

**INVESTMENTS OF THE EUROPEAN INVESTMENT
BANK IN BAHIA-BRAZIL
AND ITS RELATIONSHIP WITH GLOBAL
CLIMATE CHANGE**

A CASE STUDY OF *VERACEL CELULOSE*

Produced by:

GAMBÁ
Environmental Group of Bahia



Executive Coordinator: Renato Cunha

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ABBREVIATIONS USED

EIB: European Investment Bank

BNDES: National Bank for Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social*)

NIB: Nordic Investment Bank

CEPRAM: Bahia's Environmental State Council (*Conselho Estadual de Meio Ambiente da Bahia*): State Council with representation of the Public Attorney's Office, of the industrial sector, and from the civil society

CONAMA: National Council of the Environment (*Conselho Nacional do Meio Ambiente*): National Council with representation of the Public Attorney's Office, of the industrial sector, and from the civil society.

CEPLAC: Executive Commission of the Cocoa Plantation Plan (*Comissão Executiva do Plano da Lavoura Cacaueira*)

CEPEDES: Center for Studies and Research of the Extreme South of Bahia (*Centro de Estudos e Pesquisas do Extremo Sul da Bahia*)

CDDH: Defence Centre for Human Rights (*Centro de Defesa dos Direitos Humanos*)

CVRD: Vale do Rio Doce Company (*Companhia Vale do Rio Doce*): formally owned by the State; privatized in 1997.

GAMBÁ: Bahia Environmentalist Group (*Grupo Ambientalista da Bahia*)

IBAMA: Brazilian Institute of the Environment and Renewable Natural Resources (*Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis*)

IBGE: Brazilian Institute of Geography and Statistic (*Instituto Brasileiro de Geografia e Estatística*)

IMA: Institute of the Environment (*Instituto do Meio Ambiente*): Environmental institute of the state of Bahia

INGÁ: Institute for Water Management and Climate (*Instituto de Gestão das Águas e do Clima*)

IPCC: Intergovernmental Panel on Climate Change

KfW Bankengruppe: German bank

MMA: Ministry of the Environment (*Ministério do Meio Ambiente*)

MLT: Fight for Land Movement (*Movimento de Luta pela Terra*)

MST: Landless Workers' Movement (*Movimento dos Trabalhadores Sem Terra*)

PNMC: National Plan of Climatic Changes (*Plano Nacional de Mudanças Climáticas*)

RMA: Network of Conservation NGOs of the Atlantic Forest (*Rede de ONGs da Mata Atlântica*)

RPPN: Private Reserve of National Heritage (*Reserva Particular do Patrimônio Nacional*)

SEPLAN: Secretariat of Planning of the State of Bahia (*Secretaria de Planejamento do Estado da Bahia*)

1. Introduction

The present report is the result of the partnership between the Environmental Group of Bahia (GAMBÁ; *Grupo Ambientalista da Bahia*) (hereafter GAMBÁ) – a Brazilian non-governmental organization (NGO), and Both Ends, an organization that supports organizations from developing countries. The central headquarters of Both Ends is located in the Netherlands.

The objective of this report is to collect information about *Veracel Celulose S/A* (hereafter *Veracel*), a paper and pulp company located in the southern region of the state of Bahia, Brazil. The focus is to analyze the social and environmental sustainability of *Veracel* as result of global climate changes and the activities taken by *Veracel* to use the financial resources provided by outside sponsors, particularly the European Investment Bank (EIB).

GAMBÁ was established in 1982, in the city of Salvador, in the State of Bahia, Brazil. GAMBÁ, in collaboration with other local, regional and national socio-environmental organizations, monitors and controls social activities implemented by *Veracel* since the 1990s. The monitoring of these activities aims to mobilize the Brazilian society and influence the public authorities to reevaluate the model of development that this enterprise represents for the region, to the state of Bahia, and to the nation as a whole.

2. The Southern Region of Bahia

The initiative to develop entrepreneurship projects of pulp production in the southern region of Bahia preceded the establishment of *Veracel* in 1991.

In the 1950s, the Brazilian Government, through its National Strategy Plan (*Plano Nacional de Metas*), established as one of its strategies the goal to reduce the import of paper and pulp. The reduction of the import of paper and pulp created an incentive for development of factories in the region. In the 1960s, pulp and paper production related projects started to obtain financial support by the BNDES – the National Bank for Economic and Social Development (*Banco Nacional de Desenvolvimento Econômico e Social*)¹.

The National Plan for the Paper and Pulp Sector I (PNPC) (*I Plano Nacional para o Setor de Papel e Celulose*) was approved in 1974. The objective of the PNPC I was to develop strategies to help Brazil become self-sufficient in the production of pulp and foster production for the export market. During the PNPC I era, 30 Forestry Districts and criteria for financial incentives were established.

One of these Districts was the Southern Region of Bahia. The establishment of this District in the 80s started the entrepreneurial interest of establishing eucalyptus plantations. The region, which until the 1940s was almost all covered by Atlantic Forest (*Mata Atlântica*), has been deforested intensively ever since.

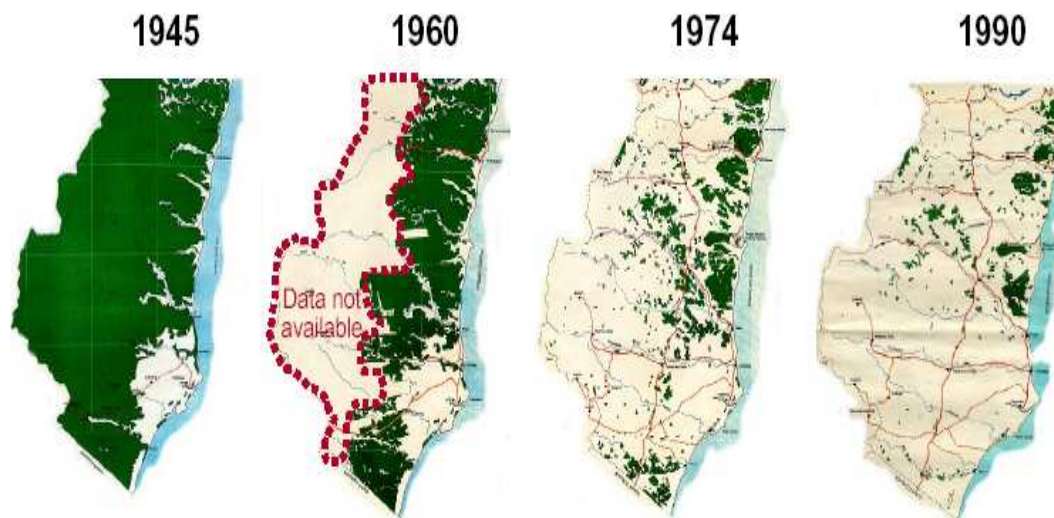


Figure 1. Map of the southern region of Bahia, Brazil, showing changes in land cover as the result of deforestation practices. Source: Ceplac.

The opening of Federal Highway BR101 improved access to and from the region and, among other positive and negative impacts, fostered even further the process of deforestation and the transport of timber to the central region of Brazil. Timber from southern Bahia supplied

¹ www.bndes.gov.br, accessed in September 2009.

construction and carpentry industries and the steel industry in the neighbor state of Minas Gerais. Large tracks of forested lands were deforested and later used for the planting of eucalyptus and the production of livestock.

The total acreage of land in the extreme south region and part of the southern region of the state of Bahia is 3,362,950 hectares. The Institute of the Environment (IMA) (*Instituto do Meio Ambiente*) estimates that an area of 412,844 hectares is occupied by eucalyptus plantations that are owned by the enterprises of *Veracel Celulose*, *Aracruz Celulose*, *Suzano Papel e Celulose*, and *CAF Santa Bárbara*. This area represents 12.3% of the total land mass of the region ².

As shown in Figure 2, the areas covered by eucalyptus plantations extend to 24 counties in the south and extreme southern region of the state of Bahia.

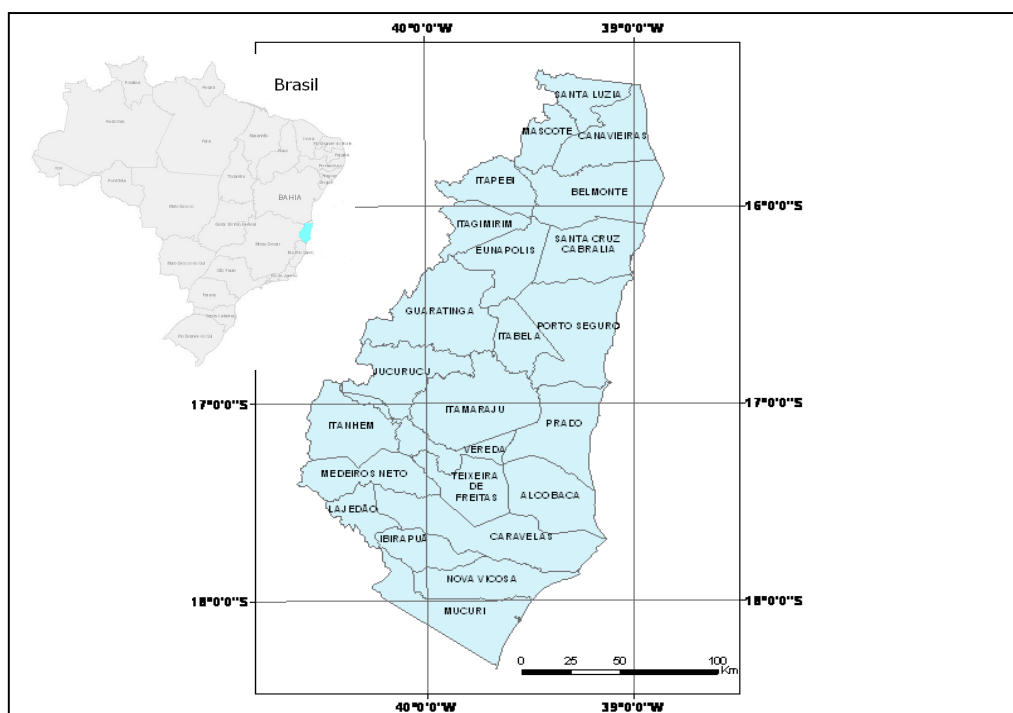


Figure 2. Counties that form the region addressed in this study, which is the extreme south region of the state of Bahia. Source: IMA.

These companies argue, however, that the total acreage of land utilized for forestry purposes, which includes their own plantations (carried out in areas of company ownership) and plantations owned by other land owners (plantations carried out in other areas of outside ownership, but with incentives of these companies) is of 375,695.57 hectares rather than 412,844 hectares.

² Environmental Institute (IMA), State Government of Bahia. FORESTRY PRACTICES OF EUCALYPTUS IN THE EXTREME SOUTHERN REGION OF BAHIA: CURRENT ENVIRONMENTAL CONDITIONS AND FUTURE ENVIRONMENTAL EXPECTATIONS. 2008.

According to the study conducted by the IMA, the total area licensed by the IMA for the production of eucalyptus, according to environmental licenses, totals 285,016.98 hectares. This acreage is distributed among these same companies as shown on Table 1.

Table 1: Licensed eucalyptus plantations by the IMA (hectares).

Company Name	Licensed plantations (company land)	Area currently occupied with eucalyptus plantations
Aracruz	101,059.15	97,459.75
Veracel	112,380.24	89,758.07
Suzano	92,398.92	90,637.90
CAF	8,833.59	8,883.59
TOTAL	314,671.90	285,016.98

Sources: IMA and *Diário Oficial do Estado da Bahia* Newspaper.

Based on these values, a total of 29,654.92 hectares can still be used for eucalyptus farming with the current approved licenses.

In the same study, the IMA informs that eucalyptus farming in the studied area is 90,678.59 hectares. Taking into consideration the sum of the area currently used for eucalyptus plantation by the companies and other land owners, the overall land planted with eucalyptus is 375,695.57 hectares. Since the IMA's mapping identifies the amount of 412,844 hectares of licensed eucalyptus plantations, we argue that 37,148.43 hectares are used for eucalyptus plantation without due environmental licensing. Furthermore, the IMA does not have information and/or any type of control about this irregularity.

The concentration of eucalyptus plantations in the region is an unequivocal statement and can be easily noticed upon observing the regional landscape. In the counties listed in Table 2, the situation is even more troublesome given the extremely high concentration of land allocated for the cultivation of eucalyptus.

Table 2: Eucalyptus cultivation per county.

County Name	Area Occupied	Companies responsible
Nova Viçosa	44.0%	Aracruz, Suzano and CAF
Alcobaça	34.3%	Aracruz, Suzano and CAF
Caravelas	34.0%	Aracruz, Suzano and CAF
Mucuri	33.5%	Aracruz, Suzano and CAF
Eunápolis	20.0%	Veracel
Santa Cruz de Cabrália	18.0%	Veracel

Source: IMA

In 2008, the estimated population of the extreme southern Bahia was 720,221³. In 2004, the GDP was estimated to be R\$ 4,062.93, which results in a per capita GDP of R\$5,641.22 (approximately € 2,256.00).

³ SEPLAN, Government of the state of Bahia. Regional Territorial Report: Extreme South Territory. 2009.

The development of eucalyptus farming in the region led to a significant change in the land tenure system, local demographics, land use practices, and landscape of the region.

Small scale land ownership and family-based agriculture farming predominated in the region until the 1980s, even without the due Government incentives. The most recent agricultural censuses prepared by IBGE ⁴ show a decrease in production of fruits and vegetable farming, turning the region into an importer, rather than producer, of these food categories.

The population, which was predominantly rural in the 1980s, became urban, reversing the percentage of rural-urban demographic distribution (see Table 3). This demographic change led to development and expansion of shantytowns surrounding the cities, an increase in the rate of unemployment, and a high level of urban violence. The people who remained in the rural areas had difficulties prospering because they were surrounded by eucalyptus plantations. Rural social conflicts among these communities deepened because they were in less productive areas and the price of land increased as result of land speculation for eucalyptus cultivation. In recent years, the population has grown significantly as result of high immigration influx, especially during the construction phase of the factory between 2003 and 2005.

Table 3: Resident population by households in the extreme south region of Bahia.

Year	Urban population	%	Rural population	%	Total
1980	77,828	23.1	259,631	76.9	337,459
1991	271,394	66.9	134,101	33.1	405,495
2000	423,943	77.3	124,833	22.7	548,776

Source: SEI and IBGE Demographic Censuses

The extreme south region of Bahia is also home to indigenous communities of the *Pataxós* ethnicity. These communities, which are scattered in some villages, have a population of about of 5,500 people ⁵. Some of which live in precarious conditions. Over the past ten years these communities have come together to demand for better living conditions. The main source of income for these communities is wooden handcraft art, wood that is harvested from different native species of Atlantic Forest trees.

A project that these indigenous groups are developing in partnership with the non-governmental conservation organization *Flora Brasil*, which is classified as Legal Handcraft (*Artesão Legal*), aims to substitute native wood for eucalyptus, negotiating with paper and pulp companies for sufficient timber necessary to sustain this traditional artisan activity.

⁴ www.ibge.gov.br, Accessed September 2009.

⁵ www.sec.ba.gov.br/ed_indigena/povosindigenasdabahia.htm, Accessed September 2009.

The main economic activities, apart from forestry, that take place in the region are the following:

- Livestock production of low yield;
- Traditional fishing in the Coastal Zone;
- Tourism: the region is a popular tourism destination in Bahia. The region is also called the “Discovery Coast” (*Costa do Descobrimento*).

The activities carried out by local rural communities were seriously affected by the expansion of monoculture eucalyptus farming due to concentration of land, rural outmigration (see Table 3), and lack of Government support with regards to agricultural credit policies. Added to these social and political issues is the use of the most productive land for the cultivation of eucalyptus trees instead of food-producing crops.

Social movements

Since the beginning of the 1990s, citizens members of different social movements and conservationists have been looking into ways to come together in order to monitor such land entrepreneurships, questioning the proposed development model, which is based on monoculture production, as well as reporting the numerous irregularities in the implementation of such projects.

Several NGOs, such as the Cepedes, the CDDH, the GAMBÁ, Workers’ Unions, the Indigenous Movement, among other organizations, came together and created the Socio and Environmental Forum of the Extreme Region (*Fórum Social Ambiental do Extremo Sul*). The mission of the Forum is to monitor the issue of pulp production and the cultivation of eucalyptus plantations. Under a broader scope of action, at the national level, it was created the Alert Network Against the Green Desert (*Rede Alerta Contra o Deserto Verde*), as homogeneous plantations of exotic trees are known. This Network has followed the various existing projects currently implemented in various Brazilian states, presenting an important voice in these discussions. In Bahia, the Network’s action is striking, always with the participation of the local institutions that form the Network.

Another network that has also promoted an action articulated in the 1990s, questioning empathically the implementation of Veracel, is the Network of NGOs of the Atlantic Forest (*ONGs da Mata Atlântica*). This Network is composed of approximately 400 organizations scattered in the 17 States where the Brazilian Atlantic forest biome is found.

3. The joint venture: *Veracel Celulose*

3.1 Origin and brief history

Veracel Celulose initiated its activities in the extreme south of Bahia in 1991. Back then, the company was named *Veracruz Florestal* (Veracruz Forestry) and was a subsidiary of *Construtora Norberto Odebrecht* (Norberto Odebrecht Construction) company. *Veracruz Florestal* acquired from the *Floresta do Rio Doce* (Rio Doce Forest) - a company owned by the Group CVRD (*Cia Vale do Rio Doce*) - 46,000 hectares of land and 1,340 hectares of

experimental eucalyptus plantation in the region. The goal was to develop a pulp mill factory⁶. In 1992, the company began to expand the cultivation of eucalyptus and conduct studies to implement the pulp mill factory.

In 1996, *Veracel* received the environmental permit for the construction of the pulp factory in the county of Eunápolis. In 1997, the *Odebrecht*, the Brazilian company of civil engineering and petrochemical industries, joined the Swedish company *Stora Kopparbergs*, looking to develop the project through partnerships. In 1998, *Veracruz Florestal* is named *Veracel Celulose S/A*. Also in 1998 the merging of *Stora* with the Finish company *Stora Enso* takes place, establishing the *Stora Enso* company⁷.

Still under the new cooperative structure, *Aracruz Florestal*, a traditional Brazilian company in the paper and pulp industry, enters into the joint venture and purchases, in 2000, part of the *Odebrecht*'s market shares. In 2003, *Odebrecht* leaves the partnership and sells the remaining market shares. This action led to today's configuration: a joint venture of 50% *Aracruz's* market shares and 50% of *Stora Enso's* market shares.

The construction of the pulp factory started in 2003, being completed within 17 months. The first bail of pulp was produced on May 22nd 2005. The total investment was of US1.4 billion, which represented one of Brazil's largest private investments in recent years.

The production is directed to the two whole shareholders and focused almost exclusively for export. The quantity aimed at *Stora Enso* (50% of the total) is sent to the paper factory of the company in the city of Oulu, Finland. The other 50% allocated for *Aracruz* are placed on the export market by the company. Today, *Veracel* has 89,758.07 hectares of eucalyptus farming. It has the capacity to produce 900,000 tons of pulp annually. In 2007, *Veracel* produced 17% above its annual production, reaching 1,051 million tons of pulp.

The company also built the Marine Terminal of Barçaças (TMB) (*Terminal Marítimo de Barçaças*), located in the county of Belmonte, 60 km from factory. The Terminal's purpose was to carry the pulp barges until the port of *Aracruz*, called *Portocel*, in the State of Espírito Santos. The Terminal has the capacity to handle 1.06 million tons of pulp per year. Its construction initiated in 2001 and entered into operation early 2002, transporting eucalyptus to the same *Portocel*⁸.

In *Veracel's* sustainability report are defined its vision and mission as shown below⁹:

- **Vision:** To be a reference for sustainability worldwide.
- **Mission:** To produce pulp fibers of high quality using sustainable practices and outstanding technology.

⁶ Detail information about this process can be found at www.veracel.com.br

⁷ Open Doors for Sustainable Development: Veracel Celulose. Fundação Getúlio Vargas – March 2002.

⁸ Veracel in numbers (2008). Online at www.veracel.com.br. Accessed on September 2009.

⁹ www.veracel.com.br. Accessed on September 2009.

3.2 Forestry Project

Veracel has 211,689 hectares of land (2008) distributed in ten counties in the extreme south and south regions of Bahia. These counties are: Belmonte, Canavieiras, Eunápolis, Guaratinga, Itabela, Itagimirim, Mascote, Itapebi, Porto Seguro, and Santa Cruz de Cabrália. Eucalyptus farming owned by *Veracel* is of 89,758 hectares (IMA, 2008). Added the area already purchased by the company for eucalyptus farming, the total land mass available for the cultivation of eucalyptus by *Veracel* in these ten counties is 95,952 hectares (Table 4).

Table 4: Area planted and available for eucalyptus farming by county (October 2008).

County	Land owned by <i>Veracel</i> that is planted with eucalyptus and available for eucalyptus farming (hectares)	% of Land cultivated by <i>Veracel</i>	% Land licensed for cultivation by <i>Veracel</i>
Belmonte	15,774	7.8%	15%
Canavieiras	678	0.5%	15%
Eunápolis	20,713	17.4%	20%
Guaratinga	5,702	2.5%	20%
Itabela	4,234	5.0%	20%
Itagimirim	9,918	12.1%	20%
Itapebi	783	0.8%	20%
Mascote	3,452	4.9%	20%
Porto Seguro	12,173	5.1%	15%
Santa Cruz de Cabrália	22,525	14.5%	15%
TOTAL	95,952 hectares		

Source: *Veracel* (2008)

Table 5 shows the distribution of land owned by *Veracel* and land use practice in each area.

Table 5: Distribution *Veracel's* land in hectares and overall percentage and land use practices by type of land use (September 2008).

	Land use category	Land allocation (ha)	Overall percentage
Eucalyptus plantation	Own	86,014	43%
	Leased	4,660	
	Available land	5,278	2%
	Total	95,952 hectares	
Areas not intended for the cultivation of eucalyptus	Legal reserve	43,785	21%
	Permanent preservation	20,505	10%
	<i>Veracel</i> Station	6,069	3%
	Infrastructure	11,545	5%
	Additional protected areas	33,833	16%
	Total	115,737 hectares	
Total area owned by <i>Veracel</i>		211,689 hectares	

Source: *Veracel* (2008)

As required by the Brazilian environmental legislation, *Veracel* set aside 104,192 hectares of its land, distributed as Legal Reserves (*Reservas Legais*) and protection areas and at *Veracel Station* (*Estação Veracel*), for the protection of native vegetation. According to the law, all rural properties must maintain a percentage of their land forested, titled as a Legal Reserves, of at least 20% of the overall acreage of property. Areas allocated for permanent protection are areas near rivers, top of hills, hillsides with more than 45% slope, among others. Based on information provided by *Veracel*, the company is meeting this legal requirement.

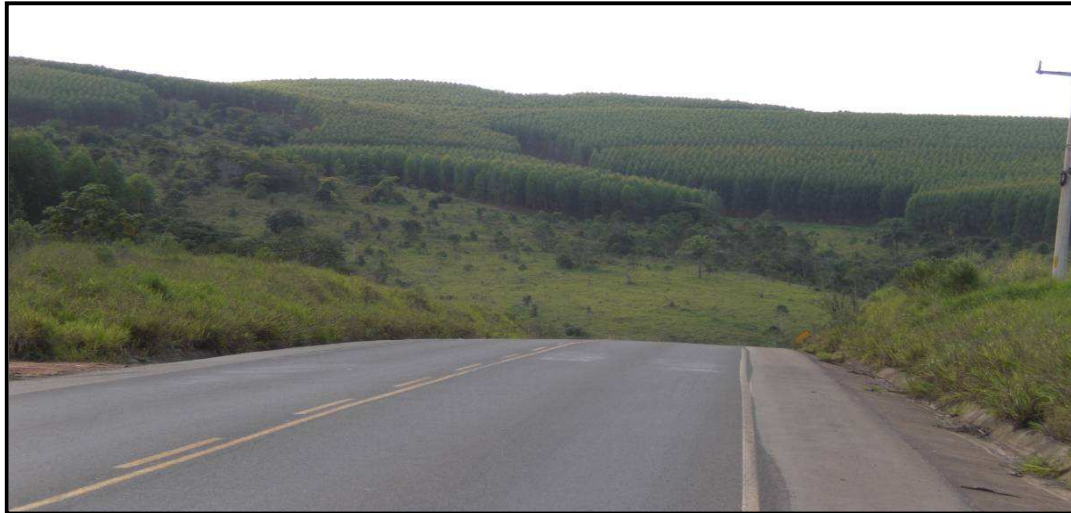


Figure 3. Eucalyptus farming in Eunápolis, Bahia, Brazil. Photo: Renato Cunha (August 2009).

According to *Veracel*, for each hectare planted with eucalyptus an equal acreage should be planted with native trees. Of the 104,192 hectares allocated for native forest, a total of 70,319 hectares have been planted and are found at different stages of regeneration. A total of 33,833 hectares of land still remains to be reforested.

All of *Veracel's* eucalyptus plantations are eucalyptus clones obtained by crossbreeding *Eucalyptus grandis* e *Eucalyptus urophylla* species (Figure 3). The seedlings are grown in nurseries owned by *Veracel* and located in Eunápolis. These nurseries have the capacity to produce up to 24 million seedlings per year. When necessary, *Veracel* acquires additional seedlings from other producers. After the planting the seedlings, seedlings are treated and maintained by several treatments and processes. Trees are ready for harvesting seven years later.

Figure 4 shows the location of areas owned by *Veracel* and land use practices by category.

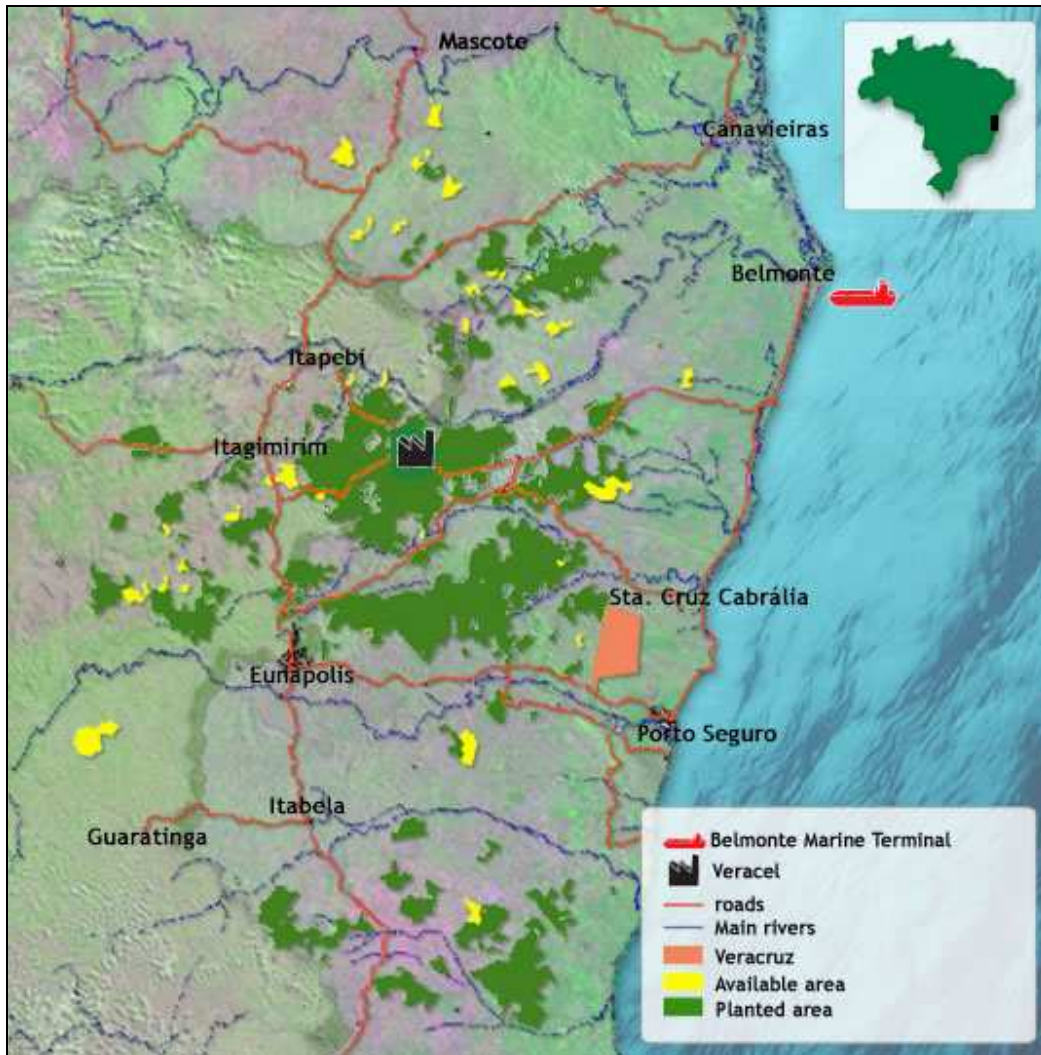


Figure 4. Veracel's land ownership and land use practices by category. Source: Veracel (2010)¹⁰

Program: Forester (Programa Produtor Florestal)

In 2003, Veracel deployed the Forester Program (*Programa Produtor Florestal*). The Program's mission is to promote eucalyptus farming in partnership with other regional rural landowners. By doing so, Veracel expects to address the pulp demand of its factory.

Veracel funds the planting process, provides fertilizers and technical support, and assures the purchase of all timber produced under this partnership. In order to put in practice such promises, it is required that enforced environmental legislation is complied.

As of 2008, 98 rural landowners are working in partnership with Veracel in the cultivation of eucalyptus. The total area planted by these producers is 19,213 hectares.

¹⁰ Source Veracel. Online at <http://www.veracel.com.br/web/en/perfil/localizacao.html>. Accessed February 2010.

Program: Atlantic Forest (Programa Mata Atlântica)

This program is intended to establish biodiversity corridors to form continuous areas of preservation and conservation of native forests. *Veracel* uses the concept of forest mosaic, in which commercial trees are planted in the flatlands while native trees are planted in valleys of the region.

Since 1998, *Veracel* has set aside 6,069 hectares of land as *Veracel* Station Private Reserve of Natural Heritage (RPPN) (*Reserva Particular do Patrimônio Natural Estação Veracel*). *Veracel* Station is recognized by the IBAMA and it is one of the largest private reserves of Atlantic Forest in northeastern Brazil. In the beginning, this area was intended for eucalyptus cultivation, which meant only 20% of its overall forest cover was to be set aside as native forest. Today, this area is known for its biodiversity conservation practices, protection of water resources, and environmental education and interpretation.

3.3 Industrial Project

The *Veracel's* industrial unit was built in the county of Eunápolis (Figure 5). It has the capacity to produce 900,000 tons of pulp per year. In 2008 the factory produced 1,099,697 tons. The technology used, according to *Veracel*, is the best technology available and its cost is lower to the costs of other companies in the pulp production field. Almost all of the production process is automated, with a digital operational control system.

Water used in processing the pulp comes from the Jequitinhonha River, which is located 6 km from the processing plant. To ensure the care for the quality of effluents, water capture is done about 1 km from the location where the water discharge takes place. The liquid discharge is treated by a modern sludge system. Water consumption through this process is of 28 m³ per ton of pulp produced. The volume of water disposed is 25 m³ per ton.



Figure 5. *Veracel* Factory in Eunápolis, Bahia, Brazil. Photo: Renato Cunha (August 2009).

The base for the bleaching process is chlorine dioxide (ClO₂) and peroxides, also known as ECT (Elementary Chlorine Free). During early negotiations, and agreed with the State Government, pulp processing should take place without the use of chlorine (TCF – Total Chlorine Free). However, throughout the project implementation, *Veracel* realized that there would be no significant economic and environmental gains. The company also looked into an alternative type of chlorine, one that generated whiter pulp, to meet the market that they wanted to achieve. *Veracel* requested an amendment before the Government of Bahia to fit these changes. The Government granted their request and reviewed the environmental permits without further inquiries.

Chlorine is a chemical element with high toxicity and an irritating odor. Chlorine may cause problems in the respiratory system and form organochlorine compounds that can impact the environment, such as the formation of dioxins. It is because of these potential impacts and characteristic that chlorine must be replaced¹¹. The use of chlorine dioxide is prohibited in Europe but not in Brazil and in the United States.

Industrial solid waste is managed in partnership with a specialized company. In 2007, *Veracel* generated 37,503 tons of industrial solid waste. Most of this waste was recycled, increasing the life expectancy of *Veracel's* landfill located within the company's site.

The *Veracel's* factory is self-sufficient. It generates 900 million kilowatts/year, which is sufficient to supply a town of approximately 400,000 inhabitants. The fuel used to feed the turbo-generator is the waste generated by the pulp manufacturing process, such as “black liquor” and wood mulch.

Electrostatic showers were installed to control odor problems released through the chimneys. Sulfur gases are collected, processed, and burnt in boilers. This process reduces the emission of bad odor. A network designed to trace sulfur odors was installed. There are also 22 volunteers, who are residents of the communities located nearby the factory. Their mission is to identify potential odors that are above normal levels. Based on feedback provided by local residents, the company released strong fumes in the air during the early years of operation. These fumes, residents said, caused them discomfort. This problem has been minimized over the past years. The industrial site is also located far from these communities, which minimizes potential problems.

¹¹ VIA CAPESINA: The Large Scale Farm of Eucalyptus. General information about forestry monoculture practices and paper mill industries. Rio Grande do Sul, 2006.

3.4 Investments

In order to finance its operations, *Veracel* was able to acquire loans from banks in the following values:

- **U\$30 million** (€ 32,736,796 - exchange rate in 2001): from the European Investment Bank (EIB); long term investment institution from the European Union;
- **R\$1,433,333.00** (around €754,390.00 - current exchange rate): from the National Bank for Economic and Social Development (BNDES) in 2003; Brazilian public bank that finances projects for public and private development in Brazil and abroad;
- **U\$ 80 million** (€65,263,501 - exchange rate at that time): from the European Investment Bank (EIB) in 2003;
- **U\$ 70 million** (about €57 million - exchange rate at that time): from the Nordic Investment Bank (NIB) in 2003; international financial institution from the Nordic and Baltic countries.

The first EIB loan of U\$30 million was used to finance *Veracel's* forestry project. The activities were as follow:

- *Land acquisition and preparation of land for cultivation*
- *Cultivation of eucalyptus (26,000 hectares)*
- *Acquisition of forestry equipment*
- *Road construction and improvement (450 km of roads)*

The period of implementation of these loans took place between 2001 and 2004. The stipulated conditions were as follows:

- *Reduce deforestation pressure on Atlantic Forest by protecting 50,000 hectares of native forest;*
- *Ensure protection of the Veracel Station RPPN;*
- *Comply with the Brazilian environmental legislation;*
- *Contribute in the increase absorption levels of carbon in the atmosphere by planting forests, which are activities in line with the Kyoto Protocol and the European climate change policies.*

Note that the last two stipulated conditions are generic and should be considered as the basis for this loan.

The other three loans financed in 2003 were allocated for the construction of the pulp plant and the Marine Terminal Barçaças (*Terminal Marítimo de Barçaças*). More detailed information on these loans is difficult to access. *Veracel* does not provide information on these topics at *Veracel's* website or in printed publications, nor is available on the websites of the banks that provided these loans.

In the case of the EIB, one of the conditions established was that *Veracel* planted 400 hectares of native trees per year in the region for three years (2003, 2004 and 2005). According to *Veracel*,

these actions were performed in full as required by the bank. As result of this condition, the Atlantic Forest Program (*Programa Mata Atlântica*) was created and the planting of native trees continues to this day. In this occasion, part of this loan was used to create a department of sustainability within the company. This sector is responsible for the actions of social and environmental responsibilities and the monitoring of environmental licensing. In 2009, this area received RS17,597,300 in support (about €7 million by the current exchange rate), which is significant when compared with other companies in the pulp production sector.

Veracel is periodically audited by the EIB. Auditors look for and inspect whether *Veracel* is in compliance with contract agreements, both in regards to the way resources are invested, as well as commitments established. *Veracel* provides EIB with reports with their version of actions taken. What is not done periodically is the contact with the local stakeholders, both involved and affected, by *Veracel*'s actions. This is desirable, since only through these actions that can independent view of the impact of *Veracel* in the region take place.

Loans provided by the NIB and the BNDES, as far as we could investigate, did not have specific social and environmental conditions. This information is difficult to access because this information is not available to the public. Out of the total loan provided by the BNDES, R\$59 million were used in forestry practices and R\$19 million in social investments. Social investments were BNDS' own initiative and were aimed to attend *Veracel*'s interests with regards to public and private initiatives in the region.

Since 1993, the EIB in its investment policies for Latin America and Asia (LAA) (*América Latina e Ásia*) has been funding projects that meet mutual interests between the European Union and the countries of these continents, in the most diverse sectors of the economy, such as: energy, industry, telecommunications, water and sanitation. Through this approach, the EIB seeks to contribute with the efforts of other countries and the European Union to mitigate the impacts of natural disasters on those continents. Based on the current context of globalization and the imminence of disasters of global ranges, which are caused by climate change and other local environmental impacts that interfere in the global climate system, the EIB understands that international cooperation is essential in addressing these challenges.

The EIB's approach in financing projects in LAA countries focuses on two conditions:

1. *Environmental sustainability, especially mitigation of climate change;*
2. *Support the presence of the European Union in LAA countries through direct foreign investment and transfer technology and expertise.*

As we shall present in our analysis of *Veracel*, EIB auditors must be more diligent when evaluating these guidelines and requirements during auditing of *Veracel*'s activities and reports.

3.5 Impact Assessment

The process of monitoring and evaluation of environmental impact begins when the company asks the responsible environmental agency for the environmental permits required by the Brazilian environmental legislation. In the case of the state of Bahia, the responsible agency is the Environment Institute (IMA) (*Instituto de Meio Ambiente*)¹².

In projects with significant environmental impacts, such as the case of *Veracel*, an Environmental Impact Assessment and an Environmental Impact Report are required (EIA-RIMA). The RIMA is subjected to a public hearing. Public hearings allow for the impacted or interested stakeholders the opportunity to learn about the proposed project and present their opinions on the venture. These public hearings do not mean that the community participates in the decision-making process because by the time the hearing takes place the decision pertaining to the project has already taken place. Still, these hearings became a venue to minimize tension and dissatisfaction from the local communities. These hearing also had, in rare occasions, some interest in gaining input from these communities. Due to lack of participation in decision-making, local stakeholders can only make suggestions about ways to minimize and control the generated impacts resulted from the development and operation of such enterprises.

At that time (1993 – 1995), these public hearings generated heated debates because of public resistance towards the proposed land use practices. The majority of the people who attended these meetings was opposed to the implementation of *Veracel's* proposed project as it was originally presented (I even had the opportunity to attend these meetings).

During those meetings some suggestions were made. Among the suggestions were:

- Limit acreage of eucalyptus cultivation per county;
- Distance from the coast;
- Zero allowance towards deforestation of Atlantic Forest;
- Give employment priority to local residents;
- Restore areas degraded as result of the project.

These suggestions were heard by the Board but were not fully implemented.

The first environmental licenses to *Veracel*, which at that time was called *Veracruz Florestal*, were granted in 1993. These licenses were granted under the resolutions of the CEPRAM N° 707 and N° 708 of January 19th. This means that the project, which broke ground in 1991, initiated without adequate environmental licensing. Several other licenses were granted to *Veracel* to expand its forestry project and to enable the implementation of its industrial unit. Each license has a set of conditions, conditions established with the goal to monitor, minimize and/or mitigate the impacts.

¹² Federal Law 6938/81 (*Lei Federal 6938/81*).

Veracel reports to the IMA the Technical Report of Industrial and Environmental Quality (RTGA) (*Relatório Técnico de Garantia Ambiental Industrial*) on an annual basis¹³.

This Report contains information regarding to the following topics:

- Compliance with the conditions presented in each license granted according to the various monitoring activities conducted by the company on its industrial sector.
- Information about liquid discharge and effluents, atmospheric emissions, solid waste, electrical energy usage, groundwater, sanitation, and safety.

Based on the information provided by *Veracel* to the RTGA, the company has been in compliance with the imposed regulations. The report also shows that the environmental indicators used to monitor and control *Veracel's* activities are below the limits set by the relevant legislation and by the company's internal parameters of control.

Veracel also states that their environmental practices are better ranked than the reference values published by the European Commission on the best available technologies for pulp and paper mills (BAT's/ Integrated Pollution Prevention Central (IPPC), December, 2001).

The conditions imposed by the various licenses and the monitoring carried out by the company are difficult to control by the IMA due to its poor infrastructure. The IMA does not have the necessary resources to check the data provided by *Veracel*. Due to this limitation, information used to evaluate whether *Veracel* is complying with the law is information provided by *Veracel's* own report. Despite this limitation, these licenses, which have expiration dates, are renewed periodically even with the lack of full warranty compliance by the IMA that conditions have been met by *Veracel*. The advisers of the CEPRAM and the society are not informed about this problem. Even worse, these parties rarely are able to have access to information.

In addition to the environmental permits, which are a legal requirement, *Veracel*, via voluntary action, certified its forestry project under three distinct certification institutions through its management program.

In 2003, *Veracel* received the certificate of the standard "ISO" 09.4001/2003, the International Organization for Standardization. In 2005, *Veracel* was certified by the CERFLOR, the Brazilian Program of Forest Certification (*Programa Brasileiro de Certificação Florestal*). CERFLOR's certification program follows these principles:

1. *Compliance of the legislation;*
2. *Efficient use of forest resources in both short, medium and long term, in order to achieve sustainability;*
3. *Respect towards biodiversity;*
4. *Respect towards the water, soil and air;*
5. *Environmental, economic and social development where forestry activities take place.*

¹³ *Veracel. Technical Report of Industrial and Environmental Quality (RTGA). 2008.*

In 2008, *Veracel* was certified by the internationally known Forest Stewardship Council (FSC). FSC is a non-governmental organization that promotes responsible forestry management practices.

These certifications give *Veracel* the needed environmental endorsement to its forestry project, particularly to the national and international markets. The existence of these certifications does not, however, significantly change *Veracel's* relations with the impacted communities or with the social and environmental problems that exist within the factory site.

The parameters and monitoring data provided by *Veracel*, in 2008, are presented on Table 5.

Table 5: *Veracel's* monitoring in 2008.

Parameter	Units	Legal standards	MTD/BAT ^a	Internal goal	Average 2006	Average 2007	Average 2008
AOX ^b in the effluent	Kg/tsa	-	< 0.25	<0.15	0.09	0.06	0.06
DQO ^c in the effluent	Kg/tsa	-	8-23	12.0	8.3	6.7	6.2
DBO ^d 5 no efluente	Kg/day	4890	-	2500ansi	1970	923	1445
	Kg/tsa	-	0,3-1,5	0.7	0.7	0.31	0.47
SST ^e no efluente	Kg/tsa	-	0.6-1.5	1.0	0.9	0.67	0.73
Color	Mg/L	-	-	1000	492	520	502
Water use	M ³ /tsa	-	-	30	31	27.7	25,9
Effluent discharge	M ³ /tsa	-	30-50	27	28.0	24.7	22.7
Emissions TRS ^f in the recovery boilers	ppm	5.0	-	0.20	0.04	0.05	0.04
Emissions TRS in the lime oven	ppm	18.0	-	7.0	4.8	5.7	5.8
Odor occurrences	#	-	-	0	17	11	6

^aBest available Techniques. ^b Halogenics Organically Linked. ^c Chemical Oxygen Demand. ^d Biochemical Oxygen Demand. ^e Total Suspended Solids. ^f Reduced Sulfur Compounds. Source: (*Veracel*)

4. Governance

Strategies to regional development must arise from public policies coordinated by government officials, who are democratically elected by the people. These public policies must be planned, developed, and implemented with strong stakeholder participation and control. This level and type of participation represent the basis of philosophical principles that guide Bahia's environmental legislation.

In spite of these principles, these actions are not being implemented in the extreme south region of Bahia. After being chosen as the region that would produce cultivated forests in the National Plan of Strategies from the Paper and Pulp Industry, large economic groups began to establish themselves in the region. During these past two decades, the 1990s and 2000s, strong economic and political power exercised by *Aracruz*, *Suzano* and *Veracruz*. This influence virtually determined the fate of the region. These companies influenced local leaders, providing political and financial support to candidates for public office (mayors and council members)¹⁴. When is of their interest these companies also provided direct support, which are actions that should be

¹⁴ www.transparencia.org.br. Accessed in September 2009.

carried out by the respective public administrations in the areas of health, education, safety and infrastructure (roads, sanitation, among others)¹⁵.

In 2008, *Veracel* paid R\$98 million in federal, state, and county taxes. The county of Eunápolis received the largest percentage of these taxes because it hosts *Veracel's* factory. However these resources are not always correctly applied and are often diverted illegitimately.

The situation repeats itself in relation to the state and federal governments. The government leaders of all political tendencies only support and promote these ventures. They do not establish sustainable regional public development policies that have state control and stakeholder participation.

In the specific case of *Veracel*, there is the need to implement the Regional Ecological Economic Zoning (EEZ) (*Zoneamento Ecológico Econômico*) since the initiation of the licensing process in 1993. This Zoning, which is developed by the state government, establishes land use and tenure rules. Hence, in the case of *Veracel*, these rules are yet to be established.

The fact is that *Veracel* received licenses to cultivate eucalyptus in a polygon-shaped type landscape. This means that *Veracel* can acquire land and perform planting in the way that best fits its needs in an area within the polygon's boundary. The only existing rules, detailed in environmental licenses, are that the company must:

1. *Limit cultivation to 20% of its total land in the inland counties and 15% in the coastal counties.*
2. *Design eucalyptus farms at a minimum distance of 10 km from the coast.*

Other rules should be developed to allow for a more diversified use of the land. Diversification of land use practices would minimize the monoculture production that dominates the local landscape.

Governments are not producing other plans and regional development programs that promote sustainable economic alternatives for the region. They are, instead, hostage of the entrepreneurial projects stipulated by these companies.

IMA's report, cited above, also points to the lack of environmental governance in the region influenced by eucalyptus and pulp projects. IMA's report emphasizes the absence of the following:

- *Ecological Economic Zoning (EEZ);*
- *Public intervention concerning the cultivation of eucalyptus;*
- *Agricultural and land tenure policies;*
- *Control over the legitimacy of land tenure titles.*

¹⁵ www.veracel.com.br. Accessed in September 2009.

The report only highlights the establishment of recommended indexes of land occupation for plantation purposes per county.

With the prospect of an expansion of the Veracel enterprise, the state government is carrying out an Environmental Assessment Strategy of the Extreme South Region of Bahia (*Avaliação Ambiental Estratégica do Extremo Sul da Bahia*). This Assessment examines the impact of policies, plans and programs for the region. This study started based on the assumption that *Veracel* will expand as well as the proposal for cultivating 300,000 hectares of sugar cane for biofuel production. The sugarcane farming proposal is an incentive to investors who will be interested in the program. Based on information available at the IMA's, this Assessment, which should first analyze the regional scenario then alternatives, instead provides the pre-decided decisions without presenting more sustainable alternatives.

5. Socio-environmental Conflicts

5.1. Environmental Aspects

The impacts listed below relate to climate change.

a) Deforestation of Atlantic Forest

- *Veracel's* forestry project began early 1990s. Since then, it has been associated with deforestation of Atlantic Forest, especially in February 1993¹⁶.
- A study conducted the NGO *Flora Brasil* shows that *Veracel* deforested Atlantic Forest between 1994 and 2006. During this period *Veracel* was prohibited to clear native forest to plant eucalyptus trees¹⁷. This harvesting practice is in breach of a commitment agreed with the EIB.
- The pressure on the remaining parcels of Atlantic Forest existing in the extreme south region continues. Landowners interested in selling their land to *Veracel* clear the Atlantic Forest stands within the property, which helps them seal the deal with *Veracel*. The burden of deforestation stays with the landowner and not with the *Veracel*. Although *Veracel* will plant eucalyptus trees in these areas, indirectly, it ends up not complying with the legal agreement stipulated with the governmental environmental agency and with the EIB.

b) Depletion of Water

The issue of water consumption in eucalyptus plantations is considered a scientific controversy. It is true that the plant, which has a rapid growth, requires a lot of water. This requirement can exhaust or dramatically decrease the surface and underground water resources.

¹⁶ *A Tarde* Newspaper (*Jornal A Tarde*). 11 May 1993. Salvador, Bahia.

¹⁷ *Flora Brazil* Association (*Associação Flora Brasil*). Longitudinal Analysis of the Vegetation Cover in the Extreme South Region of Bahia, Brazil. Santos, P.S. (consultant). 2005. Itamaraju, Bahia.

Veracel has two water monitoring stations. These stations were implemented in 2003. One of these stations is in a stream whose watershed has an extensive eucalyptus plantation area on the valley and native forest on the slopes. The other station is located at the *Veracel Station* where the watershed is covered and protected by native forest. According to *Veracel*, data from the two water monitoring stations remains without significant changes since 2003. According to *Veracel's* technician responsible for water monitoring, a change in water readings would be an indicator to challenge the theory that eucalyptus plantations are not water-intensive.

There are, nonetheless, several scientific evidences¹⁸ and statements provided by local residents that contradict *Veracel's* statement on water intake by the eucalyptus plantations. Some scientists have shown that there are negative impacts in areas where the cultivation of eucalyptus is intense. In these areas, the water level has reduced dramatically in the wetlands a few years after the cultivation took place. Eucalyptus trees require a lot of water in order to grow fast. This process absorbs surface and ground water located next to large-scale plantations, which causes a decrease in the water table. A change in the water table level alters the hydrological cycle and the hydrologic balance becomes negative.

These findings are published in the classical work "*Ecological Effects de Los Eucaliptos* ", *op. cit.* The publication addresses the influence of forest cover on rainwater, such as the interception of water by the leaves to water absorption by the roots. These interceptions reduce the water production of a watershed.

In 2001, the issue of water intake by eucalyptus plantations was addressed at the International Seminar about Eucalyptus and its Impacts. The Seminar, promoted by Legislative Assembly of the state of Espírito Santo, questioned the issue at the Eucalyptus and Water Panel: Truth or Fallacy? (*Eucalipto e Água: Verdade ou Falácia?*) The South African Harald Witt, from Timberwatch, stated that

"It is true. Tree plantations for commercial purpose, such as pine and eucalyptus trees, have a significant impact on the watershed. This issue is no longer discussed in my country. What we do not know is the level of impact caused by these plantations. The extreme climatic variations in the country make this analysis a difficult one".

In India, also in the same subject, the environmentalist Vandana Shiva arrived to similar conclusions. In Brazil, the renowned geographer Aziz Ab-Saber, the natural scientist Sebastião Pinheiro, and the naturalist Augusto Ruschi support the claim that large scale eucalyptus monocultures consume high amounts of water in large scale and in the short term.

Rural communities in the region state that after the planting of eucalyptus various rivers, wetlands, and lakes have been drying quickly. This phenomenon was observed during our visits to the affected areas and in several interviews with local residents. These visits were carried out

¹⁸ Viana, Mauricio Boratto. 2004. Eucalyptus and Environmental Impacts of Large Scale Plantations. Brasília: House of Representatives. Available at the Digital Library of the House of Representatives at <http://bd.camara.gov.br>.

throughout our monitoring of project since the 1990s. These issues are being investigated by State Public Prosecutor (MPE) (*Ministério Público Estadual*) through a public Environmental Civil Action (*Ação Civil Pública Ambiental*), which was filed on February 19, 2009. The MPE is collecting testimony of farmers and representatives of social movements in the past ten years. This process motivated the Prosecutor Court of Eunápolis to file such action. In addition to the issue of quantity, there are also findings about water quality problems as a result of pesticide used on the eucalyptus plantations. *Veracel* uses the herbicide Roundup, which residues are carried by the water resources. The reality is that *Veracel* does not conduct comprehensive monitoring, much less the IMA, which should efficiently monitor the local environment.

c) Loss of Biodiversity

The Atlantic Forest is a tropical forest with great biodiversity, comparable to the Amazon Rainforest. In certain locations, as proven in a study of the New York Botanical Garden and by the Ceplac, the levels of biodiversity reach world records among tropical rainforests, with 454 species per hectare¹⁹.

Monoculture farming is one of the factors that cause loss of biodiversity. The region is losing its beautiful biodiversity as result of eucalyptus monoculture and the deforestation of native forest, which has a rich fauna and flora.

In the region where *Veracel* operates, land use is limited to eucalyptus plantations and pasture, which surrounds the few remaining stands of native forest. Native forests are found in a few locations, such as at the National Parks of *Pau Brasil* and *Monte Pascoal*, at the *Veracel Station* and in areas of private ownership. There is an effort to establish corridors connecting these areas, which would establish and allow for connectivity through ecological corridors. Several projects have been undertaken by different NGOs, in partnership with the government representatives, funded by government resources, to restore the Atlantic Forest.

Within the state government scope, a project called Ecological Corridors Project (*Projeto Corredores Ecológicos*) is currently under way. This Project is under the responsibility of various groups. Among these groups is the Ministry of the Environment (MMA) (*Ministério do Meio Ambiente*), the Government of the State of Bahia, and partners of the public and civil society. Financial support is provided by the German Bank KfW in the form of a donation to the Brazilian Government.

Veracel, based on its Atlantic Forest Program and its legal private reserves and areas of permanent preservation, should be engaged in this process of restoration of the Atlantic Forest. This involvement is an important initiative to mitigate the effects of climate change and preserve biodiversity.

¹⁹ RMA: A Network for the Forest. 2006. (CEPLAC and the New York Botanical Garden).

5.2. Social Aspects

a) *The Use of the Earth*

It is expected that the acquisition of land is done by the entrepreneurs involved in a large scale land-based project that requires extensive tracks of land. Currently, *Veracel* owns 211,689 hectares of land. *Veracel* considers buying more land to expand its venture. *Veracel's* expansion is causing an increase in land speculation, increasing the price of land and rural outmigration. This expansion is also pressuring the remaining stands of native forest, decreasing agricultural production, among other factors.

An example is the county of Eunápolis. According to the IBGE ²⁰, the rural population of this county has been decreasing dramatically (see item 1, Table 3). Local agricultural production of food crops has also fallen, forcing the region import basic food items.

Agrarian reform initiatives in the region have been very difficult to take place. There is large pressure of some organized civil society movements to design a policy addressing the land tenure and use issues. These initiatives ran into a bureaucratic and financial gridlock, such as the high price of land and the large number of people who are left without land to cultivate.

The MST (Landless Workers Movement) (*Movimento dos Trabalhadores sem Terra*) and the MLT (Fight for Land Movement) (*Movimento de Luta pela Terra*), demand actions from the responsible authorities for the deployment of agrarian reform settlements. So far they have been unable to achieve the desired outcomes that address a problem of such magnitude. These two groups have promoted land occupations in areas of *Veracel* as well as in other private properties. In the county of Eunápolis alone, approximately 1,600 families are camped out in four different locations. These families are waiting for a solution from the State Government or the Justice Department. The number of people in these gatherings is expected to increase due to lack of employment and income generation opportunities in the region.

The MST and MLT demand from the State Government an investigation about the land tenure situation of approximately 20,000 hectares of land currently used for *Veracel's* eucalyptus plantations. They claim that this land is vacant land, therefore should be allocated for land reform. Several legal processes are in progress with the Coordination of Agrarian Development (*Coordenação de Desenvolvimento Agrário*) (CDA). The CDA is an organ connected with the Secretariat of Agriculture of the State of Bahia. Some of these processes already have a conclusive outcome and have been sent to the Justice Department to be rectified. The current Government has shown interest in solving this demand from the MST and MLT despite existent technical and policy difficulties.

b) *Employment*

When *Veracel* arrived in the region, beginning of the 1990s, there was great marketing on promise of employment. This promise created an imaginary promise of redemption for

²⁰ www.ibge.gov.br. Accessed on September 2009.

population, who was mostly unemployed and socially unattended by the government authorities. At that time, public declarations by the company officials in the county of Eunápolis emphasized the creation of 20,000 direct and indirect jobs by *Veracel* to local residents.

In the Environmental Impact Assessment study, required by law for *Veracel* to acquire the factory licensing, approximately 2,240 forestry related and 560 industrial jobs would be generated by *Veracel*. At the time of construction of the factory, between 2003 and 2005, approximately 9,000 jobs were generated, as shown on *Veracel's* records. Hence, these were not the 12,000 industrial jobs initially promised. It is worth noting that the promised jobs for the enterprise as a whole, which was the greatest asset for the region, were never fulfilled.

Table 6. Jobs at *Veracel*, July 2009 .

	Industrial area	Forested area	Administrative area	Total jobs
<i>Veracel</i>	246	348	127	721
Permanent partnerships	525	1,395	463	2,383
Total	771	1,743	590	3,104

Source: *Veracel*

The total number of jobs in reference to July 2009 shows the generation of 1 direct employment opportunity for every 68 hectares, given the total area of *Veracel* in the region (211,689 hectares). Meanwhile, coffee cultivation, which is a common farming practice in Brazil, can generate 1 direct employment opportunity per 1 hectare²¹. As shown on Table 6, the majority of jobs created are provided by *Veracel's* permanent partners. These partners, which are outsourcing partners, provide services in various sectors of the company, such as forestry, transportation, security, maintenance, among others.

The large percentage of outsourcing jobs, which average of 80%, is from a company policy to strengthen local small and medium-sized enterprises in the region through employment and income generation. While commendable, this policy does not always have the desired effect for workers. In addition to having a lower remuneration than jobs at *Veracel*, labor rights are not always guaranteed and the conditions of work often put at risk the health of workers. The implementation of herbicides is an example, despite the statement from these outsourcing companies of the use of properly providing individual protection equipment.

According to *Veracel*, 811 processes are in trial at the regional Labor Court. Of these 811 processes, 85 from *Veracel's* own workers (10.5%) and 726 have been filed by the employees of outsourced companies (89.5%). The types of complaints are diverse. The most common complaints are related to everyday labor rights, such as unpaid overtime hours, insalubrities, unclaimed social rights, falsified medical records, and safety during the execution of activities that can generate risk or harm.

Another important issue is related to immigration. Immigration associated with the implementation of large-scale projects and the opening of job opportunities, which demands for

²¹ Newsletter N^o 146 of the World Rainforest Movement, September 2009.

jobs from the local people and from people from other areas, is common in Brazil. This phenomenon occurred in great intensity with the opening of *Veracel* in the region, particularly with the construction of the factory. Consequently, despite the generation of jobs, the promise of employment for the region has not been satisfactory as competition increased significantly.

Another problem that took place in these localities, especially during the construction phase of the factory, nearby the factory site, was caused by male immigrant workers. These workers, who did not have families or relatives in the region, fathered children with local young girls. Today, many children in these villages no longer have hope of knowing their fathers as these workers left the region once the factory was built.

6. The Energy Factor

Veracel, like any large paper and pulp enterprise, is considered an energy intensive type of venture. The factory is self-sufficient in energy production. It generates 900,000 kWh per year. This is energy can supply a city of about 400,000 inhabitants. The fuel used in the turbo-generator is waste from the manufacturing process, such as “black liqueur” and wood mulch. Electrical energy from the public distribution network is only used in the presence of technical problems in the processing plant. The source of power from this public power distribution center is generated by hydroelectric power plants.

During the process of steam generation, the factory consumes fossil fuel, also called oil fuel BPF A1. The other major energy consumption of this venture is diesel fuel, which is used by the transportation sector. The transportation sector is responsible for the transport of timber and pulp, from the factory to the Marine Terminal of Belmonte (*Terminal Marítimo de Belmonte*), and from Belmonte to the state of Espírito Santos. Another transportation cost is the cost associated with the transport of workers to and from the industrial and forest sties.

Some measures are being considered to improve energy efficiency. The main measure is to replace oil fuel BPF A1 at the factory by natural gas. This replacement would reduce carbon dioxide emissions. Prior to implementing such changes, it is first necessary to assess the cost this technological change and the availability of natural gas in the region.

7. The Climate Issue

a) Emissions of Greenhouse Gases (EGG)

In 2007, *Veracel* conducted a study to assess greenhouse gas emissions associated with the company’s activities and the amount of carbon stored by its forests. These assessments identified the “*Impacts generated, the contribution of Veracel’s activities with regards to the greenhouse effect, and a balance between the emissions of carbon dioxide (CO₂) and the carbon stock, according to the performance of its routine activities*” ²².

This inventory also allowed for the achievement of another goal. The goal was to “*Enable the development of programs that reduce gas emissions from their sources and programs that*

²² Veracel (Key Associates). Inventory of Greenhouse Gas Emissions and the Carbon Stock of Veracel in 2007.

provide voluntary compensation, by doing so, these programs would minimize the environmental impacts that are inevitably generated through the development of specific projects that best fit the reality of company”.

The adopted methodology of this study used three strategies to calculate gas emissions:

Strategy 1: Direct Emissions of Greenhouse Gases:

These emissions are from sources which belong to or are controlled by the company. For example, the combustion emissions of the boilers and ovens, the company's vehicles or vehicles controlled by the company, and emissions generated from the production of chemicals from equipment owned or used by the company. Direct emissions of CO₂ resulting from the combustion of biomass, should not be included in Strategy 1.

Strategy 2: Indirect Emissions of Greenhouse Gases from Electricity:

Strategy 2 accounts for the emissions of greenhouse gases from the generation of electricity, acquired and consumed, by the company. Acquired electricity is defined as the electricity that is purchased or not brought into the company's organizational limits. In Strategy 2, these emissions physically occur where electricity is generated, for example, by the suppliers of concessions of the National Interconnected System.

Strategy 3: Other Indirect Emissions of Greenhouse Gases:

Strategy 3 is a category that generates an optional report, which allows for the assessment of all other indirect emissions. Emissions generated under the Strategy 3 are a consequence of activities of the company, but occur from sources that do not belong to or are controlled by the company. Some examples of these activities are the extraction and production of purchased materials, transportation of purchased fuel, use of third-party products and services.

The results of the study can be viewed on Table 7:

Table 7: Emission of Greenhouse Gases data of *Veracel* in 2007.

Strategy	CO emissions – ton CO₂e
1	258,259
2	31
3	40,607
Total	298,898

Source: Veracel

Among the presented values (Table 7), 76% are of fossil origin and 24% are not of fossil origin. With regards to the origin, 63% are from stationary sources and 37% of mobile sources. This percentage of fossil energy use needs to be evaluated by the company to reduce the emission of greenhouse gases.

In 2007, the enterprise *Suzano Papel e Celulose* (Suzano Paper and Pulp), which is similar to *Veracel's* in the extreme southern region Bahia, released in the air 792,000 tons of CO₂e EEGs. This shows that *Veracel* has better record in respect to these emissions. In this same study,

Veracel reports that carbon stocks in *Veracel's* permanent forests were appraised based methodologies accepted by the IPCC (Intergovernmental Panel on climate change):

1) Planted Forests:	14,974,059 ton CO ₂ e
2) Native Forests:	15,263,029 ton CO ₂ e
Total Carbon Stock:	30,237,088 ton CO₂e

Based on the information provided, there was no monitoring of this work by an independent institution. The study was done voluntarily by *Veracel*, which has become a common practice in Brazil by companies that have a significant contribution to greenhouse gases emissions. The Brazilian legislation still does not require these companies to make such studies. Proposed laws of such type are under discussion in Congress. It is expected that some standard is adopted this year, before the Conference of the Parties on Climate Change which will take place in December 2009 in Copenhagen. This achievement would establish concrete targets to be met by companies such as *Veracel*.

From these results, *Veracel* has been adopted some initiatives to mitigate and minimize the emissions of greenhouse gases. Some of these initiatives are:

- Replacement of petrol cars for the transport of workers for "flex" cars, hence use hydrate alcohol as the fuel, which is less pollutant than petrol. This initiative is already in place.
- Look for ways to use biodiesel in diesel vehicle fleet (i.e. trucks).
- Conduct studies on alternatives for fuel oil BPF A1 used in the lime oven and boiler for charcoal generated from wastes of pulp and sugar cane in the form of pellets.

It would be interesting to know whether initiatives aimed at the reduction of the impacts caused by the company are taken place because the company aims to reduce emissions or whether the company prioritizes the reduction of costs, which in turn reduces gas emissions. This is a question that we will unlikely have a correct answer.

b) Adaptation

In the region, impacts caused by climate changes are still low in intensity. This low intensity seems to not create a concern for the people and government officials, who have yet to create adaptive measures to address these changes. Still, some government and grassroots institutions are starting to discuss the issue and find relations among socio-environmental impacts with climate change.

But, in advance, we argue that the greatest responsible for climate changes in the region is the deforestation of Atlantic Forest, which has been intense in the last four decades. Loss of forest cover and land use practices that replaced forest cover with pasture and eucalyptus trees can be changing the microclimate of the region. Observations provided by meteorologists and based on observation accounts presented by local residents, show that some climate parameters have been changing.

Some of these indicators are:

- **Precipitation and Rain Seasons:**
 - More irregular occurrences; longer droughts; stronger storms with shorter duration.
- **Relative Humidity:**
 - Lower relative humidity; sensation that the air is dryer; different thermal comfort;
- **Temperature:**
 - Higher temperatures over most part of the year;
- **Water availability and quantity:**
 - The number of springs, rivers, streams and ponds are decreasing; there is a decrease in the level of the water table.

Although these statements are not based on empirical readings, they are, nonetheless, based on years of observation of the climate dynamics of the region. Existing monitoring data for the region are not available for a reliable longitudinal analysis and more accurate evaluation of regional climatic changes to be done. This limitation emphasizes the urgent need for such information to be collected, evaluated, and access availability. Currently, GAMBÁ is demanding such data from the Institute for Water and Climate (INGA; *Instituto de Gestão das Águas e do Clima*), a state run agency responsible for monitoring water and climate.

The importance of these types of discussions is increasingly more necessary, particularly on a broader scope, in order for public policies to be developed and relevant to climate change issues at the global and local scales. Empirical studies that investigate, with greater clarity, the causes and the consequences of the climate changes cited above, as well as others that may be happening in the region, should be encouraged. Findings from such studies can help clarify some of the pending questions and provide valuable information used in the development of impact mitigating strategies as well as adaptive strategies to more significant changes.

Government and enterprises, like *Veracel*, are still very shy in adopting concrete measures, even with the importance and the urgency of the issue of climate change is requiring at all levels. The ability of people to adapt to these changes is still bearable, but the expected scenario can be worrying if nothing is done. The restoration of the Atlantic Forest, as has already been said, must be a priority in order to address the issue more efficiently.

c) Vulnerabilities

The possibility of wildfires and fires of greater intensity and frequency in the region are the largest vulnerability in the region. This vulnerability is the outcome of monoculture farming (i.e., eucalyptus cultivation), which causes loss of biodiversity, decrease in the relative humidity, and increase the length of droughts associated with climate change. The consequences of these outcomes, natural or human-induced, may increase the severity of the impacts caused by climate change and land use and land tenure in the region.

d) Proactive Actions

Some sectors of the government, business and corporations, and civil society in Brazil have been working in ways to establish measures to address global warming. These initiatives are mitigation and adaptative management initiatives to climate change. The Brazilian Forum of Climate Change (*Fórum Brasileiro de Mudanças Climáticas*) was established to provide a venue for discussions about climate change. The Forum is formed by representatives of several sectors.

In 2008, the Federal Government organized the III National Conference of the Environment. The theme of the conference was Climate Change. During the Conference, a series of recommendations, programs, and projects aimed to minimize the effects of climate change were proposed. Still in 2008, the Federal Government launched the National Plan of Changes in the Climate (*Plano Nacional de Mudanças do Clima*). The Plan aims to encourage the development and improvement of mitigating actions in Brazil, actions that collaborate with the global effort to reduce greenhouse gases. Furthermore, the Plan has the objective to create internal strategies used to better address the impacts caused by global climate change²³.

In 2009, the Federal Government proposed a Bill to the National Congress that created a National Climate Change Policy (*Política Nacional de Mudanças Climáticas*). The Bill is under revision by the House of Representatives and by the Senate. Also in 2009, the State Government of Bahia drafted a Bill for the creation of a Climate Change State Policy (*Política Estadual de Mudanças Climáticas*). The Bill is being discussed within the society to then be evaluated by the Legislative Assembly²⁴.

The business sector, including the paper and pulp industry, has also participated in these debates. It has been fostering opportunities for discussions via events and by signing pledges to reduce emissions of greenhouse gases. *Veracel* has been one of the signatory firms of these pledges.

The civil society, through NGOs and social movement groups, has prepared several propositions aimed at receiving concrete measures to address global warming and effective strategies to better mitigate and adapt to the impacts caused by climate change. These actions have been coordinated by the Brazilian Forum of NGOs and Social Movements for the Environment and Development (*Fórum Brasileiro de ONGs e Movimentos Sociais para o Meio Ambiente e Desenvolvimento*)²⁵.

²³ www.mma.gov.br. Accessed September 2009.

²⁴ www.meioambiente.ba.gov.br. Accessed September 2009.

²⁵ GT Climate of the FBOMS: Climatic Changes and Brazil – Contributions and Guidelines to Incorporate Issues Regarding Climate Change on Public Policies. 2007. Brasília e São Lourenço da Serra (*O Grupo de Trabalho sobre Mudanças Climáticas (GT Clima) do FBOMS (Fórum Brasileiro de Organizações Não Governamentais e Movimentos Sociais para o Meio Ambiente e o Desenvolvimento)*).

8. Conclusions and Recommendations

In this document data from various sources were taken into consideration. Among the included sources are empirical data from scientific research, data provided by *Veracel*, information provided by local residents and by conservationists gathered during interviews, and by personal observation during visits to the area. The document is an attempt to gather various inputs without neglecting the importance and the value that each source has in complementing the overall vision and perspective about the presented case study.

An analysis of *Veracel*, according to the various issues presented throughout the report, shows that this enterprise is not a model of sustainable development. This premise is based on a series of indicators.

These indicators are as follow:

- The use of the monoculture farming model which, by itself, does not ensure sustainability;
- Loss of biodiversity and availability of water and surface water resources;
- Contribution to changes in the regional microclimate and global climate;
- Centralized land ownership and fostering of rural outmigration;
- Generation of low employment opportunities per hectare of cultivated forest;
- Lack of incentives for the cultivation of food products at the local level and family farming systems;
- Land use conflicts;
- Difficulty in creating an environment allows for opportunities for an agrarian reform program because, among other factors, the abusive increase of the price of land;
- Generation of urban violence and impoverishment of the urban areas, such as the creation of shantytowns.

Since the EIB participates in this enterprise through financial support, the EIB also contributes to the impacts generated by *Veracel* and with the climatic changes associated with *Veracel's* activities. The same happens with other financing institutions, the BID and BNDES. The information concerning loans granted is, however, difficult to access. The established conditions are also not available to the public.

Regarding climate change, qualitative analyses of the impacts caused by the paper and pulp industry are greater than the potential benefits that these companies claim to generate. Despite *Veracel* display data that does not characterize *Veracel* as an enterprise that generates large amounts of greenhouse gases, if compared with other similar projects, it causes considerable social and environmental impacts, as previously reported. *Veracel's* activities contribute to the deforestation of the Atlantic Forest in the region, with the decline of biodiversity, with changes in rainfall regime, and decline of water resources. The existing carbon stock in its native and planted forests, based on data provided by *Veracel*, does not outweigh the environmental impacts generated from *Veracel's* activities.

It is necessary to establish another development model for the region, an alternative to this model, which is centered in monoculture and centralized land ownership. An alternative model is a model that prioritizes sustainable options, is socially fairer and economically more viable for all of the population, and enhances environmental, social and cultural heritage.

Following are some suggestions in this line of thought:

- Conduct a more aggressive program to restore the Atlantic Forest with the establishment of ecological corridors and conservation units formed based on mosaic-type landscape;
- Develop an effective program for agrarian reform and promote family farming with financial credit, technical assistance, and dissemination agro-ecological practices that reduce the emission of greenhouse gases;
- Develop community-based sustainable tourism programs, such as ecotourism, rural tourism/agritourism, cultural tourism, and heritage tourism;
- Strengthen the management of protected areas and create new units of conservation;
- Associate to any such initiatives environmental education activities. These environmental education initiatives should inform local communities about enterprises, upon their creation, their impacts and socio-environmental consequences. Environmental education can also help communities to be better prepared to participate and be represented at political parties;
- Provide the infrastructure for an independent research initiative in the region. This initiative, conducted in partnership with universities, would conduct further research on the aspects highlighted by the perceptions and observations provided by local residents.

Regarding the EIB investments in its lending policy and for a better social control on the flux of international capital, we highlight some recommendations:

- The EIB should create an Inspection Panel to give greater access and social control over its investments. This initiative is already being implemented by the World Bank, even if adjustments to improve its effectiveness are still needed;
- Support initiatives that maintain standing forests through environmental services generated by these forests;
- Look for mechanisms that provide financial compensation for communities who preserve forests;
- Include impact indicators to measure the efficiency of investments in relation to climate change.

For the Brazilian Government and National Congress, it is fundamental to establish concrete goals to address climate change at the National and Regional Plans of Climate Change, which have yet to be properly defined.

The moment is especially important and strategic to address global warming. We are on the eve of COP 15, the Conference of the Parties on Climate Change in Copenhagen, Denmark, in December. During this Conference, the world expects decisions to be made to reduce emissions of greenhouse gases and that development may be driven by an economy of low carbon and social, environmental, and environmental justice.

The large national and international investments must agree with this path. The risk of provided investments will be much lower. The safeguards, before considered a problem for Multilateral Financial Institutions, can now be incorporated as opportunities for improvement in socio-environmental performance of projects, with greater security in the applications and responsibilities regarding the directions of the Planet.