Region:</b>	Brazil	<b>2. CIF Project ID#:</b>	
<b>3. Project/Program Title:</b>	<i>Commercial Reforestation of Modified Lands in Cerrado, Brazil.</i>		
<b>4. Date of Endorsement of the Investment Plan:</b>	May 4, 2012		
<b>5. Funding Request (in million USD equivalent):</b>	<i>Grant: N/A</i>	<i>Non-Grant (loan, equity, guarantee, etc.): USD15 million equivalent in local currency (Brazilian reais) from FIP to be invested as equity.</i>	
<b>6. Implementing MDB(s):</b>	IFC	<input checked="" type="checkbox"/> Private sector arm <input type="checkbox"/> Public sector arm	
<b>7. Executing Agency:</b>	IFC		
<b>8. MDB Focal Point and Project/Program Task Team Leader (TTL):</b>	<i>Headquarters- Focal Point: Joyita Mukherjee</i>	<i>TTL: Adam Struve</i>	

**I. Project/Program Description: Provide a summary description of the project, objectives, and expected outcomes. Which sectors would be targeted?**

This Project Proposal conforms to the Brazil’s FIP Investment Plan (FIP-IP), which was endorsed by the FIP Sub-Committee on May 4, 2012. The Brazil FIP-IP seeks to promote sustainable land use and forest management improvement in the Cerrado, the second largest biome in Brazil and South America. Brazil FIP-IP contributes to reducing pressure on the remaining forests, reducing greenhouse gas (GHG) emissions, and increasing CO2 sequestration. FIP-IP in Brazil is supporting a broad set of policies and instruments, in particular the implementation of the ABC Plan by the private sector (ABC Plan is Brazil’s Sectoral Plan for a Low Carbon Emission Agriculture). The Project falls under the Promotion of Commercial Forest Plantation Program one of the seven strategic programs under the ABC Plan.

The Project aims to support the development of commercial forest plantations on modified habitat in the Cerrado biome. The plantation sites were cleared in the 1960s and 1970s and used for cattle grazing and soy cultivation. The Project proposes to finance an experienced Brazilian private company (the Company) to develop 18,000 hectares (ha) of teak plantation. The Company’s objectives are to plant, harvest, and mill teak in the Cerrado, which provides optimal soil and climatic conditions for teak plantation. The Company has been operating largely under the framework of the Principles and Criteria of the Forest Stewardship Council (FSC) and will obtain external FSC certification for its plantation in

2015. Moreover, the Company's strategy includes working beyond environmental and certification requirements to implement initiatives that increase the quality and management of conservation areas.

However, at this stage, no commercial investors, beyond IFC and potentially another DFI, are in a position to provide the patient capital needed at the earlier stage of Project development. There is very limited interest on the part of commercial investors due to the lack of track record and current uncertainties with respect to quality and price of short rotation teak to be planted by the Company. In addition, the carrying costs of sustainable and certifiable plantations are relatively high as approximately 40% of the composite land area is set-aside in conservation easements (Legal Reserves and Permanent Protected Areas<sup>1</sup>) which form the backbone of biodiversity conservation and watershed protection. Until investors improve their understanding of wood products, positive environmental services, and have sufficient visibility of expected returns, the lack of financing will limit the development of this type of project.

The Project can help demonstrate the viability of financing sustainable teak plantations, which can increase carbon stocking, while protecting the region's remnant and threatened "cerrado" forests. By producing commercial volumes of tropical hardwood used for similar applications as the native forests, the Project will also alleviate the pressure on natural forests, leading to the following expected outcomes:

- *Climate change mitigation*: The plantation of approximately 11,500 ha of land with teak is expected to lead to a net positive change in GHG sequestration of 100,000 tCO<sub>2</sub>e per year, and a total of 1 million tCO<sub>2</sub>e over the first 10 years of the Project<sup>2</sup>. Reforestation and addition of significant soil carbon will also have a positive impact on surface water balance and improve the region's drying microclimate. Also, the Project will provide waste from wood processing activities to local agro-processing facilities that would be used as fuel for boilers. This will substitute biomass partly derived from the clearing of native forest and vegetation.
- *Sustainable forest management*: 18,000 ha of sustainable forest management, FSC certified. This would set a good precedent in the country for forestry outside of the large scale pulp and paper plantations which rely entirely on using pine and eucalypts. Smaller scale and natural mosaic-based plantings of high value tropical hardwoods will help protect watercourses and remnant natural forests which form the basis for the region's rich biogeography and vital corridors.

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<sup>1</sup> Brazilian Forestry Law requires that every farm in the Cerrado should have a Legal Reserve (RL) of native vegetation cover of 20-35% of the private landholding. If a farm is located in the area considered transitional between the wetter Amazon Biome and more typical Cerrado Biome, as in the case of this Project, 35% of the land should be set aside for conservation. The Law also requires private landholders to protect the natural vegetation in areas at risk of generating erosion, storm water runoff or deterioration of the protective role of the headwaters and the edges of water bodies, which are known as Areas of Permanent Preservation (APPs).

<sup>2</sup> Project related GHG emissions are estimated using the World Bank Carbon Assessment Tool for Afforestation and Reforestation (CAT-AR).

- *Local economic diversification*: the region's local economic structure is very dependent on extensive cattle grazing and the mechanized cultivation of soy and corn. Establishing teak plantations and value-added processing offer alternative means for economic development in the region which are fundamental for the well-being of the population.

- *Employment generation*. Cattle grazing, soy and corn cultivation typically generate fewer jobs per hectare than plantation forestry. Moreover the Company will operate primary processing of wood products which will add additional skilled jobs to the workforce within the formal sector with respect to its employment and benefit practices. As such, the Project will make a contribution to generating approximately 140 new direct formal sector jobs during the period of 2013-2018, and a total of 300 new direct formal jobs for the entire plantation cycle (2013-2027). It is expected that female employment will represent about 20% of total jobs created.

**II. Project Rationale: Provide the rationale behind the idea in the national context, and from a local market perspective. Also, provide an explanation as to why it should receive the funding and how it would further advance the objectives of the endorsed investment plan.**

1. Background

The Brazil FIP-IP seeks to promote sustainable land use in the Cerrado biome, including restoration of underutilized or abandoned lands, and the improvement of forest and land use management, with a view to reducing pressure on the remaining forests, and helping to reduce GHG emissions from forest conversion and increase CO<sub>2</sub> sequestration from reforestation. The FIP-IP supports the implementation of important national plans and programs with actions targeted at the reduction of deforestation and lessening the pressure for deforestation in the Cerrado. Estimates suggest that deforestation in the Cerrado is proportionally more severe than that of the Amazon. During the period 2002-2008, Amazon deforestation represented 3.2% of the area of the biome (with signs of continuing reduction), with 82% of the original forested area remaining. Over the same period the Cerrado biome lost 4.1% of its cover and only 52% of the area covered by native vegetation still remains. The Cerrado is a strategic biome both for economic and environmental reasons and also for food security. It covers a large area with significant carbon stocks, water resources, and substantial biodiversity. The Center-West region of Brazil where the Project is located consists of gallery forests covering lowland areas which are extremely rich in biodiversity but are very sensitive disturbance and particularly vulnerable to fire. This area also has the largest portion of land occupied by rural properties in Brazil (32% of the total), and also has the highest average area per property of all farms in the country (397.2 ha). Thus the area is largely rural, and sparsely populated and presents a unique opportunity to develop new paradigms that combine modern and sustainable forest plantations with the conservation of natural resources and the promotion of human well-being.

The Brazilian National Policy on Climate Change has several sectoral plans for mitigating and adapting to climate change. The objectives are to consolidate a low carbon economy and meet the national voluntary commitments announced under this Policy. The Sectoral Plan for the Mitigation and Adaptation of Climate Change for a Low Carbon Emission Agriculture (ABC Plan), which is supported under Brazil FIP-IP, seeks to ensure continuous and sustainable improvement of management practices which reduce GHG emissions and enhance atmospheric CO<sub>2</sub> uptake on vegetation and land used by the farming sector. The ABC Plan helps reduce pressure on forests by promoting the greater productivity of existing agricultural systems, sustainable management practices, and recovery of degraded areas.

The Promotion of Commercial Forest Plantations is one of the seven Strategic Programs under the ABC Plan. The Program intends to reduce pressure on native forests, capture of CO<sub>2</sub> from the atmosphere, and increase the supply of wood (pulp and paper, furniture, wood paneling, and other uses).

Brazil is endowed with climatic conditions and soil characteristics that favor the growing of production forests. The country has some of the world's most advanced forest production technologies and R&D based on fast-growing, high-productivity clones. Moreover, Brazil has the enabling infrastructure and access to markets, including a rapidly expanding domestic industry. However, despite these assets, Brazil has a deficit of plantation forests<sup>3</sup>. The existing plantation forests are concentrated almost exclusively in fiber production for the pulp and paper industries.

## 2. Market Barriers for Private Sector Development of Plantation Teak

Currently, the teak supply market consists of natural and plantation teak (short and long, 20-30 years and 40 or more years rotation plantations, respectively). As described in detail in section VII of this document ("Market"), there is an increasing demand for high quality teak driven by population growth, economic growth, the forthcoming ban of natural teak logs from Myanmar, and the decline of supply of other natural timber. While natural teak is regarded as of better quality than plantation teak, high quality plantation teak (with larger percentage of heartwood) can be a substitute for natural teak. Long rotation teak plantation is sometimes recognized to be of sufficient quality to be used in many applications to substitute teak and other hardwoods which come from natural tropical forests. However, long rotation teak is currently in decline and it is expected to continue being harvested faster than it is replanted into the future. Thus the decline in supply of this type of teak means it will not be able to meet increasing global demand<sup>4</sup>. In this respect, the expected demand of teak in 2025 will be 10 million m<sup>3</sup> while, at the current production levels, supply at sustainable cut rates is estimated to reach about 5 million m<sup>3</sup> in that same year<sup>5</sup>. This scenario makes short rotation teak plantation desirable both in terms of economic use for numerous industries, as well as for its impact on reducing deforestation and illegal

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<sup>3</sup> Brazil Low-carbon Country Case Study, World Bank group, 2010.

<sup>4</sup> See more details on section VII, Market

<sup>5</sup> "Teak Market and Production", 2010. IFC internal report prepared by Indufor and Poyry.

logging since teak wood competes directly with other hardwood species from natural forests in the Brazilian Amazon (and teak plantations can relieve pressure on these natural forests). However, in despite of this favorable scenario, the following market barriers will need to be addressed for private sector development of short rotation teak plantation in Brazil to succeed at a scale and in a sustainable manner.

*Lack of track record* - Short rotation plantation teak is not yet well accepted in the traditional natural forest teak market for a few reasons. First, short rotation teak is a relatively new product, made possible due to improved silviculture and management practices therefore there is a general lack of historical information regarding the product. Second, a challenge for short rotation plantation teak growers is to produce quality teak wood that is an acceptable substitute in the high grade tropical hardwood markets and in the long rotation teak plantation, as well as developing alternative markets for the lower grade wood. Finally, there is no international wood grading system for plantation teak, as the current system is for natural teak wood. This could result in a pricing environment that is less stable and which would fluctuate per geographical region. Due to these reasons, there is a limited track record for the production and use of intensively grown or short rotation teak plantations in the markets.

*Lack of adequate finance (long term, patient investment)* - The cycle for short rotation teak is completed in 22 years on average, during which there will have been three thinnings. Thus the activity requires a long investment horizon and large upfront investments (including buying large volumes of land). The return on investment is concentrated at the back-end of the 22 years (although it produces some interim cash flow from thinnings). Existing financial products from financiers (private and public) does not cater to the long term financing needs of cultivating teak, which requires long term patient equity. In the case of Brazil, the financing of most government funding programs is limited to small-scale production, and although necessary, it is insufficient for meeting the increasing demand for teak.

*Compliance requirements* - The Government of Brazil is to be commended for having possibly the most stringent requirements for conservation set-asides in the world. The RL and APP provisions are extremely important to protect biodiversity and water resources which arguably accrued largely to the public through improvements in environmental amenities. At the same time, the private sector must factor in these RL and AAPs requirements in its financial planning and land acquisition strategy. In the case of the Project, the total RL and APP set aside areas will be around 40% of all land owned by the Company and the costs for protecting and restoring them are part of the Company's valuation and cash flow. Moreover, the Company is committed to perform its work with the highest internationally recognized sustainable forest management standards, which thus far return limited market premium.

Overall, this Project is intended to help catalyze the development of short rotation teak plantation on underutilized and abandoned lands in the Brazilian Cerrado by establishing a track record of performance, helping to reduce perceived risks for future investors in the sector, and establishing a downstream processing industry. As short rotation teak plantation could be scaled up across the

country, the Project also intends to demonstrate a sustainable business practice that promotes biodiversity and ecosystem conservation, results in carbon sequestration, and that can compete with other land use practices that result in GHG emissions rather than reductions.

**III. Consistency with Investment Criteria: Provide information on how the proposed project meets the investment criteria for the Forest Investment Program, including:**

The Project description above has outlined the overall consistency of the program with the FIP investment criteria. Additionally, there are specifically consistency issues that need to be addressed:

***a) Climate change mitigation potential.***

Approximately 100,000 tCO<sub>2</sub>e per year and a total of 1 million over 10 years of the Project of additional tCO<sub>2</sub> will be sequestered on reforested sites.

***b) Demonstration potential at scale.***

The country is endowed with climatic conditions and soil characteristics that favor growth rates for production forests. Additionally, Brazil has some of the world's most advanced wood-production technologies and R&D based on fast-growing, high-productivity clones as well as the enabling infrastructure and access to markets, including rapidly expanding domestic industry. However, despite these strengths, Brazil still faces a number of market barriers for forest plantation and has limited experience in commercial short rotation teak plantation production, resulting in a deficit of plantation forests. FIP resources will provide the critical funding for the Project enabling the Company reach sufficient scale and therefore create a track record for short rotation teak plantation. The Project will also demonstrate the viability of a sustainable forest management practice that can compete with illegal logging, unsustainable forestry management, and other land use activities that emit GHG. Once a track record is established, it is expected that commercial and institutional investors' perception of risk will reduce and increasing financing will be expected to flow in this sector.

***c) Cost-effectiveness.***

Based on the GHG reductions calculations and the FIP investment of US\$15 million, the implied direct GHG reductions per FIP financing will be roughly to US\$ 15/tCO<sub>2</sub>.

***d) Implementation potential.***

Please see section X, Implementation Feasibility and Arrangements.

***e) Integrating sustainable development (co-benefits).***

In sum, the Company has proven to be committed to biodiversity and ecosystem conservation beyond compliance with legal requirements by pursuing initiatives that aim to increase the

quality and management of HCVA. Therefore, the Project has the potential to significantly improve the protection of biodiversity and ecosystem services in the Company's holdings. Moreover, what the Company develops can be leveraged by other landholders in the region as they manage their own APPs and RLs. Beyond the region and country in which it operates, where set-aside requirements are less stringent, the Project serves to demonstrate that silviculture can be financially viable while pro-actively promoting the conservation of about 40% of its landholdings.

**f) Safeguards**

The Project will be implemented on lands that have already been severely modified in the Cerrado which was previously used for cattle grazing or soy cultivation, and which are unlikely to be reforested by natural means. IFC's Policy and Performance Standards on Environmental and Social Sustainability (2012) will be applied. IFC guidelines also restrict engagement in forestry operations to companies that are implementing sustainable management practices to one or more globally, regionally or nationally recognized standards as demonstrated by independent verification or certification. In the case of this Project, the Company has been in compliance with the Brazilian Forestry Law and it has been operating largely under the framework of FSC's Principles and Criteria, and is currently working towards obtaining FSC certification.

Besides financial, legal and credit due diligence, integrity due diligence is an essential component of IFC's overall due diligence efforts for any engagement with outside parties. The IFC PS and include: Assessment and Management of Social and Environmental Risks and Impacts; Labor and Working Conditions; Resource Efficiency and Pollution Prevention; Community Health, Safety and Security; Land Acquisition and Involuntary Resettlement; Biodiversity Conservation and Sustainable Management of Living Natural Resources; Indigenous Peoples; and Cultural Heritage<sup>6</sup>. Additionally, The Company will also operate within the confines of the IFC's General Environmental, Health, and Safety (EHS) Guidelines, EHS Guideline for Plantation Crop Production, EHS Guideline for Forest Harvesting Operations, and the EHS Guideline for Forest Harvesting Operations. Additionally, the Project implementation will occur in accordance with Brazilian legislation and in particular the forest code and labor laws.

**IV. Type of Private Sector Engagement: Provide information whether this will be a solely private sector project, a PPP, or a public sector project financing private sector entities.**

This is a solely private sector investment project.

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<sup>6</sup> For information on IFC Performance Standards see: [www.ifc.org/sustainabilityframework](http://www.ifc.org/sustainabilityframework).

**V. Innovation: Explain how the project is innovative in terms of technology, business model, financial instruments or structure, and how the innovation will add value to the project.**

The Project is innovative in two ways: First, it aims to demonstrate the viability of financing short rotation teak plantations, a relatively new forestry product for which there is little precedent in Brazil but which has a large potential to grow. To demonstrate the viability of the Project is also to demonstrate the viability of a sustainable forest management practice that is profitable and can compete with other land uses which have substantially higher GHG emissions including illegal logging and unsustainable forest management. Currently, market incentives drive conversion of forests to other land uses including agriculture and ranching. FIP resources are needed to consolidate a business case for sustainable forest management that leads to substantial carbon sequestration and enhanced environmental services (including biodiversity, watershed protection and recreation) in a global market that still needs forestry incentives to make innovative projects viable and accelerate market transformation.

Second, the Project proposes the use of patient equity to fill in the financing gap and address the lack of suitable financing barrier faced by projects that need large upfront investments but that will generate returns only in the long run. Large-scale forestry development has never occurred without forestry incentives schemes that helped balance the playing field with the agriculture sector which, for several decades, has had a negative impact in natural forests and ecosystems<sup>7</sup>. IFC's experience in forestry around the globe and use of novel financial products in the region can help build an important model for replication in Brazil and elsewhere. If approved, the Project will be the first under the Climate Investment Funds to make use of equity as a financing mechanism. Experiences and lessons from it will be of value to inform new financial structures being developed to tackle the needs and challenges of climate finance.

**VI. Technology, Product, and/or Business Model: Provide description of the technology, the technology provider if identified, whether it has been tested, commercialized and viable commercially. If the project does not involve a technology, provide a description of the business model and its structure.**

Please see sections II (Project Rationale), section V (Innovation), VII (Market), and section X (Implementation Feasibility and Arrangement).

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<sup>7</sup> Douglas Southgate. 1998. Tropical Forest Conservation: An Economic Assessment of the Alternatives in Latin America; Rigoberto Stewart and David Gibson. 1991. Environmental and Economic Development Consequences of Forest and Agricultural Sector Policies in Latin America: A Synthesis of Case Studies of Costa Rica, Ecuador, and Bolivia.

- VII. **Market:** Provide an overview of the market, product nature, supply and demand status, prices, and competition. In the absence of other comparable products, provide a brief explanation on how the proposed product will substitute for existing products and the benefits from a climate standpoint, and the prospects of commercial viability. Also, provide an overview of current market barriers and how will they be reversed by the proposed project.

See page 11 of the Project document.

- VIII. **Financial Plan (Indicative):**

Source of Funding (by type of instrument)	Amount (USD million equivalent)	Percentage (%)
Project developer (equity)	20	18
IFC <sup>8</sup> (equity)	[25-30]	23
FIP <sup>9</sup> (equity)	15	14
Other investors (equity)	20	18
Local banks (debt)	28	25
Internal Cash generation	4	3
<b>TOTAL</b>	<b>112</b>	<b>100</b>

- IX. **Expected Results and Indicators (using FIP indicators)**

Results	Indicators
a) CO2 sequestered through afforestation and reforestation activities	Approximately 100,000 tCO2e per year, and a total of 1 million tCO2e over 10 years of the Project. <sup>10</sup>
b) Sustainable management of forests and forest landscapes to address drivers of deforestation and forest degradation	18,000 Ha of sustainably managed land.
c) New jobs created	140 new direct formal jobs during the period of 2013-2018, and a total of 300 for the entire plantation cycle (2013-2027). It is expected that female employment will represent about 20% of total jobs created.

<sup>8</sup> IFC investments will be made in local currency (Brazilian reais)

<sup>9</sup> USD15 million equivalent in local currency (Brazilian reais) from FIP to be invested as equity.

<sup>10</sup> Project related GHG emissions are estimated using the World Bank Carbon Assessment Tool for Afforestation and Reforestation (CAT-AR).

- X. Implementation Feasibility and Arrangements:** *Provide information on the implementation feasibility of the proposed project and a timeline by when the project can start implementation on the ground and when the project will be completed. Also, to provide:*

See Project document page 18.

**Expected FIP Sub-Committee approval date:** October 2013

**Expected MDB Approval date:** by October 2013

Additionally, as mentioned in section III.f, the Project will comply with all relevant criteria and standards, including with those set by the FIP and the IFC. Furthermore, project implementation will occur in accordance with Brazilian legislation and in particular the forest code and labor laws.

- XI. Potential Risks and Mitigation Measures:** What are the risks that might prevent the project development outcome(s) from being realized, including but not limited to, political, policy-related, social/stakeholder-related, macro-economic, or financial?

See Project document page 19.