

Project Name Brazil-PCF Minas Gerais Plantar...
Project

Region Latin America and the Caribbean Region

Sector Environment

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Borrower(s) Republic of Brazil

Implementation Agency Plantar S.A.
Av. Raja Gabaglia, 1380
Belo Horizonte 30380-090
Brazil

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1. Country and Sector Background

The pig-iron sector generates important revenues to the Brazilian economy and is one of the major employees in the rural area of the State of Minas Gerais. Brazil is the only country in the world that uses charcoal as a reducing agent for the pig iron production. Due to the lack of specific financial instruments in Brazil for the pig iron sector, the availability of charcoal from plantations is rapidly declining. This fact is one of the most important drivers of the trend over two decades toward an increasing concentration of the industry in integrated mills, which use coke as a thermal reducer in overall Brazilian pig-iron manufacture. Coke-based integrated mills increased gross output by 130%, increasing their share in total production from 63% to 74% in the 1983 - 1999 period. Responding to the growing competitiveness of coke based mills, some of the integrated mills using charcoal have recently shifted to 100% coke-based production.

It is expected that the pig iron production in the small-scale independent sector is gradual abandoning its production. This trend is demonstrated by:

Decline in Eucalyptus plantation cover in Minas Gerais after 1992 when fiscal incentives for plantation establishment ended, from 2.6 million ha 1.67 million ha in 1998;
Required planting to maintain current timber supply is 130,000ha per year whereas at current rates of planting there is a charcoal deficit of 7% rising to 50% in 2007;
Planter's own plantations are expected to be exhausted in 2007;
The Brazilian Steel Institute reports a decline in charcoal use in pig iron production from 8 million tons in 1993 to 4.2 million tons in 1999.

It is expected to demonstrate that carbon finance can catalyze environmentally friendly and profitable pig iron production by using charcoal from sustainably managed fuelwood plantations.

The pig-iron sector has been criticized for its pollution (charcoal and mineral fines), child labor and illegally harvested native forest stands. By contrast, this project demonstrates clearly that the sector has the potential to actively contribute to a sustainable development in Brazil and being in accordance to the governmental development strategy and achieve economic feasibility with the help of carbon finance.

2. Objectives

The Prototype Carbon Fund (PCF) at the World Bank supports projects which are expected to generate greenhouse gas (GHG) emission reductions while complying with requirements of joint implementation (JI, Art. 6) and the clean development mechanism (CDM, Art. 12) of the Kyoto Protocol (KP).

The development objective of the PLANTAR project is to contribute to GHG emission reduction, through the replacement of fossil fuel (coal/coke), by renewable energy (charcoal from sustainably managed fuelwood plantations).

3. Rationale for Bank's involvement

An important objective is to pioneer emission reduction purchase transactions in the emerging global market for greenhouse gas emission reductions. The Bank's involvement is seen as critical in terms of benchmarking quality for first of-a-kind projects in order to increase the market credibility, as well as institutionalizing experiences and ensuring replicability of the projects, while providing necessary project due diligence and other fiduciary responsibilities.

The value-added of Bank support also includes the availability of in-house expertise in managing the environmental and social dimensions of the project and the ability to draw upon expertise greenhouse gas mitigation policy and practice. The development of the underlying studies and documentation is seen as critical for the approval of the project under CDM rules. In addition, the Bank's involvement adds credibility to the project. The high quality carbon asset of the project and the Bank's high standard of due diligence is attractive to other investment funds and project financiers. It is expected that the Plantar Project will open the doors for other pig-iron companies to develop similar projects to be absorbed by the carbon market.

4. Description

Plantar, S.A. - Planejamento, Técnica e Administração de Reflorestamentos (Sponsor) is a family owned company based in Minas Gerais, Brazil, with over 4500 employees. Carbon revenues from the sale of Certificates of Emission Reductions (CER) are expected to promote and maintain project feasibility and enable the project to be financially viable on the long term.

The plantation locations are the municipalities of Curvelo and Felixlândia (State of Minas Gerais). Plantations are to be established on lands owned by the sponsor. Envisaged plantations are not subject to land use changes. Planter's Curvelo Forest is certified under Forest Stewardship Council (FSC)-criteria and principles.

The specific objective is to establish between 2001 and 2009, 23,100ha of plantations high yielding provenances of Eucalyptus and 478.3 ha of cerrado

on the Plantar company's land in Curvelo and Felixlandia. Carbonization of wood from Plantar's plantations is done by using the "JG" design brick kiln. Plantar currently has 2000 JG kilns in use in its plantations and intends to modify JG kiln design and operation, and explore other more advanced carbonization technologies in order to reduce greenhouse gas and local air pollutants such as fine particulates, and capture condensable oils and tars contained in wood smoke. The benefits of these improvements include reduction in methane as a greenhouse gas, improvements in worker health from reduced fine particulate respiratory intake, and capture the potential commercial value of pyrolytic oils and tars. In addition, Plantar has set aside 478.3 ha of pasture land in the Curvelo plantations to proactively restore the native cerrado forest ecosystem which has been severely degraded and lost across much of Minas Gerais due to the use of native forest for charcoal production in the first decades of the pig iron industry.

5. Financing

As PCF only buys ERs and agrees a payment schedule against the delivery of certified ER, it does not finance specific project components and does not engage the Bank's procurement policies.

The project life is 28 years and the emission reductions crediting period is expected to be 21 years for each baseline (Forest sequestration, carbonization, industrial process), starting in 2002. PCF will pay \$5.3 million in emissions reductions that it plans to purchase from 2002 through 2008, including emission reductions produced by the plantations and emission reductions associated with the carbonization of methane in the charcoal kilns. Payments will only be effected on an annual basis after monitoring and verification of the emission reductions achieved during each period.

6. Implementation

Prototype Carbon Fund (PCF)

The Bank's Board approved the establishment of the PCF in July 1999, with the operational objective of learning-by-doing in the creation of a global market for GHG emission reductions to mitigate climate change. PCF supports projects that are expected to generate greenhouse gas emission reductions while complying with requirements of joint implementation (JI, Art. 6) and the clean development mechanism (CDM, Art. 12) of the Kyoto Protocol.

PCF purchases high quality greenhouse gas ER which could be registered with the UNFCCC for the purposes of the Kyoto Protocol. PCF enters into Emission Reduction Purchase Agreements (ERPA) with "project sponsors", defining the quantity, price and other delivery conditions of ERs to be purchased by PCF, including the monitoring and verification protocols to enable quantification, verification and certification of ERs actually achieved. To increase the likelihood that the ERs will be recognized by the Parties to the UNFCCC, independent experts from the engineering and economic consulting industry and the global certification and audit industry provide baseline validation and verification/certification services for emissions reductions transactions that respond to UNFCCC rules as they develop.

Project sponsor: Plantar S.A.

Plantar, S.A. is a family owned company, based in the State of Minas Gerais. The company is specializing in (i) forest plantation services to other companies and in the (ii) production of pig-iron.

(i) Forestry sector capability: Plantar has been working in the forestry sector and has invested in plantations since 1967. It has a wide

experience in plantation management and forest production. It has an active research program for developing better provenances for the production of clonal material for its plantations. Such clones have also been planted and tested for the major cellulose companies in Brazil, several pig iron industries, sawmills and pencil manufacturers. Plantar already planted over

(ii) Pig iron production capability: The Plantar group started producing pig iron in 1986 and the current annual pig iron production is close to 180.000 tons. The mill is in compliance with all environmental and social regulations.

The Government:

The role of the government in the implementation of the project will be limited and will concentrate on two areas:

(i) Ratification of the Kyoto Protocol and setting the rules and mechanisms allowing both public and private entities (including Plantar) to produce and sell Emission Reductions, in accordance with mechanisms established by the Kyoto Protocol and related negotiations;

(ii) Regulatory and oversight responsibilities of the respective power sector and environmental agencies

7. Sustainability:

The project is expected to be sustainable.

After analyzing carefully all key issues which might affect the project's sustainability, the Plantar project is considered to be sustainable. Regarding regulatory and policy environment, Plantar is one of the leading pig-iron industries in the independent sector in Minas Gerais, with FSC and soon ISO 14000 certification. The financial viability of the enterprise has been carefully investigated by a private Bank (RaboBank) which is providing a loan to the sponsor. The financial due diligence has shown that the company will be able to meet the performance objectives relevant to project. Regarding the capacity of government to play its role in adding value to the emissions reductions achieved by the project through ratifying and following its obligations under the UNFCCC and its Protocols, it is estimated that Brazil will ratify the KP within the first semester of 2002 and fulfills all international obligations agreed in the Protocol.

On the technical side, the feasibility of the project is guaranteed by the high technical standard, Plantar is conducting its plantation activities. Plantar is one of the leading companies on the plantation service market in Brazil.

8. Lessons learned from past operations in the country/sector:

The proposed Plantar project is one of the first projects of the PCF portfolio that is implemented by the private sector. The experience with similar type of project that could be reflected in the project design is therefore very limited. Nevertheless, the project has benefited from the coordination and consultations with parallel PCF projects that are being developed in Latin America.

Technically, the Minas Gerais Forestry Development Project was the only

stand-alone forestry project financed by the Bank in the last decade. Approved in December 1987, the project closed in December 1996. The Bank financed US\$48.5 million of the US\$100 million project. The projects objectives were to increase industrial wood and charcoal production, reduce degradation of native forests, alleviate poverty, improve environmental protection, and strengthen the management capabilities of the State Forestry Institute. The project's Implementation Completion Report (ICR) gave the project a satisfactory outcome rating, as the project achieved most of its objectives. The Fund is still operative and provided a small loan to the project sponsor in the year 2000.

9. Program of targeted intervention (PTI) in or by?
Not applicable

10. Environment Aspects (including public consultation).

The LCSES - Quality Assurance Team (QAT) classified the Plantar Project as a "B".

Plantar is the only pig-iron industry in Brazil whose forest plantation (Curvelo) is certified under Forest Stewardship Council (FSC)-criteria and is following a strict development plan in order to improve its environmental performance. The planting area of the Project will have to be defined at least one year before the actual planting. A precise plan will have to be presented to the verifier, including land documentation, FSC certification plan and proves that the land has been pasture land since December 1989, in order to be eligible under the CDM guidelines for reforestation. The total area planned under the project will be 23.100 ha on former pasture land or any other land eligible under the KP. In any case the environmental due diligence of the plantation activities have to be guaranteed before plantation, which includes FSC certification .

Major risks for plantations stem mainly from caterpillars and ants which attack leaves of seedlings. In 1999, FSC foresees a strict management plan for the use of chemical products which has been satisfactorily implemented in the year 2000. Water quality has been measured and monitored in a four months cycle since 1999 under FSC-principles and criteria. No contamination has been detected which could stem from the use of insecticides or pesticides.

Plantar is not self sufficient in its charcoal supply for its pig-iron industry and will only be producing sufficient charcoal by the seventh year of the project cycle. During the first seven years Plantar will continue depending on external supply, which partly stems from other Eucalyptus plantations in the States of Minas Gerais, Goais and São Paulo and from charcoal providers from forest reposition activities in the State of Bahia.

Although, there has been great improvement in Planter's industrial complex during recent years, several investments will be implemented to improve the technical, economic and environmental situation of the pig-iron mill. The industry is currently examined under ISO 14000 guidelines and is expected to receive certification by the end 2003. Additional filters are now installed to contain mineral dust and charcoal fines. The fines (which represent around 10% of charcoal input) will be used for briquette production, using as well tar and oils extracted from the condensable fraction of the smoke during the carbonization process in Planter's kilns as the binder for fines in the

briquetting process.

11. Social Aspects:

The rural area is scarce in employment opportunities and specifically the charcoal sector is been criticized by using infant labor for charcoal production. Plantar is currently employing more than 4,500 people in the rural area, contributing to the fixation of the rural population and is following the criteria of ABRINQ-Foundation, which certifies companies that promote socially sound working conditions.

All areas dedicated to forest plantations are situated in areas dominated by cattle ranchers close to one of the most industrial areas in Brazil, with industry concentration of the mining and iron/steel sector. Plantar will not provoke involuntary resettlements and is not affecting indigenous peoples.

Plantar has prepared a complete stakeholder consultation process, including municipalities, unions, NGOs and schools. No objections have been given from all institutions contacted. The baseline study of the Plantar project has been available for public comments for 30 days in the month of April, 2002.

The improvement of the carbonization process and hence the reduction of smoke and other exhausts released by the kilns will generate a healthier environment for the kiln workers. These health impacts will be periodically measured and reported.

The indicated investments in the pig iron mill will have similar effects, such as the dust filters. Although, these investments are not mandatory for PCF support to the project and not related to CERs, the company provided a time table for these investments for the next 5 years.

11. Contact Point:

Task Manager
Werner Kornexl
The World Bank
SCN Quadra 02 Lote A
Ed. Corporate Financial Center Sala 304
70712-900 Braslia DF Brazil
Telephone: 55- 61- 329 1004

For information on project related documents contact:

The InfoShop
The World Bank
1818 H. Street, N.W.
Washington, D.C. 20433
Telephone: (202) 458-5454
Fax: (202) 522-1500
Web: <http://www.worldbank.org/infoshop>

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