Brazil of Biofuels

Soybean
Castor Bean
2009

Impacts of Crops on Land,
Environment and Society

Repórter Brasil

Biofuel Watch Center
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Brazil of Biofuels:
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Presentation

This fourth volume of the report "Brazil of Biofuels - Impacts of Crops on Land, Environment and Society" opens the second year of activities of Repórter Brasil's Biofuel Watch Center (BWC). Under the general aim of annually monitoring the effects of crops used to produce bioenergy, from the social, environmental, land and labour perspectives, we launch our first updating report concerning soybean and castor bean.

In 2008, the Brazilian government and the country's business sector made efforts to establish Brazil as a centre to produce and export biofuel. Although units crushing oleaginous plants and producing biodiesel have multiplied, they are still underused. Therefore, expectation on more plantations or fear of higher socio-environmental damages resulting from agro-energy is justified. We expect this report to be useful to people, organisations, and movements engaged in effective alternatives to predatory production.

Over the process of making this report, the BWC-Repórter Brasil team travelled 21,400 kilometres by air and land. We have been to Goiás - the Brazilian state where the most serious case of slave labour in soybean plantations was found in 2008 and where soybean farmers challenge environmental rules around the Emas National Park. In south-eastern Rondônia, we have seen the advancement of soybean over the Amazon forest up close. In the state of Bahia, we met family-based farmers from the Semi-arid region, for whom castor bean is a safe income source. In Mato Grosso, we travelled the Utiariti Indian Land, where Paresi Indians plant soybean on a large scale, and we could see how it increased the value of land and worsened land-related conflicts along the BR-158 federal road. And in the Federal District, we talked to managers and leaders of social movements to better understand the changes in the National Programme for Production and Use of Biodiesel (PNPB).

The selection of those places was an attempt to complement the areas researched last year, when we visited the states of Rio Grande do Sul, Paraná, Mato Grosso, Mato Grosso do Sul, Tocantins, Pará, Ceará, Bahia, Piauí, and Maranhão, as well as Paraguay, to produce the first report on soybean and castor bean. The new mission we set about pursuing is not an easy one, since several databanks providing for the analysis of impacts of those cultures in Brazil are not updated annually. The gap in recent information is larger for indicators related to the social dimension of the problem.

Fortunately, despite that difficulty, we were able to identify interesting phenomena, thanks especially to field research. In this year's trips, once again we enjoyed the solidarity and hospitality of partner organisations and movements, to which we are highly indebted. We are also grateful to all those we have interviewed, experts, social leaders, researchers, and governments officials that provided us with valuable data. Finally, we express our gratitude to partners that allowed this project to take place: the Doen Foundation, Cordaid, and Solidariedad.

Chapter 1
Biodiesel and the hegemony of soybean

Since the first report on soybean by NGO Repórter Brasil's Biofuel Watch Centre was launched in April 2008, the agricultural world has been turned upside down. The international financial crisis in the second half of that year reduced credit available to Brazilian farmers, making it harder to plan the 2008/9 harvest. The result is a harvest the state-owned National Supply Company (CONAB) estimates at 58.1 million tons[1] - an amount similar to the previous period's, of 60 million tons, according to CONAB, or 57.8 million, according to the Brazilian Institute of Geography and Statistics (IBGE).

In terms of area, CONAB points that production of soybean in the 2008/9 harvest was very close to the previous one, going from 21.31 million to 21.56 million hectares - a 1.2% increase. The states where the culture has advanced the most in percentage points were Piauí (8.0%), Rondônia (6.2%), and Goiás (5.5%). Other states with considerable soybean areas, such as Minas Gerais (3.7%), Santa Catarina (3.1%), Bahia (2.8%), and São Paulo (1%), had lower increases. The situation of the three main production centres is as follows: Mato Grosso - the country's largest producer - went from 5.68 million to 5.77 million hectares (a 1.7% increase); Paraná's production increased 1%, to 4.017 million; and Rio Grande do Sul's decreased 1.2%, to 3.789 million hectares. Other important producer states also saw a fall in their planted area, such as Maranhão (-7.3%), Tocantins (-4%), and Mato Grosso do Sul (-0.9%). However, the crisis did not stop part of the investment already planned for the biodiesel industry in the country, which, as it is known, used mostly soybean as its raw material. Between March 2008 and March 2009, the number of processing facilities in Brazil jumped from 51 to 65[2], incrementing the country's production capability in 23%, to 4 billion litres a year. That production potential is virtually three times higher than the needs imposed by Brazilian laws setting a 3% mandatory mixture of biodiesel to diesel - which can still be increased in 2009. The National Agency for Petroleum, Natural Gás, and Biofuels (ANP), which regulates that market, is examining requests for construction of eight new plants and the enlargement of other four.

Such an appetite by investors has two explanations. The first is that businesses still expect the increase in the mandatory mixture, to 4% for the first half of 2009.

If the Brazilian government adopts that increase, it would create a quarterly demand close to 450 million litres of biodiesel - above today's 330 million. The other reason is the expectation over opening world markets to biodiesel, of which Brazil's share is still small. The business sector and the Brazilian government see biofuels as a safe bet in the post-crisis future, when oil prices are expected to rise and concerns with climate changes shall encourage the use of biofuels.

BRAZIL – SOYBEAN PRODUCTION (IN MILLION TONS)

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008**
31.3	30.9	32.8	37.9	42.1	51.9	49.5	51.1	52.4	57.8	58.1

* Source: IBGE

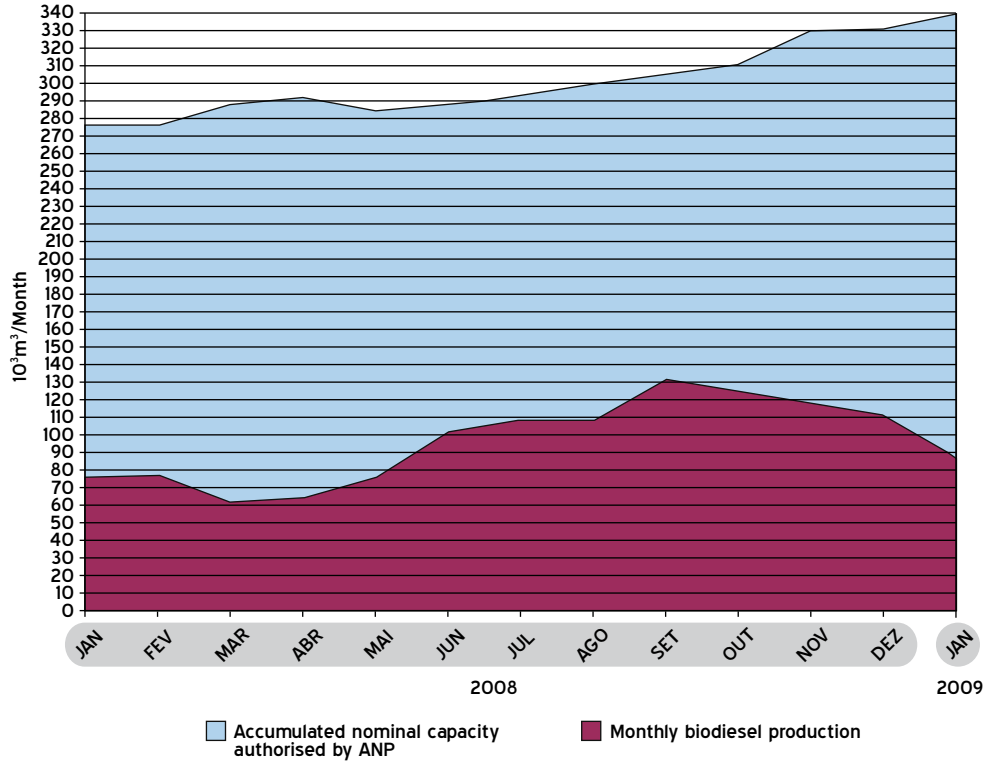
**Source: Conab

BRAZIL – SOYBEAN EXPORTS (IN MILLION TONS)

1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008
9.2	8.9	11.5	11.6	15.9	19.8	19.2	22.4	24.9	23.7	24.4

Source: Abiove

BIODIESEL IN BRAZIL – GROWTH IN PRODUCTION AND AUTHORISED CAPACITY



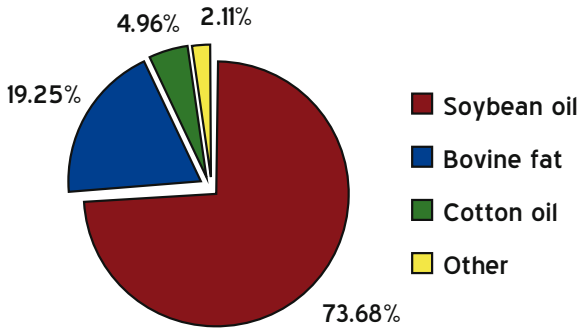
Source: Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP)

The opening of global markets is one of the aims of Brazil's foreign policy. During 2008, the government of president Luiz Inácio Lula da Silva signed a series of bilateral contracts with other nations in order to increase the country's export possibilities. In November, when the international environment was already uneasy with the financial crisis, the government organised the International Biofuel Conference in São Paulo, including tens of foreign delegations. Then, Brazil and the United States broadened the terms of the memorandum of understanding signed by both in 2007 to cover new scientific cooperation agreements, to allow projects for processing units in Central America, the Caribbean, and Africa, as well as to integrate biofuel processing and distribution systems in each country. In December, during the 2nd Brazil-European Union Summit, the Brazilian delegation once again included the subject in the debates and in the final declaration. Besides President Lula, French President Nicolas Sarkozy and the president of the European Union José Manuel Durão Barroso, from Portugal, were present. According to that document, renewable energy is crucial to meet the needs of world sustainable development, since it would allow replacing the burning of fossil fuels and reducing emissions of greenhouse effect gases.

If part of those plans becomes real, Brazil might be one of the core providers of biofuels to the international market. And, in the case of biodiesel, there are few doubts that soybean will remain as the core raw material. With production, infrastructure, and storage in several regions of the country, soybean accounts for something between 70% and 90% of the biodiesel produced, depending on the month. Besides, its biodiesel has been meeting more easily the chemical specifications that allow the mixture with petroleum diesel - differently from the ones made of castor bean and animal fat. Those advantages might increase the importance of biodiesel for the expansion of soybean in the country, which is still not the case. The production of 1.3 billion litres a year, necessary to guarantee the 3% mixture, demands the annual processing of little over 4.5 million tons, still little over the almost 60-million-ton output.

But, if the international scenario changes and more nations open to Brazil's biofuels, it will be necessary to ask which impacts agricultural crops will have in the country. Will the advancement of soybean not destroy the Cerrado and Amazon regions? Will workers still be subjected to degrading labour conditions in rural areas? Will

BRAZIL – RAW MATERIALS USED TO PRODUCE BIODIESEL – FEBRUARY 2009



Source: Agência Nacional do Petróleo, Gás Natural e Biocombustíveis (ANP)

democratisation of access to land continue to be a dream? Will Indians have a chance to choose between their culture and that of the agribusiness that takes over their land more and more? The equation that balances the expansion of biofuels with sustainable development is still disputed. The report "The State of Food and Agriculture 2008 - Biofuels: prospects, risks and opportunities", by the UN Food and Agriculture Organisation (FAO), reasserts the risk implied in the rise of prices of agricultural commodities for food security, specially in nations that import a large part of the food they consume, such as African ones. The document, released in October 2008, includes the growing demand for biofuels as a significant factor to increase prices of agricultural products, but it points out that it can also be an opportunity for rural development in poorer countries, where most benefits would go to small and medium-scale farmers. In his doctoral thesis, engineer Otávio Cavalett - a researcher with the Food Engineering School of Campinas University (FEA/UNICAMP), estimated the need of about 5.2 m^2 of soybean plantation a year to produce a litre of biodiesel. In practise, it means 62 m^2 of agricultural area every time a truck driver fills up his 400-litre tank with the 3%-mixture of biodiesel and regular diesel[3]. According to the researcher, that area would be enough to produce 400 kg of tomatoes or 14 kg of black beans.

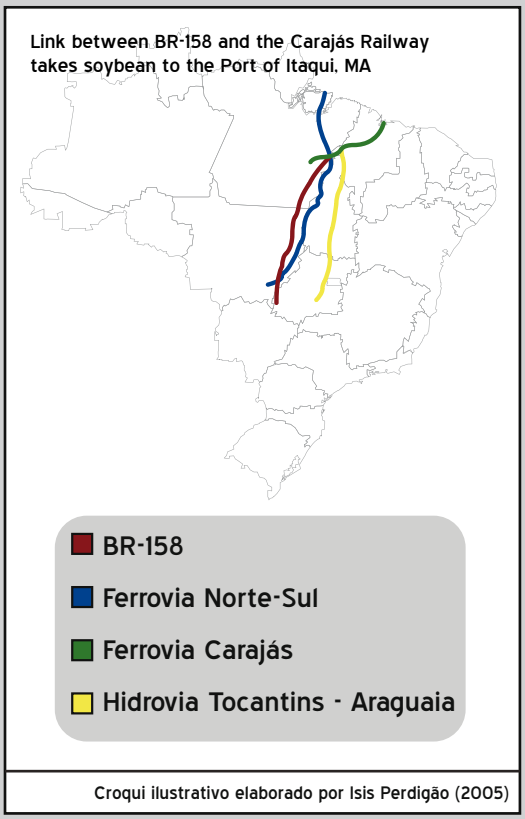
However, there are no conclusive elements to state that biofuel production is having an impact on food crops in Brazil, where there are still lots of underused fertile land - information that the federal government insists in publicising. It is hard to measure biofuel production's effect on food prices, since other variables help to explain the valorisation of those commodities, such as the increase in meat consumption in China[4], which drives up the demand for soybean and corn. According to Rio de Janeiro Federal Rural University's Agricultural Public Policies Watch Centre[5], causality between higher demand for biofuels and more expensive food tends to become more evident in the long term: if more land is occupied with crops directed to the biodiesel industry, land-related pressure will increase, together with food production costs. To favour the soybean agribusiness, infrastructure projects have had the expansion of plantations in mind. They include building storage facilities, paving roads, establishing waterways and railways, as well as enlarging ports. The Soybean Intelligence Centre estimates that the cost of Brazilian grain is eight times as high as that produced in the US. In Brazil's Midwest Region, which concentrates 50% of the country's soybean production, transport logistics is seen as crucial. Besides the recovering of BR-163 and the Araguaia-Tocantins waterway, enlarging the pavement of BR-158, in north-eastern Mato Grosso, is under discussion. It would allow increasing shipping from the port of Itaqui, in the state of Maranhão.

The project, however, could create a series of impacts on the environment and local Indigenous populations, as can be seen in the case study below. This report features debates on other soybean impacts on the environment and Indians in several regions of Brazil, as well as labour, land, and socioeconomic problems. There was a permanent attempt to illustrate the subjects debated with case studies representative on each impact. There can be no doubt that soybean creates wealth for the country; the point is to know whether or not its expansion is in accordance with the basic principles of sustainable development from the social and environmental viewpoint. According to what can be seen in this study, the answer is not encouraging.

CASE | BR-158 emerges as the new soybean road in Mato Grosso

The agribusiness industry is changing the territorial dynamics of Mato Grosso's Low Araguaia region. Along route BR-158, soybean plantations start taking over the landscape in a region where cattle is the core economic activity. However, the most remarkable changes do not come from the sacks of grains harvested there, but rather from the expectation raised by the asphalt pavement that will allow the exit of the whole soybean production from Mato Grosso's northeast through the Itaqui Port in the state of Maranhão, towards Europe's consuming market.

BR-158 crosses Brazil from north to south. It starts in Altamira, Pará, and ends in Santana do Livramento, Rio Grande do Sul, near the Uruguayan border. Its 3,864 km also cross the states of Mato Grosso, Goiás, Mato Grosso do Sul, São Paulo, Paraná, and Santa Catarina. The final establishment of the road took place in the late 1970s, but it was originally opened in early 1944, as part of the project idealised by then president Getúlio Vargas to develop Brazil's inlands.



Croqui ilustrativo elaborado por Isis Perdigão (2005)

Of BR-158's little more than 800 km in Mato Grosso, about 400 km are still a bumpy dirt road, which become almost useless during wet season: precisely the stretch that crosses Low Araguaia, between Ribeirão Cascalheira and Vila Rica. Since within Pará the road is already paved, finishing its pavement in the neighbouring state will allow to transport soybean to the Carajás railway and then to the port of Itaqui. Besides Carajás, mining company Vale controls another strategic railway for the area's agribusiness: the North-South Railway, that, when finished, will be 2,000 km long, crossing the Goiás, Tocantins, Pará and Maranhão states. It has now 200 Km, between Açailândia and Porto Franco, both in Maranhão; but, until the end of the year, it should reach Guaraí, in Tocantins, making up 571 Km.

In a few words: paving BR-158 is no longer demanded only by Low Araguaia residents, such as tyre fitter Edson Lopes, who has been working along the road for two and a half years and, along two weeks, all he had fixed was a motorcycle tyre. Pressure for the completion of the work should be considered within the modal formed also by the two other railways, in the context of the federal government's project to improve logistic competitiveness for soybean production in the country. Therefore, it is understandable that paving BR-158/MT be on the list of priority works in the government's Plan to Accelerate Growth.

The federal government, however, is not the only one interested in paving the road. This year, it passed a 64-million-real budget for the work (which is not enough, since a 200-Km section cost over 158 million reais, according to the National Department for Transports Infrastructure - DNIT). The Mato Grosso state government is highly interested, and its Infrastructure Department signed an agreement with DNIT to pave the other 200 Km with state funds. By the end of the year, the pavement - that now ends at Ribeirão Cascalheira - should reach Alô Brasil, a village located by the road, in the town of Bom Jesus do Araguaia. From there, a junction goes until Querência - the town where the André Maggi Group, owned by the state governor's family, plants soybean in the 82-thousand hectare Tanguro farm.

▶ Soybean reaches the asphalt first

It is precisely in Alô Brasil that Cargill adapted two 100-thousand-sack old rice silos to store soybean. According to manager João Luiz Seresuela, 750 thousand sacks are handled there during harvest: "In 2010, we'll build a new silo, increasing our storage capacity to 800 thousand sacks. He says that the current outlet for soybean is São Paulo's Port of Santos.


Cargill manager in Alô Brasil, João Seresuela: The silo's capacity will increase four times

Rio Grande do Sul-born Saddir Secco is one of the farmers who sell their soybean to Cargill - as well as to Bunge. Since 1982 the Secco Group plants it in Rio Verde, Goiás, where he also owns the store chain FertVerde, selling chemical fertilisers and pesticides. Eight years ago, the Secco brothers extended their activities to Ribeirão Cascalheira, where they own 6 thousand hectares of land, of which 2,800 hectares have mechanised plantations of the so-called golden grain. "When we arrived here in 2001, we bought the hectare for 800-900 reais; now it is worth an average of 2,000", says the businessman. Saddir wishes to see the pavement bring an electricity network with it, since the energy used in the farms comes from two turbines installed in a water stream. But he is cautious about predictions for growth in soybean production in that area: "BR-158 is important, but expanding the soybean-planted area in the Low Araguaia region will depend mainly on the relationship between costs of production and the value of the commodity. Investment needed to produce in degraded areas it too high".

Latest data from Brazilian Institute of Geography and Statistics (IBGE) about agricultural production in those towns are from 2007, when Ribeirão Cascalheira had 6.5 thousand hectares planted with soy. In the three previous years, the area was: 5.5 thousand, 15 thousand, and 9.5 thousand, respectively. "With the increase in prices, soybean was seen as a major opportunity by local landowners. But an increasingly valuable Brazilian currency regarding the US dollar, falling productivity because of rains, and oscillating prices in the international market discouraged them", argued municipal press secretary Luís Cláudio da Silva. Complaints by the owner of the Secco Group seem to confirm that: "In the 2003/2004 and 2004/2005 harvests, for each sack we produced, we had an 8-real loss," said Saddir.

Saddir appointed his nephew Diego as manager of the Secco Group in the Low Araguaia region

Low Araguaia farmers' pessimism regarding soybean seems to be decreasing. Travelling from Ribeirão Cascalheira and Alô Brasil, in the BR-158 section that should be paved still this year, it is possible to see that the grain has actually been taking over cattle areas, at least in farms located by the road. "Soybean is once again the hope of medium and large-scale farmers. The problem is that it does not create jobs in town: combine harvester operators and farm managers are brought from other places, where the crop is already consolidated", says the town's official. Again, the example of the Secco Group confirms Luís Cláudio's view: the four machine operators that are harvesting soybean in the Low Araguaia area were brought from Goiás and the farm is managed by Saddir's nephew Diego Secco, who recently graduated in Agronomic Sciences.

▶ The Valley of the Forgotten

The Low Araguaia region is known as the "Valley of the Forgotten." Data provided by the Land Pastoral Commission (CPT) help to explain the gloomy nickname: the closest unit of Brazilian Institute for Environment and Renewable Natural Resources (IBAMA) is located in Barra do Garças, 800 km from the area and, in early 2008, the State Environmental Department shut down its offices in Canarana, São Félix do Araguaia, and Porto Alegre do Norte. While paving BR-158 in a region where the public services are absent is a reason for concern, it might mean the arrival of them to the area. "We only got a judge and resident police marshals when the pavement came to the town's urban area in 2006", reported Luiz Eduardo de Moraes, an official with the Sports Department of Ribeirão Cascalheira.

The region's history is marked not only by government neglect, but especially by people's struggles organised around the Catholic Prelacy of São Felix do Araguaia. Evidence of that is the name of BR-158 when it crosses Ribeirão Cascalheira's urban area: Padre João Bosco Avenue - a tribute to the clergyman shot dead by a police officer in 1976 when he tried to stop the beating of two female peasants arrested at the local police precinct. The police were torturing the women to find out the whereabouts of Jovino, brother of one of them and father of the other, and a peasant himself. He had killed an officer who was working as a gunman (Félix), in self-defence: landowner Abraão Barros had hired Félix to kill Jovino because the peasant refused to sell the land plot where he lived. "In the mass celebrated a week later, in honour of Father João Bosco, squatters destroyed the jail and freed the two women", reported Luiz Soares de Souza, alias Luiz Cateto, who as a child saw the body of officer Félix lying by the door of Jovino's house.

Recently, civil society in Low Araguaia was reinforced by the coordinated effort of NGOs that had already been working uncoordinatedly in the area. One and a half year ago, six of those organisations created the Xingu Araguaia Articulation (AXA): Nossa Senhora da Assunção Association (ANSA), Mato Grosso Forum for the Environment and Development (FORMAD), Amazon Environmental Research Institute (IPAM), Environmental Institute (ISA), Terra Viva Association and CPT itself. Together, they developed a campaign against irrational use of fire in farming.

Just like the emblematic BR-163, BR-158 is also called the "soybean road". The same company - Ecoplan Engineering - made the Environment Impact Assessment and Report (EIA-RIMA) for the paving of both roads. But, while for the Cuiabá-Santarém rod an inter-ministerial group was created to manage the territory influenced by the road, at BR-163 there are no signs of the same care. In the latter case, even transparency has been neglected: in spite of the numerous requests made to IBAMA's press service for detailed data and/or interviews, the agency's Environmental Licensing Department only informed that "there are two parts of the road with a provisional license and one under analysis".

The section of BR-158 located within Mato Grosso and still without a provisional license for paving crosses the Maraiwatsede Indigenous Land, invaded by squatters and - especially - large-scale farmers. The situation is so serious that 630 Xavante Indians living there are confined in one only village, prevented from circulating safely around the 165 thousand hectares of their demarcated and ratified territory. A DNIT note revealed that "a process is under way for the section [of BR-158] that crosses the Marawatsede Indigenous village, for a contour that will surround the reservation".

▶ Land conflicts

About 1,200 families living at the Bordolândia Settlement Project (SP) in Bom Jesus do Araguaia, MT, by BR-158, are now under risk of eviction. Two years ago, they were registered and settled by the National Institute for Colonisation and Agrarian Reform (INCRA). But a provisional court ruling resulting from a request by the Federal Attorney's Office mandates the removal of settlers from the place, since they were allegedly deforesting the area without a license by IBAMA.

The ruling should have been executed on March 27, precisely when Repórter Brasil was on the settlement. Thanks to intervention by D. Pedro Casaldáliga, emeritus bishop of the Prelacy of Xingu, and to INCRA's Attorney, the removal of the settlers was postponed for 30 days.

Federal prosecutor Mário Lúcio Avelar, who made the request, confirmed the deforesting charge but provided no further details on the lawsuit. Juçara Ramos, a member of the National Confederation of INCRA Servants, sustained that the deforesting - which already covers at least half the settlement's 50 thousand hectares - was made by the former owners of the Bordolândia Farm. That is also the opinion of lawyer Israel Roxo Guimarães, a legal adviser to the settlers: "The owner built two roads inside the forest. Someone who wanted to preserve the strongbox would not show the way to it."


Israel Roxo: settlers are not to blame for deforestation

INCRA created the Bordolândia Settlement Project (SP) in 2007, when a provisional decision on the ownership was obtained at the Supreme Federal Court for the farm, then considered idle land. According to the agency's press office, however, since the lawsuit about the area's productivity has not ended yet, its expropriation is still undefined. "Compensation had originally been established at 25 million reais; now the sugarcane company Santa Rosa is asking for 150 million. That is preposterous, the value per hectare went from 500 to 3 thousand", Roxo complained.

Land conflict at the Bordolândia SP is part of real estate speculation increased by the expectation regarding the paving of BR-158. The 50 hectares where settler Sirlene Rodrigues Lobo plants rice, beans, and corn and raises chicken is located 1 km from the road. Indifferent to legal disputes, the small farmer expects the arrival of the pavement near her plantation by the end of the year, so that she can sell her production in Ribeirão Cascalheira. It was her hope to achieve a piece of land that brought Sirlene to Bom Jesus do Araguaia - the same wish that made her leave Rolim de Moura, Rondônia, towards the camps in Aripuanã and later in Juína, both already in Mato Grosso.


Sirlene Lobo is looking forward to the arrival of pavement

According to the CPT survey, 13 thousand families live in 56 settlements in the Low Araguaia area totalling about a million hectares. The organisation estimates that 20-40% of those lots are undergoing a process of land re-concentration, with settlers selling their plots. The buyers would be tradespeople and medium-size landowners linked to local power.

Chapter 2 Labour and Socioeconomic Impacts

Soybean production in Brazil is marked by high technology, with harvesting being almost totally mechanised. That trend was enhanced in 2008, as shown by data on sales of agricultural machinery, which reached 54,421 units in that year - 42% over the previous year.

In 2009, the spreading of the world financial crisis should decrease sales in Brazil by 13.8%, according to estimates by Brazil' National Association of Automobile Manufacturers (ANFAVEA). But in the medium term and after the economic recovery, the hegemonic view within the Brazilian government and businesses - that the model to be followed is that of large agribusiness - should make machine sales return to normal levels.

It is precisely the option for that "modernising" model of Brazilian agriculture what explains the gradual decrease in the number of the industry's workers in recent years. According to the most recent National Household Sample Survey (PNAD) conducted by the Brazilian Institute of Geography and Statistics (IBGE), rural workers were 17.8 million in the country in 2005, 17.1 million in 2006, and 16.5 million in 2007. In relative terms, the number of workers in agriculture fell from 19.2% of the total Brazilian workforce in 2006 to 18.2% in 2007. Soybean production, funded by large international trading companies and directed to foreign markets, is one of the major vectors for that change in rural Brazil.

However, in spite of that "modernising" process, thousands of workers are still subjected to degrading working conditions all over the country. In fact, exploited employees, sometimes even reduced to conditions analogue to slavery, often become functional to the more technological production models by reducing labour-related costs in an agricultural enterprise. Such cases are often found in Amazon and Cerrado areas where farming is expanding. Under those circumstances, if there is no repression and punishment to employers that exploit, they find competitive advantages in the market.

In the case of soybean, it is striking that government inspection groups still find slave labourers. In 2008, seven properties where soybean had been planted were inspected and 125 workers were freed according to the Catholic Church's Land Pastoral Commission (CPT).

In the slave labour ranking, sugarcane came in first with 2,553 workers freed, followed by cattle, with 1,026. In all, 5,244 slave labourers were rescued in Brazil in 2008.

According to CPT, the most serious case of slave labour in soybean plantations in 2008 took place in the Cerro Largo Farm, in Cristalina, Goiás, owned by Ari Luiz Langer. There, the mobile inspection group found 78 slave labourers in May. Langer has already paid 128 thousand reais in compensations to workers. There was also slave labour cases caught in the act in a farm in Balsas, Maranhão, in two soybean areas in the state of Piauí (in Antônio Almeida and Monte Alegre), one in Bahia (São Desidério) and one in the state of Mato Grosso (in Ipiranga do Norte). CPT also received reports of slave labour in another farm in Balsas and in a property located in Dom Eliseu, Pará, but there was no inspection. In some proved cases, workers were not directly involved in soybean plantation, but rather in preparing the land for planting, for instance, collecting roots.

SOYBEAN-RELATED SLAVE LABOUR CASES AND TOTAL CASES IN BRAZIL

	2004		2005		2006		2007		2008	
	Soybean-related cases	Total Cases	Soybean-related cases	Total Cases	Soybean-related cases	Total Cases	Soybean-related cases	Total Cases	Soybean-related cases	Total Cases
REPORTED CASES	14	220	7	278	4	265	4	264	9	280
INSPECTED CASES	6	126	2	161	2	136	1	152	7	214
WORKERS FREED	133	3,212	47	4,570	0	3,666	9	5,968	125	5,244

Source: Comissão Pastoral da Terra (CPT)

Isolated, the number of 125 workers freed in soybean areas last year is low in face of the total of 5,244 workers. But it should be said that slave labour is only the last stage in overexploitation, which unfortunately still exists in Brazil. Poor employment conditions, especially in rural areas, make Brazil one of the world leaders in accidents at work. The number of employees who suffered accidents while planting soybean increased from 286 cases in 2006 to 485 in 2007, according to the National Institute for Social Security (INSS). Data on 2008 have not been released yet. Due to underreporting, estimates for the number of accidents are even higher.

SOYBEAN – SLAVE LABOUR CASES FOUND IN 2008

Farm	Owner	Town	St.	Date of Inspection	Workers Freed	Compensation already paid (R$)
São Francisco	Lauro Tramontini	São Desidério	BA	1/8/08	7	R$ 6,052.64
Cerro Largo	Ari Luiz Langer	Cristalina	GO	20/5/08	78	R$ 128,932.31
Carajá	João Dilmar Meller Domenighi	Balsas	MA	13/10/08	9	R$ 7,254.18
Curitiba	Sadi Zanatta CPF: 307.640.330-34	Ipiranga do Norte	MT	10/9/08	6	R$ 12,688.64
Califórnia	Wilson Luis de Melo	Antônio Almeida	PI	15/11/08	8	R$ 13,431.84
Borba	Airton Rost de Borba	Monte Alegre	PI	24/11/08	17	R$ 16,460.55

Source: Comissão Pastoral da Terra/Abril de 2009

Furthermore, intense use of pesticides in soybean plantations also creates problems for workers. According to last data released by the National System for Toxic-Pharmacological Information (SINITOX), 6,297 people were contaminated by pesticides in 2006, 186 of whom died. In 2005, 6,017 people had been contaminated, with 199 deaths. It is not possible to estimate which of those cases are related to pesticides used for soybean, since SINITOX only publicises aggregated data. In the case of that database as well, underreporting is high.

In order to improve rural working conditions, at least two strategies have proved effective: direct inspections of rural properties, led by the Ministry of Labour and Employment (MTE), and pressure by civil society actors and the government itself on companies' production chains, so as to ensure the adoption of criteria for planting and trading practises. From that perspective, a useful tool is the slave labour "dirty list", constantly updated by the Ministry. It lists employers that have committed that crime and face restrictions to obtain financial credit in state banks and official funds. Currently, the "dirty list" includes 197 employers, five of which are soybean farmers. That figure can be even higher because there are several cases where authorities have not identified the activity of workers freed.

The five names included in the list are: Fatisul Indústria e Comércio de Óleos Vegetais, from Dourados, Mato Grosso do Sul; Eduardo Dall Magro, from the Cosmos Farm, located in Ribeiro Gonçalves, Piauí; Fernando Ribas Taques, owner of the Carolina do Norte Farm, in Alto Parnaíba, Maranhão; Yakov Kalugion, owner of São Simeão Farm, in Campos Lindos, Tocantins; and Marco

Antônio Mattana Sebben, of Mattana, in the town of Campos de Júlio, Mato Grosso.

Both Fatisul and Eduardo Dall Magro entered the "dirty list" in its last update in December 2008 - the former was included after the release of nine slave labourers during an inspection in 2007, and the latter, for 21 slaves found in 2004. The time elapsed until both entered the list is related to the administrative process under way at the Ministry of Labour and Employment.

The positive effects of the "dirty list" have been maximised by the Covenant for the Eradication of Slave Labour, now signed by over 160 businesses and associations. Launched in 2005, the Covenant gathers groups willing to improve their production chains, by inspecting providers and dismissing those that use degrading forms of labour. The covenant was built after studies on production chain made by NGO Repórter Brasil, which is now a member of the Covenant's Management Committee, together with the International Labour Organisation and Ethos Institute - Business and Social Responsibility.

The role played by private enterprises in fighting contemporary slavery has gained a new impulse with the 2nd Seminar of the Covenant for the Eradication of Slave Labour, in March 2009, in São Paulo. At the event, the Covenant's Code of Conduct and its digital monitoring platform were presented. Besides, some companies had the opportunity to publicise their strategies for socio-environmental responsibility.

In the field of soybean planting and trading, Amaggi - one of the largest export and import companies in the country - presented the system of social and environmental management it uses with its providers. The company monitors social and environmental conditions in the farms, generating indicators that cover agricultural practises used, proper management of pesticides and the quality of working conditions. In 2006/7 harvest, 610 properties were pre-funded, all of them registered and audited, totalling 447 thousand hectares planted with soybean. When a provider does not meet the standards, adjustments are suggested; if they are not implemented, that provider is excluded from the list. According to the company, there are currently two cases of exclusion.

The model followed by Amaggi is far from ideal, especially because it does not solve the problems caused by the country's soybean production model, based on large properties, monoculture, intensive use of pesticides, income concentration, and low value given to labour. Nevertheless, it is striking that some large soybean companies still resist monitoring their production chains, ignoring basic social and environmental responsibility practises.

Without companies' and government's playing their roles of planning and controlling, agricultural activity might grow regardless of social development. Studies conducted by the UN Food and Agriculture Organisation (FAO) under its "Agricultural Boom and the Persistence of Rural Poverty" research line point out the precariousness of labour conditions as one of the factors preventing the poorer population from appropriating agricultural income. That would be mainly due to informality in the job market and low wages, especially those paid to women.

Even in countries where poverty is decreasing, as is the case of Brazil, that decrease is lower than the increase in agricultural production. For Brazil's José Graziano da Silva, FAO's representative for Latin America and the Caribbean, potential benefits are not automatic and depend on public policies for the agricultural industry.

That is evidenced by the position of Brazil's major soybean producing towns within the IBGE's Map of Poverty and Inequality for 2003. Sorriso, Sapezal, Nova Mutum, and Campo Novo dos Parecis, the fourth production champions in 2007, have lower poverty levels (27.72%, 27.59%, 25.53%, and 32.07%, respectively) and a better Gini coefficient of social inequality[6] (0.43; 0.42; 0.42 and 0.42, respectively) than the state of Mato Grosso (34.34% and 0.47) where they are located.

Fifth in the ranking, however, Diamantino, also in Mato Grosso, has a poverty level (38.45%) higher than the state and its Gini index is a little better (0.46). That is a situation similar to the sixth place in the national ranking for soybean production, Bahia's São Desidério, where poverty (51.65%) is higher than that in the state of Bahia (43.47%), and a Gini index, a litter better (0.39 compared to 0.49 in the state).

Those data indicate that it is not possible to establish a direct link between soybean production and improving the population's quality of life. According to the FAO analysis, participation by non-agricultural industries in the development of towns and cities is increasing, including service provision and tourism industries. Besides, the organisation sustains that family farmers play an important role in reducing the vulnerability of rural families. Those are issues that should receive more and more attention by governments and civil society actors.

CASE | Family-based agriculture in Southern Brazil

While Brazil's biodiesel production is not a real threat to family farmers yet, it has not been translated as a real option to improve the quality of life of those small producers - despite efforts by the National Programme for Production and Use of Biodiesel (PNPB). Perhaps the state where that contradiction is more evident is Rio Grande do Sul, the champion of biodiesel sales in the latest auction promoted by the National Agency for Petroleum, Natural Gas, and Biofuels (ANP).

In a region where the soybean crop is established also in family-based agriculture - although, in that case, not as a monoculture - projects to encourage diversification of oleaginous crops for production of biofuels have not had good results[7]. Participation of the state's small farmers in the biodiesel market has been restricted to selling soybean to the processing companies installed in the state[8], which, then, receive the Social Fuel Seal from the Ministry of Agrarian Development (MDA) and its resulting advantages in funding and tax incentives.

In Southern Brazil, soybean is also present in family-based agriculture

At the 13th ANP biodiesel auction, in February this year, from the 315 thousand m^3 of biodiesel bought, 106.1 thousand m^3 (33.7% of the total) were produced in the state of Rio Grande do Sul. Only one company, Oleoplan, sold 42.5 thousand m^3, accounting alone for 13.5% of all the biofuel bought. The average output of the company based in Veranópolis, in north-eastern Rio Grande do Sul, is 12 thousand m^3, and soybean is the raw material for 90% of that biodiesel. According to Oleoplan partner-director Marcos Boff, 30% of the soybean processed by the company comes from family-based farming - the minimum volume established by MDA to obtain the Seal. Asked how much Oleoplan saves with the reduction in PIS/Pasep e Cofins[9], the businessman only said that "there is a reduction in taxes, but there is also the whole cost and the involvement of the company in activities related to fostering family agriculture.

The southern chapter of Brazil's National Federation of Family Agriculture Workers (FETRAF-Sul) and the Rio Grande do Sul Federation of Agriculture Workers (FETAG-RS) have been exerting pressure to revert at least part of the tax incentives from the Social Fuel Seal as bonus for the state's family farmers. Therefore, they have been receiving an additional of an average 1 real per sack of soybean sold to biodiesel processing companies. "Today that value is not enough for a family to decide to plant more soybean, because the price of the grain varies a lot and the farmer's decision also implies comparison with other crops," explained FETAG-RS's agricultural policy advisor André Raupp. He also underscored that production of biodiesel from soybean might encourage the expansion of the area planted in family agriculture, competing with other food crops, if the segment reduces the offer of soybean for food and therefore maintains the commodity's price high.

FETRAF-Sul estimates that around a million tons (in grain) of soybean were sold in 2009 in Rio Grande do Sul by small-scale farmers to produce biodiesel. Negotiation takes place directly (between the farmers and the company) or through family agriculture co-operatives (registered at the National Institute for Colonisation and Agrarian Reform). "When trading is mediated, in some cases the industry transfers some value for the co-operative to provide technical support. When it is done directly with the farmer, there is virtually no technical support, even though such provision by the biodiesel industry is mandatory", said FETRAF-Sul representative in the state Rui Valença.

CHAPTER_3 ENVIRONMENTAL IMPACTS

The struggle to preserve and recover the forest is one of the focal points of the debate on soybean expansion in Brazil and its impacts. Efforts to preserve it, recompose it, and explore it face chainsaws, tractors, chains, axes, and other tools now used for purposes that are not as noble as their inventors originally imagined. Discourses by both parts radicalise in order to weaken the other side. From those that advocate that soybean needs more land, the discourse against environmental preservation mixes with that opposed to the Indigenous cause, with assertion of development at any cost, with criticism to foreigners, among other rhetoric and persuasion strategies.

In such war of information and interests, even large media groups join the campaign. That was the case of Bandeirantes Television Network, which, in April 2009, advocated in its commercial breaks that Brazilian environmental legislation should be changed. Why? Because, according to the group - clearly appropriating the discourse of those who propose changes in today's development model - "our future is at risk" if those laws do not change.

Deforested area in the Amazon: a battle of interests

In a scenario of clashes and conflicts around soybean expansion in Brazilian territory, the "soybean moratorium" initiative, promoted by the Brazilian Association of Vegetable Oil Industries (ABIOVE) and the Brazilian Association of Grain Exporters (ANEC), will finish in July 2009 the three years it initially planned. According to its basic document, companies that are part of the industry's chain cannot purchase soybean coming from new deforested areas in the Amazon or from properties using slave

labour (in any biome). Environmental movements such as Greenpeace and WWF follow the monitoring process.

While some sectors organise for the initiative not to be extended after July, organisations and public agents advocate not only an extension of the "Soybean moratorium" in the Amazon, but also its adoption for the Cerrado biome. And, as Environment Minister Carlos Minc said recently, the main actors involved with environmental and farming issues are considering launching an initiative similar to that of soybean for the bovine meat chain.

In the case of soybean, in order to create conditions for companies to meet what has been agreed, the initiative monitors the towns located within the Amazon biome with over 5 thousand hectares of soybean plantations. In those towns, the idea is to identify where there was new deforesting after July 2006 and where those new forest areas gave way to soybean plantations. The monitoring included 630 "polygons" deforested after July 2006, in 46 towns and cities and a total of 157,898 hectares. The survey focuses on areas where deforesting was over 100 thousand hectares. According to those in charge of the initiative, soybean plantations were identified in twelve polygons located in ten properties. The total deforested area planted with soybean was 1,385 hectares.

According to the document released by ABIOVE and ANEC in April 2009, "of the 12 polygons that planted soybean in deforested areas after July 2006, seven are located in the town of Feliz Natal, MT, two in Dom Eliseu, PA, and one in Gaúcha do Norte, MT, Sinop, MT, and Querência, MT". Of the five towns where problems related to soybean were found, four were in the list of deforesting champions in 2008: Feliz Natal, Dom Eliseu, Gaúcha do Norte and Querência, according to data from the Ministry of the Environment's Operation Arco Verde, launched to control and prevent deforesting in the region.

Although the survey gives special attention to areas with over 100 hectares deforested, part of the polygons found with soybean did not reach that total: deforested areas were between 35 hectares and 600 hectares. According to Raquel Carvalho, from Greenpeace's Amazon Campaign, "since two years ago, the deforesting pattern has changed. Small, scattered deforested areas have increased a lot, and that has to be reconsidered in order to monitor the next harvest". She adds that "soybean plantations are expanding to deforested areas under 100 hectares, and current monitoring focuses on those over 100 hectares". In the initiative's first year, a large part of deforested areas were under 100 hectares, leading to a pilot project to monitor that kind of deforesting. And it was precisely that pilot project that allowed the identification of five of the twelve polygons deforested in the last harvest - the five smallest ones being in Feliz Natal.

Raquel Carvalho reflects on the results with a few questions: "Last year was not very interesting for soybean expansion, the trading companies put in fewer resources, inputs became more expensive, and the world crisis has certainly slowed down the advancement of the industry". Raquel thinks that the moratorium itself has had an impact on the intention and actualisation of investments in soybean plantation. But she makes a central point: "Those results do not mean that soybean is no longer an important deforesting vector".

According to the 7th Grain Survey on the 2008/2009 harvest, published by the National Supply Company (CONAB) in April 2009, the soybean area decreased 2% in northern states in 2008, falling from 517.5 thousand hectares to 506.9 thousand hectares. The state in the northern region where there was expansion was Rondônia (6.2%), whose area increased from 99.8 thousand hectares to 106 thousand. Pará (-4.9%) and Tocantins (-4%) saw a fall in production, and it stagnated in Roraima. As for the Amazon, data from CONAB indicate that no soybean was planted in the state in 2007 or 2008. The Brazilian Institute for Geography and Statistics (IBGE), however, pointed out the existence of 806 hectares in the state of Amazonas in 2007, located almost totally in Humaitá. In the other two producing states that also have areas within the Amazon biome - Mato Grosso and Maranhão - there was a 1.7% increase and a 7.3% fall, respectively[10].

As for the initiative's real reach, now it is necessary to guarantee that the covenant be effectively enforced. Firstly, companies that signed the proposal should not buy soybean from new deforested areas - and it should be underscored that the restriction established does not apply to the whole production in the property, only to the part proportional to deforesting. And second, those who do not honour the agreement should suffer credit restrictions.

For Raquel, traceability of the soybean production chain is the next important step for the advancement of the moratorium. With it, "companies will be able to prove to their consumers the origin of the soybean they use". Nevertheless, the traceability of the chain - a core step for the responsibility of each agent involved - lacks a basic piece of information: who is the owner of the producing area. And nowadays in the Amazon, a very low percentage of properties have their owners identified.

Agronomist Vicente Godinho, a researcher with EMBRAPA Rondônia, estimates that there is now "very little soybean in the Amazon". For Godinho, "when people start talking about grains in the Amazon, they say a lot of nonsense. Many of those involved in the debate are ill-intentioned, and they do not want to talk about figures.

He mentions statistic according to which, in Mato Grosso - Brazil's main producer state - 75% of soybean is planted in Cerrado areas, 24% in transition areas, and only 1% in areas within the Amazon biome. Even though there are other, distinct statistics and interpretations on the limits and extension of each biome, that does not seem to be the core issue, but rather the discredit that affects Cerrado, which seems to be gradually overcome.

Soybean and Cerrado

In early 2009, Professor Manuel Eduardo Ferreira, from Goiás Federal University's Image Processing and Geoprocessing Laboratory (LAPIG), published a study on the potential impacts of agribusiness expansion fronts on Cerrado. According to the study, if the current devastation rhythm is maintained, the next decades will see the biome loose 40 thousand km² every ten years. Or, speaking in terms of hectares, 4 million hectares will be cut per decade in the biome - one of the world's richest in biodiversity. That means 16 million of hectares or 160 thousand km² lost until 2050 - an area equivalent to half the state of Goiás or ten times that of the Federal District. Out of that total deforested area, 6 million hectares should be incorporated to farming. The biome will have been reduced to half of its original extension: the area cut in the Cerrado will reach 960 thousand km², that is, almost as much as what will be left, which is 1 million km².

Soybean, once again, plays an important role. According to Ministry of the Environment's survey "Priority Areas for Conservation, Sustainable Use and Benefit-Sharing in Brazil's Biodiversity", at least 27 of the areas identified as priority are directly threatened by soybean[11].

In the report on soybean published in 2008 by Repórter Brasil's Biofuel Watch Centre, one of the recommendations advocated that Cerrado, as well as the other biomes in Brazil, should have its devastation monitored just as the Amazon has. And in early 2009, the federal government announced measures that signal its intention to go in that direction. According to the MMA, satellite-based monitoring of forest cover by the federal government, previously limited to the Amazon, was extended to Caatinga, Cerrado, Atlantic Forest, Pampa, and Pantanal[12]. For the ministry, monitoring is essential to guide public policies and decision-making on fighting deforesting and preserving biodiversity.

In order for the technology-supported control to have better results, Congress approval of the Constitutional Amendment Proposal (PEC 115/95) that declare Cerrado and Caatinga national heritage sites (known as the Cerrado PEC and stopped in Congress since 1995) is crucial, just like funds directed to MMA's actions that are needed to protect priority areas.

Such measures might strengthen the struggle by institutions that advocate the idea that soybean can and should expand only in already deforested areas - both because there is enough land available for its expansion and to avoid more deforesting. That is one of the main conflicts when discussing a socioenvironmental certification for the soybean chain in Brazil and in other producing countries. Part of the industries' companies opposes the idea, just as they advocate that certification policies do not mention the difference between conventional and genetically modified (GM) soybean.

In October 2008, a dossier about the impacts on the Amazon of farming and "extractivist" activities of large businesses, commissioned by the Nossa São Paulo movement and produced by NGOs Repórter Brasil and Papel Social, pointed out a series of environmental problems related to soybean production within that biome. It also listed case studies that point out the co-responsibility of traders and exporters of the grain that, when buying "dirty" soybean, ultimately do not repress or even encourage bad practises directly or indirectly.

Companies mentioned in the dossier "Sustainable connections - who benefits from the Amazon's destruction", include multinationals Bunge and ADM, and Brazil's Caramuru and São José Alimentos. After the release of the document, the Nossa São Paulo movement and a number of environmental NGOs sought to open dialogue with businesses, proposing a business pact for sustainable funding, production, use, distribution, trading of soybean (in natura or processed) produced in the Amazon and intended for the city of São Paulo.

According to the proposal, the pact's signatories would commit themselves to establishing tools (to be adopted voluntarily) minimally regulating the soybean production chain in the Amazon, such as funding and/or purchasing only soybean from sources that are not included in the dirty list of slave labour or in the list of areas interdicted by the Brazilian Institute for Environment and Renewable Natural Resources (IBAMA), and that are located in areas not included in the "soybean moratorium".

The initiative could have had much better results if the sectors that say they are interested in promoting a new development model for the Amazon had been coherent with their propaganda actions. Since the covenant allowed NGOs as well as research and related institutions to join it, the list of signatories now includes only three companies (the Pão de Açúcar Group, Wal-Mart and Vale Grande Indústria e Comércio de Alimentos S/A), seven NGOs and one financial institution (IFC-International Finance Corporation). None of the traders mentioned in the dossier and no company linked

to ABIOVE (a core agent to the "soybean moratorium") was willing to sign the covenant.

Soybean and the Forest Code

While some advances can be seen in the struggle against deforesting and in reducing the impacts of soybean production, some segments advocate changes in the opposite direction. That is, to allow the increase in deforesting, to reduce the area of the legal reservation in each of the country's biomes, among other proposals.

In Rondônia, a good part of the forest also came down when the military government encouraged migration to the region. In parts of the state, that process was contained and vegetation recovered makes the landscape even more impressive, close to the strength it once displayed. In other regions, destruction is still intense.

Initiatives such as the "soybean moratorium", satellite monitoring as well as a stronger presence of State institutions and civil society organisations were able, if not to reverse the situation, at least to balance it in southern Rondônia. According to José Antonio Oliveira, from the Vilhena Farmers Association's Press Office - a town in the area of Rondônia known as the south cone and the main soybean-producing centre in the Amazon - the federal government decided to "confiscate 80% of the forest".

Oliveira, known as "Zezinho", points that, 40 years ago, the military called on people from other regions to expand the frontier in the Amazon and that now the rules have changed. He says the government is the one to be changed. "We used to live under a dictatorial regime, but there was democracy in agribusiness. Now we have a democratic regime, but under an environmental dictatorship".

He says that other countries "want to have a garden in the Amazon only for them. But the gardener is going to die. We cannot let that happen". Zezinho thinks "there must be confrontation - in dialogue" and that "Brazil needs a Green and Yellow Forest Code", meaning the colours of the country's flag.

José Rodrigues da Silva, head of IBAMA's regional office in Vilhena, underscores that, since April 2008, when he arrived at the region, no soybean business has been fined in Vilhena or in the other towns under its office (Chupinguaia, Corumbiara, Cabixi, Cerejeiras, Pimenteiras, and Colorado do Oeste).

Silva points out, however, that the local IBAMA branch has detected several problems related to cattle[13]. "From the road, one cannot see anything, because those are very large and dense forest areas, it all seems OK. But from a satellite or a chopper it is possible to see the deforesting problems", he denounces. According to him, devastation technology is changing: in the region of Chupinguaia, there are farms where only the lower levels of the trees are cut. "Canopies of larger ones remain, which is not seen as deforesting from satellites. But it is in inspections - and according to the legislation".


José Rodrigues da Silva, from Vilhena's IBAMA

Researcher Vicente Godinho believes that, at least in Rondônia's South Cone, where he works for EMBRAPA, "those who have not opened [new deforested areas], will no longer do it". Godinho thinks that today's heavy fines and stronger control do not allow opening new, large deforested areas, even though there are still smaller problems. He also sees changes in the mentality of cattle farmers, who are starting to understand that they will have trouble trading their products if they do not adjust to the new reality. "As happened with the soybean moratorium, soon cattle farmers will no longer be able to do it", he believes.

According to Paulo Fernando Lermen, Rondônia's state prosecutor for Vilhena, in earlier decades, part of the farmers deforested up to 65% of their areas, since the state's economic and ecological zoning allowed it. However, in the mid-1990s, the government of President Fernando Henrique Cardoso established deforesting limits at 50% or 80% in some states, including Rondônia - the less strict limit applying only to older properties. Given the distinct legal status, the State Attorney's Office in the region has acted to check the properties' situations regarding preservation areas (permanent preservation areas and legal reservation). Lermen explains that there are about 149 processes at the agency in order to legalise the whole area and the

legal reservation. Those in charge of the properties have signed a Conduct Adjustment Commitment (Termo de Ajustamento de Conduta, TAC) with the State Attorney, whose processes included collaboration by IBAMA and the State Development Department (SEDAM).

In turn, the head of IBAMA's office in Vilhena thinks that "producers used to occupy the area, deforest it in any way they wanted to, and wait out to solve the title problem, which they knew they would get. Nowadays, with more rigorous and a stronger presence by IBAMA, there is no way for that to happen".

In the new context, producers that do not have their preservation areas legally registered need to race against time to solve the situation. In July 2008, the federal government published a decree mandating all properties to properly register their legal reservation areas by December last year. The deadline, obviously, turned out to be not as feasible as the decree intended, and it was postponed until December 2009. According to Valdir Harmatiuk, SEDAM's coordinator for Environmental Licensing and Monitoring, however, it is technically impossible to change that within a year, in Rondônia and in Brazil. He says that the state government has been working on it since 2003, through public policies, and it will keep doing that.

Flora and fauna at the Corumbiara State Park in Rondônia

The situation in Rondônia might teach a good lesson about what happens in other states in the Federation. Of a total of 114 thousand properties demarcated all over the state, about 5 thousand now have their legal reservation areas properly registered. And 13 thousand other properties are being registered according to the law. Several properties, however, do not even have final ownership documents issued by INCRA, which prevents them from continuing the process within the environmental sphere. Property's regularisation in Rondônia and in the rest of the Amazon, by the way, is one of the federal government's priorities for the region (see the chapter on land-related impacts).

Valdir Harmatiuk has been with SEDAM for nine years, having worked before with the State Land Institute - the agency that made Rondônia's economic and ecological zoning. He says that the passing of the zoning in 2003 has helped to reduce the state's deforesting indexes. He believes that the effects of zoning, together with the processes of registering legal reservation and permanent protection areas, might balance or even overcome what is deforested and recovered in Rondônia's vegetation.

The Biofuel Watch Centre-Reporter Brasil team has travelled in Rondonia between Vilhena and Pimenteiras do Oeste (near the Bolivian border, by the Guaporé River) with Raimundo Dima Lima, manager of the Corumbiara State Park, and Orlando Silva, SEDAM's regional director for Environmental Management in the region of Colorado do Oeste, Cerejeiras, Cabixi, Corumbiara and Pimenteiras.

Along the way, it was possible to detect both important sections where the Amazon Forest and the Cerrado are clearly recovering and the several problems to be faced, many of which caused by the agribusiness that dominates the region. For example, in a section of the Corumbiara River, near the town with the same name, there is no gallery forest and pasture

Raimundo Dima Lima and Orlando Silva, from Sedam, by the Corumbiara River

for cattle reaches the bank of the river, which is one of the core arteries for life in the Corumbiara Park. By the road connecting the towns of Cerejeira and Pimenteiras, the beautiful lagoons that make up the plain around the Santa Cruz River are under risk, and some of them suffer sedimentation and silting up because of improper use of land in mechanised soybean plantations in the region. Santa Cruz is one of the main local tributaries of the Guaporé River, which, during flood periods, covers much of the plain. The spectacle is similar - and as important for local fauna and flora cycles - to that seen in Mato-Grosso's Pantanal.

The beauty of the region, for now, is protected by the very cycle of floods that cover much of local land. And the quality of soil is also not very proper for agriculture in much of the area, for instance, at the eastern limits of the Corumbiara Park. However, the area of Vilhena also used to be considered improper for soybean, but, with technological investments, it has become a promising frontier for the grain.

Sedimentation and silting up in the area of Cerejeiras, where soybean pushes forward

Still about care to be taken and concerns involved, studies by Rondônia Federal University (UNIR) point out risks created for the local fauna and flora - for instance, local fish species - by deforesting and farming. Besides, the studies stress the importance of improving the monitoring of water quality in the basins of the Corumbiara and Guaporé rivers. Soil contamination by pesticides used in soybean in the Vilhena region thus becomes dangerous. And of course, by the scale seen nowadays, they represent a threat that does not go beyond local towns, but southern Rondônia has sources of several rivers, which will later contribute even to the formation of nationally important rivers such as Mamoré and Madeira, and the Amazon River. Therefore, problems in that region mean problems for river basins under federal responsibility - in some cases including more than one country.

Indigenous peoples who live in reservations in Vilhena also fear soybean advancement, and some plantations are at the limits of the Tubarão-Latundê Indigenous Land. For the Indians, the problem might not be present now, but it can emerge in the long run. According to reports made by Indians to the Biofuel Watch Centre, sometimes soybean farmers discharge residues from pesticide containers directly onto Indigenous lands - and in some cases, the Indians collected the containers because they looked nice, washed them, and used them to store even water for human consumption.

Beauty is under threat along the way between Cerejeiras and Pimenteiras do Oeste

The circuit travelled with SEDAM's officials showed that debates about development X preservation, productive area X legal reservation and permanent preservation areas, changes in the Forest Code, etc., are still heated and open. As SEDAM's Valdir Harmatiuk summarises it, "the discussion about the Forest Code still has a long way to go, it will not take place suddenly and we don't know where it is going to". That is a highly important subject, which divides opinions among farmers and governments of states where the grain is one of the leading elements of the economy and can be decisive not only for the form of production that the segment intends to develop, but also to determine the future of several areas in the Amazon, the Cerrado and the other Brazilian biomes.

CASE | Soybean farmer place Goiás' Emas Park under threat

One of the few preservation areas in Brazil's Cerrado, the Emas National Park in south-western Goiás is a sanctuary under pressure by farming. At its borders, large soybean farmers - some of them backed by legal decisions - use genetically modified (GM) seeds and pesticides banned by environmental rules.

The park's management plan, approved in 2005, only allows for the use of class-4, green label, pesticides over a 2,000-metre stretch from the preservation area's border. However, in October 2008, an IBAMA operation applied fines to local farmers and seized spraying equipment. Farmers appealed and, in February 2009, a Federal Justice's provisional ruling allowed the use of banned pesticides.

As for the use of GMs, the situation also warrants concern. In December 2008, at least 18 farmers were fined for planting that sort of seeds closer than 500 metres from the Park's limits and had their production confiscated. The planting of GMs within those boundaries has been prohibited by law after presidential approval and sanction of Provisional Measure 327/06.

According to Marcos Cunha, an official with Chico Mendes Institute and the Park's head, the Emas is considered a stable park, already enclosed and with no major land-related conflict. But there are permanent problems with farming around it. "My role is to dialogue with farmers, to explain the problem and to seek solutions, but that is not always an easy task", says Cunha, who took over the position in mid-2008.

Marcos Cunha (left), Emas National Park's head, points out problems on the map

The Emas National Park was created in 1961 by President Juscelino Kubitschek. It has 131 thousand hectares of rich flora and fauna, especially greater rhea (Rhea americana, known in Brazil as ema), pampas deer, giant anteater, maned wolf, and numerous bird and snake species. It is an example of the biodiversity existing in Cerrado areas, still under threat by farming speculation.

Estimates point that only 2.2% of Cerrado are protected by federal and state conservation units, compared to 19.9% of the legal Amazon. Besides, that biome still does not have dedicated satellite monitoring systems as the Amazon has had for years.

▶ A history of illegalities

The management plan's rule banning pesticides is often challenged by local farmers. When the plan was approved, in 2005, it was not applied immediately and waited for the constitution of a working group to discuss it. Since it was taking too long, the NGO Socio-Environmental Institute (ISA) and the Federal Attorney's Office resorted to the Federal Justice to demand its application. In September 2008, Judge Luciana Laurenti Gheller issued a favourable decision. Farmers were notified, but a little later, IBAMA inspectors found banned pesticides being used.

According to farmer Eduardo Peixoto - who is also the mayor of Chapadão do Céu, the town that is considered the "entrance door" to the Emas Park - only with legal pesticides it would not be possible to fight soybean rust. He says that he would have losses himself in 1.6 thousand of the 1.8 thousand hectares he owns by the park's borders. Besides, Peixoto says that the ban makes no sense from the technical point of view.


Soybean farmer Eduardo Peixoto criticizes the veto of some types of pesticides

"What we argue is that it is stupid to try to stop the use of certain pesticides based on classes, since classes refer to their effect on humans rather than on plants and animals. Only green label is allowed in the area around the park, but some of those kill fish", he says. He says he prefers the term "agricultural defensive" to "agrotoxic" - two ways pesticides are often referred to in Brazil.

Farmer Ronan Barbosa Garcia Jr. had a truck and a sprayer seized for over a month by IBAMA during October's inspection. According to him, not being able to use pesticides caused losses in 30% of his plantation near the park, because of soybean rust. He owns five farms in the area where he plants 4.8 thousand hectares of soybean, besides corn, cotton, and sorghum.

Fernando Ribeiro (left), from Ibama: agriculture has advanced without control

"I've been in farming for 21 years and I know that agriculture and the environment can live together. We have used pesticides in the area for 30 years and there has never been any problem. With green label there can be no agricultural production", sustains Garcia Jr., who says he sells his soybean to the large trading companies operating in the area, such as Bunge, Cargill, and "especially ADM".

▶ Environmental degradation

According to IBAMA, environmental problems in south-western Goiás are not limited to the Emas National Park. Forest engineer Fernando Di Franco Ribeiro, head of IBAMA's regional office in Rio Verde, one of the main towns in the region, says it is hard to find a property whose legal reservation and permanent protection area are in accordance with the law.

"That shows an agriculture that has advanced uncontrolled," sustains Ribeiro. To regularise their activities, many farmers have been buying land that is far and cheaper to make up their legal reservation. The law allows for 16% of the 20% of the reservation to be located out of the property.

Goiás' southwest is one of the world's largest soybean areas. In 2007, 917 thousand hectares were planted, according to IBGE. In the town of Chapadão do Céu, one of the Emas Park's "entry doors", the soybean area has varied between 60 thousand and 100 thousand hectares since the early 90s. In 2007, 82.3 thousand hectares were planted, most of them by large landowners.

Concerned about the future of the park, IBAMA started a pilot project in the surroundings, called Pro-Legal. According to Ribeiro, the agency has worked to identify irregular properties and notify farmers. "After that, we resort to the Federal Attorney's Office to make the owner sign a Conduct Adjustment Commitment to become regular", says the head of IBAMA.

The idea is to allow the formation of the so-called Araguaia biodiversity corridor, connecting the Emas National Park to Araguaia and the Taquari Park. Intense farming in the region remains a robust challenge to that possibility.

Chapter 4
Land-related impacts

The debate over changes under way in Brazil's environmental legislation, with Congress at the centre, might result in impacts on the territory all over Brazil, not only from the point of view of the environment and physical-climate conditions. Changes in the Forest Code might result, evidently, in additional areas for soybean and other crops that now are central for the agribusiness - for instance, if parts of legal reservation areas become productive land, if the reduction in protected areas in each Brazilian biome is allowed.

While the process does not reach a conclusion, the larger farmers' segment seeks, in several ways, to establish their influence and their political and economic power in many regions of the country, so as to increase their opportunities and therefore, their production. In that scenario, soybean, given its weight in the agenda of Brazilian agribusiness, plays a core role, relating directly with land conflicts, land price increases, additional difficulties that impact on land reform in Brazil, etc.

In the Amazon, soybean is strong in the process, according to Ricardo Silva, a professor at Rondônia Federal University (UNIR)'s Department of Geography and deputy dean for Culture, Extension, and Student Affairs. According to the professor, who studied particularly the case of Rondônia, the soybean industry work towards specialising the state in productive and social terms, organising the territory as a whole. As if such high influence were not enough, when the crop occupies areas previously destined to cattle, it pushes that cattle to other regions in Rondônia, with distinct consequences.

Based on the ideas of geographer Milton Santos (who passed away in 2001) about organisation of territory, Ricardo Silva studied the role played by soybean in Rondônia in his master's degree and is now observing it in his doctoral degree. "Cattle and timber have always existed in the state, while soybean is a more recent phenomenon, especially after the mid-1990s".

According to the research conducted by the UNIR professor, soybean was established in Vilhena and around it mainly in old pasture areas, where there used to be cattle. "And what is the state-wide situation? The cattle that used to be in the south moved up north, taking its conflicts with it". On the other hand, the professor says that, on a positive note for southern Rondônia, there is an increase in agricultural and economic activity in rural and urban areas - a process seen in several

other Brazilian regions where soybean is established as a promising crop.

According to IBGE, in 1995 there were 4,500 hectares of soybean planted in Rondônia. That figure reached 89.5 thousand hectares in 2007, that is, the soybean area in the state multiplied by 20 in little over a decade. In 2008, according to CONAB, it increased 6.2% in Rondônia. In Brazil's Northern region, it decreased 2% in 2008 while in the country as a whole it grew 1.2% (from 21.31 million to 21.56 million hectares). The states where the crop advanced the most in percentage terms were Piauí, where the area planted increased from 253.6 thousand to 273.9 thousand hectares (8.0%); Rondônia, from 99.8 thousand to 106 thousand hectares; and Goiás, with a 5.5% increase (from 2.18 million to 2.3 million).

According to Silva, as rural areas modernise, capital goes to urban ones. Vilhena has Rondônia's best Human Development Index while it is an extremely urban town, with about 95% of its population living in urban areas (the state average is 69%). The relationship between rural and urban areas remains strong, since the latter live out of the former, but in distinct terms: the service industry grows, job offers improves, rent prices increase, so does the value of land, etc.

In that context, changes are visible in Vilhena. Several big cars join hundreds of bicycles and motorcycles. Commerce welcomes famous brands' franchises from several parts of the country. And the city follows excited the construction of its shopping mall, aside the bus station and belonging to Pato Branco - one of the most influent local businesses groups. Migrants arrive in large numbers and, even though IBGE recorded a population of 66,746 in 2007, many in the city believe that the figure has passed 100,000. Even though some call it northern Brazil's most southern-like city, Vilhena receives migrants from all regions of the country.


Construction of a shopping mall in Vilhena

In that process where rural areas get more dynamic and influence the direction of the whole city, the negative aspects are also easily visible. An example is the migration from the former to the latter, which reflects the exit of small farmers, often for lack of option or even because of stronger conflicts. Yet another migration is seen from rural to rural areas. In the case of Rondônia, Professor Ricardo Silva explains that there has been important migration in the South Cone, where the business advances - and from the Guaporé Valley to the north of the state, towards cities such as Porto Velho, Buriti, and others. Some of them have been increasing at almost 3,000% or 30 times within only ten years (1997-2007).

The UNIR professor says that "the population that left the Mid-south went north, with all conflicts involved in that, with the problem of deforesting, the high level of rural violence, the tendency towards land concentration". While in the 1970s and 1980s Rondônia saw distribution of land plots to numerous families - which now helps the state to have one of the highest life qualities in Brazil's North/Northeast - now the process is different. The policy of land distribution and colonisation has been replaced, as Ricardo Silva sees it, by strengthening the agribusiness industry and by changes in the profile of the local economy. "Now you see virtually only cattle in Rondônia, as well as other strong products, such as soybean itself, rice, and corn. In that scenario, the tendency is toward concentring land, output has fell and now almost everything is imported, he says, mentioning as examples the fall or stagnation in production of basic and relevant items such as rice and coffee.

Agronomist Vicente Godinho, an EMBRAPA researcher in Vilhena, explains that almost all the soybean produced in the region goes elsewhere and most of it is exported. In that process, Cargill and Amaggi, which have units in Vilhena and Cerejeiras, are the main protagonists in the wholesale soybean production chain, while Portal, with one unit in Vilhena, still processes oil.

The soybean capital of the Amazon, as Vilhena can be considered, also has a reasonably developed rice agro-industry, even bringing the grain from other areas to process it and sell it to the neighbouring states of Amazonas, Roraima, and Acre, besides exporting it to Peru and even Africa. Part of the corn produced in the region is used to make animal feed, and most of it goes to local human consumption.

THE SOYBEAN BIG

While in the 1980s and 1990s, the state was still the main agent of territorial organisation in Rondônia, after 1995, as happens in the rest of Brazil, large companies also became very important in the process, creating productive specialisation in the territory. Following that trend, the traders linked to the soybean market now play a crucial role.

In the state of Maranhão, for instance, large farmers, mayors, and businesspeople joined efforts in 2008 to advocate the exclusion of the state from the so-called legal Amazon – an area where the rules provide for preservation of 80% of the Legal Reservation, that is, only 20% of properties can be deforested for economic use. Also with the aim of increasing the possible area for soybean expansion in the region, the segments involved released a statement in August 2008 where they advocate that properties located in the Tocantina region might have up to 65% of their total area deforested, following the proportion for farms located in Cerrado[14].

On the other hand, using large areas for monoculture creates instability in the territory. "That is because cattle farming left the Mid-South and went North. And we know that where cattle increases, so does deforesting. "And that includes land grabbing, land invasion", explains Silva. As he sees is, part of the large companies often even take part in those contentious processes, with strong capital involved.

He underscores that the existence of economic zoning in the state has not prevented economic activities in preservation areas and others. "Zoning is a positive policy in terms of sustainable development, a pact in society about the use of land, about what has to be protected, etc. But institutions themselves had problems accepting and applying it. In the state, virtually all Zone 1 areas, directed to economic activities, are occupied. Therefore, pressure for other areas falls on natural and indigenous reservations. And that happens in the eyes of authorities, who often do not control or even encourage invasions, says Silva. "The FLONA [National Forest] in Bom Futuro has about 40 thousand heads of cattle. Senators and the state government all defend cattle farmers, saying they can stay there, that they will be defended". According to the professor, there is a hidden policy for the invasion of preservation units, of environmental devastation. And the federal government, in turn, is absent. "Only sending in Federal Police won't do it; a more affirmative policy is needed". In his opinion, most congressmen do not favour sustainability, even because they have a large constituency of cattle farmers and timber merchants, which spreads over much of the population.

José Antonio Oliveira, from the Association of Rural Producers of Vilhena's press office, partly agrees with the UNIR professor. He thinks that environmental and land authorities need to invest more in preventive, proactive, guiding actions, etc, instead of only applying fines and other sanctions. He, who came from the state of Rio Grande do Sul 15 years ago, said that "farmers are treated like criminals while Indians are pampered". Oliveira, known as "Zezinho", underscores that Vilhena has about 1.1 million hectares, several times less than the amount given to Indigenous reservations in the state: 4.5 million hectares for 5.2 thousand Indians. That is, about 800 hectares per Indian[15]. Such figures, he says, would prove the unfairness of land distribution in Rondônia. Evandro Padovani, president of the farmers' association in Vilhena, brings other interesting numbers to the debate about the land issue in Rondônia, which can be taken as representing the rest of the Amazon and also the other regions in Brazil where there is soybean expansion. According to Padovani, who came from Cascavel, Paraná, about nine years ago, "in the south cone there are about 120 thousand hectares of plantations". In Vilhena, there are 18 major producers with approximately 40 thousand hectares de soybean, that is, an average of 2 thousand hectares per farmer.

In the neighbouring towns of Corumbiara and Chupinguaia, Padovani adds, the Fertipar Group, which belongs to businessman Alceu Feldmann, has 25 thousand hectares planted with soybean. That city has fewer major farmers than Vilhena, but the properties are even larger.


Rondônia's preservation areas and Indigenous Reservations are coveted

The vastness of the land belonging to major producers goes even beyond national borders. According to Zezinho, even though such phenomenon is not yet common in Rondônia, which has long borders with Bolivia (made up essentially by environmental reservations), in the

state of Mato Grosso there are already large landowners with plantations in that neighbouring country.

According to Vicente Godinho, the land situation in Mato Grosso and Southern Rondônia allowed production to be established along that axis. According to him, nobody wanted to plant in those Cerrado areas, which allowed larger plots and production in larger scale. "This soil was considered poor", he says. Ironically, the Parecis Ridge, which starts in Mato Grosso, crosses Vilhena and enters Rondônia, came to be one of the world's largest continuous farming areas. "It's something fantastic", Godinho comments. "It used to be a big demographic void, where agriculture arrived and started to develop towns and cities".

According to the EMBRAPA researcher, in order to be productive today, soybean needs scale and farmers have been apt in doing that in the region, which, for him, is not proper for small-scale farming. Furthermore, in Godinho's view, paying direct compensation to farmers is more interesting and cheaper for the country than funding family-based agriculture. Vilhena's productivity, one of the highest in the country, might be explained by its soil and rain conditions and by the technologies locally developed and applied (EMBRAPA has been in the region since 1982). According to Godinho, in order to strengthen the activity even more, larger properties will be necessary. In his verdict, the researcher defines that "soybean needs a high production and transport capacity", adding that the corridor formed by BR-364 and the waterways of the Madeira and Amazonas rivers has provided minimum conditions for the industry to be structured all over the region.

However, soybean's productive chain has faced problems in recent times in some sectors. One of them was the Central Bank's resolution[16] regarding agricultural properties' land and environmental conditions needed for them to receive bank credit. Adopted in July last year, it contributed for banks to withdraw from soybean production. According to Zezinho, a member of the farmers' association, "banks were leaving, their number fell", which he sees as "caused by not only the land and environmental issue, but also by the risk to agriculture". In his view, another serious problem is greed - which reflects on large price increases - in the pesticide industry. "And the government has no control over that". For Zezinho, "the government needs an agricultural policy. And it does not have to be a long-term one. It could well be for the medium term".

While the situation with banks and the government does not change, producers have been increasing their connections - and their dependence - with the traders of the industry, which end up regionally and nationally strengthened. Zezinho reflects: "It's not that the relationship with those companies is good. It's the solution today". For him, if it were not for Amaggi and Cargill, the situation of agribusiness in southern Vilhena would be very complicated today.

Soybean and Land Reform

Even though the Vilhena area presents itself as a place of great perspectives for agribusiness, it is certainly not coveted only because of that industry. On the contrary, farmers that arrived earlier try to guarantee their survival in the area.

The family of Antonio Carlos Rodrigues, known as Carlão, was drawn by the propaganda on colonising Brazil's northern region and received a plot from the military government in 1979. In 1998, the family, in spite of him, sold the 100-some-hectare property to a local cattle farmer. Recently, Carlão joined a group of small farmers with whom he formed an association of small farmers in Vilhena. Camped by BR-174, they present themselves as the Movement of Camped Workers (MTA) and demand an area belonging to the army, near the city's airport.

In 2008, he took part in the re-occupation of the Santa Elina Farm, which, in 1995 was the place for the so-called Corumbiara massacre. After three eviction orders, however, the farmers left the area where there are cattle. In Colorado do Oeste, another town in the area, which the Biofuel Watch Centre visited in April 2009, a wall featured the inscription of one of the local movements struggling for land, the League of Poor Peasants: "Viva Land Reform! Santa Elina belongs to the people! - LCP". For Carlão, "the growth in the region's agribusiness has made the situation of small farmers tougher, of course". Once again, Rondônia's history is emblematic for the rest of Brazil.

He says that "even in army's land, there is a large soybean and late crop corn farmer, who owns 2 or 3 thousand hectares". Carlão's view is that "family-based agriculture is the solution" for the region, and that municipal, state, and federal governments need to invest more in that segment.

The MTA's demand to use that land for agrarian reform has reached the army and the Union Asset Department (SPU) - the area belongs to the Union and was leased to the country's armed forces. According to the general manager for Union Assets in Rondônia (a SPU branch in the state), Antonio Ferreira, for the SPU to authorise it, the army has to formally renounce to use it for military purposes. Ferreira adds that the SPU is "trying to make that happen," because only after the army does that the Union will be able to give the area to INCRA, which then will give it to small farmers.

Antonio Carlos Rodrigues, known as Carlão, advocates family-based agriculture

Consulted by the Biofuel Watch Centre, the Army's Social Communication Centre only explained that the Army is studying the matter. Concerning the leasing of part of the area to the soybean farmer pointed out by Carlão, the press office explained that "the Force has been leasing areas belonging to the Union, under its jurisdiction, but guaranteeing that lessees returned activities that allow Army training". The Communication Centre finally added that "training is the preparation of troops for carrying out operational activities and is done through exercises simulating combat".

Francisco Sales, head of the Land Ordering Division of INCRA-RO, says that what is going on in the area of Vilhena, as well as in the whole state, is a process of land re-concentration. That situation is not repeated all over the country but, where soybean advances, it is often one of its more visible effects (see "Land is still concentrated, in spite of land reform policies"). Sales explains that, in the 1970s, Rondônia underwent a strong colonisation process, with thousands of people arriving at the Northeast, South, Southeast, and Midwest regions, drawn by government propaganda. "Along the axis of BR-364, there are several colonisation and then settlement projects. After that axis, such projects were spread over the state" and the process is still under way.

He adds that, especially in the 80s and 90s, in Corumbiara, Colorado, and Cerejeiras, land reform settlements were created with 100 hectares or less. However, now "many are selling their lots" to buy larger lots in other regions or out of necessity, or for other reasons. According to Sales, the problem has taken place "especially in this soybean area".

Sales says that those deals are illegal and "we do not accept that in settlement areas; we will have to get it back later. That cannot be admitted in land reform: a settlement area cannot be transformed into a large property, a huge landed state".

He explains that, when farmers receive a land reform lot, they start paying the national treasure for the area. Besides, INCRA recommends farmers to register its ownership as soon as they receive it. After that registration, there is a ten-year waiting period until the farmer can sell the land. And the total payment for most of those plots used in Rondônia can be done in up to 20 years, and it can be done earlier if the farmer is able and willing to do so. According to Sales, "it can only be sold or transferred after you have paid the whole title and ten years have passed since registration". That situation is obviously not seen in many of the lots sold in Rondônia, and that is repeated in other regions of the country where soybean grows, as Itanhangá, Mato Grosso, according to last years' CMA report on soybean.

According to Sales, in the area of Vilhena there was more land regularisation than in the rest of the state: "Land in all sizes was regularised, from 50 to 900 hectares plots, which are 15 modules for Rondônia". According to current rules in the state, until 900 hectares, INCRA can carry out direct land regularisation.

Between 900 and 2,500 hectares, it is legal through open auctions; above that, only Congress can authorise.

Nowadays, one of the priorities of the federal government for the Northern Region is land regularisation. According to Antonio Ferreira, from SPU-RO, the situation of Rondônia can be considered simpler than that in other northern states. "INCRA is in charge of the areas in Rondônia, now the task is to regularise the situation of

those who are occupying areas that are possible to regularise". According to Ferreira, such initiatives will be carried out more intensely in 2009, with the government's PM (Provisional Measure) 458, which by late April was being debated in Congress (see "Controversial PM 458 seeks to regularise land in the Amazon"), and whose initial text made by the Federal Government seeks to focus on the situation of small farmers.

It should be said that, in Rondônia, the value of land has risen a lot, which, once again, increases the difficulties for small farmers. EMBRAPA researcher Vicente Godinho remembers the 1970s and 1980s, when "people did not want land here in Rondônia's South Cone not even for free. Now? Forget it, land here costs almost as much as in Paraná".

In Brazil, even with the world financial crisis, the value of land keeps rising. And the recent rise in soybean prices in the Chicago Stock Exchange is pointed as one of the core factors for that inflation according to data from the Agra-FNP Consultancy. With the rise in the value of the US dollar, soybean regained its strength as an export and its value increased. Besides the impulse given by the grain, the highest interest of foreign investors in Brazilian land - also encouraged by soybean - led the average price of the hectare in Brazil to a new nominal record, reaching 4,373 reais in the first half of 2009.

Land is still concentrated, in spite of Land Reform Policies

Published in early 2009 by geographer Eduardo Paulon Girardi, of São Paulo State University (UNESP), the Brazilian Land Atlas (Atlas da Questão Agrária Brasileira) examined official data referring to 1992-2003 and found that rural properties in the country remain concentrated in spite of years of land reform policies. In that 12-year period, Brazil's land area under INCRA's responsibility increased 35%, or 108 million hectares, to a total of 418 million hectares. The highest growth took place in the regions where modern soybean agribusiness is expanding. The Midwest accounted for 35% of new areas incorporated, and Mato Grosso alone accounted for 22% of the total. Most of the new 108 million - or 71.9 million - were in the hands of major landowners while only 36.5 million were appropriated by small farmers. That explains why the country retains a high Gini index for land - the closer to one, the more concentrated. According to the Atlas, most of Brazilian towns had a Gini index between average and high in 2003: values between 0.501 and 0.800 were found in 4,283 towns (76.9% of the 5,565 towns) and made up 83.1% of the total area of rural properties; those with concentration over 0.800 were 359 (6.4%) and had 10.8% of the area of rural properties, and those with Gini index of up to 0.500 were 924 (16.6%) including 6% of the total rural property area.

Controversial PM 458 seeks to regularise land in the Amazon

The area in the so-called Legal Amazon (including the states in Brazil's Northern Region, plus Mato Grosso and part of Maranhão), which lacks regularisation might reach 96% of its land[17]. This scenario explains why Provisory Measure 458 was sent to Congress in April 2009. It authorises the transfer to private owners of public land plots up to 1.5 thousand hectares in the region. While the measure has been proposed by the federal government to bring legal safety and guarantee ownership to small and medium farmers who have obtained their land legally, it allows for the regularisation of land obtained by fraudulent means. No wonder why it has been labelled by social movements, organisations, and researchers "the land grabbing PM". Before that, in 2008, PM 422 had been criticised when it increased from 500 to 1,500 hectares the area that does not demand an auction.

PM 458 is valid only for land belonging to the Union and located within the Legal Amazon and already under INCRA's control. In practise, that covers areas in 436 towns and cities (and in 172 of them, it includes the urban part). In all, the government predicts regularisation of 296 thousand rural properties, along an extension of over 67.4 million hectares of federal land still not dedicated to specific purposes[18].

One provision by PM 458, which has been in force since February 10, 2009, is that rural areas to be regularised should have been occupied before December 2004. Besides, benefited owners - Brazilian native or naturalised citizens - cannot have another rural property or their main economic activity exploring that property, nor can they have a government position or job in agencies directly linked to land regularisation. The title of the rural property - responsibility of the Ministry of Agrarian Development (MDA), is free from auction. In the case of those occupying areas up to one fiscal module, the process is free; up to four modules, there is no need for previous inspection, that is, the fulfilment of legal requirements will be checked only by a declaration of the person occupying it, and in areas between 4 and 15 fiscal modules, inspection is mandatory and alienation is also free from auction.

In urban areas, the MDA can transfer responsibility for title concession to municipal governments. In that case, the rules set by PM 458 change: for those occupying areas up to 1,000 m2, transfer is free of charge; in areas between 1 and 5 thousand m2, auction is necessary, but preference is to those who prove occupation for one uninterrupted year, with no objection, until the date of publication of the PM, of areas between 1,000 and 5,000 m2. Demands for those benefited are also distinct: they cannot have monthly family income above five minimum wages or another urban or rural property above four fiscal modules; they should use the property to be regularised as their only residence or as legal means of subsistence.

CASE | Survivors of massacre build alternatives in Corumbiara

In August 1995, the city of Corumbiara, in southern Rondônia, saw the massacre of 13 landless workers. Today, almost 14 years later, survivors struggle to re-write - once again - the history of the region that is a soybean production hub in the state. After occupying the Santa Elina farm and resisting to ambushes and torture, to harassment and to death itself, the survivors of what became known as the Corumbiara Massacre lead the process that seeks to change the region's reality and build alternatives for small farmers, while they wait for justice to punish the police officers, gunmen and authorities involved in the sad event.

Deputy Mayor João Ribeiro de Amorim (PT), known as Joãozinho, is one of those whose lives were deeply marked by the massacre and now work to write a different story. Elected in 2008, together with mayor Selvino Alves Boaventura (PTB), with about 95% of votes, Joãozinho had two brothers among those camped at the Santa Elina Farm in 1995. The two managed to escape from the massacre, but a third one - a town counsellor - was not as lucky. An activist of the land reform movement in the region and an ally of the people occupying Santa Elina, he was murdered in December 1995. Born in the state of Paraná, in Assis Chateubriand, Joãozinho arrived in Rondônia in 1981. In the following year, the family received a 50-hectare land plot from INCRA. Joãozinho says that his "father, a small farmer, still works in that land today".

In order to carry out the work in the municipal government, Amorim has chosen as one of his main aids another farmer who survived the massacre: Polaco is now the head of agricultural services - in charge of rural activities in town.

Joãozinho explains that the current municipal administration will work to revert the region's increasing land concentration - championed by the soybean and cattle industries - and to strengthen family-based agriculture and food production. Corumbiara, whose population is about 9,500 (IBGE 2007), is a major milk producer and an important producer of anatto, sold to the cosmetics, dyeing, and food industries. Historically, the town used to produce an average of 350-450 tons of anatto a year, and in 2008 it reached the 700-ton mark. "We intend to reach 1,000 tons", says Joãozinho excited, adding that the Vanessa and Vitória da União settlements concentrate production, which is all over the town. "They are settlements formed by survivors of the massacre", he stresses.

The administration's expectation is to launch in 2009 the Municipal Plan for Rural and Environmental Development, which, according to Joãozinho, "will include several programs to prevent small farmers from going into monoculture". Some of the farmers are now working according to that logic, especially those within the meat production chain, which is very strong in the state. With a "very tight" municipal budget (about 13 million reais), Joãozinho and Selvino Boaventura's administration has sought partnerships with the state government, as well as worked to get funds from state and federal parliamentarian's amendments to Rondônia and the Union's budgets.

In order to strengthen family-based agriculture, the administration believes that it is important to allow producers to become independent from middlemen. Besides, the city intends to strengthen the already existing Family Agriculture Fair and to promote the first edition of the Anatto Festival. Joãozinho explains that the municipal government does not have any policies towards large farmers. "They already have their structures, with their own grain dryer, their trucks, all the machines", he reminds, adding that the state government has recently paved the road between Corumbiara and Cerejeiras, in order to make the transport of soybean and cattle from the region easier.

Corumbiara has about 30,000 hectares planted with soybean and the main producers are Fertipar and the Santa Ana Farm. However, there are more than a few properties where over

Soybean plantation in Corumbiara

1,000 hectares of soybean are planted. And large farmers have been attempting to enlarge their properties, even by purchasing agrarian reform land. "In the Vitória da União settlement, many small farmers are leasing or selling their plots to companies for the production of soybean", denounces Joãozinho. In face of the damage to small farmers, the municipal administration intends to collect data first, and then define actions to reduce impacts caused by such pressures. INCRA, for instance, confirms that the region is currently seeing a process of land re-concentration full of illegalities (see "Land-related Impacts").

The problems, however, are not limited to land issues. Pesticides used in soybean are among the main complaints of farmers in the Vanessa settlement. The fear, whether it is health-related, environmental or even in terms of food production, is justified since poison is launched from airplanes over areas that border with the settlement. To complete the scenario, a sugarcane processing facility should be installed soon in Cerejeiras, near Corumbiara. "And just like soybean, the group that owns the plant intends to lease land to produce sugarcane", adds Joãozinho.

Chapter 5
Impacts on Indigenous people

Branco was the first Paresi to plant soybean in the Indian Indigenous land

As soybean production increases in Brazil, agribusiness's pressure on Indigenous lands also mounts. That is why the 2nd General Assembly for the Mobilisation of Indian Peoples in the Cerrado (MOPIC), in December 2008, had as its main topic "The impact of soybean on Indian lands in the Cerrado". Members of 24 ethnic groups were present: Xavante, Bakairi, Nambikwara, Paresi, Umutina, Enawenê Nawê, Rikbaktsa, Apiaká, Kayapó, Panará, Kisêdjê, Kamaiurá, Kuikuro, Ikpeng, Waurá, Yudja, Mehinako, Guarani Kaiowa, Guarani Mbya, Terena, Kinikinawa, Xerente, Javaé, Xacriabá. The meeting took place in the Wawi Indian land, of the Kisêdjê People in Mato Grosso.

Mopic is a relatively new organisation whose opening assembly happened in December 2007. In its first document with proposals and demands[19], the need for better organisation and strengthening of Cerrado Indigenous peoples emerges as a response to negative impacts "of agribusiness, agriculture and cattle, and now biofuel production". The statement resulting from the second assembly[20] denounces threats that can be placed in the four categories established in the first report by the Biofuel Watch Centre[21]: direct occupation of traditional lands already guaranteed by the Brazilian State; environmental degradation of areas surrounding traditional territories, thus affecting communities; political or legal pressure against demarcation of lands claimed as traditional, already acknowledged by socio-anthropological studies; and consented occupation of traditional lands through the so-called "partnerships".

Next, we will discuss each of those four types of threats separately. Since it is an updating report, we will stress the cases of the most evident impact in the last 12 years. Examples were selected based on field research in Mato Grosso and in consultation to the main institutions directly involved with the subject[22].

Direct occupation of Indigenous Land

The Manoki Indigenous Land (IL), of the Irantxe people, and the Xavante's Maraiwatsede IL are two emblematic cases of invasion of traditional territories already guaranteed by the Brazilian State. Both are located in the state of Mato Grosso and have soybean farms producing illegally in them.

The Manoki IL has been officially recognised as Indigenous land and, in the beginning of the year, the National Indian Foundation (FUNAI) called for a tender to hire companies that will demarcate the area. It includes 205 thousand hectares and it is adjacent to the Irantxe IL - an area with 45 thousand hectares already demarcated and homologated, where about 400 Indians live and await the final establishment of the broadened territory to occupy it again. Both ILs are within the town of Brasnorte, in the Midwest of the state - a soybean-producing region.

The working group that studied the demand of the Irantxe to demarcate the Manoki IL was created by FUNAI in 2000. While an area is under study for demarcation as an Indigenous territory, its economic exploration is not allowed. Nevertheless, from 2000 to 2005, deforesting in the Manoki area went from 18.9 thousand to 35.5 thousand hectares. Such environmental destruction took place primarily because of irregular farming enterprises. The Melhoramentos Agrários de Diamantino Farm, located entirely inside the Manoki IL and whose core activity is soybean plantation, deforested 637 hectares in 2000. In 2005, the deforested area reached 8,994 hectares of a total of 39,840 hectares of the alleged property. Relatively, the destruction of the farm's area went from 1.6% to 22.6% of its total area.

Another example is that of the Membeca Farm, which, since 2003 has been promoting the illegal deforesting of over 8 thousand hectares of forests within the Manoki IL. In 2006, after a research work in the area, Greenpeace[23] denounced that both Cargill and Bunge, through silos installed in Brasnorte, bought soybean from the Membeca Farm. Monitoring also showed that Cargill exported soybean from that area in its port in Santarém, PA.

The Maraiwatsede IL, with 165 thousand hectares in the towns of São Félix do Araguaia and Alto da Boa Vista, in north-eastern Mato Grosso, has been demarcated and homologated. But problems faced by the 630 members of the Xavante people living in it have not diminished. They are confined in one only village, also called Maraiwatsede, and hostility by large farmers and squatters prevents them from moving about safely in their territory. Sacred places for the Xavante culture, such as old burial sites, have been invaded and there is even an urban centre inside the Indigenous land, known as Posto da Mata.

A dramatic history led the Xavante to such forced confinement. In the 1960s, the Brazilian government supported the creation of a large-scale enterprise within Xavante land: the Suiá-Missu farm. In 1966, the Brazilian Air Force (FAB), with the consent of the Indian Protection Service[24], transported the Xavante who used to live in the area to a Salesian mission (the São Marcos mission), 400 km from the area. The forced transfer was followed by the dispersion of the Indians to other areas belonging to Xavantes and even to other Indigenous peoples. In the 1990, the Xavante evicted from Maraiwatsede started an international campaign to recover their original territory. In 2004, a decision by the Federal Supreme Court (STF) authorised their return, but it did not prohibit the permanence of non-Indians.

The Maraiwatsede IL is cut from north to south by BR-158, through which soybean production is transported and whose pavement is strategic for the national production of grains (see the BR-158 Case on page 9). The environmental impact report of the work[25] lists the risks for the Xavante: people hit by vehicles, accidents with hazardous cargo that would contaminate natural resources directly used by Indians, and more pressure from the use of the road for commercial farming (which would result in new invasions of the territory).

Environmental degradation

Maraiwatsede is Xavante for "beautiful woods". With its history of invasions, however, the beautiful vegetation of the territory risks extinction. Satellite monitoring data released in March this year by the National Institute for Space Research (INPE) reveals that deforesting in the Amazon has fell 70% in November 2008-January 2009 over the same period in 2007-2008[26]. Inside Indigenous lands, however, it would have increased 9%, and the Maraiwatsede IL leads the sad ranking of destruction, with 47.3 Km2 deforested in the aforementioned quarter.

But the environmental damage caused by soybean monoculture to Indigenous peoples does not happen only when plantations are located within their territories guaranteed by the State. Also in March this year, IBAMA publicised the embargo of 50 thousand hectares of plantations with no environmental licensing in Brasnorte, MT. The Fronteira Group, in charge of the area, accumulated about 11 million reais in fines for environmental crimes and now the fine has been 990 thousand reais. The plantations affected border with Indigenous lands: the Myky people's Menku IL and Enawene Nawe Indigenous land, which belongs to the people with the same name.

The Xavante of the Sangradouro IL, in the town of Primavera do Leste, MT, also feel the effects of the exporting agribusiness, based on the use of chemical fertilizers and pesticides in mechanised soybean plantations. That is the homeland of Mopic's coordinator Hiparidi-Xavante. "Our villages suffer with the airplanes that pass over us spraying pesticides and flying low to scare us", he described.

Researcher Maria Lúcia Gomide defended this year her doctoral thesis[27] proposing the connectivity of Xavante Indigenous lands within the Mortes river basin, currently fragmented by soybean and cattle farms. At the Sangradouro IL, she collected the following statement from Rurihõ, an Indian:

> *" (…) In Sangradouro we would like river sources that start out of the indigenous land to be preserved, also a part of the forest called gallery so that the stream that will feed the sources within the Indigenous area is not polluted, we see that there are many farms touching river banks and the streams. Then the manure, the poison they put on soybean flows out all to the river, just think the Sangradouro river starts out there and passes inside it, and every year we do the great ritual that uses the river that is polluted, ear-piercing, the waia initiation, also called the secret of men, it uses much of this river. (...)" (RURIÕ, 2003)*[28]

Political and legal pressure

By and large, the political and legal lobby established by the so-called "ruralist" segment to defend their interests is an indirect threat to Indians. In some cases, it expresses itself as an open violent campaign against the rights of those traditional peoples. In the context of soybean, a telling example is that of the Federation of Agriculture and Cattle Farming of the state of Mato Grosso (FAMATO), whose president (on leave) Homero Pereira is a member of Congress by the Party of the Republic (PR). The congressman proposed a bill in the second half of 2008 attempting to cancel Regulation 1429 signed by Justice Minister Tarso Genro in August, which declared the permanent ownership by the Irantxe people over the Manoki Indigenous Land.

Besides, Pereira proposed Bill 490/2007, which establishes demarcation of Indigenous lands by laws, that is, only with the approval of state and federal parliaments. Indian and Indian-advocacy organisations have already expressed their opposition to the Bill, which changes the legal procedure in force in the country[29], where demarcation of Indigenous lands is FUNAI's exclusive prerogative. Bill 490 has been under examination in Congress for two years and has received FAMATO's public support. "By transferring the competence to Congress, we avoid any sort of biased expert report to benefit groups that want to take advantage of the situation and use Indians to get what they want", wrote the organisation's first secretary Valdir Correa.

Agricultural partnerships

Agricultural partnerships between Indigenous and farmers or farming companies are advocated as legitimate by the Paresi people. This year, they have harvested 12 thousand hectares of soybean in Mato Grosso (read more about that experience with soybean monoculture in Paresi land below). Data about mechanised soybean plantations in other Indigenous lands, however, seem to confirm the suspicion of socio-environmentalist NGOs that partnership contracts actually work as leasing of traditional lands, which is illegal.

In the Ligeiro IL, in the state of Rio Grande do Sul, mechanised monoculture has created income concentration among the 1.9 thousand Kaigang who live in the area and a divide in the villages. In 2005, 300 Indians who did not agree with the use of the territory for commercial production of soybean were forcefully withdrawn from the area by leaders of the negotiation with farmers. Internal disputes became so serious that FUNAI had to create a Working Group (WG) to mediate the conflict and, supported by Federal Police, bring the expelled Indians back to the Ligeiro IL. FUNAI anthropologist Juracilda Veiga, who coordinated the WG, said that the agency will conduct this year an assessment of the territorial management effort at the Ligeiro IL. As an indication that government action had positive aspects, she points out the fact that lessees of other Kaigang Indigenous lands where there is soybean monoculture requested last year that the Federal Attorney's Office carried out a similar intervention. "The most perverse side of soybean is to take the market logic into Indigenous lands, leaving many families without land. As a crop that demands mechanisation, it is economically viable only if planted in large scale", argued the anthropologist.

The Indigenous land in question is the Cacique Doble IL, home to 500 Kaigang and also located in Rio Grande do Sul. According to the Southern Indigenous Peoples' Articulation (ARPIN-SUL), GM soybean is planted there. "The leasing [of traditional land] is now part of Kaingang culture, but it was something imposed. The SPI leased the Indian's land for sawmills and expelled those who were against it", said Romancil Cretã, the organisation's coordinator and a member of the Kaigang people. "When president Lula signed the controversial Provisional Measure that allowed GMs to be planted, excluding areas around preservation units and Indigenous lands[30], Kaigang leaders at the Cacique Doble IL wrote to him complaining they were left out", revealed Socioenvironmental Institute (ISA) anthropologist Fany Ricardo.

One issue brings together segments that favour and oppose farming partnerships: the idea that they emerge from a context of difficulty with applying public policies to assure the sustainability of Indigenous peoples. "I see that initiative as a major income source for the Indians, who often lack medical care, education and food", said FAMATO's first secretary. "FUNAI tolerates that reality. Managers justify it by saying that there are no income alternatives for the Indians", sustained Francisca Ângelo, knows as Chiquinha Paresi, a member of the National Council for Indigenous Policy (CNPI).

CASE | The Paresi people: Mato Grosso's soybean farming Indians

In 2009, the Paresi are harvesting 12 thousand hectares of soybean in Mato Grosso - their fifth harvest since partnership contracts started with local farmers and a company. While mechanised plantations in the Paresi, Rio Formoso, and Utiariti Indigenous Lands (IL) represent an achievement for that people - such as the return to the villages of men who had been working in farms and income to invest in community projects - it is a precedent that concerns the other ethnic groups living in the Cerrado and in transitional areas to the Amazon forest.

Indigenous lands belong to the Union and their traditional residents are entitled to exclusive usufruct. That is why the 1973 Indigenous Statute does not allow their leasing - a prohibition that is reinforced by the 2006 Normative Guideline no. 3 by the National Indians Foundation (FUNAI). Non-governmental Organisations (NGOs) and Indigenous movements fear that partnership contracts might be a way to bypass the law. "They are only a different name for leasing. Tractors belong to whites; and so do profits", argued the coordinator of Mobilisation of Cerrado Indigenous Peoples (MOPIC), Hiparidi-Xavante.

In the case of the Paresi, however, it does not seem so simple. The Indians are the ones to work on plantations, including the operation of combine harvesters, thanks to the experience they acquired as farm employees and the courses given by the National Rural Training Service (SENAR). That labour - just as provision of fertilisers, seeds, poison, fuel, and machine leasing - is paid by the non-Indian partner. The net revenue is divided equally between farmer and the Indigenous association, which deposits half of it in a Bank of Brazil account and channels the rest to collective purchases and division among the families of each village involved with the respective plantation.

Ângela Zunizakae lives at the Bacaval village, in the Utiariti Indigenous Land, in Campo Novo dos Parecis - in 2007, the town had the fourth largest soybean area in Brazil, with 298 thousand hectares planted. There, the Waymaré Indian association has a contract for provision of agricultural inputs for a one-thousand-hectare area with soybean meal company Incofal. In the last harvest, Ângela's family, as well as the other ten that live in the village, received 2 thousand reais from the division of the plantation's profits. "It was enough to build my house", she says proudly, while pointing at the wooden veranda house - the architectural style predominant in the village, together with straw huts used for rituals and, at a smaller scale, for living.

Ângela's house has been built with soybean money

"People say that we no longer hold the traditional celebrations. It is true that we don't do it for soybean, because it does not belong to our culture. But we do offerings for corn, rice", argued Bacaval village's planting coordinator and Ângela's brother Arnaldo Zunizakae, known as Branco. "Today we no longer live only on hunting and fishing, and that has its toll. To celebrate nowadays, we need money," he pointed out, adding that, thanks to the soybean plantation, the 52 residents of Bacaval resumed the plantation of corn (but in a mechanised fashion, in the so-called "late harvest", whose production is also sold).

However, there is no unanimity among the Paresi as to the benefits of commercial agriculture. The sharpest criticism usually comes from older people. "I think soybean brought division. As I see it, people got very individualistic, only concerned about their own stuff", argued Carmindo André Orezu, who also lives at the Utiariti IL, in the Salto da Mulher village. The community takes care of 500 hectares of plantation. His wife, Emília Zolazokero, still uses "slash-and-burn agriculture", the Paresi's family farming based on tubers (especially manioc). "I have a calabash with chicha [traditional beverage], I make beiju (local corn flour) and smoke meat in the moquém in the middle of the hut. When I was a child, there was no other food and I didn't miss anything. We would eat that in the morning, for lunch, in the evening, and we were happy. Now the children wake up to go to school and if there is not milk, cookies and cake, they don't eat anything", she said.


Emília regrets the change in eating habits

Branco thinks that "the only culture that doesn't change is that in a museum" and the change in eating habits means advancement. "We were starving, eating only beiju, flour, game, and fish. Nowadays our diet includes cow meat, coffee, bread, fruit - a more balanced food", he advocates. It has been less than a year since he started working also as health coordinator at the Halitinã Indigenous Association, which has an agreement with FUNASA, the National Health Foundation for health care of the 1,584 Paresi that live in nine Indigenous Lands in Mato Grosso, all of them already demarcated. In the 1960s, according to FUNAI, the Paresi were only 360 people. Their current population increase rate is high, at 7.2% per year. In 2004, when agricultural partnerships started, 48 Paresi were born and three died, one of them under one year of age. Last year there were 55 births and 4 deaths, none of them of a child.

▶ Integrationist policy

Branco, Ângela, Carmindo, and Emília agree in one point: the Paresi's were part of consumer society well before the establishment of agricultural partnerships. Anthropologist Ivar Bussato, current coordinator of NGO Native Amazon Operation (OPAN), supported the Paresi in their battle to guarantee their territory. He said that their contact with the capitalist civilizational model dates back to the 17th century, when some of the Indians were made into slaves by the bandeirantes (colonial time's explorers in Brazil). Since then, the Paresi's everyday life started to be impacted upon by economic cycles that marked the region. They worked in collection of rubber tree latex and ipecac - an herb whose roots provide emetine to be used as an active principle for drugs; as cable watchers and guides to telegraph commissions - the reason why they became known as the "Rondon Indians"; they sold their crafts along BR-364 - built in 1961, cutting the Paresi from east to west, and from the 1970s on, with the expansion of the agricultural border by settlers from Southern Brazil, they were cheap labour to establish farms.


The Paresi worked to establish Cuiabá's telegraph network

"In 1945, the Jesuits created a missionary centre in Utiariti, where a telegraph station operated since 1910", says Bussato. For Emília, that was the beginning of the destruction of the Paresi culture. "Things started changing with the Jesuits, there were children from several villages that went to school there and were forbidden to speak the language", she explains. Indeed, the villages with the lower numbers of speakers of Paresi - the language belonging to the Aruak stock - are those where the catechist action of the so-called Anchieta Mission was stronger.

Branco and Ângela's mother, for instance, was a student living at the missionary centre who only learned the Indian language as an adult, with her husband. In spite of that, the couple has always used mainly Portuguese in their dialogues. Branco does not speak Paresi well because he spent part of his childhood with his grandparents at the Formoso village. And Ângela followed her mother's steps: she became fluent in Paresi only after getting married and spending two years at her husband's village, Juininha. In Bacaval, the lessons by Indian teacher Graciele Zuizukaeru are all given in Portuguese. In the morning, she teaches 11 children ranging from 4 to 12 years of age, all in the same room. The youth that reached fifth grade have to go to the town to study: every day, 13 students from Bacaval take the bus at the village at 11 a.m. and only return at 7 p.m., sharing a bumpy dirt road with several heavy trucks loaded with soybean.

Their history of interaction with the so-called Western culture helps to explain why since 1992 the Paresi demand support from the federal government for large-scale agriculture. According to FUNAI regional executive-manager in Tangará da Serra, MT, Carlos Márcio Vieira Barros, the original demand was for direct funding. In September 2003, after a protest in which the Paresi retained five FUNAI workers during one week, the agency's president signed Government Regulation 865, authorising the local FUNAI manager to sign documents at Bank of Brazil in order to receive agricultural funding with the harvest as collateral. The bank did not grant any credit, but the 19 contracts for agricultural partnership that started to be signed in December mention Regulation 865 at their clause providing for "the guarantee between the community and the provider".

Branco was the first Paresi to work with mechanised agriculture within the Indigenous land, back in 1997, after working as a farm employee for nine years. "When I left the farm, my former boss donated me an old seeder and lent me a tractor. I would get the fuel with the Sapezal municipal government", he revealed. At first, he planted 45 hectares of rice. At the following harvest, they were 60 hectares. By the third year, in 1999, when the area of the mechanised plantation had already reached 90 hectares, rice already shared space with soybean. In 2000, soybean was the main crop in the hectares planted by the Zunizakae family.

Mechanised plantation in the Paresi Indigenous lands, which total 1.3 million hectares, cannot be expanded beyond the 15,450 hectares already accepted by FUNAI and the Federal Attorney's Office (MPF) against their will and divided into 17 non-continuous plantations. The other two contracts refer to two 1,000-hectare plantations at the Irantxe IL, belonging to the people with the same name, and the Nambikwara's Tirecatinga IL. The location of each plantation took environmental concerns into consideration: they were in plain areas, far from water courses and villages. Even so, deforesting in those areas has not been authorised by IBAMA, which now demands their environmental regularisation by FUNAI. The area where those three Indigenous peoples live is considered a birthplace for waters: it is there where the Paraguai e Guaporé Rivers are born, as well as the main tributaries of the Juruena River.

▶ The search for alternatives

Partnership contracts between Indians and farmers are in force until 2012. The villages whose residents already had a stronger previous contact with mechanised agriculture, such as Bacaval, should use the funds kept at Bank of Brazil to try to remain in agribusiness on their own. Branco says that direct trading the soybean production will be the major challenge and he hopes that the biofuel market will help to face it, even though so far there are only sugarcane processing plants in the region. "I'd love to say we are exporting our production, but that is not true. Blairo Maggi [Mato Grosso's state Governor] is my personal friend and he won't buy one grain of our soybean, because he knows he can get in trouble. Our soybean is going to the production of animal feed", said the Indian.

The investment account where half the net revenue from soybean is deposited is on behalf of the Waymaré Association. According to Branco, its balance is 1.4 million reais and it should reach 2.2 million by the end of the year. After a demand by FUNAI e the federal attorney's office, the money can only be withdrawn at the end of contracts. The enterprising Indian acknowledges, however, that most communities involved in mechanised agriculture should invest in income sources that are closer to their traditional culture, such as the production and sale of manual crafts.

The Halitinã Association has even used part of the money available from soybean as a counterpart contribution to fish farming in net-tanks, with support by the National Department for Fish Farming and Fishing. Besides, it develops project Kani - Sustainability and Income Generation in Pequi Extraction, funded by Petrobras' Fome Zero Programme.

"Those alternative projects generally lack regular technical monitoring and economic feasibility", said Ivar Bussato. "The Paresi struggled for their land, they have survived, they are entitled to decide on their history and their way of life now. The agricultural model they adopt is the local one, directed by seed and pesticide multinational companies", pointed out the anthropologist. "If they planted organically, nobody would criticise them, even if it occupied ten times the current area. But they do not have that model: the one they do have is that of income concentration", he added.

Chapter 6
Final remarks and Recommendations

Soybean production in Brazil is far from deserving to be labelled "sustainable" or "responsible". Its mode of production directed to foreign markets, based on large properties and intensive use of pesticides, creates a number of social and environmental impacts in the country. Therefore, the recommendations presented in the first report by Repórter Brasil's Biofuel Watch Centre (BWC) are still valid.

Those proposals for the action of authorities and businesses, intended to mitigate the negative impacts of the most important product in Brazil's agricultural agenda include: increasing labour and environmental inspections; encouraging alternative farming practises; cancelling contracts for pre-funding and/or purchasing soybean from producers located within Indian or slave descendants (quilombola) lands; demanding final land ownership documents when signing pre-funding contracts between soybean trading companies and farmers. And especially, redirecting the national land policy towards food sovereignty and the construction of a fairer development model. That implies carrying out land reform, together with the creation of employment and income alternatives in rural areas.

In the 2008/2009 harvest, part of the billion-real debt of Brazilian farming businesses was renegotiated, but financial institutions did not include the social and environmental counterpart contributions advocated by CMA, such as preservation of legal reservations in properties and formal labour relations. As for new loans, however, there was progress, at least in the Amazon biome: the national Monetary Council tied new rural loans by state and private banks to presenting the Registry Certification for Rural Properties (CCIR) and environmental certificates or licenses for the property where the projects will be implemented.

Other good news is the signing of the protocol of intentions between the Ministry of the Environment, Goiás Federal University, and non-government organisations to allow the implementation of the Satellite Monitoring programme for the Cerrado Biome, as the National Institute for Space Research (INPE) already conducts in the Amazon. Cerrado should also inherit from the Amazon forest a mechanism such as the soybean moratorium, through which the Brazilian Association of Vegetable Oil Industries (ABIOVE) and the Brazilian Association of Grain Exporters (ANEC)

pledged not to buy soybean produced in Amazon areas deforested after the agreement was signed (which took place in July 2006).

Biodiesel production in Brazil has soybean as its core raw material, which benefits mainly business-oriented farming. In order for biofuels to be a real vector to strengthen family-based agriculture, Petrobras should bolster its strategic role, but not only within the National Programme for Production and Use of Biodiesel (PNPB). In practise, that means guaranteeing facilities for crushing other oleaginous plants in the processing facilities already installed by that state-owned company and in those under planning, as well as investing in broad technical assistance from a perspective of development and increasing small farmers' income - as the Landless Rural works' Movement (MST) demands.

It is necessary to defend the environmental and Indigenous-related legislation, seen as obstacles to the expansion of agribusiness in Brazil. That is why pressure has mounted last year to change the Forest Code, with proposals that meet major landowners' desire to maximise profits over the environment. Likewise, soybean farmers lobby to change the process of Indigenous land demarcation, so that the guarantee of territorial rights of traditional peoples and communities is conditioned to the interests of the "ruralist" parliamentarian group. Against those changes, civil society organisations might play a central role.

Castor Bean

In the first half of 2008, when the price of the petroleum barrel started to break successive records - reaching 142 US dollars in July - some manifested their optimism towards the potential growth of alternative energies, especially biofuels. In Brazil, however, that expectation was abandoned when the cost of biodiesel's raw materials, by following that of petroleum, ended up being such a burden on Brazil's industry that several processing companies were not able to deliver the biofuel volume hired at ANP auctions.

With the world economic crises in the second half of 2008, petroleum prices fell abruptly, also lowering the price of commodities in the international market. However, biodiesel - as well as vegetal oils used as alternatives for fossil fuels - lost competitiveness, which, according to experts in international market of vegetal oils, also happened to castor bean.

In early 2009, an ICIS Chemical Business analysis[1] about the castor oil world market concluded that, with petroleum prices low, the expectation is that the demand for the product decreases regarding 2008, just as its profitability (castor oil prices have already fell from 2 thousand US dollars a ton last year to 1 thousand this year). Still according to ICIS, such situation can cause reduction in the area planted with castor bean in the world.

In Brazil, according to a harvest report by National Supply Company (CONAB) of April 2009, such phenomenon already occurs. Compared to 2008, when the country planted 160 thousand hectares of castor bean, CONAB predicts a 7.8% reduction in the area planted with it this year (about 150 thousand hectares).

That fall happens mainly in the country's Northeast, the largest producer, which planted only 142 thousand hectares this year, compared to 156 thousand hectares planted in 2009.

The fall in the castor bean area in Brazil, however, has little to do with petroleum and other factors that have shaken the humours of the international market. According to the castor oil industry in Brazil, the demand for castor bean is still above farmers' production capacity. Prices paid in Bahia, the largest producer state, were exceptionally good in 2008 and investment by Petrobras, which opened three new biodiesel plants in the last ten months (in Quixadá, Ceará, in Candeias, Bahia, and in Montes Claros, Minas Gerais), should increase competition in the domestic market. Then why castor bean has lost ground in the country?

According to the Ministry of Agrarian Development (MDA), one of the problems involving the crop - planted almost only by family farmers - was the successive breach of biodiesel companies' agreements with farmers (delays in payments, cessation of production, etc.), causing suspicious and rejection to the crop. Organised farmers blame companies and government agencies, pointing out the low quality of technical support, delay in delivery of seeds and their low quality, as well as lack of incentives.

In mid-2008, the crop suffered a drawback when the ANP considered pure castor oil improper for biodiesel production because of its viscosity. The government, which had made castor bean the focus of its National Programme for Production and Use of Biodiesel since its launching in 2004, reacted by arguing that the mixture of castor and other vegetal oils increases the quality of the biofuel - a view also promoted by Petrobras Biofuels, a branch of the state-owned company created last year.

Whether it is true or not, both the MDA and Petrobras acknowledge that castor bean is far from turning into biodiesel. Processing companies that still buy the production do it in order to guarantee the Social Fuel Seal - a mechanism that conditions a number of tax incentives to purchasing raw materials from family agriculture and, more importantly, allows participation in ANP's biodiesel auction. Because of its valorisation in the castor oil industry, almost all castor bean purchased by the biodiesel industry is sold to the non-fuel chemical industry, ultimately turning processing facilities into mere intermediaries.

Most farmers, in turn, do not really care about the destination of their production. In the state of Bahia, the largest castor bean producer in Brazil since the 1970s, populations in the Semi-arid region plant it as an economic alternative, as some sort of harvest-insurance. More resistant to drought, it guarantees a minimum income in case of losses in corn and black beans plantations. In 2008, they celebrated the rise in prices forced by the competition from biodiesel companies in a market traditionally dominated by castor oil non-fuel chemical companies, which produce, for instance, lubricants and cosmetics, but that is as far as their interest in the biofuel goes.

Chapter_1 Castor bean and the National Programme for Production and Use of Biodiesel (PNPB)

Thwarted investments: The case of Brasil ecodiesel

Cultivated for decades by north-eastern small farmers because of its relative resistance to recurrent droughts in the Semi-arid region, castor bean was a relatively important crop at some point in states such as Ceará, Pernambuco, and especially Bahia between the late 1980s and early 1990s, as shown in the Castor Bean Historical Series by the Brazilian Institute for Geography and Statistics (IBGE, which has monitored its performance since the 1976/77 harvest). In that period, Brazil was the world's main castor oil producer - a position lost to India and China in the mid-1990s.

That history was one of the main factors that led the federal government to elect castor bean as the focus of its National Programme for Production and Use of Biodiesel (PNPB) in 2004. It then gave it the "mission" of conferring a more social character to the Brazilian programme of bioenergy through mechanisms intended to link biodiesel production to investment in family agriculture.

Conceived to be a counterpoint to what takes place in the ethanol productive chain, dominated by agribusiness, PNPB created the Social Fuel Seal to force biodiesel companies to negotiate at least part of the raw material with small farmers at risk of being excluded from ANP biodiesel auctions (public biodiesel auctions reserve 80% of the plots for producers that have the Social Fuel Seal). On the other hand, it offered Seal bearers a series of economic and tax-related advantages, such as lower PIS/PASEP and COFINS (federal taxes), better loan conditions with Brazilian Economic and e Social Development Bank (BNDES) and its registered financial institutions, with Banco da Amazônia (BASA), Banco do Nordeste do Brasil (BNB), Banco do Brasil (BB) or others, which might have special loan conditions for projects with the Seal[2].

In practise, however, such strategy has shown few results. According to a survey in February 2009 by the Ministry of Mining and Energy (MME), soybean oil is still biodiesel's most frequent raw material, followed by

animal fat and cotton oil. In January, soybean's share in the national biodiesel production was 71%, followed by animal fat with 25%, and cotton, with 3%. The sum of the other oleaginous plants was only 1%[3].

THE RISE AND FALL OF CASTOR BEAN IN BRAZIL – AREA PLANTED PER THOUSAND HECTARES

Region / State	1983/84	1984/85	1985/86	1986/87	1987/88	1988/89	1989/90	1990/91	1991/92	1992/93	1993/94
NORTHEAST	342.9	410	391.9	254.9	236.1	256	221.8	223.8	166.6	129.5	112.6
MA	-	-	-	-	-	-	-	-	-	-	-
PI	7.8	18	24.6	19.4	12.8	14.3	13.7	10.4	8.1	6.4	1.9
CE	10	17	17.7	21.7	19.5	16.7	14.2	13.9	14	4.5	4.9
RN	-	-	-	-	-	-	-	-	-	-	-
PB	1.1	1	1.9	2	2	1.5	0.5	0.5	0.5	0.3	0.1
PE	22	34	38	19	26.4	35.8	32	36	34.8	3.3	14.3
AL	-	-	-	-	-	-	-	-	-	-	-
SE	-	-	-	-	-	-	-	-	-	-	-
BA	302	340	309.7	192.8	175.4	187.7	161.4	163	109.2	115	91.4

Source: IBGE

On the other hand, the PNPB's initially predicted the inclusion, within four years, of at least 200 thousand families of small farmers in the programme, to be attracted by facilities related to the Social Seal (which has also changed in early 2009, as described in the next page). An MDA survey released in late 2008, however, counted only 38 thousand families linked to PNPB (data concerns 2007; 2008 figures have not been tallied yet). For 2009, the MDA predicts the inclusion of 80 thousand families.

According to Arnoldo Campos, who is in charge of the MDA's biodiesel programme, the company Brasil Ecodiesel is to blame for much of the low performance of the social inclusion at PNPB. The enterprise was the first to start industrial production of biodiesel in Brazil in 2005 and focused its initial investments in north-eastern castor bean.

Brasil Ecodiesel's pioneering stance and its boasted plan for inclusion of about 120 thousand family farmers in projects to produce raw material for biodiesel - especially castor bean - all over the country attracted the benevolence of the federal government and President Lula, who personally opened two of the company's processing plants in the states of Piauí and Tocantins.

The first plant opened by Lula, in Floriano, Piauí, was related to an unprecedented project of "private land reform", the so-called Nucleo Santa Clara, in Canto do Buriti - a case described in detail in the first Brazil of Biofuels report[4], by the Biofuel Watch Centre, in April 2008. Created in November 2003 in a 53-thousand-hectare area given to Brasil Ecodiesel by Piauí state governor Wellington Dias (PT), the project was divided into 20 residential centres and brought about 600 families to the area. The agreement between the parts included the company's funding of seeds, technical support, soil management and planting of castor bean, as well as the concession of ownership titles, after ten years, on 25 hectares per family.

Compared to the targets, few family farmers take part in at PNPB

Changes in the Social Fuel Seal makes things easier for companies

Formulated, granted, and controlled by the Ministry of Agrarian Development (MDA), the Social Fuel Seal has included, since the beginning of the PNPB, a series of tax-related advantages for manufacturing companies that bought raw-material from family-based agriculture, such as lower PIS/PASEP and COFINS rates (see Table).

PIS/PASEP AND CONFINS TAX RATES APPLIED TO BIODIESEL		
PIS/PASEP and COFINS (R$/Litre of biodiesel)		
	Without the Social Fuel Seal	With the Social Fuel Seal
North, Northeast and Semi-arid regions:		
Castor bean and palm	R$ 0.15	R$ 0.00
Other raw materials	R$ 0.218	R$ 0.07
Midwest, Southeast and South regions		
Any raw material, including castor bean and palm	R$ 0.218	R$ 0.07

As set by a Normative Instruction (NI), the Seal would be granted only to companies that established a contract for assistance and purchase (with previously established amounts) with family farmers, thus encouraging their integration into the biodiesel production chain. Therefore, according to the 2004 NI's original version, the biodiesel industry would have to prove that, out of its expenses with raw material, in the Northeast and the Semi-arid, at least 50% would be with family farming products, in the South and Southeast, 30%, and in the North and Midwest regions, 10%. .

Since the beginning of the year, the Seal's rules have been changed by a new Normative Instruction published on February 25, 2009. One change refers to the percentage for the acquisition of family agriculture products in the Northeast, which went from 50% to 30%. For the North and Midwest, in turn, the rate remains at 10% until the 2009/2010 harvest. In the 2010/2011 harvest, it will go to 15%. South and Southeast keep their 30%.

More significant, however, is the change that allows companies to include "expenses with family agriculture" into those percentages - not only with raw material purchases, but also resources for other services included in the Social Fuel Seal. Seeds and fertilisers "donated" to farmers, soil correction, hours of machine use and/or fuel, as well as wages, daily expenses, transport, food, training material and lodging for technicians who provide support to farmers (now mandatory).

In the North, Northeast and Semi-arid regions, all of those expenses can be added to the purchase of production from small farmers to complete the mandatory percentage of participation of family agriculture in the companies' production chain in order for them to be entitled to the Seal. As for the Midwest, Southeast, and South regions, "additional expenses" might reach only 50% of the value spent on raw materials.

According to Francisco Lucena, coordinator of the Federation of Family Agriculture Workers (FETRAF), those changes favoured businesses, which were already enjoying tax exemptions, to the detriment of farmers. While technical support and other aids to family production were considered a social counterpart contribution to tax incentives, their inclusion in the total of expenses with family agriculture reduces farmers' profitability with biodiesel.

"For instance, under the old rules, in order to meet the requirements of the Social Seal, if the company spent 100 thousand with raw materials in the Northeast, 50 thousand would got to family agriculture; now it spends 5 thousand with technical support, 3 thousand with inputs, 3 thousand with soil correction, 2 thousand with seeds and only 17 thousand go to farmers", Lucena explains.

Arnoldo Campos, in charge of the MDA biodiesel programme, argues that changes in the Seal should create more balance in the biodiesel industry, since only the companies that actually produce biodiesel from the raw material they purchase from family agriculture will receive tax benefits - PIS/PASEP and COFINS exemptions. That creates a disadvantage for Northeast-based companies, which buy highly valued castor bean from small farmers but resell the products to the chemical industry - over southern companies that buy soybean from family agriculture and produce biodiesel. That is, by opening the range of expenses that can be included in the accounting of the Seal in the Northeast and North, companies would benefit also in those regions.

"Except for the South, family farming has low technology level and low productivity. So we have had to give incentives for companies to invest in poorer regions", argues Campos. Lucena, in turn, who acknowledges that FETRAF has not taken part in the remodelling of the Social Fuel Seal, sees the changes as a concession or a response to the pressure by the companies, which would reduce more and more the social character of the PNPB.

In the second year of the project, producers started complaining about delays in planting, lack of seeds, and breaching of agreements by the company. In the following years, the project - that in its beginning was considered a model for social inclusion in biodiesel - started to be the target of denunciations and investigations by the Labour Attorney's Office for "fraud in employment relations, by twisting farming partnership contracts; moral harassment; child labour; and unsafe working environment", as stated by the lawsuit closed in 2008.

Families at the Santa Clara project face hardship

Breach of agreements between Brasil Ecodiesel and small farmer partners all over Brazil - especially in the northeast - ended up causing the latter to leave PNPB, says Arnoldo Campos. In several states, it also led to the crop being abandoned. Piauí, which at one point had a 15.8-thousand hectare area in the 2005/06[5] harvest, for instance, this year planted only 2.3 thousand hectares, according to CONAB.

In Paraná, where the state government announced in 2008 a programme of intensive investment in bioenergy, Brasil Ecodiesel delayed the payment to some 200 farmers from the Wenceslau Bráz area, leading to a major retrocession in establishing the castor bean crop in the state, explains Richardson de Souza, coordinator of the bioenergy programme at the State Department of Agriculture. According to him, farmers were afraid and the area planted with castor bean, which was about 400 hectares in 2008, should fall by 50% in 2009.

In Rio Grande do Sul, Brasil Ecodiesel has caused serious damages to farmers with the distribution of seeds of very low quality, says the bioenergy coordinator of Embrapa Clima Temperado in Pelotas, RS, Sergio Delmar dos Anjos e Silva. According to him, the Canguçu Union of Rural Community Associations - organisation studied in the first report by the Biofuel Watch Centre on soybean and castor bean last year - had to throw out approximately 20 tons of seeds provided by the company because of diseases. Areas planted with Brasil Ecodiesel seeds produced an average of 300 kg/ha compared to other producers that reached peaks of 2.4 thousand kg/ha.

On the other hand, several partners have sold castor bean that had been committed to the company to the non-fuel chemical industry - which has been paying more than the price of Brasil Ecodiesel, contributing to weaken its economic health. Facing successive damages in recent years - 38 million reais in 2006, 45.9 million in 2007 and 197.1 million in 2008 - along the third quarter of 2008 Brasil Ecodiesel failed to deliver the volume of biodiesel bought at ANP auctions (which, in November, even cancelled part of the contracts, but the cancellation was later lifted by justice).

Anyway, the company is abandoning castor bean to join soybean. As it sustained in a balance released in March this year, "investments made for the development of the castor bean crop in Brazil's semi-arid, through family-based agriculture, have failed to provide the expected results". The option for soybean can be seen in the results of its units in the last two years: at the processing facility located in Rosário do Sul, RS - a production centre for the grain, for instance, Biodiesel trading went from 17.4 thousand m^3 in 2007 to 37.7 thousand m^3 in 2008. In the same period, in the units of Floriano, PI, Crateús, CE, e Iraquara, BA, focused on castor bean, Biodiesel trading fell from 31.8 thousand m^3 to 4.6 thousand m^3 at the first one, from 44.9 thousand m^3 to 22.3 thousand m^3 at the

second one and from 61 thousand m³ to 39.3 thousand m³ at the third one.

Nonetheless, the failures to meet the rules of the Social Fuel Seal found by the MDA audit in the company's units and the insufficient accounting rendered to the Ministry in 2008 should lead Brasil Ecodiesel to lose its certification in three or four of its six units in 2009, says Arnoldo Campos. According to him, in spite of being politically very negative for the government because of the strong use of the company as a symbol of PNPB, "the MDA should break Brasil Ecodiesel".

Brasil Ecodiesel processing facilities in Tocantins, opened by President Lula, might lose the Seal

Petrobras

With the failure of the project to produce biodiesel from castor bean at Brasil Ecodiesel, the only company that still invests strongly in that oleaginous plant is Petrobras. In the three Brazilian states where it established its units (Bahia, Ceará, and Minas Gerais), the state-owned company has sought partners from family-based agriculture - mandatory to maintain its Social Fuel Seal - among castor bean producers, even though it recognises that, in the current stage of productive organisation, the crop offers no results.

Currently, the processing units, which still have no crushing facilities, buy soybean oil in the market to produce biodiesel and resell the castor bean they buy from family farmers to the chemical industry. But the decision to foster family-based castor bean production, especially in Brazil's Northeast, is political and should guide the company's future investments, according to its directors.

Besides the inherent social aspect, however, investment in family agriculture is also an economic need, since, according to MDA biodiesel programme coordinator Arnoldo Campos, the company has not met the requirements for the Social Fuel Seal yet. "The company has had the Seal for three months and still has not provided technical support, for instance", Campos explains.

In order to meet the demands of its units, Petrobras has adopted the strategy of establishing partnerships with state governments and farmer's organisations and movements. In Minas Gerais, where President Lula opened the Montes Claros unit in April this year, according to the Rural Extension and Technical Support Corporation in the state of Minas Gerais (Empresa de Assistência Técnica e Extensão Rural, EMATER-MG), which should take over the provision of technical support to farmers, 8,675 family producers have been enrolled, with an expectation of producing 7 thousand tons in 5.8 thousand hectares.

In Ceará, the state government - Petrobras' major partner in the state - played a central role in the projects to strengthen the castor bean industry. A programme to foster the crop, which until 2008, had paid 150 reais per hectare to those who produced it - up to three hectares - was broadened in order to strengthen environmentally sustainable practises. According to the state agriculture department, the incentive now can reach 300 reais per hectare up to five hectares, for ecologically managed castor bean. The programme is being used by Petrobras as the initial basis for its production.

According to the company's supply manager Paulo Roberto Moreira Dias, it used the government's list to seek its own partners. But he recognises that farmer's lack of organisational culture (such as co-operatives and associations) hampers the deals, which are closed individually with each producer. Another challenge, according to Dias, is to bring back farmers that had losses in contracts with Brasil Ecodiesel, since, "where Brasil Ecodiesel worked, it left traumas we are trying to minimise". In early 2009, farmers hired in the states of Ceará, Rio Grande do Norte, Pernambuco, Piauí, and Paraíba (linked to the Quixadá processing plant) totalled 25 thousand of them with interest in contracts.

Headquarters of the Petrobras-MST partnership project in. Bahia

Obstacles

From the economic point of view, placing castor bean in the bioenergy market is a huge challenge. Compared to soybean - the crop most often used to produce biodiesel (and that should occupy this year about 21.5 million hectares compared to 150 thousand of castor bean) - beside slow production, the price of castor bean berry or oil is far from being competitive. In July 2008, for instance, when commodities reached a peak price, while the 60-kg soybean sack was sold for about 47 reais, castor bean was sold for 85 reais. In the same month, the ton of castor oil cost about 5 thousand reais against 2.2 thousand of soybean oil. That relationship changed a little in early 2009: in April, while the soybean sack was sold for 42 reais (price in Barreiras, Bahia), castor bean cost 62 reais in Irecê, in the same state. Likewise, the ton of oil of the former cost 1.6 thousand reais while the oil of the latter cost 4.1 thousand reais[6].

Besides castor bean's low offer and high prices, the bioenergy industry also competes with the consolidated market of the chemical industry of castor oil for non-fuel purposes, which is now the final destination of the production. "Biodiesel processing units, just like any other enterprise, have to focus on results. If the castor oil produced in a unit is too expensive to produce biodiesel, it makes more sense to sell it for the chemical market, which lacks the product - actually, the industry already has a huge idle capacity for lack of castor bean. The key for the use of castor bean in biodiesel, we stress, has to do with price", says Adrian Gouw, commercial manager of Bom Brasil, one of Bahia's largest castor oil chemical companies.

The price factor, by the way, has led many castor bean providers to change their clients with no previous notice. Both Petrobras and Brasil Ecodiesel counted on the agreements (with previously established prices) with the farmers to guarantee the delivery of seeds. That device, however, proved ineffective, since at the moment of the sale, contracts were ignored and the production was traded according to the best perspectives for profit.

According to Edivando dos Santos, president of the Regional Co-operative for Agrarian Reform in Chapada Diamantina (COOPRACD) and MST production coordinator for the Itaberaba area, BA, producers' "infidelity" is ultimately a question of survival. "In 2008, we made a deal with Petrobras, but we ended up selling most of the product for the chemical industry, which paid more. The little we sold to Petrobras was just to remain in the market. Besides paying less, it also took Petrobras about 30 days to deposit the money, while Bom Brasil, for instance, paid on the spot. For the Co-operative, responsible for farmers' payments, it is essential to have money to conduct commercial transactions. So we have to choose those who pay more and faster", he explains.

Considering this situation of insecurity, Petrobras decided to change the partnership's rules. According to its director for Bahia, David Leal, the company extended the contracts from one to five years and offered a minimum price - the average of the last 36 months plus 10% - or market price as a ceiling. Besides, it guarantees technical support, logistics (it will collect the product in the field), and delivery of castor bean, corn, and black bean seeds (food crop planted intercropped with castor bean). In Bahia, Petrobras has also created a forum to debate and decide on policies for the biodiesel project - the Critical Analysis Meeting (RAC) - which gathers social movements, state banks, and government agencies, an experience considered highly successful by Leal.

Now the question is whether or not the option for castor bean - and other family farming crops, such as soybean, peanuts, and palm oil in Bahia - will be sustained in the long run. High investments in an unstable, expensive crop with low relevance in the domestic market might be questioned, since Petrobras is a mixed-capital, state-controlled corporation. That is, from the point of view of economic efficiency, why invest in castor bean?


Edivando dos Santos: in the castor bean market, those who pay more, get more

The doubt is justified because the company does not enjoy PNPB tax incentives, since it does not do crushing, and even if it did, it would more likely sell its production to the chemical industry due to its high price. Another issue is open to debate: if castor bean turned into biodiesel, would it have a viable price at gas stations?

According to Arnoldo Campos from the Ministry of Agrarian Development, when the PNPB was created, castor bean had a competitive price, which justified the initial investments in the crop. But, given the strategic need to diversify biodiesel's raw materials - exclusive dependence on soybean is a risk that the bioenergy project cannot afford to run - the attractive prices of family farming's oleaginous crops, such as castor bean, sunflower, and peanuts, for instance, encourage their expansion.

"For the Ministry, a good price is a good thing. Castor bean, as we see it, is a very important energy reserve and it is much better to work on expanding the area when prices are high, since that means an additional incentive to farmers. From the economic point of view, if we compare it to sugarcane, it is obvious that we do not reach today's productive levels without investing", says Campos. Likewise, castor bean would mean cash for the government, since, even though it might not direct it to make biodiesel now, there would not be losses with the investment, since it is sold in the market for competitive prices, he thinks.

In Bahia, David Leal also defends investments in castor bean as a strategy to guarantee supplies for the bioenergy programme in the medium and long terms. As an oil company, argues Leal, Petrobras received incentives and investments from 1954 to 2000 to reach its current self-sufficiency. According to him, the biodiesel programme should be seen in the same way, as a strategic investment in the country's energy safety. Petrobras supply manager for the state of Ceará Paulo Roberto Moreira Dias also argues that the company's Biofuel is a strategic programme for the country that will need time to mature. "The challenge is huge, but I think within five years we will reach economic balance", Dias believes.

Chapter 2
Impacts of Castor Bean and the PNPB on Family Agriculture

Organisations are still reticent

The three largest organisations of rural workers in Brazil - MST, FETRAF, and CONTAG, through their state federations - do not deny their interest in castor bean for biodiesel, as long as it meets small farmers' interests. Going along companies and the government, however, has not generated much enthusiasm.

Both MST and FETRAF, which are quite close to Petrobras in Bahia and Minas Gerais, have expressed their interest in the partnerships and in planting castor bean, but they want a larger share in the biodiesel chain. That is, besides incentives to plant, they want to take part in the processing by producing and selling oil - a very controversial issue.

According to Petrobras, despite the desire to advance the productive chain, the organisational structure of the movements and co-operatives is still very weak, which causes the delay in the funding of processing projects. The movements, in turn, sustain that the strength of the company's investments in biodiesel fell, and sugarcane ethanol would be channelling most of the resources available for the segment.

According to Francisco Lucena, a member of FETRAF's national board, the organisation had proposed some pilot-experiences in castor bean crushing in Minas Gerais, including more regional infrastructure such as roads. But after a positive perspective, the global economic crisis in the second half of 2008 would have made the company pull back. "Petrobras's aim was to enter the market as the largest biodiesel company and invest in family agriculture, mainly by organising co-operatives. But now it is a mere middleman for the production of castor bean", says Lucena.

The MST, in turn, besides control over the productive chain, demands that investments aim at developing and improving income in its settlements more broadly, explains Julio César Vasconcelos, its production coordinator in Bahia. To do that, the technical support of contracts with Petrobras would have to work systematically on settlements, rather than directed to corn, black beans, and castor bean crops, as the company proposes, he says.


Diversification in MST settlement includes castor bean, manioc, cashew, and corn in the same area

In Ceará, the State Federation of Workers in Agriculture (FETRAECE), linked to CONTAG, is trying to restructure castor bean production after a traumatic partnership experience with Brasil Ecodiesel. Antonio Darinho do Nascimento, president of the organisation's co-operative, COOPERBIO, says that contracts with the company were cut off after a series of problems, especially the failure to collect the output in the properties. "Last year, some farmers were so furious that they set their production of castor bean on fire. Of the 23 thousand who planted it, only 9 thousand got to sell it. We sent a letter to all affiliated unions explaining that we broke up the agreements with Brasil Ecodiesel, but, since contracts are individual, farmers are free to do what they want. But now we are talking with Petrobras, which offered us a reasonable price to resume planting castor bean as a supplementary activity to food crops", says Darinho.

Ceará's FETRAF, in turn, which has also strongly criticised the integration agreements practised by Brasil Ecodiesel, has not yet trusted Petrobras as an alternative, as its state coordinator Manoel Arnaud Peixoto explains: "We still do not have a good relationship with Petrobras, and we believe that, if family agriculture remains as a mere producer of raw materials, income from castor bean will not be relevant".

Regardless of the process of building commercial and political relations with businesses and governments, however, movements complain about services provided. Both in Bahia and in Ceará, according to MST and FETRAF, farmers received low-quality seeds from Petrobras and the state government, which were not delivered on time for planting, thus causing damages to production. Likewise, the organisations denounce that technical support has been a problem, because it is insufficient and defective.

According to INCRA advisor in Ceará Eduardo Barbosa, the major problem with support has been its exclusive focus on castor bean, leaving out the property and the project to make family farming viable. "That is a retrocession", says Barbosa, who advocates the adoption of agroecological practises as a more viable alternative for small properties.

The problem is similar in Bahia, says MST leader Julio Vasconcelos. According to him, until early April the MST had not signed contracts with Petrobras because of disagreements regarding technical support. "Petrobras suggested a 29-real monthly payment per family served (each technician is in charge of 100 families, according to the norms of the Social Fuel Seal), to be transferred to co-operatives to hire agronomists. We don't think that is feasible, since there are all the expenses and costs with displacement, food, etc. We think that the minimum would be 45 reais a month per family served", Vasconcelos explains.

Pragmatic, the MST coordinator sees the permanence of Petrobras in projects with family agriculture as a question of political will by the company and the federal government. "If the company gives an initial subsidy for castor bean, the crop can take off. But it has its market guaranteed with or without Petrobras. The point is that if we have only the castor oil non-fuel chemical industry in the segment, prices will fall again. My opinion is that if Petrobras does not encourage the activity, we will never have biodiesel from castor bean".

CASE | Castor bean in Bahia

Against all expectations, after a year of good results, Bahia reduced the area planted with castor bean in 2009. According to the seventh survey on the grain harvest published in April by the National Supply Company (CONAB), the crop occupies this year 101.5 thousand hectares, a 17.7% fall over the 2007/08 harvest, which planted 123 thousand hectares. But Bahia is still the highest producer in Brazil, maintaining a historical trend. According to the Brazilian Institute for Geography and Statistics (IBGE), which has monitored the performance of the crop since 1977, castor bean occupied 340 thousand hectares in the state in the 1984/85 harvest - when Brazil still dominated the international market for castor oil for non-fuel purposes, the main destination of the product[7].

CASTOR BEAN HISTORICAL SERIES IN THE IRECÊ, BA, REGION

Year	Planted area (Ha)	Lost area (Ha)	Output (Ton)	Price(60-Kg sack)	Yield(Kg/Ha)
05/06 Harvest	56,433	0	31,687	31	562
06/07 Harvest	60,857	0	26,513	55	435.7
07/08 Harvest	67,693	1,000	55,770	73	734

Note: Average prices

Source: EBDA

CORN HISTORICAL SERIES IN THE IRECÊ, BA, REGION

Year	Planted area (Ha)	Lost area (Ha)	Output (Ton)	Price(60-Kg sack)	Yield(Kg/Ha)
05/06 Harvest	112,842	63,859	43,015	18	878
06/07 Harvest	164,227	86,221	46,272	18	536.7
07/08 Harvest	140,553	69,800	40,075	25	552

Note: Average prices

Source: EBDA

BLACK BEANS HISTORICAL SERIES IN THE IRECÊ, BA, REGION

Year	Planted area (Ha)	Lost area (Ha)	Output (Ton)	Price(60-Kg sack)	Yield(Kg/Ha)
05/06 Harvest	115,880	79,214	5,987	80	163
06/07 Harvest	102,772	73,877	6,021	50	208.4
07/08 Harvest	75,480	56,880	2,017	150	27

Note: Average prices

Source: EBDA

Even though Brazil lost the lead in the oil market to India and China in the 1990s - which caused a significant decrease in the area planted with castor bean in Bahia - it entered the makeup of the productive culture of the state's rural population as well as corn and black beans, forming the "support triad" of family farming in the Semi-arid. By and large, that happened because of some factors: its relative resistance to droughts, empirical knowledge on the crop, own production of seeds, easy storage, high productivity, and a market with permanent demand have turned castor bean, intercropped with food crops, into a fixed income source that is available all year long and even in periods when droughts damaged food crops.

Based on the performance of black beans, corn, and castor bean during the 2007/08 harvest in the area of Irecê, the state's largest producer, for instance, we find that because of the drought in that period, 56.8 thousand hectares of black beans and 69.8 thousand hectares of corn were lost, against only a thousand hectares of castor bean lost. In this year's harvest (2008/09), when the drought was even stronger, farming data by Bahia's Agricultural Development Company (EBDA) point that, of the 45.4 thousand hectares of black beans planted in the Irecê area, 23.8 thousand had been lost until mid-February. Corn losses in the same period reached 25.5 thousand of the 154.9 thousand hectares planted and only castor bean resisted[8].

In Itaitê, settler Leônio dos Santos regrets losses in corn and black beans, but he awaits the results of castor bean

As for prices, 2008 was an exceptionally good year for castor bean, as shown by the table above. While the 60-kg sack of black beans in the area of Irecê (which regulates the prices of the crop in the Northeast) was sold by an average of 150 reais, and corn by 25, the average price for castor bean was 73[9] reais, with peaks of 86. If we compare the 2,017 tons of black beans harvested in the region to the 55,770 tons of castor bean, however, we will have a yield of 5.04 million reais for the former and 66.9 million reais for the latter crop - a significant difference for farmers' budgets. In early 2009, however, castor bean was devalued over the previous year, varying between 50 and 62 reais. According to estimates by the Ministry of Agrarian Development (MDA), prices should stay within that range all year. As a comparison, corn prices according to CEPEA/ESALQ and the Institute of Agricultural Economy (IEA), from São Paulo, were around 22 reais per 60-kg sack and black beans prices, also according to IEA, has peaks of 122 reais and bottom levels of 60[10].

▶ Castor bean does not replace food

In spite of castor bean's good agricultural and economic performance, according to EBDA agronomists Valfredo Vilela and Ariosvaldo Morais, it has neither supplanted nor replaced food crops in terms of area planted. According to them, now, as in the 1970s, people in rural areas see castor bean as a complement to the family economy - based on corn and black beans - even because high prices are a more recent phenomenon set in motion by the entry of the biodiesel industry in a market dominated by castor oil for non-fuel purposes until 2005. An example of such behaviour is MST's productive planning in the Itaberaba area. With its headquarters in Itaitê - a small town by the Diamantina Ridge - the Regional Co-operative for Agrarian Reform the Diamantina Ridge (COOPRACD), present in nine settlements and camps in the region, intends to establish closer relations with Petrobras, with whom it has developed a project to plant castor bean through Petrobras Fome Zero programme since 2003.

But the MST wants systemic planning of the areas where castor bean would be only one more crop among productive activities.

At the Baixão settlement, one of the most organised in the region, which now includes 140 families, castor bean has always been important, although complementary to food crops. According to COOPRACD president Edivando dos Santos, who also presides over the Baixão Settlers Association and coordinates the MST production sector in the region, despite project Petrobras Fome Zero (which included the construction of three sheds, the purchase of several vehicles, an office in Itaitê, and technical support), in 2008 the co-operative ended up selling most of its production for the Salvador-based castor oil company Bom Brasil, since its prices (up to 80 reais per 60-kg sack) were much better than those paid by Petrobras (55, on average).

Castor bean's good results last year led the MST settlers to increase their planted area in 2009 by some 40% - an increase that was also applied to intercropped corn and black beans, Edivando explains - but the production project in Baixão is much broader. According to farmer Leônio Oliveira dos Santos, who had major losses this year in corn and black beans, castor bean gained importance with the worsening of droughts and "uncontrolled" of rains, which "now fall out of time and in scattered points". But the idea is still working on castor bean, which had good productivity, as a complement to food crops, thus guaranteeing the settlement's food sovereignty, Leônio explains.

Currently, the Baixão settlers dedicate themselves mainly to bovine and swine raising, and to planting manioc, castor bean, corn, common bean, cowpea, peanuts, pumpkin, Brazil nuts, snot apple, and banana. According to a survey by agronomist Edson Fernandes, a technician with the National Institute for Colonisation and Agrarian Reform (INCRA), summing up the annual economy in the settlement, the average monthly income of the families is about 435.34 reais, which is seen as a good result. In that balance (based on last year's results), beef cattle, raised by 124 families, was the most profitable activity in Baixão (it gave 198 thousand reais to the settlement), followed by manioc (147 thousand) and castor bean (113.4 thousand). Corn's profit was 75.6 thousand reais and black beans', 91 thousand.

Environmental control is also a priority at Baixão, as farmer Leônio dos Santos explains. Besides banning chemical inputs - which does not create major losses since the settlement land is highly fertile - MST seeks to preserve the legal reservation for each family area and the settlement, under risk of admonition. Thus, the opening of new areas for castor bean is done under control and larger investments go to seed quality and planting techniques to increase productivity.

Therefore, in some collective land plots located by the River Una, COOPRACD has been developing experiments intercropping castor bean, corn, and black beans, as well as tests with seed varieties, in order to assess the performance of crops. According to Edivando and Leônio, castor bean's average productivity in Baixão is 900 kg per hectare, with peaks of 1,200 Kg, which is considered a good result. "We even found that castor bean alone, without intercropping, had better results, but is not an option for the settlement because of the principle of food sovereignty", sustains Edivando.

▶ Biodiesel does not change farmers' routines

Bahia's rural population has long lived side by side with castor bean and created a very typical culture for trading the plant, which does not care much about the product's final destination. When farmers are better organised, some co-operatives negotiate directly with the industry, but by and large the output of their properties end up in middlemen's storage facilities.


Edivando and Leônio observe the performance of corn and castor bean in an experimental area at Baixão

In Itaitê or Cafarnaum (in the Irecê area), for instance, middlemen are almost a banking institution, which receives any amount of castor bean and pays for it on the spot, or even up front. Castor bean can become a currency - three kilograms of it by one of rice - the pocket money for the street market or the first allowance for the children, who save leftovers and sell them for two reais, EBDA agronomist Valfredo Vilela explains.

According to most small farmers from Bahia's Semi-arid region interviewed by CMA, Petrobras' entry in the state's castor bean market, which became real with the construction of the biodiesel plant in Candeias in mid-2008, so far has only resulted in a favourable oscillation in prices; it changed little in the production chain in terms of planted area or even trading methods.

In Cafarnaum, a small town with a population of about 17.5 thousand, mostly in the rural area, and one of Brazil's largest castor bean producers, neither Petrobras nor any other biodiesel company such as Brasil Ecodiesel have entered the market for real, says farmer Iranildo Alves dos Santos. Considered a "large-scale" producer in his 380 hectares, 70% of castor bean production is not intercropped with corn and black beans, the crops that cover the rest of the area - Iranildo has invested in improving seeds and management, and he celebrates price increases driven by biodiesel, but otherwise he does not see any difference in the market with the arrival of bioenergy companies in Bahia. "Petrobras has been here last year, but it did only a presentation of the biodiesel project. So far I have not taken an interest, since we are very suspicious here after the failures of the contracts with Brasil Ecodiesel in the past, which gave nothing to those who signed them", Santos.

Farmer Firmino Rosa de Souza, in turn, who has 43 hectares shared with his son Joselito, does not know what biodiesel is or who the final buyers are for his small production, which is sold to middlemen. With this year's drought, Souza's family lost virtually all their corn and black beans production, so that castor bean became some sort of "life insurance", explained the farmer. "Here when every-

thing else ends, our survival depends on castor bean, which still holds. About biodiesel, I only listen. I don't care where mi castor bean goes to, at the plantation all I think about is working", he explains.

Santos in his castor bean plantation: biodiesel has not changed anything

Despite hopes that castor bean, differently from the other crops, resist to the burning sun that has dried up the region early this year, Souza and his son Joselito have never thought about increasing the area planted with it. But they also know that the part of the production saved will not be enough to support their families. As he has been doing for some years, in April Joselito was already getting ready to migrate temporarily to Minas Gerais in search of work in the coffee harvest - a job where he earns little but that guarantees an additional income of 2 thousand reais on average.

Just like Joselito, more than a hundred men in his community shall leave their properties in search of work in coffee or in sugarcane cutting in other states during three to four months, he says. "If we had the minimum conditions, if we had funding to dig a well and to plant irrigated carrots and tomatoes, we'd stay. There is too much suffering out there. In Minas Gerais, I've already spent a week sharing meals with another fellow, because we had no money and we would find no job".

Compared to MST settlers in Itaitê, a large part of small farmers in the Irecê area have a much lower income and life quality. Much is due to lack of organisation, but also because of less investment, says Ariosvaldo Morais, an agronomist with the Bahia's Agricultural Development Company (EBDA). According to him, castor bean fixes the farmer in rural areas, but lack of investment might neutralise that positive effect.

Therefore, Petrobras's "abandonment" of farmers not linked to some organisation or movement ends up being a problem in Bahia, says Morais. According to him, a large number of small farmers eventually get no investment or support, which might have an even higher impact on the state's castor bean crop. "Petrobras is directing all its resources towards social movements, but how about the others? In Bahia we have 60 thousand castor bean farmers with no access to the company's incentive programmes", Morais points out.

Lack of income in Cafarnaum makes Joselito migrate in search of work

Firmino de Souza in his plot with castor bean production

Chapter 3
Final remarks and Recommendations

Historically developed and spread in Brazil's north-eastern semi-arid region, where family-based farming prevails, castor bean is a labour-intensive crop. That feature so far is replicated in other areas of the country where the plant has spread to, such as the south and the southeast, and there are still relatively few mechanised experiences for planting - and even less for harvesting - castor bean.

This inherent quality of family farming has excluded castor bean from impacts common to other crops, such as monoculture, intensive use of pesticides, the expansion of the agricultural border and the resulting pressure on native vegetation and traditional communities' territories, overexploitation of workers, slave labour, rural unemployment and accidents at work. There are also no signs that castor bean has been threatening food crops. On the other hand, perhaps because it is not part of the select world of agribusiness, castor bean has undergone basic problems such as lack of seeds and dissemination of studies on the crop.

According to researcher and bioenergy coordinator at Embrapa Clima Temperado in Pelotas, RS, Sergio Delmar dos Anjos e Silva, besides insufficient amount of seeds, their quality also leaves much to be desired. In the state of Rio Grande do Sul, in spite of good prices practised in 2008 - in agreement with the vegetal oil and biodiesel company Oleoplan, the price of the 60-kg sack set with farmers was 80 reais - and the plant's resistance to drought (which has led to losses of about 90% of annual crops like corn, black beans, and soybean in the state's northwest era), the area planted with castor bean should be reduced a lot in 2009. If seeds were available, the state's farmers would certainly increase the amount of castor bean planted, being able to even displace corn and soybean because of climate conditions.

From the economic viewpoint, it is possible to say that castor bean is a crop that has plenty of positive aspects, but businesses get the best of that production chain. As happens in Bahia, castor bean produced in the south and sold in São Paulo or even in the northeast also has its guaranteed market with the chemical industry. By inclusion in the National Programme for Production and Use of Biodiesel (PNPB), however, the crop becomes a great business for processing companies based in the state, which produce fuel from soybean and, with castor bean, they have the advantages of the Social Fuel

Seal and the promising market of castor oil for non-fuel purposes. That is, they sell expensive noble oil produced from raw material that receives incentives.

Family agriculture, in turn, is the segment that is more subjected to risk factors, such as climate, production, and market instability. It is the weak link in the chain, which assumes the damages and is subjected to policies regarding prices, market, and even production determined by companies and the government. On the other hand, in a universe of about 4.13 million of family farmers in Brazil, the initial target of including 200 thousand in the PNPB was already insignificant. The failure of the programme, therefore, in the last four years, reduces even more its social impact.

It is also possible to say that, given contexts as that of small farmers in Cafarnaum (Bahia's largest castor bean producer), who every year go after jobs and income in sugarcane or coffee in other states, exposing themselves to threats such as slave or degrading labour, policies to support producers are still not enough (according to the Bahia's Agricultural Development Company - EBDA, the migration phenomenon takes place in the whole Irecê macro-region).

If the federal government's idea is really to strengthen family-based agriculture through the PNPB, public investments will have to extrapolate castor being plantations and focus on sustainable development of both the properties and the region. Part of that strengthening resides in productive and associational organisation, especially in the Northern and North-eastern regions, and it should include the advancement of farmers within the biodiesel chain, allowing for their participation in the processing of oleaginous plants.

It will also be necessary to extend the PNPB's advantages - now offered to the business segment - to rural producers, and guarantee the continuity of support policies in order for occasional changes not to interfere in their effectiveness. Likewise, in spite of Petrobras's political decision to incentive castor bean and other oleaginous plants in family agriculture, the government cannot have the company as the only base for the PNPB, since it cannot control its policies in the medium and long run.

If the government's aim with biodiesel production is to contribute to Brazil's energy security and at the same time, to develop its agriculture, it has to give family agriculture - elected the main actor of that process by the PNPB - the same treatment given for years to the development of the sucroalcooleiro industry or, beyond that, to the country's oil industry park.

Finally, the government is coherent when it considers developing crops alternative to soybean as a political strategy. Having said that, more integration is necessary between ministries involved in bioenergy projects, research agencies, and farmers' representations for biodiesel policies to be jointly defined, thus avoiding problems with seeds, technical support, and trade relations with the private sector.

NOTES

SOYBEAN

1 Seventh survey on the 2008/9 harvest, released in April 2009.

2 Data by the National Agency for Petroleum, Natural Gas, and Biofuels (ANP).

3 Computation considers that biodiesel in question has been produced exclusively out of soybean.

4 While the word's population has doubled in 20 years, its animal protein consumption increased five times. Lately, China has led that increase: 20 years ago, a Chinese citizen used to eat an average of 15 Kg of meat a year; now that value has increased to 38 Kg. Data by Germany's Wervel Institute.

5 Flexor, George. *Preços agrícolas e biocombustíveis num contexto de insegurança alimentar*. Oppa/CPDA/UFRRJ: Rio de Janeiro, May, 2008.

6 The Gini coefficient varies from 0 to 1. Zero corresponds to complete equality (shared income) and 1 means complete inequality (one person concentrates all the income).

7 According to the Rio Grande do Sul Federation of Agricultural Workers (FETAG-RS), the exception would be the experience in Canguçu, in the southeast of the state, described in the first report by the Biofuel Watch Centre. The problems to consolidate castor bean in the state would be farmers' lack of familiarity with the plant, lack of expert technical support, and relatively low productivity.

8 Since 2007, four processing units are licensed by ANP to function in Rio Grande do Sul: Brasil Ecodiesel, BSBios, Granol, and Oleoplan. All of them have the Social Fuel Seal.

9 PIS/PASEP (Social Integration Programme) and COFINS (Contribution to Fund Social Security) are tax-like social contributions.

10 The area planted fell from 71.1 thousand hectares to 67.6 thousand in Pará and from 331.6 thousand hectares to 318.3 thousand in Tocantins. In Roraima, it remained stable at 15 thousand hectares. In Mato Grosso, in turn, it went from 5.68 million hectares to 5.77 million. And the fall in Maranhão's soybean area was from 421.5 thousand hectares to 390.7 thousand.

11 Source: **http://www.arcplan.com.br/mma/cerrado_fichas_das_areas_prioritarias.pdf**

12 Data from the Ministry of the Environment show that, until 2002, the Cerrado region had already lost 39% of its original coverage. The Pampa, which is also under threat by soybean expansion, had lost almost half of its original extension, while Caatinga, less threatened by the advancement of soybean, had lost 36%. The Atlantic Forest is the biome with the most devastated native vegetation, having lost 73% of its vegetal cover. And Pantanal is the most preserved non-Amazon biome, with 87% of its native cover intact.

13 About cattle and deforesting in the Amazon, see studies by Friends of the Earth – Amazônia Brasileira (**http://www.amazonia.org.br/arquivos/308285.pdf**) and Instituto do Homem e Meio Ambiente da Amazônia (Imazon) (**http://www.imazon.org.br/novo2008/arquivosdb/120849pecuaria_mudancas_climaticas.pdf**)

14 See article "*Ruralistas querem excluir Maranhão da Amazônia Legal*", at Agência Repórter Brasil (**http://www.reporterbrasil.com.br/exibe.php?id=1485**)

15 According to data by the National Indian Foundation (FUNAI), there are currently 22 Indigenous lands in Rondônia. They total little over 6.1 million hectares, about 25% of the state's territory. Peoples from 28 distinct Indigenous ethnic groups live in those territories, with a population of about 9 thousand Indians.

16 Resolution 3.545 by the National Monetary Council/Central Bank, February 2008.

17 Information by Instituto do Homem e Meio Ambiente da Amazônia. See: **http://www.imazon.org.br/novo2008/arquivosdb/QuemDonoAmazonia.pdf**

18 Information by Programme Terra Legal by the Ministry of Agrarian Development. See: **www.mda.gov.br/arquivos/1726920047.pdf**

19 Mopic. *Carta dos Povos Indígenas do Cerrado*. Mato Grosso do Sul, December 13th 2007.

20 Mopic. *Carta final - 2ª. Assembléia Geral da Mopic*. Mato Grosso, December 12th 2008.

21 Repórter Brasil. *Brazil of Biofuels - Impacts of Crops on Land, Environment and Society. Soybean & Castor Bean, 2008*. São Paulo: Biofuel Watch Centre, 2008.

22 We have interviewed researchers and managers belonging to Southern Indigenous Peoples' Articulation (ARPIN-SUL), Indigenous Working Centre (CTI), Missionary Indigenous Council (CIMI), Federation of Agriculture and Cattle Farming of the state of Mato Grosso (FAMATO), National Indian Foundation (FUNAI), Socioenvironmental Institute (ISA), Labour Attorney's Office (MPT), General Attorney's Office (MPF), General Assembly for the Mobilisation of Indigenous People in the Cerrado (MOPIC), and Operation Native Amazon (OPAN).

23 Greenpeace. *Comendo a Amazônia*. Brasil, 2006.

24 The Indian Protection Service (SPI) was the federal government Indigenous affairs agency before FUNAI.

25 ECOPLAN. EIA-Rima, PBA and technical advice for licensing of pavement work on BR-158/MT. Brazil: February 2007.

26 It is important to underscore that data were obtained by the DETER system – Real-time Deforesting Detection System, more appropriate for the function that names it than for analyses of deforesting historical series. Besides, much of the Legal Amazon was under clouds in the period (63% in November, 86% in December and 76% in January), which made satellite monitoring difficult.

27 Gomide, Maria Lúcia. *Marãnã bödödi - a territorialidade Xavante nos caminhos do Ró*. Doctoral thesis on Physical Geography presented at USP in March 2009.

28 We have kept the transcription of the statement made by the researcher, preserving the speech of the Indigenous informant.

29 Indigenous Statute (Law 6001/1973).

30 The first Provisional Measure signed by the Lula Administration authorising GM soybean plantations in Rio Grande Sul.

Castor Bean

1 Castor-based chemicals are making a comeback, but few companies have the technology to participate as innovators, 03.04.09 - **http://www.icis.com/Articles/2009/04/03/9206058/castor-chemical-development-increases.html**

2 Information by MDA.

3 Monthly bulletin on renewable fuels, MME – February 2009.

4 Brazil of Biofuels – Impacts of Crops on Land, Environment and Society: Soybean & Castor Bean - **http://www.reporterbrasil.org.br/documentos/o_brasil_dos_agrocombustiveis_v1.pdf**

5 According to IBGE's historical series.

6 Prices in February 2009 according to Aboissa Óleos Vegetais.

7 Castor oil is one of the main components of about one third of motor greases, besides paints, cosmetics, detergents, pigments, glues, resins, polyurethane, automobile parts, phone cables, etc.

8 In early March, losses in black beans and corn might have reached more than 80%, according to the preliminary analysis by EBDA agronomists. Castor bean, which, in the last survey on February 17, had not suffered losses, will also have lower production by the end of the harvest because of drought, estimates EBDA.

9 Data from Bahia's Agricultural Development Company (EBDA) in March 2009.

10 National prices for crops released by the Ministry of Agrarian Development.