

Human Rights violations and environmental destruction through soybean production in Brazil

- Financing for soybean cultivation in Brazil through German and international banks contributes to violations of the human rights to food, health, water and a clean environment

1. Introduction and problem presentation

Soybean cultivation in Brazil has jumped within the last 45 years from few thousands up to 21,5 million hectares (FAO 2004). According to FAO data, around 50 mn. tons of soybeans were harvested in 2004, making Brazil the world's second large producer (after the USA). At present, soybeans are Brazil's most important agricultural export crop, accounting for a significant proportion of the foreign exchange income (US\$ 10 billion in 2004).

World demand for the protein-rich feed has been growing steadily - particularly since the BSE crisis -, resulting in attractive prices for soybeans, which encourage investments in the grain legume. According to information from researchers and soybean producers, there is a potential to expand the Brazilian area under soybeans to up to 100 million ha in the near future, mainly in the central-western and north-eastern *Cerrados* (bush savanna).

Soybean expansion in Brazil has been stimulated substantially by public subsidies in the past and present, such as low-cost credits, investments in infrastructure for storage, processing and transportation, as well as public agricultural research. Moreover, soybean cultivation is now being financed mainly by multinational corporations, international – public and private – banks, and by fertiliser and pesticide companies which supply technology packages at the same time.

The financing of soybean cultivation through German and international banks (with German participation) is contributing to the devastation of ecosystems and loss of small peasants' habitats in Brazil. There is a clear responsibility of international financing for facilitating the expansion of an unsustainable pattern of agro-industrial production in Brazil which harms human beings and the environment, although it may result difficult to deduce directly the violations of one peasant's human rights from one external dollar spent in soybean production (see 1.3).

Despite its economic success, soybean cultivation entails a series of **ecological and social problems** (details see under 2. Background). Salient issues in the environmental field comprise massive deforestation and loss of biodiversity, water pollution by pesticides and, consequently, destabilisation of ecosystems and intoxication of human beings, quite apart from the problem of genetically modified soybeans. In 2002, deforestation in Brazil totalled 2.55 million ha, and 70% of the 1.1-million-ha expansion of the agricultural frontier in the Amazon region alone was attributed to soybeans. Worse yet, the *Cerrado*, Brazil's second major biome and the most diverse of the world's savannas, is suffering severe clear-cutting and irreversible losses of its original vegetation and biodiversity (see 2.1). Brazil is the world's third largest consumer of pesticides, currently spending US\$ 2.7 billion each year, producing enormous waste mountains of empty packaging. The toxic pesticides applied in soybean cultivation – between 92.5 and 185 million litres in the 2002-2003 harvest (5-10 litres for each of the 18.5 million ha), comprising one fifth of the total production costs – poison human beings, animals and the environment (see 2.2).

¹ The author has, within her Master studies in „Agricultural Resource Management in the Tropics and Sub-Tropics (ARTS)“ at the University of Bonn, visited 14 Brazilian States from March-July 2003, doing research on „Soybean expansion, socio-environmental conflicts and food security“. The present article is based on investigations in São Paulo, Brasília, Goiás, Roraima, Amazonas, Pará, Maranhão, Tocantins, Piauí, Bahia, Paraná, Mato Grosso do Sul, Mato Grosso and Rio de Janeiro, and on analysis of additional documents collected on site. For further reading, it is referred to the extensive bibliography within the author's master thesis. For questions: bickel@misereor.de.

From a social perspective, the increasing area of land occupied by soybean monocultures is leading to a re-concentration of land, stimulating the sale of lands and rural exodus by small peasants, and providing only a small number of jobs for skilled technicians. Even cases of slavery in land clearing for new agro-industrial plantations are frequently reported by the Churches' Land Commission (CPT) and the International Labour Organisation (ILO) (see 2.5). In contrast to the boom of soybeans (which are mainly destined for animal fattening in industrialised countries), the production of staple foods for human consumption in Brazil has visibly been stagnating or even diminishing. Public agricultural support has been favouring the powerful class of agrobusiness while neglecting the majority of small farmers until the present day (see 2.4). Hence, issues of food security and national food sovereignty are still not being given the necessary weight, in the face of 16 million undernourished (10% of the total population) and as many as 50 million poor Brazilians (31%), including around 5 million landless families who lack the minimum access to land and other productive resources to feed themselves. – In 2003, the cultivation of genetically modified soybeans was allowed in Brazil after long disputes between the Ministry of Agriculture and agrobusiness, and the Ministry of Environment and environmental organisations opposing its liberalisation. The cultivation of GM soybeans is expanding from southern towards the central-western and north-eastern regions, although its proponents cannot prove its harmlessness for nature and human health, and despite its rejection by the large majority (over 70%) of Brazilian and European consumers and its obvious negative consequences in the social, environmental and economic fields.

Soy - at this moment - is the most important driver for deforestation and further land concentration, directly and indirectly, according to a 2003 WWF study on the impacts of soybean cultivation in Brazil, realized by Ulrike Bickel and Jan Maarten Dros (see Box 1). Directly because the *Cerrado* is being converted from natural vegetation into soy fields. But indirectly, because in this region a lot of cattle farms are being replaced by soy farmers buying or renting land from cattle farmers. Hence, cattle farmers tend to advance towards the Amazon into new forest area, causing more deforestation.

1.1 Driving forces for soybean expansion

A) Producers

The governor of the state of Mato Grosso is Blairo Maggi, the owner of the Maggi group, who is also known as the *rei da soja* - the Soybean King. The Maggi Group is the largest private soy producer in the world. The company grossed \$600 million in sales in 2004, primarily managing the production, trade and processing of over 2 million tons of soy, most of it destined for livestock in Europe and Asia. Maggi has also been key in establishing transportation infrastructure that further opens the Amazon to development and deforestation (see C and Box 1).

Apart from its own soybean production in Mato Grosso, the company buys huge amounts of soybeans from its own farmers in the western central Brazil and transports these to export markets. In 2004, Grupo André Maggi planned to plant 170.000 hectares, which would produce 360.000 tons of soybeans. The group expected to trade 2.5 million tons of soybeans from its own farms and from more than 900 other farmers. At the beginning of the soybean cropping season (June-July) the company provides advances to smaller farmers, in the form of seeds, fertilizers, pesticides and cash. In the harvest time (January-April) the company purchases the soybeans for a reduced price (because advances are deducted) and stores the soybeans in its seven storage facilities. Total storage capacity amounts to 538.000 tons. From these facilities, the soybeans are transported to the market. 90% of this amount is exported to Europe and Japan, partly after crushing in the two crushing plants the group operates (in Cuiabá/ Mato Grosso and in Itacoatiara/ Amazonas). Total sales of Grupo André Maggi reached US\$ 550 million in 2003².

In 2003, Maggi's first year as governor, the deforestation rate in Mato Grosso more than doubled. When the New York Times pointed out that the destruction of the Amazon had risen by two-fifths, Blairo Maggi responded: "To me, a 40 percent increase in deforestation doesn't mean anything at all,

² J.W. van Gelder: Bank loans and credits to Grupo André Maggi. A research paper prepared for Fundação Cebrac. Castricum/ Netherlands, 4.6.2004.

and I don't feel the slightest guilt over what we are doing here. We are talking about an area larger than Europe that has barely been touched, so there is nothing at all to get worried about"³.



Fig. 1: Maggi Group soy storage and processing facilities. Source: www.grupomaggi.com.br/br/expimp/index.asp, www.grupomaggi.com.br/br/agro/estrutura.htm

B) International Financing

To finance advance payments to its suppliers before planting and to finance storage and transport of soybeans, Grupo André Maggi needs large working capital facilities and investment loans. Most of these loans have been provided by foreign banking syndicates over the past five years. An overview of these loans is provided in the following table⁴:

Date	Arranging Bank	Country	Amount (US\$ million)	Maturity (years)
Dec. 1999	Société Générale	France	15	2
March 2001	Deutsche Investitions- und Entwicklungs-Gesellschaft (DEG)	Germany	24	?
July 2001	Standard Chartered Bank	United Kingdom	70	1
January 2002	Rabobank	Netherlands	100	2
July 2002	Standard Chartered Bank	United Kingdom	50	1
Sept. 2002	International Finance Corporation	International	30	?
June 2003	WestLB	Germany	80	1
January 2004	Rabobank	Netherlands	230	2
June 2004	BNDES	Brazil	34	?
End of 2004	International Finance Corporation	International	30	?

Despite the fragile ecosystem in which it operates, and the controversy around its practices, the Brazilian agribusiness giant Maggi has got easy access to financing from public and private banks in Europe – namely Germany - and Japan, and by public institutions like the International Finance Corporation (IFC), the private-lending arm of the World Bank (see Annex 1⁵). In 2002 the Maggi Group's soy production division, Amaggi Exportação e Importação Limitada, landed two back-to-back US \$30 million loans from the IFC - one in 2002⁶ and a second that was granted in September of 2004, in order to enlarge the company's storage capacity about 250.000 t and finance soy production of Maggi's contract farmers. The IFC justified this by saying that even if a sector was under criticism as a whole, individual companies with a "good performance" could surely still be financed⁷.

³ Sasha Lilley, CorpWatch, 22.12.2004. www.infoshop.org/inews/stories.php?story=04/12/22/6508964.

⁴ J.W. van Gelder: Bank loans and credits to Grupo André Maggi (2004).

⁵ Ibid.

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<http://ifcln1.ifc.org/IFCExt/Pressroom/IFCPressRoom.nsf/0/03FFDA56CF3E002685256C6100577457?OpenDocument>.

⁷ Telephone interview Ulrike Bickel with the Brazil Director of IFC, Wolfgang Bertelsmeier, São Paulo, 23.7.2003.

More significant than the direct consequences of the IFC loan is the prestige that the international lending body has given to Amaggi, which in turn has attracted much larger loans from private banks.

The Maggi Group has also received a loan of \$24 million in March 2001 by a foreign banking syndicate arranged by Deutsche Investitions- und Entwicklungsgesellschaft (DEG), which triggered off huge protests by environmental organisations⁸. According to DEG justifications, “no tropical rainforest nor land in the Pantanal wetland will be used for the silo’s or the expansion of farm land. Indigenous groups will not be expropriated. The soybean will be grown in an environmentally responsible way and will not be grown as a monoculture. Grupo André Maggi will follow World Bank environmental guidelines”⁹. Despite these proclamations, no mechanisms to monitor independently the respect of these compromises have been set up, and Brazil’s public environmental institutions are far from having the capacities to enforce the compliance with its environmental norms (see Box 1, 1.4 on FEMA).

Despite this, it followed two loans headed by Standard Chartered Bank in July 2001 and July 2002 for \$70 million and \$50 million respectively, a \$80 million loan arranged by WestLB in June 2003¹⁰ and a \$34 million dollar loan from Banco Nacional de Desenvolvimento Econômico e Social (BNDES), Brazil's development bank, in June 2004.

Rabobank, the Netherlands' biggest agricultural bank, has lead a consortium of 11 banks, including ING Bank (Netherlands), HSBC (UK), BNP Paribas (France), Crédit Suisse First Boston (Switzerland), UFJ Bank (Japan), WestLB (Germany), Fortis Bank (Netherlands/Belgium), HSB Nord Bank (Sweden), Banco Bradesco and Banco Ita (Brazil), to loan Amaggi US \$230 million. This is the second large loan Rabobank has arranged for Amaggi. The first loan for \$100 million, in 2002, included ABN Bank and Fortis Bank, Banque Cantonale, BBVA, WestLB, and Standard Chartered, as well as three Brazilian banks. In September 2004, Rabobank launched an advertising campaign presenting itself as "a bank that puts corporate social responsibility into practice". Rabobank and West-LB are signatories of the IFC's “Equator Principles”, a voluntary set of guidelines for managing social and environmental issues, and also has its own official standards on forest protection.

The IFC's imprimatur has given private banks a means of skirting their own environmental policies. "Rabobank's reasoning was that if IFC approves this project and they classify it only as a class B, low-risk project, we can safely invest \$230 million, eight times more than what IFC is investing, in this corporation." In contrast to that, a proposed project is classified as Category A "if it is likely to have significant adverse environmental impacts that are sensitive, diverse or unprecedented". Then, a full environmental assessment is required to be undertaken by the sponsor of a Category A project¹¹.

According to Rabobank public affairs manager Hans Ludo van Mierlo the bank has an excellent record on environmentally sustainable lending: "We see no cause of concern by World Bank president James Wolfensohn's call for an audit of the IFC's loan to Amaggi. The current discussion among NGO's is about the IFC procedures, which resulted in a classification of Category B. This is more an internal discussion about the procedures of IFC and does not mean that Amaggi is doing something wrong."

The audit of this loan by the IFC Ombudsman, which was commissioned in 2004 by the World Bank on request of the Forum of Brazilian NGOs, found in May 2005 that IFC¹²:

- Does not provide for disclosure around categorization decisions that would enable interested or affected parties to make an informed judgment about the adequacy of IFC’s categorization decisions;
- Did not adequately assure itself of whether or not the Environmental and Social Management System would afford an appropriate level of environmental and social protection, and ensure compliance with IFC’s environmental and social requirements during project appraisal;

⁸ <http://www.regenwald.org/new/aktuelles/soja/>, http://archiv.greenpeace.de/GP_DOK_3P/BRENNPUN/URWALD/F7_Tradingdeutsch.pdf.

⁹ J.W. van Gelder: Bank loans and credits to Grupo André Maggi (2004).

¹⁰ www.grupomaggi.com.br/br/news.asp?idnews=9, 30.06.2003.

¹¹ Office of the Compliance Advisor/Ombudsman (CAO), International Finance Corporation/ Multilateral Investment Guarantee Agency: CAO Audit of IFC’s Environmental and Social Categorization of the Amaggi Expansion Project. Washington, May 2005. www.cao-ombudsman.org/pdfs/AmaggiFinal_Editedversion_05-26-05.pdf.

¹² Ibid.

- Did not undertake a sufficiently rigorous assessment of the status of implementation of Amaggi's Environmental and Social Management System as part of its appraisal of the second loan; and
- Did not clearly define its expectations of Amaggi as regards issues to be addressed by the assessment of the proposed silo locations and the required level of detail.

The IFC Ombudsman found that the Category B rating can not be fully justified unless these conditions are met.

In May 2005, **Amaggi** was revealed to buy soybeans from Amazon farms where slave labour was detected by the federal government, according to a report commissioned by the International Labour Organization (ILO)¹³ (see Box 1, chapter 1.4 on Slavery). According to the Forum of Brazilian NGOs, IFC failed to implement its own rules while performing the social and environmental screening of Amaggi. This allegedly led to underestimate the risks associated to the loan, aimed at increasing Amaggi's purchase of soybean from third-party suppliers, resulting in IFC supporting indirectly the human rights violations on the Amaggi's contract farms.

Environmental Defense's Schwarzmann notes the irony of the IFC loaning money to the Maggi Group, given the corporation's ability to draw large private loans. "The ostensible justification of [IFC lending] is to take public resources to support private business in the developing world that would not have access to international capital markets," states Schwarzmann. "What the IFC has done with the Amaggi loans is anything but that."

According to environmental experts, the international credits with public taxpayers' money to the Maggi group are a bitter milestone in selling out the Brazilian middle-west to agrobusiness companies. All the more since IFC is bound to the World Bank group's development mandate. But instead of a promoting a pro-poor development in Brazil, IFC and other public banks like WestLB and DEG are mis-employing their resources for the export-oriented agrobusiness, with fatal consequences for the native populations and their natural habitats.

The multiple **public and international subsidies** for soybean production, processing facilities and transport infrastructure stimulate the substitution of native vegetation by vast monocultures. The World Bank itself, which participates in the G-7 Pilot Programme to Conserve the Brazilian Rain Forest (PPG7), had promised not to finance any longer soybean expansion into the Amazon¹⁴.

C) Infrastructural interventions and ecological damage

The controversy around IFC and private bank loans to the Maggi Group has highlighted the agribusiness company's potential for ecological damage as soy producer and broker. But equally consequential has been Maggi's role in reshaping the Amazon region, owing partially to the substantial political and economic power of the Maggi family.

¹³ Amazonia.org.br, 30.5.2005, www.amazonia.org.br.

¹⁴ The following quotations illustrate the Bank's strategy in the past. Stephen Kennedy, Virginia Polytechnic and State University: „The World Bank also directed Brazil, in an effort to increase positive income flow, to increase exports. Hence vast stretches of fragile rain forest are cleared in order to increase production of agricultural exports; predominately soybeans. Rural indigenous peoples are pushed from their land either into urban areas where problems continue to worsen, or further into the forest where the need for subsistence living further degrades virgin areas. The tragedy in this soybean farming example is that the vast majority of soybeans are produced for cattle feed that reaches and aids developed countries. This lack of national subsistence continually backfires hurting the masses of impoverished urban dwellers and the pristine Amazon Rain Forest.“ In: www.majbill.vt.edu/students/geog3104/group4/Brazil.htm.

In March 1994, still, the World Bank approved a loan for road improvement, paving and rehabilitation in the North Brazilian savannas, which will probably contribute massively to the expansion of soybean production, causing land conflicts with traditional slash-and-burn farmers, polluting drinking water and destroying up to one million hectares of savannas. nativenet.uthscsa.edu/archive/nl/9408/0122.html.

In the 1980s, the World Bank had sponsored several devastating road and agricultural projects like the Polonoroeste project which opened up the virgin rainforests of Rondônia to more than a million landless peasants.

www.mongabay.com/20brazil.htm.

Governor Maggi, with largesse from the Brazilian and Mato Grosso state governments, as well as from private companies including his own, has built and is further building roads, ports and expanded waterways (e.g. Rio Madeira) through the Amazon rainforest that, according to critics, have further opened up the region to soy farms, cattle ranches and small colonists.

Maggi has initiated the creation of roads cutting through the heart of the Amazon, including the BR-163 highway currently being paved from Cuiaba, the capital of Mato Grosso, to the deep-water Amazon River port of Santarem. The asphaltting of BR-163 is part of a public-private arrangement between the Brazilian government, Maggi and US agribusiness giants Cargill, Bunge, ADM and others who want a cheap way to export soy. According to the Amazonian Institute for Environmental Research, or IPAM, this 1600 kilometer road will cut a 10 million hectare swath of land through the region, opening the area for further colonization (see also Box 1, part 1.4 Other ecological impacts).

Blairo Maggi has shrugged off criticisms by those who see a conflict of interest between his position as Mato Grosso state governor and Brazil's largest soy producer. "My electoral platform was based on the need to keep up economic development in Mato Grosso", Maggi told Soybean Digest last year. "As governor, my key goal is to ... triple agricultural production in Mato Grosso within 10 years, and to develop agro-industry in order to add value to that production".

Over the long run, demand for soy is only expected to grow. As long as consumers continue to demand meat from soy-fed livestock and international banks continue to finance its growth, the Maggi Group will stay in business. Meanwhile, the vital Brazilian ecosystems of Amazon rainforests and *Cerrado* remain in danger.

1.3 Extraterritorial Obligations: German responsibility for Human Rights in Brazil

By signing the International Covenant on Economic, Social and Cultural Rights (ICESCR) and through the UN Millenium Declaration, the German Government has committed itself to respect, protect and provide a.o. the human rights to food, health, clean water and, through the Rio Earth Summit's Agenda 21, the human right to a safe environment. Hence, it is responsible to guarantee that through actions from the German Government, from public development banks or private banks or companies from Germany on both national and foreign territory, human rights are not violated. Nevertheless, by actively providing German public financing and by tolerating investment loans from private German banks to unsustainable patterns of large-scale soybean cultivation in Brazil, the German Government is directly and indirectly supporting the destruction of natural ecosystems and human livelihoods in Brazil. Through this it prevents small peasants and indigenous communities in soy expansion areas to realize their human rights to feed themselves, to have access to clean drinking water and to a healthy, safe environment.

Box 1: The Mato Grosso case

1.1 Dimension of soybean expansion in Mato Grosso¹⁵

With over 90 million ha, Mato Grosso is the third biggest State of the Amazon region after Amazonas and Pará. Its original vegetation comprises Amazon forest (50 mn. ha), flat *Cerrado* highlands (*chapadões*) and fields (*campos*) (together 40 mn. ha). The southern and central parts of Mato Grosso have a distinct dry season, which is more suitable for soy production, whereas the northern part has a humid rainforest climate.

Due to its poor soils, the central-western *Cerrados* were considered for a long time as unsuitable for agricultural use. Since the 1970s, the adaptation of soy varieties to tropical conditions by the Brazilian agricultural research centre EMBRAPA permitted the agricultural exploration of the Cerrado savanna.

At the same time, large numbers of southern Brazilians started to migrate to the Central West, pushed by land scarcity due to population growth and land concentration, and pulled by government incentives like the colonization programs for the mid-west and central-north, Proterra, Polocentro and Prodecer. Initially in the 1980s, Prodecer was directed to small farmers from the south and should increase rice production for national supply, which, however, was gradually substituted by soybean production for export.

Hence, Mato Grosso has developed a highly mechanized, diversified agroindustry (soybeans, corn, cotton, rice, cattle raising). Its history is marked by rapid territorial expansion and productivity gains: From 56.000 ha of soybeans in 1980 to 4.5 mn. ha in 2002/03¹⁶. Only in the last eight years (1994/95-2002/03), the soybean area almost doubled, while the average productivity increased from 2.4 to 3.1 t/ha. With one fourth of the national 21.5 mn. ha (2004), Mato Grosso is today the biggest soybean producing state of Brazil.

Potential for expansion: The area for soybean expansion in Mato Grosso was estimated at 40 mn. ha, particularly in the regions around Sinop, Sorriso, Chapada dos Parecis, Rondonópolis and the Serra do Roncador¹⁷.

1.2 Link to European and American Markets

The Governor of Mato Grosso is Blairo Maggi, the owner of the Maggi group, the largest private soy producer of the world. 90 % of the soy traded by the Maggi group is exported, principally to the USA and Japan according to company sources¹⁸. The Maggi group receives diverse loans from US-American and European banks (see above). In April 2003, Cargill opened a US-\$ 20 million soy export terminal in Santarém with a capacity to move 800,000 tons of soy a year, most of which the company expects to come from the center-west - via the BR-163 highway. The port is three days closer to Brazil's main soy markets in Europe and Asia than ports in the industrialized south. Freight costs from central Mato Grosso to Rotterdam would fall by 20 %, according to data from the Ministry of Transport¹⁹.

1.3 Ecological and socio-cultural values

46 % of Mato Grosso's state territory belongs to the Amazon basin, one of the world's most biologically diverse regions which is home to 55,000 recorded plant species, 428 mammal species, and 1,600 bird species. The *Cerrado* (covering 49 % of the state territory) is recognized as a biome with high incidence of endemic species, but the area protected until now is absolutely insufficient to

¹⁵ Chapter 3 based on: Ulrike Bickel and Jan Maarten Dros: The impacts of soybean cultivation on Brazilian ecosystems. Three case studies. Commissioned by the WWF Forest Conversion Initiative. Bonn/ Amsterdam, October 2003.

¹⁶ Brazilian Statistics Institute (IBGE), different years.

¹⁷ H. Escobar: „Soja não é ameaça para a floresta amazônica“, in: O Estado de São Paulo, 31.3.2002, p. A-13.

¹⁸ www.udop.com.br/diversas/materias/div_01_09_02.htm.

¹⁹ Reese Ewing, Reuters news service 23 september 2003, see: <http://www.planetark.org/dailynewsstory.cfm/newsid/22323/story.htm>

preserve its biodiversity²⁰. Mato Grosso harbours many reserves of native populations²¹ of which some are threatened by the soybean expansion (see under „deforestation“).

According to the results of the initiative „Priority Areas for Biodiversity Conservation in the *Cerrado*“ sponsored by the Federal Ministry of Environment (MMA) under the UN convention on Biological diversity (CBD)²², some areas where soybean is expanding in Mato Grosso²³ are *biodiversity hotspots* and thus recommended as priorities for conservation²⁴. Only 1.8 mn. ha of Mato Grosso were protected areas in 1997 (comprising Conservation Units of entire protection and of sustainable use, indigenous areas and areas of permanent preservation), whereas 4 mn. ha were stated as desirable by the Ministry of Environment²⁵.

1.4 Implications of soybean expansion in Mato Grosso and the Amazon

Deforestation and loss of biodiversity

Deforestation and environmental degradation are increasing; 14 % of the Amazon forest area has been lost since the 1970s, compared with only 2 % between 1498 and 1970²⁶. In 2002, more than 2.5 mn. ha were deforested in Brazil, the highest rate since 1995²⁷. According to the Ministry of Environment the agricultural area in the Amazon region increased by 1.1 mn. ha in the same period. Soybean expansion accounted for 70% or 770,000 ha, followed by corn, rice and coffee plantations²⁸.

Of all Brazilian states, **Mato Grosso** is leading the deforestation rates with 795,000 ha in 2002²⁹. In 2003, Maggi's first year as governor, the deforestation rate in Mato Grosso more than doubled. When the New York Times pointed out that the destruction of the Amazon had risen by two-fifths, Blairo Maggi responded: "To me, a 40 percent increase in deforestation doesn't mean anything at all, and I don't feel the slightest guilt over what we are doing here. We are talking about an area larger than Europe that has barely been touched, so there is nothing at all to get worried about"³⁰.

In the last 20 years, 30 mn. ha of forest and *Cerrado* have been replaced by plantations of soybeans, cotton and corn, as well as by pastures. This is almost half of the 75 mn. ha of forests and *Cerrado* which still covered Mato Grosso in the 1980ies, or one third of the total state territory. 11,585 or 59 % of the national forest fires in July 2003 occurred in Mato Grosso, mainly in the central north³¹. These fires are a common practice for converting native vegetation into agricultural land.

²⁰ Ministério do Meio Ambiente: Biodiversidade Brasileira. Avaliação e Identificação de Áreas e Ações Prioritárias para Conservação, Utilização Sustentável e Repartição de Benefícios da Biodiversidade Brasileira. Brasília, 2002, p. 192-193.

²¹ Among others Xingú, Karajá, Aripuanã, Bakairi, Paraburure, Areões, Pimentel Barbosa, Zoró, Japuira, Kayabi, Nambikwara, Utiariti, Irantxé, Tirecatinga, Umutina, Paresi, Sarare and Rikbaktsa.

²² See www.bdt.fat.org.br/workshop/Cerrado/br/; www.mma.gov.br/img/sbf/chm/areace.jpg.

²³ Such as the Eastern Serra do Roncador and Vale do Araguaia River, the northern Serra do Cachimbo, the central western Chapada dos Parecis, as well as the central plains of Diamantino, Lucas do Rio Verde, Sorriso, Sinop and Sítio de Santa Filina.

²⁴ Governor maggi was quoted to say at a meeting with environmental NGOs: „If you want to play with Conservation Units, well, let's see, but don't talk about stopping the soybeans!“ Information provided by Donald Sawyer, Instituto Sociedade, População e Natureza (ISPN), Brasília, 27.6.2003.

²⁵ Ministério do Meio Ambiente: Causas e dinâmica do desmatamento na Amazônia. Brasília, 2001, p. 142.

²⁶ E. Johnson: The Taming of the Amazon. In: Estudos Avançados, Vol. 16, No. 45, May/August 2002, Vol. 16, No. 46, August/December 2002, São Paulo.

²⁷ Axnews, online publication of international informations from Alternex, <http://axnews.alternex.com.br/archives/00002927.htm>: "Desmatamento na Amazônia atinge 25,500 km² em 2002", 26.6.2003.

²⁸ Ministério do Meio Ambiente/ Secretaria das Políticas para o Desenvolvimento Sustentável: Contribuição Preliminar da Secretaria de Políticas para o Desenvolvimento Sustentável para o Primeiro Seminário Técnico para Avaliação dos dados referentes ao desmatamento na Amazônia Brasileira. Brasília, 3.7.2003.

²⁹ A Gazeta, Cuiabá, 22.6.2003, p. 2-4.

³⁰ Sasha Lilley, CorpWatch: Paving The Amazon With Soy... For Cows". 16.12.2004. <http://www.corpwatch.org/article.php?id=11756>.

³¹ Ibid.

The federal forest law (*Código Florestal*) permits different „legal deforestation rates“ in the Amazon region, depending on the vegetation type: in the case of primary forests, 80 % of the original vegetation cover have to be maintained as legal reserves, whereas in the cases of *Cerrado* and „transitional vegetation zones“ between forest and *Cerrado*, only 35 % and 50 % respectively have to be maintained. The soybean plantations are already penetrating into **primary forest regions**, for example between Canarana and São José do Xingú³². Many producers do not adhere to the forest law, deforesting large part of their areas³³. In June 2003, rural trade unionists had to take refuge in the Churches' Land Commission (CPT) in Cuiabá. They were threatened to death by mighty farmers after denouncing vast unauthorized deforestation in Lucas do Rio Verde, the major soybean producing district of Brazil, and Nova Mutum³⁴. The recently opened soybean terminal of the North-American agricultural commodity trader Cargill in Santarém is another source of attraction for new farmers to produce soybeans along the BR-163 highway connecting the terminal to Mato Grosso. The Cargill port was constructed despite a deficient Environmental Impact Assessment (EIA-RIMA), massively criticized by social and environmental organizations, expelling small fisher families who lost their traditional source of subsistence and income³⁵.

One factor favouring illegal land clearing is the acute shortage of staff of the Statal Foundation for the Environment (FEMA): only 13 inspectors are in charge of protecting the State's conservation areas, monitoring deforestation and fires. As a consequence, only seven of the total 37 nature reserves in Mato Grosso are demarcated. The majority is located on privately owned land, whereas the State in the past has made no budgetary provisions for expropriation and aquisition when declaring the nature reserves³⁶. Only recently, the FEMA is testing the introduction of a new satellite-based system to permit and monitor the licensing of deforestation, the first results of which are generally regarded as a big success³⁷.

In some cases, the soybean producers penetrate into protected areas³⁸ or into **indigenous reserves**, like the Xingú National Park, which entails deforestation and contamination through pesticides³⁹. Many indigenous areas are awaiting demarcation and do not have a legal status yet. Although the present government has taken up the formal establishment of indigenous territories as a priority, this seems to concentrate on remote areas in the Amazon with little agricultural potential. The Superintendent Director of Hermasa, the Maggi group's transportation agency, in Itacoatiara, Amazonas made a curious statement, when being shown a map to discuss potential areas for soybean expansion: „Where do you have this map from? It's full of indigenous reserves!“⁴⁰.

³² www.netlignews.com/pgdetalhes.asp?ID_Categoria=2555, Portal Amazônia, 7.7.2003.

³³ IBAMA Mato Grosso: Relatório de fiscalização, Cuiabá, 24.5.2003.

³⁴ Churches' Land Commission (CPT), Cuiabá, 23.6.2003.

³⁵ A Gazeta, Santarém, 3.-9.5.1998: GDA denúncia ampliação dos Cais do Porto. Diverse denunciations made by Grupo de Defesa da Amazônia (GDA), Diocese de Santarém, Pastorais Sociais, Comissão Pastoral da Terra, Projeto Várzea, Colônia de Pesquisadores Z-20, Associação de Docentes da Universidade Federal do Pará and others.

³⁶ A Gazeta, Cuiabá, 22.6.2003, p. 2-4.

³⁷ I. Scholz u.a., Deutsches Institut für Entwicklungspolitik: Handlungsspielräume zivilgesellschaftlicher Gruppen und Chancen für kooperative Umweltpolitik in Amazonien. Darstellung anhand des Staudamms von Belo Monte und der Bundesstraße BR-163. Bonn, 2003.

³⁸ A Fundação Estadual do Meio Ambiente (FEMA) aplicou uma multa exemplar de aproximadamente R\$18 milhões ao proprietário da Fazenda Santa Bárbara, Humberto Simioni Junior, pelo desmate ilegal de 3.196 hectares da Área de Preservação Ambiental (APA) Cabeceiras do Rio Cuiabá, na cidade de Nobres. ... No local haviam dois barracos de lona e vários maquinários como tratores, grades e pá carregadeiras e até uma enorme corrente, usada para desmatamento predatório em áreas de Cerrado e floresta. www.viagemaventura.com.br/news.php?action=newsview&recid=5016; www.icv.org.br/icvnoticias/one_news.asp?IDNews=1771.

³⁹ A. Drumond: Parque do Xingú: Plantio de soja invade reserva. In: Gazeta de Cuiabá, 29.7.2003, www.gazetadigital.com.br. And: Soja avança a leste do parque Xingu, e os Suyá ameaçam reagir, Instituto Socioambiental, 23 /2/ 2003 <http://www.conhecerparaconservar.org/opini%C3%A3o/not%C3%ADcias/descricao.asp?NewsID=356>.

⁴⁰ Interview with Ozair Fabris, Superintendent Director of the Hermasa Navigation Amazonia S/A, Itacoatiara, 4.4.2003.

With 95,000 ha of soybeans, 26,000 ha of corn and 2,700 ha of cotton in 2003, the Maggi corporate group is the driving force in expanding the agricultural frontier into the Amazon⁴¹. It acts in 10 of the 27 Brazilian states, with 35 storehouses with a storage capacity for 1.9 mn. tons of cereals and derived products, two bulk freight terminals (Porto Velho, Rondônia and Itacoatiara, Amazonas) and two crushing factories with a processing capacity of 3,000 tons/ day. The Maggi group is presently exporting a volume of 2 mn. tons of soy yearly, which corresponds to export earnings of over 350 mn US-\$⁴². Recently, it announced the intention to double its own soybean area and called for tripling the area with soybeans during the next decade in Mato Grosso⁴³. Two regions are of particular interest to the Maggi group: an area of already deforested land of 3 mn. ha near northern Sinop, close to the BR-163 highway, and the eastern Araguaia Valley, from where production could be exported via the North-Southern railway.

Other ecological impacts

Beside conversion of natural habitats, the heavy use of **pesticides** poses another severe problem, which is a sine qua non of modern soybean production. Pesticides pollute the drinking water and the environment. Particularly the pulverisation of pesticides by aeroplane disseminates the active ingredients over much larger areas than intended⁴⁴. In Lucas do Rio Verde the small farmers' organic plantations have been accidentally sprayed. The pesticides are very toxic in the short and long term, accumulating in human beings and the environment⁴⁵. The insecticides do not only affect the pernicious pests but also beneficial insects, resulting in an increasing instability of the ecosystem and requiring evermore pesticide application. The "Movement to Preserve the Rivers Araguaia and Tocantins" (one of the current soy expansion areas) estimates that around 220,000 people die annually in Brazil due to intoxication by pesticides⁴⁶. According to the public agricultural research centre EMBRAPA, around 20 % of the production costs of soy (totalling 1,000 Rs. or 330 US-\$ per hectare) are spent on pesticides (around 200 Rs.). Depending on the technological level, 5–10 litres of pesticides are applied per hectare of soybeans. 4.3 mn. kilograms of empty packages for pesticides are collected annually in the state of Mato Grosso, which is the country's third largest producer of this type of waste⁴⁷. The compulsory collection and triple washing of the empty packages being laborious, the total amount of empty pesticide packages is estimated to be much higher, due to the "wild disposal" in the field⁴⁸.

According to the International Advisory Group of the PPG7, the **new infrastructure projects** foreseen within the next pluriannual budget plan (PPA) stimulate soybean production, consequently increasing deforestation in some regions like Itacoatiara (Amazonas), Santarém (Pará) and Northern Mato Grosso where the BR-163 roadway is transpassing⁴⁹. An example is the pavement of the BR-

⁴¹ O. Guimarães: Retomada de expansão no Cerrado. Grupo Maggi volta a ampliar lavouras na Chapada dos Parecís e prepara avanço no leste do Mato Grosso. In: Globo Rural, 1/2003, p.44-45.

⁴² www.grupomaggi.com.br/br/eximp/numeros.htm. And: Grupo André Maggi: Business Profile. Rondonópolis, without year (~ 2000).

⁴³ L. Rother: Relentless Foe of the Amazon Jungle: Soybeans. In: New York Times, 17.9. 2003.

⁴⁴ M. Fátima Coelho, Federal University of Mato Grosso, quoted in: Transgênicos rondam Mato Grosso, 24.2.2003: www.estacaovida.org.br/one_news.asp?IDNews=85.

⁴⁵ There is substantial evidence of human poisonings from the use of Glyphosate (1999 Pesticide Action Network Asia & the Pacific, www.poptel.org.uk/panap/pest/pe-gly.htm).

⁴⁶ Movimento pela preservação dos rios Tocantins e Araguaia, regional do Bico do Papagaio: Jornal do Tocantins. Projeto Sampaio. Tocantins, may 2002. The World Health Organization (WHO) estimates that for every notified case of intoxication, there are further 50 non-reported cases. According to the National System for Toxic-Pharmaceutical Informations (SINITOX), 72.786 cases of intoxications by pesticides were registered in 2000, which would correspond to a figure of even 3.639.300 cases in this year. In: National Health Foundation (FUNASA), www.funasa.gov.br/pub/GVE/GVE0515A.htm, www.fiocruz.br/cict/informacao/intoxicacoeshumanas/indexintoxicacoeshumanas.html.

⁴⁷ Environmental Agency (IBAMA) and National Institute for Processing Empty Packages (INPEV): Distribuição porcentual de embalagens por estado, 2001. Brasília, 2002.

⁴⁸ Bickel, U.: personal observation, 2003.

⁴⁹ Programa Piloto para a Proteção das Florestas Tropicais do Brasil (PPG7), Grupo de Assessoria Internacional (IAG): Relatório da XIX Reunião: „O PPA 2004-2007 na Amazônia: novas tendências e investimentos em infraestrutura“. Brasília, setembro 2003. www.worldbank.org/rfpp/iag/iag19p.pdf.

163, the highway connecting Mato Grosso with the port of Santarém (Pará): a joint study of the Instituto Socio-Ambiental (ISA) and the Institute for Environmental Research of the Amazon (IPAM) has detected that this pavement would entail a deforestation between 2.2 and 4.9 mn. ha along the road within the next 25-35 years, endangering a flammable forest area of 4.9 mn. ha⁵⁰. Nevertheless, according to the 'pluriannual budget plan' (PPA) of President Lula's federal government, the road shall be paved, splitting the costs among private actors, the state (under soy producing Governor Blairo Maggi) and federal governments⁵¹. State governments may obtain loans for infrastructure development directly from the World Bank under its Economic Development and Poverty Alleviation strategies presented at the 2003 Parks Conference in Durban⁵². Governor Maggi now holds both political and economic power but disclaims the accusation of conflicting interests, since people had voted for him knowing that he wanted to build roads and expand agricultural production⁵³.

Socio-cultural impacts

Employment: Although the venue of the mechanised agriculture implicates the creation of new jobs in associated service sectors (commerce with pesticides, fertilisers, land machines, garages, banks), there is little benefit for the local population. After temporarily labour-intensive land clearing, in average only one worker is permanently employed per 167-200 ha of soybeans⁵⁴. Smallholder farming and other livelihoods are replaced by labour-extensive mechanised soy farming. The Cargill port was constructed expelling small fisher families who lost their traditional source of subsistence and income⁵⁵.

Slavery: Mato Grosso and Pará are the States where slave labour is most found in agriculture, according to reports of the International Labour Organization and the Churches' Land Commission (CPT)⁵⁶. In 2002, 723 cases of slavery were registered on farms in Mato Grosso, the number of unreported cases being much higher due to staff constraints in the Mobile Detection Team of the Ministry of Labour. The Fazenda Getúlio Vargas near Sorriso is an example: Two former slaves reported on forced work in removing roots after deforestation, planting soybeans, corn and rice, as well as applying fertilisers and pesticides without any protection equipment. Working days extended from 3 until 20 hours, in planting seasons until midnight, seven days a week. Food was unbalanced and insufficient, and necessary daily needs excessively charged for. The workers were "housed" under precarious black plastic covers in the field, without sanitation and health care, only drinking water from a river. The promised salary was not paid. The rural workers managed to escape after more than one year of slavery, but the hunting for new slaves is continuing⁵⁷.

The Brazilian agribusiness giant **Amaggi**, belonging to the Governor of Mato Grosso Blairo Maggi, was revealed to buy soybean from Amazon farms where slave labor was detected by the federal government, according to a report commissioned by the International Labor Organization (ILO) and published in May 2005 by the second largest Brazilian weekly, *Epoca*⁵⁸. Amaggi admitted having among its suppliers two farms where a total 84 slaves were freed by federal agents in 2004. Amaggi

⁵⁰ D. Nepstad, Instituto de Pesquisa Ambiental da Amazônia (IPAM); J. P. Capobianco, Instituto Socio-Ambiental (ISA) et al.: Roads in the Rainforest: Environmental Costs for the Amazon. Belém, 2002, p. 9.

⁵¹ L. Rother: Relentless Foe of the Amazon Jungle: Soybeans. In: New York Times, 17.9. 2003.

⁵² WORLD BANK ANNOUNCES SUPPORT FOR MORE SUSTAINABLE AMAZON, world bank web site; <http://lnweb18.worldbank.org/external/lac/lac.nsf/0/1514180bc0676cc185256da2007a4070?OpenDocument>; 15 September 2003.

⁵³ Ibid.

⁵⁴ R. Carvalho: A Amazônia rumo ao "Ciclo da soja". In: Amazônia Papers No. 2, Amigos da Terra, São Paulo, setembro 1999.

⁵⁵ A Gazeta, Santarém, 3.-9.5.1998: GDA denúncia ampliação dos Cais do Porto. Diverse denunciations made by Grupo de Defesa da Amazônia (GDA), Diocese de Santarém, Pastorais Sociais, Comissão Pastoral da Terra, Projeto Várzea, Colônia de Pesquadores Z-20, Associação de Docentes da Universidade Federal do Pará and others.

⁵⁶ ILO-Report "I Jornada sobre trabalho escravo". Brasília, nov. 2002, www.ilo.org/public/portuguese/region/ampro/brasil/trabalho_forcado/brasil/documentos/jornada_debates_trabesc.pdf, and CPT yearly report 2002, Goiânia, 2003.

⁵⁷ Interview with two rural workers from north-eastern Brazil, taking refuge in the Churches' Land Commission (CPT) in Cuiabá/ Mato Grosso, 23.6.2003. For security reasons, their names must not be quoted.

⁵⁸ Amazonia.org.br, 30.5.2005, www.amazonia.org.br.

explained that he was unaware of reported facts at the moment it signed the most recent contracts with the V Gercy farm in Rondonópolis and the Tupy Barão farm in Tapurah. The company also noted that the owners of these farms were not yet convicted. The ILO report focuses on the market links of farms enforced for slavery by the Ministry of Labour and was carried out by *Reporter Brasil*, an investigative journalism NGO, with support from ILO and the Secretariat for Human Rights of the Brazilian Presidency of the Republic. Other grain traders, such as Cargill and Bunge, are reported to keep slavery farms among its suppliers. Similar cases affect corporate purchases of beef and cotton.

The cultivation of mechanized crops in Mato Grosso goes together with **land concentration**: the number of farms bigger than 10,000 ha rose from 643 in 1980 to 767 in 1996, extending their area from 17.8 mn. to 20.6 mn. ha. Within the same period, the number of rural establishments smaller than 10 ha diminished from 23,902 to 9,801⁵⁹. **Illegal land holding**: On request of the Landless Peasant's Movement (MST), the public prosecutor investigated the number and area of farms irregularly occupying public land. He found that 464 farms were settling illegally on 6.6 mn. ha of public land in Mato Grosso in 1980, more than half of which was regularized. As a result, in 2003, there remained 3.2 mn. hectares of public lands occupied illegally by large farms, which ought to be re-taken by the Government to realize an Agrarian Reform as foreseen in the 1988 Constitution⁶⁰, but the political will to effectuate this seems to be lacking. While 10 % of the farms occupy 82 % of the productive land in Mato Grosso, the number of landless people and urban poor is steadily increasing⁶¹. In July 2003, there were 4,000 landless families in Mato Grosso (out of 80,000 for all Brazil) waiting in precarious camps for their settlement⁶². The social tension has been increasing under the Government of President Lula to realize the Agrarian Reform⁶³.

⁵⁹ E. Almeida: Latifúndios dominam 82 % das terras em MT e êxodo rural continua. In: 24 Horas News, 14.9.2003. www.amazonia.org.br/noticias/print.cfm?id=82282. Figures from the agrarian census by the National Statistics Institute (IBGE).

⁶⁰ José Orlando Muraro-Silva, Defensor Público do Estado de Mato Grosso: Governo Lula: terras da União e reforma agrária. Cuiabá, março de 2003.

⁶¹ E. Almeida: Latifúndios dominam 82 % das terras em MT e êxodo rural continua. In: 24 Horas News, 14.9.2003. www.amazonia.org.br/noticias/print.cfm?id=82282. Figures from the agrarian census by the National Statistics Institute (IBGE).

⁶² Interview with MST Mato Grosso, Cuiabá, 23.6.2003.

⁶³ E. Almeida: Latifúndios dominam 82 % das terras em MT e êxodo rural continua. In: 24 Horas News, 14.9.2003. www.amazonia.org.br/noticias/print.cfm?id=82282. Figures from the agrarian census by the National Statistics Institute (IBGE).

2 Background: Ecological and social impacts of large-scale soybean cultivation in Brazil

2.1 Deforestation

According to the public agricultural research institute, EMBRAPA, up to **100 mn. hectares** are suited to be opened up for growing soybeans in Brazil, most of it on *Cerrado* land (bush savannah) bordering the Amazonas area.

Soybean producers, most notably **Blairo Maggi**, since 2002 **governor of the state of Mato Grosso** and for a long time the world's biggest single soybean producer, frequently pretend no forest has to be cut down for expanding soybean cultivation, saying it would be too costly to remove the deep roots in the Amazon forest and the climate there being too unstable because of the heavy tropical rainfalls. In the Amazon region ("Amazônia Legal", comprising nine federal states) there is moreover also *Cerrado* and transitional vegetation, 35 % respectively 50 % of which have been put under protection by the Forest Law, but is often not adhered to.

Clearances abusing these protection regulations are made both in forests and on *Cerrado* land, because a lack of finances and personnel, and corruption, hamper the federal environmental authority, IBAMA, in making efficient controls (For example, an IBAMA forestry engineer from Balsas in Maranhão lamented that "we are a poor, under-developed country - here Ibama doesn't even have a car or petrol to follow up accusations ", but didn't pursue a case of land being illegally cleared to grow soybeans because his cousin owned the *fazenda* and his brother was in charge of the clearance). Mato Grosso is the sad leader concerning forest losses. Here 30 mn. ha have been cleared in the last 20 years for gigantic soybean, cotton and maize plantations, and for pastureland for livestock. This is almost half of the 75 mn. ha of forest and *Cerrado* land which covered the state in the 1980s.

For a long time the *Cerrado* was propagated - by some environmental organisations, too - as an alternative which would open up new areas for agricultural use and take off pressure on the Amazon for it to be deforested. The *Cerrado* has an area of 200 mn. ha and covers a quarter of Brazil, making it the second biggest ecosystem after the Amazon. It is regarded as the savannah richest in species in the world and, in having approximately 4,400 endemic species in a total of 10,000 species of plants, is classified as one of the earth's 25 biodiversity "hot spots". But the areas designated as protected - barely 1.5 % - are far fewer and smaller than in the Amazon. The extent of the destruction of the *Cerrado* is now evident. Two-thirds of its original vegetation has already been destroyed or severely degraded. Cultivation of soybeans in the *Cerrado* has since 1970 risen from 20,000 to 29 mn. tons, an increase in Brazilian soybean production from 1.4 % then to 58 % today. Since state planning on land use - determining where how much primary vegetation should be converted to land for agricultural use - exists only in a rudimentary form, advancing soybean expansion is one of the main factors threatening the *Cerrado* ecosystem.

Roughly half - 50 mn. ha - of the land that could potentially be used for growing soybeans is regarded as **degraded secondary vegetation**, land which was already cleared for cattle pasture years ago and has been left idle after being exhausted. The Amazonas environmental research institute, IPAM, has however stated that secondary vegetation on land cleared 30 to 40 years ago has regenerated to a great extent, and would again be fulfilling over 80 % of the functions of the original vegetation - so that clearing it again has negative environmental impacts on the climate, biological diversity, the water supply, and other ecological services, similar to those of logging primary vegetation.

In June 2003 new, alarming data on the **deforestation of the Amazon** region became published, stating the area involved to be 2.55 mn. ha, the highest figure since 1995. Shortly afterwards the environment ministry published figures saying that only in 2002 the area in agricultural use in the Amazon had increased by 1.1 mn. ha, 70 % of this due to the expansion of soybean farming, and smaller percentages on account of maize, rice and coffee plantations. This made all the more derisive Governor Maggi's statement, during a visit by the federal environment minister to Mato Grosso at the end of July, saying that she should not be impressed by 24,000 km² of deforestation (= 2.4 mn. ha, he said rounding off the figure), as this meant absolutely nothing compared to the total expansion in the Amazon. Maggi is the driving force in industrialising agriculture and pushing forward the agricultural frontier in the Amazon region (see Box 1).

Finally, a comment by EMBRAPA's engineer Emeleocípio in Belem: "Soybeans will spread like fire. Where the climate is humid, as in the rainforest, they won't make any progress because of pests and disease; where it is dry, as in the *Cerrado*, they will be unstoppable".

2.2 Pesticides

Vast quantities of pesticides are used in industrial agriculture every year, contaminating people, waters and the environment. According to the movement for the preservation of the Araguaia and Tocantins rivers (*Movimento pela Preservação dos Rios Araguaia e Tocantins*), thousands of people a year die from pesticide poisoning in Brazil. Between 1980 and 1999 Brazil's expenditure on pesticides almost tripled, from 695 mn. to over 2 bn. US-\$.

According to Embrapa, the state agricultural research agency, figures about 20 % of the costs of producing soybeans - about 1,000 reais (approx. 300 euro) per hectare - are for pesticides. Depending how intensely technology is used, five to ten litres of pesticides per hectare are sprayed. This means that on a soybean-growing area of 18.5 mn. ha between 92.5 and 185 mn. litres of pesticides are released into the open environment in Brazil every year.

In addition to the toxins released, there is an accompanying problem of the **waste mountain** of empty packaging. No data for soybeans alone are available, but according to the IBAMA environmental authority a total of 27.8 million kilograms of empty pesticide packaging accrued in 2001. The true figure is undoubtedly higher, as the triple washing and return of packaging to collecting points prescribed by law since 2000 is costly and not adhered to everywhere. This sad record is headed by the agriculturally "advanced" states of São Paulo (6.4 mn. kg), Paraná (4.4 mn. kg) and Mato Grosso (4.3 mn. kg), followed by Rio Grande do Sul (2.9 mn. kg), Goiás (2.4 mn. kg) and Minas Gerais (2.3 mn. kg), while amounts in the technologically "backward" north and north-east are smaller.

850,000 ha of a total of 1.2 mn. ha of cultivated land in the agrarian development "pole" of **Barreiras in West Bahia** are being occupied with soybeans. On a visit to the Campos Limpos ("clean fields") collecting point for pesticide containers, there were noticeably large amounts of German companies' (Bayer, BASF) chemicals, some of which are not permitted in German law. Since the start of operations at the facility in June 2001, 1.3 mn. empty pesticide packages have been collected, 750,000 of these in the first half of 2003 alone, and the million mark is expected to be crossed by the end of the year. The waste is pressed and taken to São Paulo to be recycled. This is certainly a small advance on the "wild" waste disposal that used to be practised, but does still not eliminate the cause of the problem, the agricultural application of poisonous substances.

To cite two examples. NUSAT, the state agency for health and labour, reported on 16 cases of **pesticide poisoning** in Barreiras in 2002. The actual number of poisonings is many times higher, as the local rural workers' union, STR, reported. But not all of the health agencies diagnose the cause correctly (leaving matters at the description "nausea, headaches and stomach aches, dizziness"). Some rural workers don't dare to report pesticide poisoning for fear of losing their jobs. A worker who had fled from working as slave labour in Mato Grosso (see 2.5 below) reported that he had asked his supervisor about the protective clothing legally required but the latter had told him "Don't worry, it's only ant poison", and he had thus sprayed the poison wearing rubber sandals, in short-sleeves and without any mask or protective gloves.

Another adverse effect of the massive use of pesticides is to destabilize ecosystems increasingly, with the result that crops are more and more **infested by pests**. Small farmers in the south of Maranhão and in east Tocantins, surrounded by huge soybean monocultures, reported that as a result of insecticide usage, pests had moved across to their small, neighbouring fields, which had not been sprayed, attacking especially beans that are botanically related. Some farmers at Campos Lindos in Tocantins suffered severe shortages in their food supply as a result of losing up to 50 % of their yields for rice, and this year almost all their citrus fruits have been destroyed by pests.

In the **Vão do Salinas** community in southern Maranhão, 14 farmers' families were repeatedly harmed by a soybean producer who sprayed pesticide by aircraft on the high plain and cut down vegetation up to the edge of the slope. The rain washed the chemicals down into the deeper parts of the

valley where they contaminated the farmers' fields and drinking water, killed fish and domestic animals and contaminated harvests, thus threatening the community with starvation and malnutrition. Despite two letters of complaint the Ibama environmental authority, through "lacking a vehicle", never made investigations in this remote area and satisfied itself with the soybean producer's assurance that "it would not happen again". Although, one year after the complaints were made, the edges of the slope have been planted with eucalyptus, the producer has nonetheless not paid to the peasants' families the reparations which have since been imposed by the court. As damage continues from the pesticides being sprayed, the international human rights organisation FIAN has in the meantime started up an urgent action with letters of support to help the small farmers regain intact bases for their lives.

2.3 Food security

While soybean production for the international market keeps on increasing, growing of **staple foods** for domestic consumption has been and is being **neglected**. The area used for growing these has declined in absolute terms, to be only just compensated for by increases in productivity. Overall the area of land used agriculturally has increased from 48.6 mn. ha (in 1993) to 53.5 mn. ha (2002), mainly due to the expansion of production of soybeans for export.

When comparisons are made in the development of farming areas for main foods in the last ten years, the following can be stated.

The areas on which **soybeans** are cultivated increased by 80 %, from 10.6 mn. ha in 1993 to 18.5 mn. ha in 2002, while the amount increased almost two and a half times, from 22.6 to 52.2 mn. tons, on account of advances in productivity. About 40 % of the soybeans is exported, making them Brazil's primary agricultural export product in value terms. Since the total area used agriculturally only increased by five million hectares from 1993 to 2002, the area used for soybean grew at the expense of crops like rice, maize (first harvest) and cotton, and pasture for livestock.

Given an annual growth in population of 1.3 %, however, **production of staple food** has to rise in order to guarantee the country's supply. Brazil has ratified the United Nations' International Covenant on Economic, Social and Cultural Human Rights (ICESCR), and according to Article 11 is obligated to respect, protect and provide its peoples the right to feed themselves.

The area on which Brazil's main food, **rice**, is grown, fell from 4.6 mn. ha in 1993 to 3.2 mn. ha in 2002, while the amount of it produced increased slightly, on account of advances in productivity, from 10.1 mn. tons (1993) to 10.5 mn. tons (2002). 40-50 % of rice is produced by small family concerns and the rest by mechanised industry. Rice, which is undemanding and tolerates acidity, is grown on freshly cleared land in order to prepare the soil for soybean cultivation, which is more demanding, in the following year. But soybeans are now being sown in the first year directly after land has been cleared, with soils being "corrected" by applying high amounts of fertiliser. According to CONAB, the national food supply authority, the decline in the area used for rice is mainly due to the increase in soybean cultivation. As Brazil consumes 11-12 mn. tons of rice a year, the missing amount has to be imported.

The area on which **beans** are grown (*feijão* being the most important staple food in Brazil after rice) likewise declined from 4.7 mn. ha in 1993 to 4.3 mn. ha in 2002, falling during that time to as low 3.8 mn. ha (in 1998 and 2001). But production was able to rise from 2.5 to 3 mn. tons during this time. In 2002 2,000 tons of beans were exported while demand for imports was at almost 82,000 tons.

There was also a decline in **manioc** root, which contains starch and is mainly produced and consumed by small farmers. The area on which it was grown fell from 1.9 mn. ha in 1993 to 1.7 mn. ha in 2002, while production of it increased, on account of growth in productivity, from 21.8 mn. tons (1993) to 23.1 mn. tons (2002).

Wheat, which is mainly produced in the temperate climate of southern Brazil, is clearly in under-supply. Although the cultivated area increased slightly, from 1.5 mn. ha in 1993 to 2.1 mn. ha in

2003, only 4.5 mn. tons were produced. As 10.7 mn. tons are consumed, 6 mn. tons had to be imported.

In the period from 1993 to 2002 the areas used to grow products mainly consumed domestically, such as sweet potatoes, bananas, onions, rye and oats, likewise declined, while plantations for sugar cane, oranges, tomatoes and sorghum (grown as a fruit interchanging with soybeans) increased.

Only developments in **maize** as a staple food can be adjudged as being favourable. Maize is grown partly by small farmers for human and animal consumption, but mainly (as feed for fattening animals) in crop rotation with soybeans in mechanised farming. The area used for it, 12.8 mn. ha in 1993 and 12.9 mn. ha and 2003, has remained almost constant, but production has increased in this period from 30 to 43.5 mn. tons. Here soybean cultivation expanded at the expense of the first maize harvest (-1.6 mn. ha), which takes place at the same time, while the second maize harvest, which takes place in winter beyond the soybean harvest, expanded by 1.9 mn. ha. According to the CONAB national food supply authority this is due to presently attractive prices for maize, with the overall result that the total maize area has not been reduced to the benefit of soybeans.

Neo-liberal reforms in the 1990s dismantled and privatised public storage arrangements, causing **food reserves** in Brazil to have fallen to almost zero. The government under President Lula has now reactivated the CONAB national food supply and storage authority and wants to stimulate agricultural production by family farmers by buying up and giving price guarantees for food. This is undoubtedly an intelligent, productive measure in the context of Brazil's zero-hunger programme. But it is doubtful if this can halt the trend for "modern" export products like soybeans to expand at the expense of the production of staple foods. For the foreseeable future, traditional small-scale family farming and capital-intensive agricultural industry will certainly continue to exist alongside each other in Brazil. In producing 40 % of food today, family farming makes a major contribution to Brazil's food security; it produces in a labour-intensive way and uses little or no pesticides. Agricultural policy - much as with efforts at reform in the EU - ought to tie all subsidies and loan issues to environmentally-sound production methods in order to bring the agricultural industry increasingly on a route of sustainable production and to preserve the natural bases of life in the long term.

2.4 Effects on distribution

According to the land reform institute's 1996 land ownership atlas, 62.2 % of all agricultural operations are *minifundio* operations which are on land of up to 1 ha (1.9 mn. out of a total of 3.1 mn. farms) and own only just under eight % (26 mn. ha) of all land. In contrast, only 0.1 % of all agricultural operations (6,300) are over 100 ha in size; but they are concentrated in 26 % (84 mn. ha) of land ownership. The 300 biggest farms have an average of over 100,000 ha, giving Brazil the second most unequal land distribution in the world. More recent data are not available, but with the migration of many soybean producers from southern Brazil to the north-east, where land prices are much lower, the **concentration of land** has increased. About 30 years ago there began a wave of emigration by small and medium-sized producers (following European immigrants) in southern Brazil to the central west, and later north-east, of the country. There they acquired huge domains and began growing soybeans using machinery. Demand on the world market for soybeans as a feedstuff high in protein grew steadily as a result of increasing factory farming in industrial countries, and even now lures new producers to the *Cerrado*, which was regarded as unproductive only a few years ago.

In some regions small farmers have **fled from the land** because buyers from the south have been offering them prices per hectare which are relatively attractive, but still many times below what can be got for selling land in the south. In the city these large one-off sums are used up within just a few months. In **Santarém** in Pará, for example, two villages have already become completely depopulated as a result of migration away from new areas where mechanised rice and soybeans are being grown. As a result, districts on outskirts of the cities often grow faster than new jobs are created and than the government can follow up to provide the basic infrastructure for health and education.

Gerson Teixeira, an agricultural advisor in the labour party PT, spoke of "*reciclagem do latifundio*", or land re-concentration, through the expansion of soybean cultivation. Given the high

investment costs involved in mechanised agriculture, growing soybean only becomes profitable upward of 1,000 ha. In contrast to the "classical" *latifundios* (huge farms), which are used, for example, for intensive grazing for livestock, this kind of ownership of large areas of land is however highly productive. It therefore does not come under the provision of the 1998 constitution which says that unused land does not fulfil its social function and should therefore be confiscated and redistributed under the auspices of land reform. A lawyer very recently however moved that huge agricultural farms which destroy natural resources by clearing land and using pesticides were equally damaging to the social function of ownership and thus had to be confiscated. This is a view no doubt shared by the landless people's movement but not by the big producers.

The **privileged treatment** agricultural policy historically accords to the **agriculture industry** is also reflected in the new government's budget. Subsidies for small-scale agriculture for the 2003/04 harvest year, it is true, have been doubled, from the previous year's 2.7 bn. reais to 5.4 bn. reais (c. 1.7 bn. euros). But 27.1 bn. reais (6.4 bn. euros) have been made available for large-scale, mechanised agriculture, although it only accounts for the minority of agricultural enterprises.

A broad alliance of social movements just recently published a list of demands in its *Carta da Terra*, or Earth Charter. It calls for a **maximum limit on private ownership of land** and appropriation of large areas of land to "democratise access to land and put into practice the right to work of rural people who have been traditionally excluded". But this campaign has a poor chance of realising its goals. President Lula's new coalition government has a very heterogeneous composition (e.g. the Ministers of Agriculture and Industry are representatives of the agrobusiness) and at present heavily engaged in other projects (pension and tax reforms); and, following the latest wave of occupation of land, the well-organised big landowners have strengthened their resistance to land reform, which acts in parts in a brutal way.

2.5 Land conflicts

At some places soybean production penetrates protected nature or Indian reserves, such as the Mirador National Park in Maranhão or the Xingú Indians' Parque do Xingú in Mato Grosso. In northern **Tocantins**, to cite another example, organisations like the *Quebradeiras de coco* (women who gather and process the babaçú palm fruit), supported by the church's pastoral land commission and NGOs, have since 1999 been protesting for three years against the Sampaio project, which aims to introduce irrigated soybean cultivation with high state investment. The project would see Indians, fishers and even landless people who have just been relocated in land reforms, having to be resettled. In losing the reserves, the women living from coconuts, oil extraction and craftwork, in particular, would lose their sources of income and their living space. The environmental impact assessment initially made was absolutely inadequate and had to be greatly improved. The last public hearing took place in extremely precarious circumstances. The new, 2,000-page environmental impact assessment which had already existed for half a year was only sent to those affected and social and environmental organisations two weeks beforehand to enable them to "prepare" at short-notice. The IBAMA environmental authority finally approved a slightly modified version of the project in July 2003, incorporating consolatory offsets such as a few fruit plantations for small farmers. Over 30 mn. reais (9.2 mn. euro) of public investment in over 7,000 hectares are expected to create only 176 jobs. Were this amount to flow into the **Proambiente** programme for the sustainable development of small-scale agriculture proposed by social and environmental movements, 1,382 families could each benefit from 22,000 reais and 4,147 jobs could be created without a single family being dispossessed or moved.

Cases of *grilagem*, i.e. illegal appropriation of land by dubious transactions facilitated by *Cartórios* (a mixture of private registry of land and notary public office responsible for the property registry), turn up again and again. The national land reform institute, INCRA, is at present making an inventory of *Terras da União* (lands given on loan to private individuals by the Portuguese colonial power and after Brazilian independence were to revert to the government). But some of these lands were illegally assigned to private persons by *Cartórios*. According to an INCRA consultant 3.2 mn. ha of such government lands, irregularly used by big farms, exist in Mato Grosso, for example. To date, however, these lands have not been reclaimed by INCRA and used to settle landless people as part of a

land reform, as provided for in the 1988 Brazilian Constitution. Whether or not this will be done depends on the political will and the ability of the new government to get its way.

An ongoing, pressing problem is the use of **slave labour** on some big farms. The Churches' Land Commission (CPT) has just drawn attention to this in its book, *Vidas roubadas* (stolen lives), and its new annual report on land conflicts. Only in 2002, 5,559 cases of slave labour were recorded, including 58 child slaves of minority age, the majority (4,227) in the state of Pará. The real number is much higher, since the Ministry of Labour's mobile group cannot discover all cases because of their limited material and personnel resources. Not only soybean farms are involved. This exploitative practice has also been resorted to on sugar cane farms and in livestock farming and charcoal production. Part of the dirty work slaves are often used for is clearing primary vegetation to make way for plantations. Typical in the use of such forced labour are exploitative working hours, precarious accommodation in fields under plastic sheeting, no sanitary facilities, poor food and water provisions, lack of protective clothing, no social security provisions whatsoever, indebtedness through extortionate prices for goods and tools, as well as supervision by armed guards. Two slave-labour workers from Maranhão who had fled from a *fazenda* growing soybeans and maize in Mato Grosso reported on working days going from three in the morning until seven or eight at night, and at times of high activity until midnight, saying that "there was sometimes very little sleep!" The new government is now considering a law aimed at confiscating farms where slaves are found and redistributing them to landless families.

3 Concluding observations

International debate has in the last few years concentrated on the problematic consequences of growing soybeans since they are the main product bringing in foreign exchange and Europe has a special responsibility here on account of its high demand for protein feed. But it would be too narrow to limit the issue of environmental and social impacts to soybeans alone. Criticism must centre on the **agro-industry's model of the Green Revolution**, in which extensive monocultures dominate and a great amount of chemical fertilisers, pesticides and fossil fuels are used. This has meant immense areas of land being completely cleared of natural vegetation (bush savannah – *Cerrado* – and forest) and transformed into annual crops and prone to erosion. **Diversification** is taking place in the *Cerrado* – not only in Mato Grosso but also in south Maranhão, West Bahia and other regions – for example, big producers who have made capital from growing soybeans are increasingly investing in cotton which, while more expensive to grow because it is much more pesticide-intensive, is more lucrative. Deforestation for livestock farming and charcoal production is a further threatening factor.

The issue of the ban on growing **genetically engineered** organisms is not only a soybean issue, it is also about Bt maize resistant to corn borers, genetically modified varieties of cotton, and other GMO cultures.

Public **investment in developing the infrastructure for exporting soybeans**, as envisaged in the last pluri-annual plan ("*Avança Brasil*") and at the moment being re-negotiated, likewise presents a threat to natural habitats. It may be pointed to the years of protests by environmental organisations against the Araguaia-Tocantins and Paraná-Paraguay waterways, the construction of which is raised again and again, and the asphaltting of federal highway 163 from Cuiabá to Santarém. What is crucial in big infrastructure plans being implemented is their ecological effects and impacts on distribution. What irreversible environmental damage will society be encumbered with, and who profits from the use of scarce public resources (both national and international) – the poor, marginalised rural population or a minority which is strong in capital?

Processes like the expansion of soybean cultivation, which is mainly privately financed, are at the moment far away from state control because, for example, violations of the law on forests (such as clearcutting) are often not investigated. However, according to Philip Fearnside, professor at the INPA national Amazon research institute, the following **measures urgently** need to be taken in order to reduce the diverse negative effects of soybean expansion on biological diversity and sustainable development : (1) creating protected areas in advance of soybean frontiers; (2) eliminating the many public subsidies which speed the expansion of soybeans beyond what would otherwise occur from market forces; (3) social and environmental impact assessments prior to soybean expansion; and (4)

strengthening the environmental-impact regulatory system, including the commitment not to implant infrastructure projects with probable excessive environmental impacts (P. Fearnside, INPA: Soybean cultivation as a threat to the environment in Brazil, Manaus, 2000).

Cheap labour with people exploited in slave-like conditions is used time and again to clear land and perform other dirty work (such as spraying pesticides), whether it be in growing soybeans, maize, cotton or sugar cane, in producing charcoal or operating livestock facilities. Here it is necessary to expand the staffing and material capacities of the labour ministry's mobile task group, and to impose penalties rigorously as a deterrent to other farm owners.

The extreme concentration of land means that minor correctives are clearly not enough, and a **fundamental change of course in agricultural policy is necessary**. The traditional approach of according privileges to an agro-industry strong in capital ought to give way to greater support for small-scale sustainable production methods. Civil society organisations have made many proposals to this end:

- the "**Carta da Terra**" referred to in 2.4;
- the **Proambiente** programme for an agro-ecological reform of agriculture;
- the annual "**Grito da Terra**" (cry for land) by the rural workers' federation, CONTAG;
- the consequent implementation of the "**National Plan for agrarian reform**" worked out by the Ministry for Land Reform and the INCRA national land reform institute with the participation of social movements; and
- many **small local projects** of all kinds being carried out by a wide range of committed people.

Brazilian **environment and labour legislation** is progressive but at many points not respected. For over ten years a law has prescribed that "**ecological-economic zoning**" be made at state level as a basis for rational land planning. A whole host of technical data have in the meantime been recorded in many states, but nowhere have they become an aid to decision-making on the sensitive questions of how much forest and natural vegetation like the Cerrado ought to be preserved and with the aid of which instruments.

Taking earlier studies as a basis, scientists like the ecologist C. Klink of Brasília University and A. Moreira of the World Bank regard it as appropriate for there to be agricultural and ecological zoning of the Cerrado in which **a third** of the area should be put **under protection**. A workshop by the Ministry of Environment, scientists and environmental NGOs in 1999 worked out detailed proposals in its study, "Priority action to preserve the biological diversity of the Cerrado and Pantanal wetlands", which are waiting to be put into practice.

Mention should be made of the proposals by the NRO Cerrado network, **Rede Cerrado**, which calls for a moratorium on further agricultural expansion in the Cerrado. As alternatives it states: making the Cerrado a national cultural heritage, increasing protected areas in the Cerrado to at least five per cent, priority use of degraded areas for agricultural cultivation (instead of clearing primary vegetation), support for sustainable agricultural practices, protecting the native population and their gathering of reserves, agro-extractivism, eco-tourism, sustainable use of medicinal plants, handicrafts, etc.

On the part of the **industrial countries**, more attention should be paid to **political coherence**. It is particularly to be urged that donors, especially those involved in the G7's Pilot Programme to Conserve the Brazilian Rain Forest (like Germany) do not issue development loans for infrastructure projects and expansion of the agricultural frontier, which accelerate the destruction of the forest and *Cerrado*. This applies also to international organisations like the World Bank and its subsidiary organisations and to public banks like the DEG and WestLB, which have prescribed protection and sustainable use of the forests in their Forest Policies. At the same time, the Brazilian government's zero-hunger-programme and especially an expansion of staple food production for the domestic food supply ought to be supported.

The Rios Vivos ("living rivers") coalition, an umbrella organisation of over 400 Brazilian NGOs, is committed to realizing better **standards in agricultural trade** in soybeans between Europe

and South America. Short-term **minimum social and ecological standards** which ought to be heeded in importing soybeans are in their view:

- a general ban on purchasing soybeans stemming from newly cleared land with forest, savannah or perennial crops (deadline December 31st, 2003/ in the Amazon biome December 31st, 1999);
- ecologically acceptable cultivation, that means from at the most 2/3 of the farm being cultivated with soy (no monocultures), and not from wetlands, swamps and floodplains;
- socially acceptable cultivation, i.e. the respect of international labour standards, with a minimum purchase of 20% of total annual purchases from family farms;
- a general ban on purchasing soybeans from farms involved in land conflicts, or from farms expanded through the addition of lots smaller than 200 hectares since 1999, especially from agrarian-reform settlements;
- a general ban on purchasing genetically modified soybeans; and
- a general ban on purchasing soybeans from farms using highly poisonous pesticides ("the dirty dozen").

Besides, **medium and long-term improvements** of the soybean production conditions are suggested, like adoption of the "good agricultural practices" of the FAO, protection of biodiversity (no soy plantations larger than 200 ha and widening of riparian strips), better distribution of farm-generated income (at least 2% profit sharing for hired farm labourers and at least 4x the monthly minimum wages), and obligatory adoption of these social and ecological criteria by national and international financing institutions.

Demand for soybeans can furthermore be reduced by increasing the cultivation of **domestic feedstuff legumes** in Europe. This would make a useful contribution to dismantling the EU's agricultural surpluses, having shorter trade paths and increasing transparency in feed production. More far-reaching proposals range from **reducing meat consumption**, which would enable us, in addition to enjoying meat of higher quality, to roll back intensive fattening of animals - to raising animals in a more species-appropriate and extensified way. Finally, all initiatives - public as much as private - committed to expanding **organic farming without neglecting minimum social standards**, are to be welcomed.

Note

Due to limited space, not all social and ecological alternatives can be treated in detail here. It is referred to the author's master thesis in Portuguese on "Soybean expansion, socio-ecologic conflicts and food security in Brazil", including extensive quotations, available at bickel@misereor.de.