



INDUSTRIAL SOY EXPANSION IN BRAZIL

Financialization, Deforestation, and Dispossession
in the Birthplace of Waters

Fábio Pitta and Maria Luisa Mendonça

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Authors: Fábio Pitta and Maria Luisa Mendonça

Text: Fábio Pitta and Maria Luisa Mendonça

Research: Bruno Spadotto, Daniela Stefano, Fábio Pitta,
Maria Luisa Mendonça

Editing: Jeff Conant

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Pastoral da Terra, Associação de Advogadas/os de
Trabalhadoras/es Rurais and AidEnvironment

Photos: Debora Lima, Mariella Paulino, Leticia Luppi,
Bruno Spadotto, Daniela Stefano

Translation: Karen Lang

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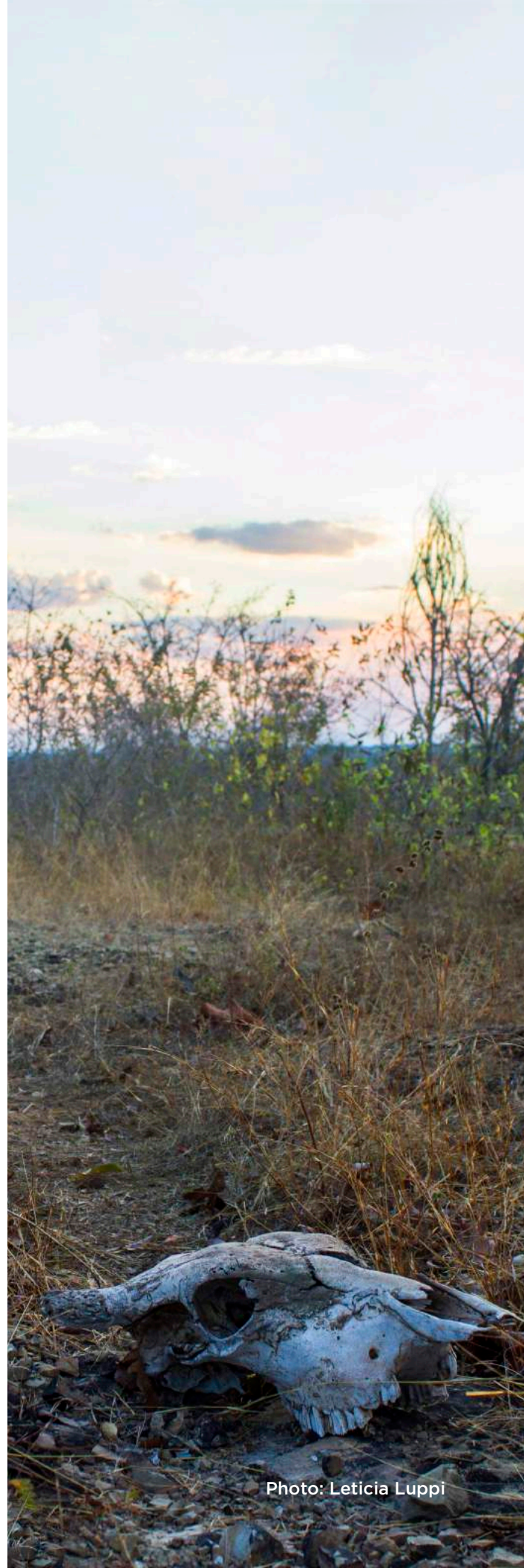


Photo: Leticia Luppi

Introduction

In late 2021, numerous countries that had adopted restrictions in 2020 to contain the COVID-19 pandemic reopened their economies, leading to a rapid surge in commodity prices on the global futures market. This increase is driving the expansion of the agricultural frontier for soy production in Brazil and pushing up the price of farmland.

To understand how the relationship between the commodity futures markets and the production of commodities is established in the so-called “real economy,” and the impact of this on agricultural land markets in Brazil, a brief history of soy production in the country is in order. The modernization and industrialization of this sector began in the 1960s and 1970s and has been driven by the financialization of the global economy. This process defined the characteristics of the country’s soy sector today and its evolution between 2002 and 2012¹ after the commodity bubble burst as a result of the European economic crisis and China’s economic slowdown.

In May 2021, soy prices rose to US\$643 per ton, surpassing the all-time high of US\$637 per ton reached in July 2008, just before the global economic crisis erupted.² Agribusiness corporations seek to “take advantage of” the high prices, which fuels both the accumulation of debt in the soy production chain and the increase in soy production, derivative trading, and the amount of land used to grow it.

The expansion of soy production into new areas of Brazil affects mainly the Cerrado biome and Amazonia. In the last 20 years, the MATOPIBA region (acronyms of the states of Maranhão, Tocantins, Piauí, and

Bahia), located in the north and northeast of the country, has been the center of this expansion. Soy is the main product on the country’s export agenda.

According to a report by MapBiomas, in the last five years, 76% of the expansion of the agricultural frontier in MATOPIBA occurred in areas of native vegetation, and the main cause of deforestation was the expansion of soy plantations. Soy monocultures currently occupy close to 38.5 million hectares, or approximately 4.3% of Brazil’s territory, half of which is in the Cerrado biome.³

To demonstrate the impacts of the soy industry, we conducted research in the MATOPIBA region, where the Cerrado biome prevails. Known as the “birthplace of waters,” this biome is the savannah with the greatest biodiversity in the world and home to various peasant, quilombola (Afro-Brazilian rural communities), and indigenous communities. The expansion of the soy frontier fuels the use of fire, deforestation, and the grabbing of rural communities’ land. Soy monocropping pollutes the soil and rivers and destroys the crops of rural communities, forcing them to migrate, even in contexts of structural unemployment. The precarious working conditions on soy farms are often analogous to slavery, generating poverty and hunger.

The expansion of soy plantations is related to speculation and the increase in the price of farmland, which is turned into a financial asset. Our research has identified real estate and financial corporations operating in the MATOPIBA region, where they established farms by clearing native vegetation and appropriating rural communities’ land.⁴

- 1 PITTA, Fábio. O crescimento e a crise da economia brasileira no século XXI como crise da sociedade do trabalho: bolha das commodities, capital fictício e crítica do valor-dissociação. *Revista Sinal de Menos*, n. 14, v. 1, May 2020. Available from <https://sinaldemenos.org/2020/05/18/sinal-de-menos-14-vol-1/>
- 2 World Bank, consulted online in October 2021: <https://www.indexmundi.com/commodities/?commodity=soybeans&months=360>
- 3 REVISTA GLOBO RURAL. “MATOPIBA teve 76% da expansão agrícola sobre vegetação nativa nos últimos 5 anos.” *Revista Globo Rural*, October 20, 2021. Available from <https://revistagloborural.globo.com/Noticias/Sustentabilidade/noticia/2021/10/matopiba-teve-76-da-expansao-agricola-sobre-vegetacao-nativa-nos-ultimos-5-anos.html>
- 4 MENDONÇA, Maria Luisa & PITTA, Fábio. “The role of international financial capital in the Brazilian land market.” *Latin American Perspectives (LAPs)*, University of California, Riverside, California, U.S., Volume 45, Issue 5, September 2018.

This report begins by documenting and presenting the situation in the southwest of the state of Piauí, especially on the plateaus known as “Chapada da Fortaleza” and “Chapada Até Que Fim.” We denounce the deforestation of these plateaus in recent months. The US-based trading company Bunge Limited has a monopoly (where one buyer has near-total control of the market) and a monopsony (a market situation where there is only one buyer) over southwestern Piauí. Bunge negotiates the production and sale of soy with other transnational corporations and acts as a liaison between corporations in the chain by both providing financing and exporting soy processed in its factory in Piauí.

Our study reveals the connections between the main corporations operating in the soy sector in the region, such as Bunge and the mega-corporations from which it buys soy (SLC, Radar/Tellus, and Insolo, which has ties to Harvard University⁵). It also exposes their involvement in the use of fire to clear land, deforestation, the expropriation of rural communities, and other socio-environmental impacts. A case study in the city of Santo Filomena, in southwestern Piauí, reveals the relationships between trading companies and how the soy industry fuels the destruction of nature and speculation on agricultural land. After presenting this case, we will analyze it in the broader context of the financialization of soy production and land in Brazil, and the causes of recent deforestation in MATOPIBA.

Map 1 - The MATOPIBA region, Brazil (2021)



Source: AGUIAR, Diana; BONFIM, Joice & CORREIA, Mauricio (eds.). Na fronteira da (i)legalidade: desmatamento e grilagem no MATOPIBA. Associação dos Advogados dos Trabalhadores Rurais, Bahia, 2021, p. 8.

5 Grain and Rede Social de Justiça e Direitos Humanos. *Harvard's Billion-dollar Farmland Fiasco*, August 2018. Available from https://www.social.org.br/files/pdf/EN_FINAL_PDF_Harvard.pdf



Preserved Cerrado, South Piauí
Photo: Mariella Paulino

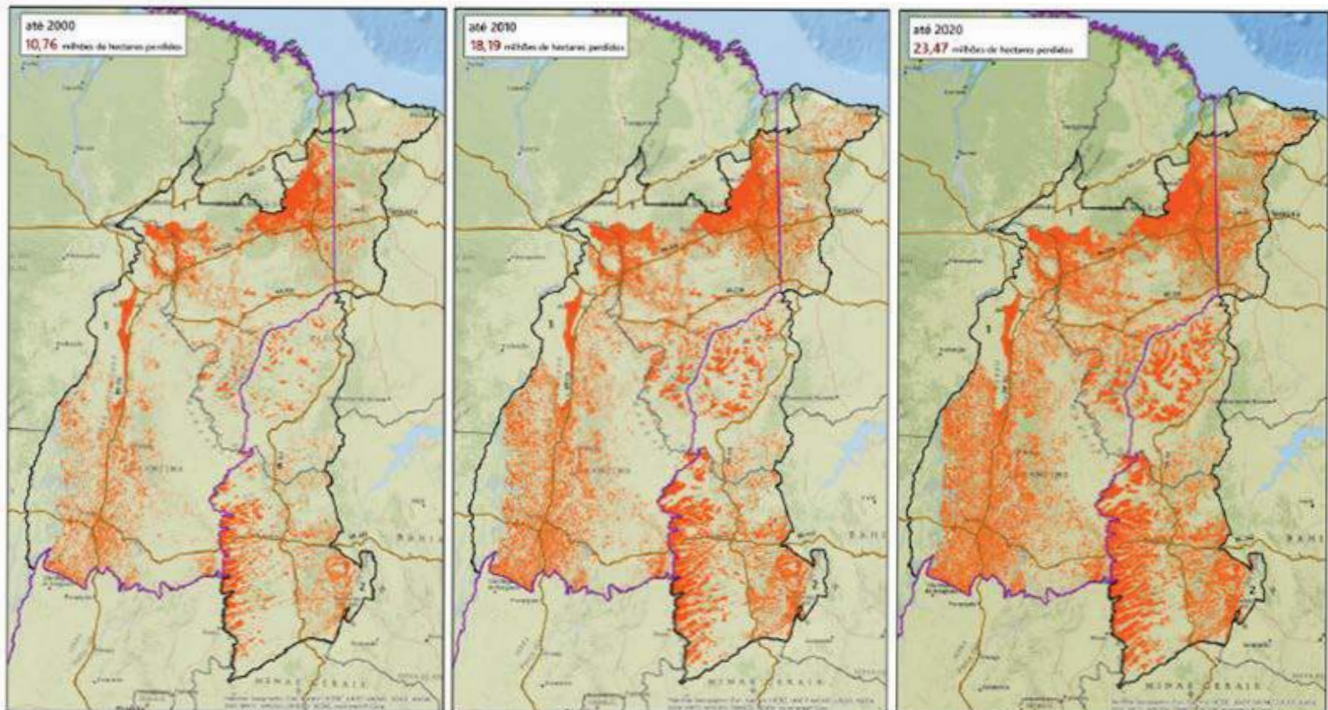
Case study in southwestern Piauí in 2021

The southwestern region of Piauí has been the target of the expansion of soy monocropping, fires, and deforestation. Agribusiness corporations expand their plantations as a mechanism for rolling over their debt and speculating on land as a financial asset. The establishment of a new soy farm involves land-grabbing on “terras devolutas,” especially in flat areas and on the tops of the plateaus where seeding and harvesting can be mechanized. These “terras devolutas” are parcels of land without land titles, under the responsibility of the state that, by law, should have been regularized in the name of peasant, quilombola, and indigenous communities. The communities share the use of the plateaus, where they gather fruit and raise animals. They live and grow their crops in the lowlands.

The MATOPIBA region has been a major target of speculation on farmland (see Map 2 below). The recent upward trend in commodity prices (Graph 1 below) has contributed to the increase in fires, deforestation, and land-grabbing in southwestern Piauí, which are also stimulated by incentives from international financial corporations, trading companies, and agents of the state.

The illegal process of constituting a new farm is quite sophisticated, as it involves the local elite and their ties to notary offices. The process begins with the falsification of a land title at a notary office. Then, the supposed “owners” begin to evict the peasants from their territories, often with the use of violence, even though the peasants’ land rights are legally guaranteed by the Federal Constitution of 1988 and the more recent Piauí Land Act of 2019.

Map 2: Evolution of deforestation (in orange) in MATOPIBA: 2000, 2010, 2020



Source: AGUIAR, Diana; BONFIM, Joice & CORREIA, Mauricio (orgs.). Na fronteira da (i)legalidade: desmatamento e grilagem no MATOPIBA. Associação dos Advogados dos Trabalhadores Rurais, Bahia, 2021, p. 9.

Fires and deforestation are used in the second stage of the land-grabbing process. Their cost is very low, as only two tractors and a big chain are used to clear the land. Once this is done, a “new” farm can be resold. In the case of Piauí, Bunge controls most of the trade, processing, and sale of soy:

The evolution of deforestation in recent decades has been closely linked to the emergence of a soy commodity agribusiness economy. It accelerated *pari passu* with this economy to the point where more land has been deforested in the past 20 years (close to 13 million hectares) than in the previous 500 years, since the colonial invasion (approximately 11 million hectares). In 2020, 23.47 million hectares of the Cerrado in MATOPIBA were deforested, or 35.28% of the Cerrado’s total area in the region. Nearly 17% of the devastated area (4 million hectares) was used for soy monocropping in 2018 [...], and 14.6 million hectares for pastureland (in 2020), representing a 258% increase since 1985. Together, cattle raising and soy monocropping correspond to practically 80% of the deforested area accumulated up until 2020 in the Cerrado in MATOPIBA.⁶

Soy corporations advertise their zero deforestation policies and tout them to their investors, lenders, and customers, but in reality, they benefit from the violent environmental destruction and land-grabbing process. Some of the corporations operating in the region are SLC, Insolet, BrasilAgro, Dahma, and Radar/Tellus (Cosan + TIAA). These corporations’ interest in the establishment of “new” farms stimulates land-grabbing itself and deforestation.

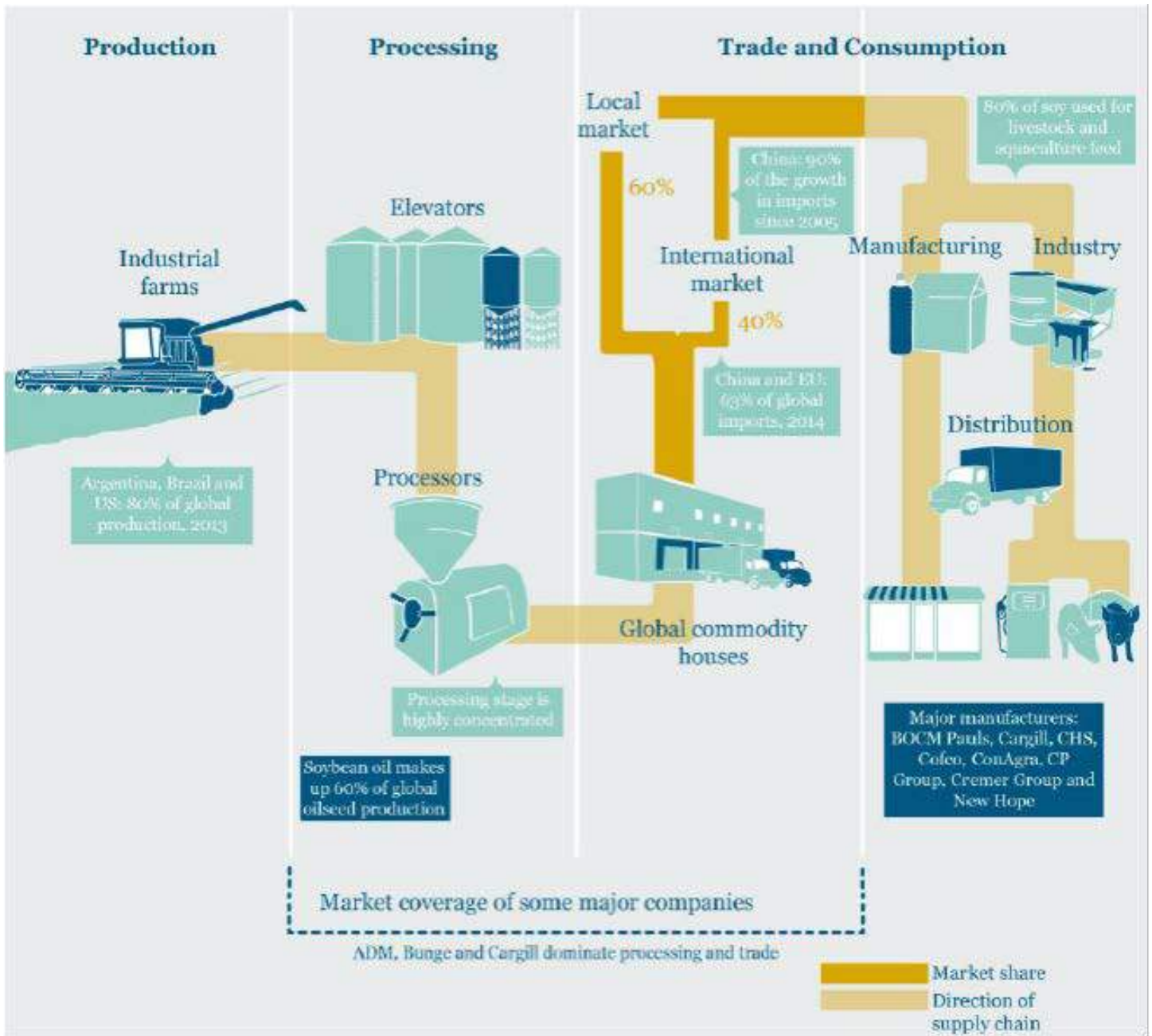
Bunge has a monopoly over the sale of inputs and financing to soy producers in Piauí and a monopsony over the purchasing of soy, thanks to its ownership and leasing of several grain silos for storage, which supply its plant in the municipality of Uruçuí in the south of Piauí. Bunge processes soybeans in this plant and exports them in the form of soy meal and oil through the Port of Itaqui in Maranhão.



Photo: Leticia Luppi

6 AGUIAR, Diana; BONFIM, Joice & CORREIA, Mauricio (orgs.). *Na fronteira da (i)legalidade: desmatamento e grilagem no MATOPIBA*. Associação dos Advogados dos Trabalhadores Rurais, Bahia, 2021, p. 11.

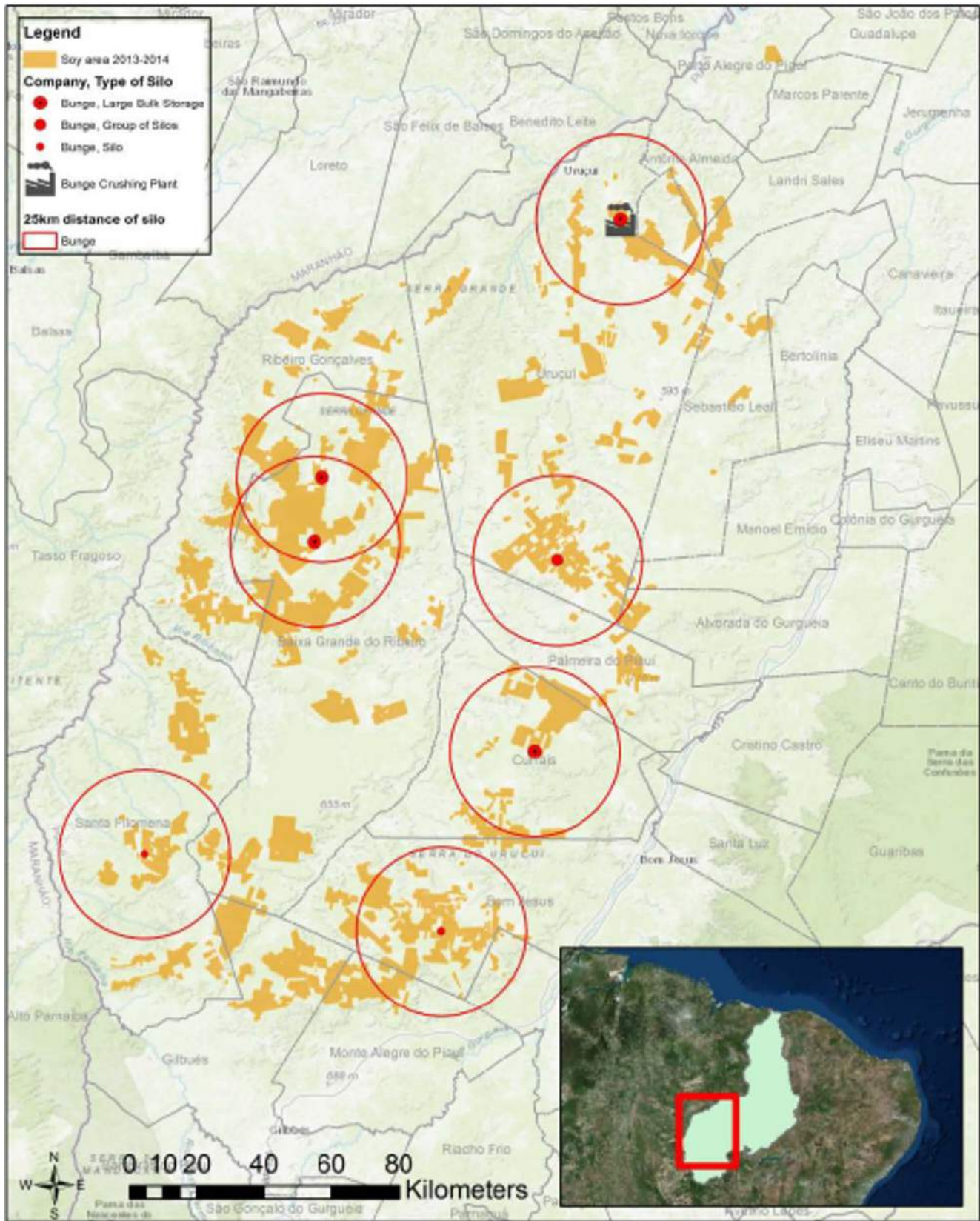
Figure 1: Soy supply chain



Source: DROST, Sarah; WILDE, Joeri de & Drennen, Zach. Bunge: Key Position in Cerrado State Puts Zero-Deforestation Commitment at Risk. Chain Reaction Research, U.S., 2017, p. 2.



Map 3: Bunge's monopoly in Piauí: silos and crushing plants



Source: DROST, Sarah; WILDE, Joeri de & Drennen, Zach. *Bunge: Key Position in Cerrado State Puts Zero-Deforestation Commitment at Risk*. Chain Reaction Research, U.S., 2017, p. 3.

A recent AidEnvironment report on Bunge's operations in Piauí indicates that it controls approximately 80% of soy production in this state. The report also shows the corporation's responsibility in the soy value chain in the region:

Bunge is the dominant buyer and trader of soy in Piauí in terms of market share, storage, processing capacity, and infrastructure. Bunge operates the largest silos in Piauí. As shown (Map 3, above), these silos are strategically located in the state's main grain producing areas in the southwest of the municipalities of Uruçuí, Bom Jesus, Baixa Grande do Ribeiro, Currais, and Santa Filomena. This maximizes Bunge's ability to purchase soy from a range of producers. Bunge's total soy storage capacity in Piauí is estimated at 694,158 metric tons. Its newest silo in Santa Filomena, an investment of BRL 27 million (USD 90 million), has a storage capacity of 77,000 metric tons.

In 2002, Bunge opened the main crushing plant for Piauí in the town of Uruçuí. The crusher, which produces soy meal and soy oil, had an (initial) processing capacity of 660,000 metric tons per year. Bunge considers the crushing of soy oilseeds a key growth platform.

The company has recently expressed its interest in further expansion in Piauí. It invested BRL 300 million (USD 90 million) to substantially increase its processing capacity in Piauí, to 750,000 metric tons per year in 2017.⁷

The expansion of production, productivity, and the amount of land occupied by the soy value chain are directly tied to the increase in Bunge's storage and processing capacity. The expansion of this corporation drives the expansion of the soy production chain itself. To illustrate this process, we describe the case in the city of Santo Filomena, in southwestern Piauí, where the corporation has recently installed the soy storage facility

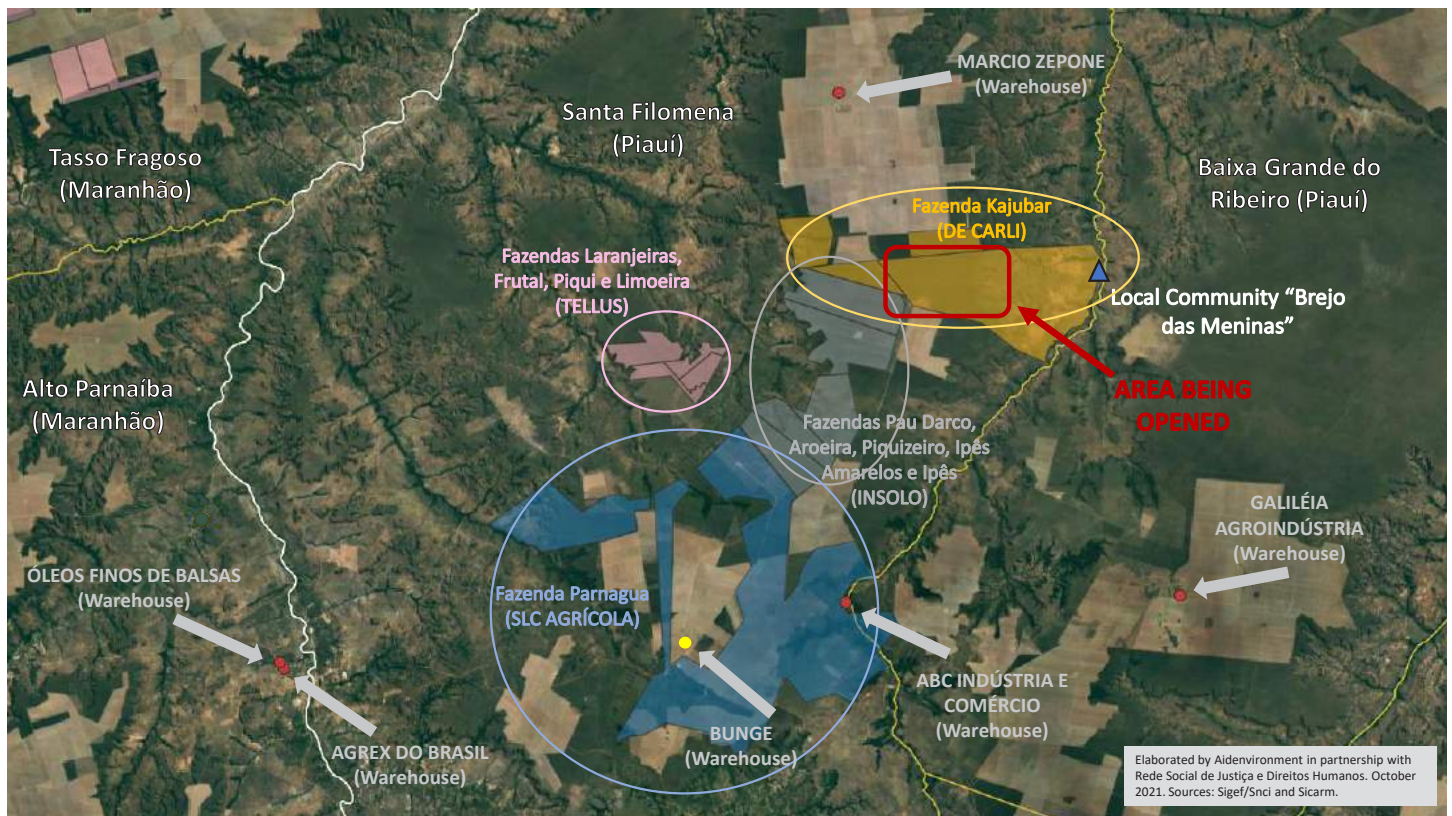


mentioned in the excerpt above. This silo is located near an area that has been recently deforested. The illegal deforestation was documented by satellite images and field visits in October 2021.

The deforestation began in September 2021 on the eastern escarpment of the Chapada da Fortaleza in Santo Filomena, above the lowlands of several communities who are fighting for the collective title for their land. According to information from the Trase website, all soy (100%) grown in the municipality of Santa Filomena supplies Bunge's silos in the surrounding area. This confirms that all deforestation in the past on land in the region that has since been used for soy production benefits Bunge's business. At the same time, all newly deforested areas in this city that begin to be used to grow soy have strong chances of following the same path. It is no coincidence that Bunge is one of the trading companies that buys most of its supplies from deforested areas in Brazil, thus fostering such practices and profiting from them.

7 DROST, Sarah; WILDE, Joeri de & Drennen, Zach. *Bunge: Key Position in Cerrado State Puts Zero-Deforestation Commitment at Risk*. Chain Reaction Research, U.S., 2017, pp. 2-3.

Deforestation of the Chapada da Fortaleza plateau, October 2021



Elaboration: AidEnvironment, 2021. Source: SIGEF SNCI and SICARM.



Tractors deforesting a plateau in the south of Piauí. 2021

Photo: Bruno Spadotto



Deforested area of Kajubar Farm. South of Piauí 2022

Photo: Mariella Paulino

In October 2021, two tractors and a large chain were used to clear forest on more than 2,000 hectares of land in an area called “Fazenda Kajubar” (Kajubar Farm). The deforestation of the land is illegal, as it was carried out without the authorization of the relevant environmental bodies. There was no way anyone could obtain such an authorization legally because the area is involved in a court case registered as Annulment Action nº 0000759-98.2018.8.18.0042, filed by the State Public Prosecutor’s Office and currently being processed by the Agrarian Court of Bom Jesus, due to its history of land-grabbing and irregularities. State law nº 6.132/2011 (art. 14) stipulates that in the case of areas that overlap, environmental regularization will be suspended for both properties until it is determined who the owner is. What is more, no exploration or undertaking is allowed nor can an environmental permit be granted in overlapping areas involved in a judicial dispute, as is the case of the Fazenda Kajubar.

The goal of the deforestation is to try to sell the land as if it were a legitimate farm for soy monocropping. When such a sale goes through, it makes it difficult to reverse the land expropriation. The image above reveals that Bunge’s new silo in Santo Filomena is in the vicinity of the deforested area,

illustrating the corporation’s influence in the area. The image also shows the presence of other soy corporations, such as SLC, Radar/Tellus, and Insolo, some of Bunge’s main suppliers in Piauí. Deforestation favors the corporations that control the soy industry in the region.

As shown in image 1 above, the so-called “Fazenda Kajubar” overlaps with the land of the rural communities. Deforestation destroys biodiversity and the sources of the rivers in the Cerrado, which play a fundamental role in the water balance in Brazil. It contributes to the sedimentation of the rivers that are born on the plateaus and drain into the lowlands, which makes it difficult for the communities to use the water collectively and kills the fish. Soy corporations also pollute the rivers and the communities’ food production with chemicals that they spray from airplanes.⁸

Deforestation of the Chapada da Fortaleza forced wild hogs out of wooded areas and into the communities. The destruction of biodiversity can trigger pandemics, as in the case of COVID-19. This case illustrates the impacts of soy agribusiness (which includes financial corporations, trading companies, the processing industry, and distributors) on nature and peasant, indigenous, and quilombola communities.

8 STEFANO, Daniela; LIMA, Débora & MENDONÇA, Maria Luisa. *Especulação com terras na região Matopiba e impactos socioambientais*. Rede Social de Justiça e Direitos Humanos, 2020.

History of soy production in Brazil and its financialized industrialization in the 20th century

The production of soy for export in Brazil is linked to the industrialization of agriculture and the accumulation of public debt. This process began in the 1960s with the adoption of the technology packages of the so-called “green revolution.” The industrialization of agriculture in Brazil is part of a policy known as “conservative modernization” implemented with the support of mechanisms of financialization.⁹

The development of agricultural industries in Brazil has had disastrous consequences for salaried workers (in both urban and rural areas) and the rural population in general. In this process, the Brazilian state guaranteed agribusiness subsidized credit, tax exemptions, price controls, and the supply of land. This led to major changes in rural areas, as it combined technical changes with the growing concentration of land ownership. One determining factor was the availability of international financial capital, which financed the acquisition of machinery and chemical inputs from multinational corporations while driving up public debt in Brazil.

During the military dictatorship (1964-1985), the modernization of rural areas became a priority. The military regime created the *Sistema Nacional de Crédito Rural* (SNCR, or National Rural Credit System) in 1965 and created the first *Plano Nacional de Desenvolvimento* (PND, or National Development Plan, for 1968-1973), which corresponded to the period known as the “economic miracle,” followed by the second PND for 1975-1979. These policies fueled

public debt, inflation, the overexploitation of labor, and the expropriation of peasant farmers’ land. In the 1980s, state support for agribusiness was a major cause of the foreign debt crisis.

Agricultural industries were created to produce export commodities¹⁰ based on the “green revolution” model. The technology packages promoted by this model involve the intensive use of chemicals, machinery, and capital.¹¹ Between 1960 and 1980, producers mechanized the planting and processing of sugarcane, but harvesting continued to be done manually. In the 1960s, there were approximately two million rural workers in the state of São Paulo; by the end of the 1980s, the number of farmworkers was 500,000. With the mechanization of sugarcane harvesting, the number of workers fell to 90,000 in 2015.¹²

The same happened with soy production during its expansion from the states of Paraná and Rio Grande do Sul to Mato Grosso in the 1970s and 1980s. Manual labor on soy farms is now limited to certain tasks such as clearing fields of the burnt residues left by fires and deforestation, direct planting, manual weeding, and removing stones (often with the use of labor analogous to slavery) to protect the combine harvesters from damage.

The industrialization of agriculture intensified the expropriation of peasants’ land and accelerated the expulsion of the workforce from the countryside. This contributed to “structural

9 MENDONÇA, Maria Luisa. *Economia política do agronegócio*. São Paulo, Editora Annablume, 2018.

10 Currently, Brazil’s main export commodities are soybean, corn, sugar, cotton, and concentrated orange juice.

11 MENDONÇA, Maria Luisa. *Economia política do agronegócio*. São Paulo, Editora Annablume, 2018.

12 MENDONÇA, Maria Luisa & PITTA, Fábio. “The role of international financial capital in the Brazilian land market.” *Latin American Perspectives* (LAPs), University of California, Riverside, California, U.S., Volume 45, Issue 5, September 2018.



The majority of all soybeans planted in the south of Piauí are stored and then sold by Bunge

Photo: Leticia Luppi

unemployment” and the growing poverty in rural and urban areas. The overexploitation of labor, slave labor, unemployment, and the expropriation of land are not the result of “backwardness” but rather debt-driven modernization. Corporations use financial mechanisms to simulate their profits, such as subsidized credit, tax exemptions, policies that set prices above their costs, the cancellation of already subsidized debt, financial market speculation, and offering shares on the stock market, among others.¹³

The global economic crisis of the 1970s led to economic “stagflation.” This is when the financial system began to play a central role in the economy, especially after Richard Nixon put an end to the gold standard in 1971. Around the same time, the Brazilian government prepared the PND II, which contained policies promoting the expansion and industrialization of the production of agricultural commodities in an attempt to compensate for the trade deficit. It financed the creation of the PROÁLCOOL program

(1975-1990), whose goal was to use hydrated alcohol (ethanol) as a substitute for petroleum products, and PRODECER (1979-2001), which promoted the expansion of soy production in the Cerrado biome and the central-southern region by increasing the country’s foreign debt.

These were the main programs adopted during the military dictatorship to promote the industrialization of agriculture in Brazil. They offered subsidized credit and financed infrastructure works based on floating international interest rates. When interest rates rose on the international market in 1979, these stimuli that “simulated” corporate profits led to the explosion of the country’s foreign debt and allowed the corporations to roll over their debt. Unable to refinance its debt, Brazil declared a moratorium in 1986, in the midst of the Latin American debt crisis. This context increased Brazil’s dependence on the International Monetary Fund (IMF).

13 PITTA, Fábio T.; CERDAS, Gerardo; MENDONÇA, Maria Luisa. *Transnational Corporations and Land Speculation in Brazil*. São Paulo, Outras Expressões, 2018. Available at: <https://social.org.br/pub/booklets-english/210-transnational-corporations-and-land-speculation-in-brazil>

The international crisis led to the flexibilization of the financial markets through the securitization of state debt and the creation of secondary markets (derivatives) for the trade of commodity prices, shares, debt packages, and exchange, interest, and insurance rates. The deregulation of financial markets allowed Brazil's foreign debt to be internalized¹⁴ and the Brazilian real to appreciate. It also paved the way for Brazil's participation in the commodities boom of the 21st century,¹⁵ responsible for the territorial expansion of agribusiness and the soy industry, which has been affecting the MATOPIBA region more deeply since then.

The expansion of soy monocropping in MATOPIBA relied on financial mechanisms that rolled over the agribusiness sector's debt with the support of POLOCENTRO (Programa de Desenvolvimento Agrícola do Cerrado, or the Program for the Agricultural Development of the Cerrado) between 1975 and 1979, and then PRODECER (Programa Nipo-Brasileiro de Desenvolvimento Agrícola da Região dos Cerrados, the Japanese-Brazilian Program for Agricultural Development in the Cerrado Region) from 1979 to 2001. The states affected by the territorial expansion of agribusiness in the Cerrado were Mato Grosso, Mato Grosso do Sul, Goiás, Minas Gerais, Bahia, Maranhão, Piauí, and Tocantins. The said policy intensified the expropriation of peasant farmers, indigenous peoples, and small producers. In Paraná, Mato Grosso do Sul, and Mato Grosso, this process had an enormous impact on the Guarani people (Kaiowá, M'byá, Nandeva, and Avá).

This process led soy production to spread into the Amazon and other regions where land was cheaper, stimulating land speculation there. Tax incentives, infrastructure projects, and land-grabbing became part of a mechanism developed to facilitate this process. Speculation in the land market is at the core of this process.

Soy monocropping arrived in Maranhão and Piauí in the 1990s with the support of financial mechanisms. As the debate in the Chamber of Deputies in the early 1980s shows, the implementation of PRODECER was the target of criticism and opposition:

... desperate (to resolve the problem of) an overwhelming external debt, which is nothing more than the result of misguided economic policy, the Brazilian government – incapable of curtailing its foreign debt – is now using the tactic of adopting a plan to increase the debt as a way to pay off the debt. The project designed to internationalize our agriculture, set out in the Brazil-Japan Agreement (Prodecercer), is part of this plan. ... According to the report by the JAPAN INTERNATIONAL COOPERATION AGENCY (JICA), the handing over of our territory to the Japanese through the creation of a new Jari project – this time, the “Projeto Jari do Cerrado” – will cost the nation's coffers one billion, three hundred, and twenty-eight million dollars for railways, highways, ports, silos, and storage facilities, as well as tax measures related to the acquisition of land, credit, and the creation of agricultural cooperatives, etc. All of this is so that Japanese consumers can have cheaper products and reduce their dependence on buying food from the United States.¹⁶

To expand soy monocropping in Bahia, Maranhão, Piauí, and Tocantins, agribusiness interests expropriated the plateaus from the rural communities to gain control of the sources of the rivers to implement center-pivot irrigation systems and mechanize soy production on flat land. Even though peasant communities had been using this land collectively for many generations, neocolonial discourse generated the idea that the land was unoccupied and vacant. While some communities in the lowlands managed to keep their land, certain parts

14 PITTA, Fábio. “O crescimento e a crise da economia brasileira no século XXI como crise da sociedade do trabalho: bolha das commodities, capital fictício e crítica do valor-dissociação.” *Revista Sinal de Menos*, n. 14, v. 1, May 2020. Available from <https://sinaldemenos.org/2020/05/18/sinal-de-menos-14-vol-1/>

15 DELGADO, Guilherme. *Do capital financeiro na agricultura à economia do agronegócio - mudanças cíclicas em meio século*. Porto Alegre, Editora UFRGS, 2012.

16 BRAZIL. CÂMARA DOS DEPUTADOS. Câmara dos Deputados: projeto de resolução 159. Brasília: Centro Gráfico do Senado Federal, 1980.



A known land grabber posts a sign: “Private property, no hunting.”

Photo: Bruno Spadotto

of the lowlands were expropriated. Many communities that continued living in the lowlands no longer had enough land to survive.

Many displaced community members were forced to migrate to the outskirts of cities, joining the labor market as nomad or migrant workers. At harvest time, for example, they would migrate to areas of industrial agricultural production where they worked and lived in degrading conditions. Often, men would migrate, and women would stay behind to take care of their families and crops. The boom in commodity prices on the international markets in the 21st century exacerbated this situation.

Several rural communities living on the plateaus of *Geraias de Balsas*, in the south of Maranhão, also lost their land in this process. Promises that soy production was coming to the region intensified land-grabbing and deforestation there, as many rushed to prepare the land to sell it to soy producers arriving from other parts of central and southern Brazil.

In the early 1990s, after the Brazilian moratorium of 1986 and the adoption of the Plano Real, subsidized credit for the industrialization of agriculture dried up, and several corporations went bankrupt. This led to a drop in farmland prices.¹⁷ In the late 1990s, however, the Brazilian Development Bank (BNDES) began to refinance loans for agricultural production, which gave impetus to the expansion of agribusiness in the Cerrado again. This expansion was also fed by the cycle of increases in commodity prices on the world futures markets between 2002 and 2008. Prices dropped after the global economic crisis, with another, more drastic fall occurring in the 2011-2012 harvest year. The recent phase of expansion of the soy agribusiness sector in MATOPIBA has been even greater in scale, affecting the states of Bahia and Maranhão again, and reaching the south of Piauí and Tocantins with force.

17 DELGADO, Guilherme. *Do capital financeiro na agricultura à economia do agronegócio - mudanças cíclicas em meio século*. Porto Alegre, Editora UFRGS, 2012.

The expansion of agribusiness in MATOPIBA as the “last frontier” of the Cerrado in the 21st century

In the late 1980s, the deregulation of financial markets created mechanisms to securitize state debt, which could be traded on secondary markets. These changes increased state credit to agribusiness corporations. The global economy became increasingly vulnerable to speculative bubbles. The territorial expansion of soy plantations in the MATOPIBA region was stimulated during the commodity bubble from 2002 to 2011.

The deregulation of the financial markets cleared the way for the securitization of the debts of states, which benefitted financial institutions that assume the risk for these credits. Furthermore, the possibility of

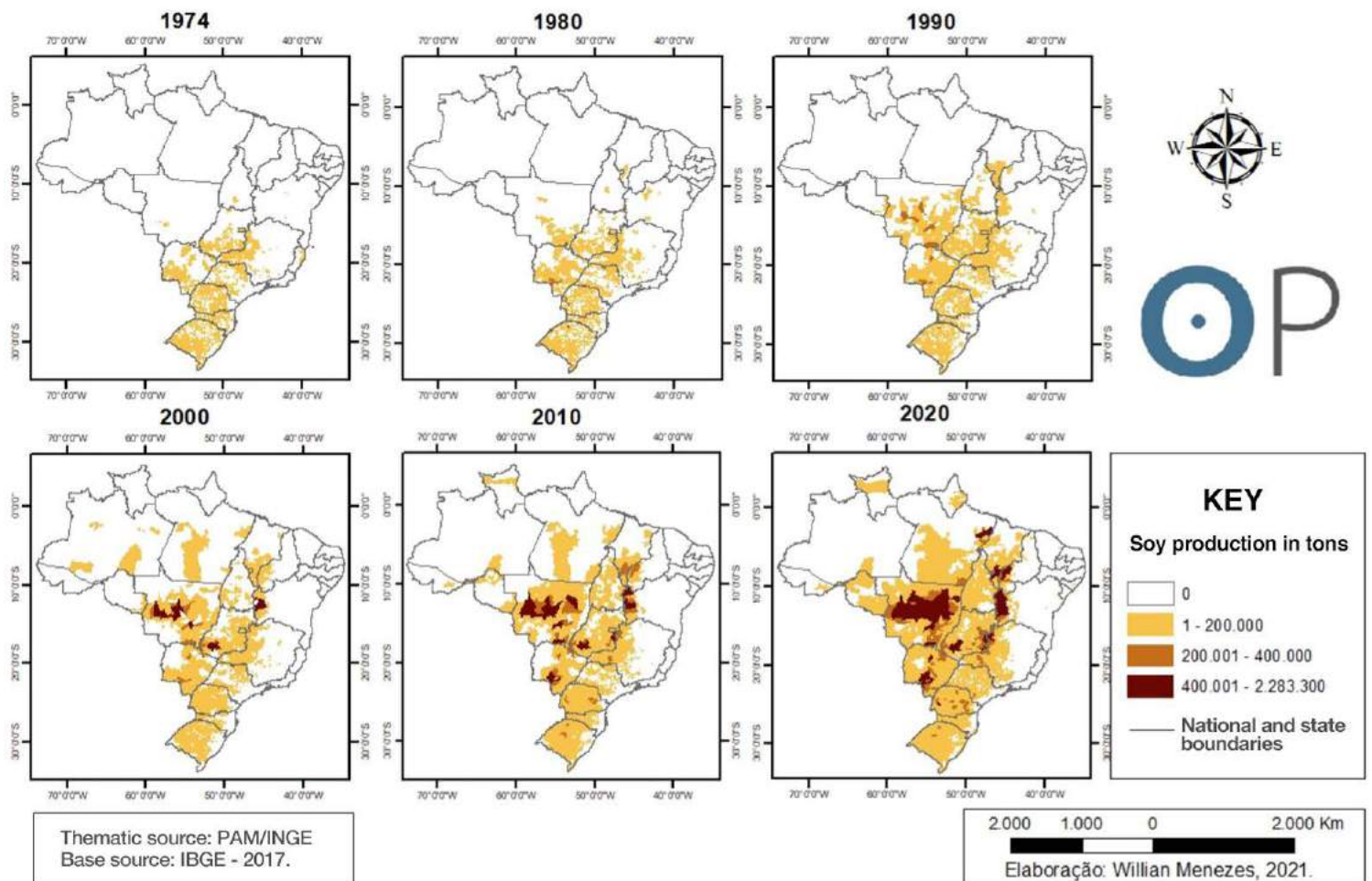
trading asset prices on secondary markets for derivatives – in other words, capital markets capable of trading the prices of bonds or debt packages; interest, exchange, or loan insurance rates; and commodities futures – increased the liquidity of these markets and the demand for this type of investment from over-accumulated financial capital exponentially. This intensified the inflation of the prices of financial assets worldwide and stimulated the creation of new assets for trading. Corporate profits, including ones that produce commodities, were no longer financially “simulated” through debt rollovers but through the inflation of financial assets instead.¹⁸



Landscape after fire and deforestation, South Piauí, 2021
Photo: Bruno Spadotto

¹⁸ PITTA, Fábio. O crescimento e a crise da economia brasileira no século XXI como crise da sociedade do trabalho: bolha das commodities, capital fictício e crítica do valor-dissociação. *Revista Sinal de Menos*, n. 14, v. 1, May 2020. Available from <https://sinaldemenos.org/2020/05/18/sinal-de-menos-14-vol-1/>

The expansion of soy in Brazil, 1974-2020



Source: MENEZES, William. "Em mapa, a degradação da agricultura brasileira." *Outras Palavras*, December 6, 2021.

The logic of financial asset inflation is that speculation on a given asset will lead its price to increase, thus attracting new investors. This price plummets, however, when a financial bubble bursts.

The period of speculation in the United States and European real estate markets also inflated agricultural commodities markets. Acting as huge savings accounts seeking to raise their own value, pension and hedge funds engaged in speculation and drove the prices of this type of commodity to rise on the futures markets. On these markets, what is traded is a promise to use a specific price in a transaction in the future, but without actually delivering a physical asset.

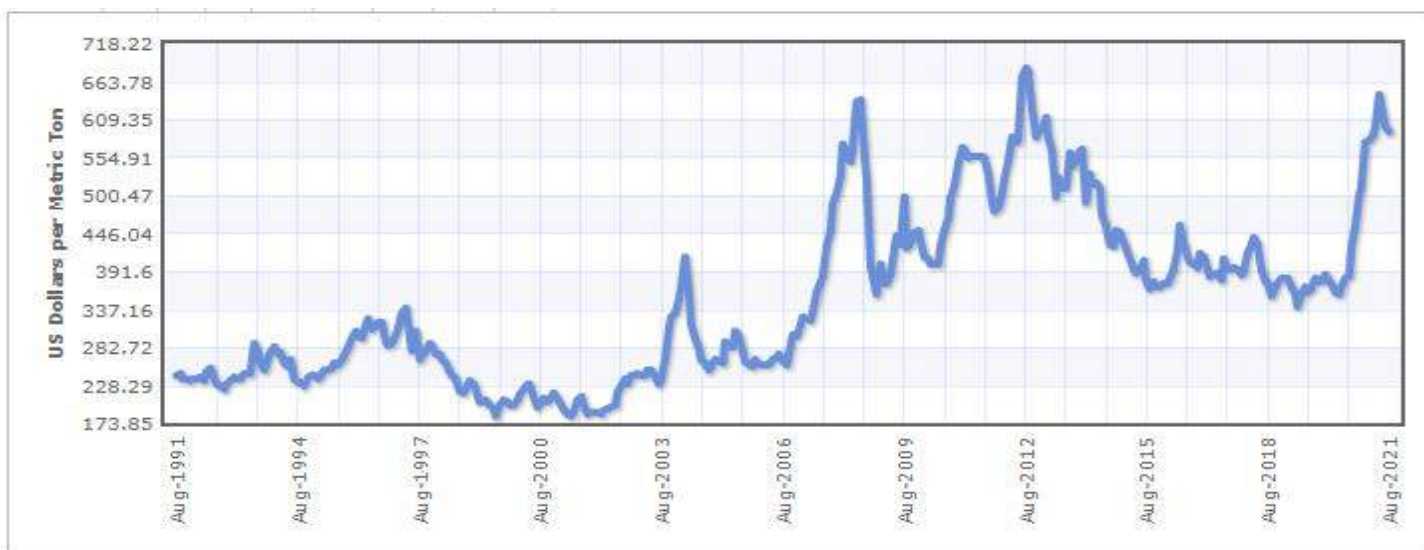
Based on futures prices, commodity producers, traders, and the processing industry can acquire financing in exchange for the promise of production in the future, which, in turn, reinforces the upward price trend in these markets. The greater the capacity to produce a commodity, the greater the ability to obtain advances using a promise of production in the future. When commodity producers go public on the stock exchange and offer their shares as financial assets, the likelihood that this offering will drive asset price inflation processes increases. This was the case of corporations such as SLC Agrícola and Cosan, which adopt the logic of the financial "simulation" of profit when exploiting land as an asset.



On one side a farm, on the other, preserved Cerrado, South Piauí

Photo: Mariella Paulino

Graph 1 - Annual soy prices, international market: 1991-2021 (September)



Source: World Bank, consulted online in October 2021: <https://www.indexmundi.com/commodities/?commodity=soys&months=360>

Commodity prices began to decline when the global economic crisis erupted in 2008, as speculative capital migrated to low-risk, low-yield securities, such as U.S. government bonds. After an initial drop, the inflationary process resumed, as investors continued to seek out the best returns. In mid-2011-2012, however, they began to fall again, with more drastic decreases from 2014 onward. As Graph 1 above shows, soy prices accompany this global trend.

This period of high commodity prices drove the territorial expansion of monocropping and the production of agro-industries in Brazil. This was when soy production arrived in MATOPIBA¹⁹ as a result of the accumulation of financial assets and the inflation of its price in international futures markets. Between 2000 and 2014, the area used to grow soy and sugarcane in MATOPIBA increased 253% and 379%,²⁰ respectively. In the case of soy, this area jumped from 1 million to 3.4 million hectares.

19 PITTA, Fábio T. & MENDONÇA, Maria Luisa. *A empresa Radar S/A e a especulação com terras no Brasil*. São Paulo, Outras Expressões, 2015.

20 CERDAS, Gerardo. *As estratégias de conquista do Cerrado brasileiro pelo capital: perfil da produção e dos investimentos em infraestrutura no período recente*. Presentation at the National Seminar on MATOPIBA organized by Campanha Nacional em Defesa do Cerrado, Brasília, 2016.

Table 1: Soy production, area, and productivity in Brazil - from the 1994/95 to the 2015/16 harvest year

Harvest year	Production (thousands of tons)	% of production	Area planted in soy (thousand ha)	% of area	Productivity (kg/ha)	Productivity %
1994/95	25,934.1	3.5	11,678.7	1.5	2,221	1.9
1995/96	23,189.7	-10.6	10,663.2	-8.7	2,175	-2.1
1996/97	26,160.0	12.8	11,381.3	6.7	2,299	5.7
1997/98	31,369.9	19.9	13,157.9	15.6	2,384	3.7
1998/99	30,765.0	-1.9	12,995.2	-1.2	2,367	-0.7
1999/00	32,890.0	6.9	13,622.9	4.8	2,414	2.0
2000/01	38,431.8	16.8	13,969.8	2.5	2,751	14.0
2001/02	42,230.0	9.9	16,386.2	17.3	2,577	-6.3
2002/03	52,017.5	23.2	18,474.8	12.7	2,816	9.3
2003/04	49,792.7	-4.3	21,375.8	15.7	2,329	-17.3
2004/05	52,304.6	5.0	23,301.1	9.0	2,245	-3.6
2005/06	55,027.1	5.2	22,749.4	-2.4	2,419	7.8
2006/07	58,391.8	6.1	20,686.8	-9.1	2,823	16.7
2007/08	60,017.7	2.8	21,313.1	3.0	2,816	-0.2
2008/09	57,165.5	-4.8	21,743.1	2.0	2,629	-7
2009/10	68,688.2	20.2	23,467.9	7.9	2,927	11
2010/11	75,324.3	9.7	24,181.0	3.0	3,115	6
2011/12	66,383.0	-11.9	25,042.2	3.6	2,651	-15
2012/13	81,499.4	22.8	27,736.1	10.8	2,938	11
2013/14	86,172.8	5.7	30,173.1	8.8	2,856	- 2.7
2014/15	97,094.0	12.6	32,092.9	6.4	3,025	5.9
2015/16	95,697.6	- 1.4	33,251.9	3.6	2,878	- 4.8
2016/17	115,026.7	20.1	33,909.4	1.9	3,392	17.8
2017/18	123,258.6	7.1	35,149.2	3.6	3,507	3.3
2018/19	119,718.1	- 2.8	35,874.0	2.0	3,337	- 4.8
2019/20	124,844.8	4.2	36,949.7	2.9	3,379	1.2

Source: CONAB (Companhia Nacional de Abastecimento). Available from https://www.conab.gov.br/info-agro/safras/serie-historica-das-safras/item/download/39064_536cb93906ab4016849bc6d7dc538f13. Consulted on September 27, 2021. Org.: Cecilia Vecina



The most recent consolidated data available for the current harvest year (2020/2021) demonstrate that soy production in Brazil has jumped to 135 million tons grown on 38.5 million hectares of cultivated area.²¹ Brazil is the biggest soy producer and exporter in the world (yields of 3,517 tons/ha) and accounts for 50% of global trade (competing directly with the U.S. in second place). In relation to financing, supplying products for production, processing, and trade, ADM, Cargill, Bunge, Louis Dreyfus, and COFCO dominate and oligopolize the production chain. Investing in silos is key to their dominance, since the cost is very high, and only large corporations can afford to have their own silos and transport logistics. These trading companies acquire soy from both medium and large producers, process it mainly as grains, soy meal, and oil, and earn profit from their operations in all levels of the production chain.

Some of the biggest producers are giant corporations that own hundreds of thousands of hectares of land concentrated in dozens of farms each. This includes companies such as SLC Agrícola (which has recently acquired the Terra Santa

Group), the Bom Futuro Group, the Amaggi Group, the Scheffer Group, and Insolo. Their main area of operation is in the Cerrado in Mato Grosso (in the center-south of Brazil), which is where the drive to expand the agricultural frontier into the Cerrado in MATOPIBA and the Amazon forest originated. The largest consumer of Brazilian soy and its derivatives is China.

The expansion of the frontier with soy directly affects the production of rice, beans and vegetables, staple foods of the Brazilian population. The production of these basic food items is on the decline, leading to an increase in imports and the inflation of their prices.

The expansion of the production of a commodity defined by its prices on derivative markets is speculative in nature, as it “bets” that prices will continue to rise in the future. When traded on the futures markets, goods are not necessarily physically delivered to the buyer; instead, the deal is based on speculation on future prices. Future prices tend to define current prices. The prices in Graph 1 above are the consolidated prices.

21 See Empresa Brasileira de Produção Agropecuária (EMBRAPA), consulted on November 26, 2021: <https://www.embrapa.br/soja/cultivos/soja1/dados-economicos>

When the BNDES began offering subsidized credit again in 1999, Brazilian soy production reached high productivity levels (2000-2001 and 2002-2003), mainly by appropriating funding and natural resources, which were surpassed only after the peak in prices in 2011. The industry did not, however, sustain these levels. Soy producers raised their production and productivity levels by expanding into new territories and using the land as a financial asset. This increase was, however, based on the high price of land as a financial asset (see Table 2 below). The inflation of the price of land as a financial asset led the share values of these production companies to rise on the stock market before the 2008 financial crisis deepened.

The 2008 crisis shows how the production of commodities is based on speculation and depends on financial “simulation” to survive. After 2008, soy prices fell on the world futures markets (2008-2009 harvest year), as did the amount of soy produced nationally and productivity levels. Even so, the area used to grow soy augmented 2%, from 21.3 million to 21.7 million hectares.

Other variables of a speculative nature that influence production are exchange rates and interest rates. Because of the 2008 crisis and capital flight from peripheral markets to

the supposedly “safe” U.S. treasury bonds, financing was reduced, and interest rates and exchange rates against the dollar rose. The price of inputs – most of which are imported – increased significantly, which elevated production costs at a time when soy prices were on the decline. This rise in production costs could be compensated only if the Brazilian exchange rate continued to fall. During this period, producers and trading firms expanded production to regions where land is cheaper to pay back the advances (debts) they had acquired on future prices.

In the harvest years that followed (2009-2010, 2010-2011), production, productivity, and the area planted in soybean grew, but the crisis continued due to the recession in the U.S. and Europe. The financial “simulation” of accumulation also continued based on credit offered by states, often at subsidized rates. The Planos Safra program, for example, offers subsidized lines of credit with negative real interest rates, as the basic interest rate paid by the state to raise funds on the market (mainly via internal debt, in Brazilian reals) is higher than the rates charged by the development banks, such as the BNDES. In the 2009-2010 harvest, in an attempt to end the crisis, farm credit increased 37%:



Insolo, South of Piauí, was sold by Harvard Investment Funds in 2021.

Photo: Daniela Stefano

The reason for the expansion of oilseed production is the increase in farm credit. Government resources went from R\$75 billion to R\$107 billion in the 2009-2010 harvest year. ... Oilseed expansion continues at the new agricultural frontier, as new farmland is cleared, particularly in the states of Maranhão and Piauí.²²

net revenues were close to zero. ... Of the factors contributing to this decline in profitability, increased use of pesticides stands out the most, as it is normally the first product bought for harvest. In Mato Grosso, for example, the cost of this input has jumped at least 20% a year.

However, the Brazilian crisis of 2012-2013, which was related to the decline in commodity prices in general, prevented the government from sustaining these interventions. The fiscal adjustment policies proposed by President Dilma Rousseff in 2015 reduced the amount of subsidized credit available. The flight of international capital fueled the Brazilian economic crisis and caused the Brazilian real to depreciate against the U.S. dollar. This generated speculation on the price of Brazilian soy, which became more competitive internationally. The devaluation of the real in relation to the dollar, however, pushes up the cost of debt and imported inputs supplied by trading companies present in MATOPIBA, such as Cargill in Maranhão and Bunge in Piauí. Soy producers' dependence on these corporations that oligopolize the agribusiness sector becomes more evident at times of crisis.

Global commodity prices have been on the decline in recent years. Soy started to follow this downward trend in the middle of the 2012/2013 harvest year (see Graph 1 above). The decrease in commodity prices and the depreciation of the Brazilian real contributed to the crisis in the sector, as a study by Mauro Osaki shows. Osaki brings to light the relationship with speculation in the context of the 2016-2017 soy harvest²³:

... Soy has stood out for its negative performance precisely because of the increase in production costs. Despite expectations of a bumper crop, of around 107 million tons, it was noted that the price paid to producers fell, and total

If we consider the increase in production costs accumulated in this period, the amount spent on inputs leaped from R\$397,000 per hectare in the 2012-2013 harvest to close to R\$990,000 in 2016-2017, an increase of 151% – almost three times the initial price – according to data from the Instituto Matogrossense de Economia Agropecuária (Mato Grosso Institute of Agribusiness Economy). “The price of pesticides has risen in the last five harvests. Last year, part of this hike was due to the exchange rate. Another reason is the increase in use of products for specific pests, such as the white fly, which has been one of the problems in regions such as Mato Grosso and Goiás,” Osaki explained. The researcher also highlighted that “producers were partially compensated in the last two harvests, mainly in relation to the exchange rate, which gave them the false impression that the return would be positive. But they are now starting to face reality.”

Table 1 above shows that even in the harvest years in which soy production and productivity fell – 2008-2009, 2011-2012, 2013-2014 (decline in productivity), and in 2015-2016, when production decreased 1.4% and productivity fell 4.8% – the area planted in soy continued to grow.

When new areas of the agricultural frontier are incorporated into soy production, causing deforestation, it generally takes 5 to 10 years to reach national and international productivity levels. When prices decline, land with poor soil stops yielding above production costs. However, when prices go up, producers can then incorporate less-productive areas into production.

22 COLUSSI, Pedro. *AgriAnual 2010*. São Paulo, Instituto FNP, 2010, p. 454.

23 SOJABRASIL. “Estudo garante que rentabilidade do sojicultor está próxima de zero”. *SojaBrasil*, April 23, 2017. Available from <http://ww.Zw.projetosojabrasil.com.br/estudo-garante-que-rentabilidade-do-sojicultor-esta-proxima-a-zero/>. Consulted on June 22, 2017.



Preserved Cerrado bordered by land cleared for soy production, South Piauí

Photo: Mariella Paulino

In fieldwork carried out in southern Maranhão and Piauí,²⁴ we observed that in the context of the economic crisis, some land in the municipalities of Monte Alegre and Santa Filomena, for example, are borderline profitable. The rural areas of these municipalities, where SLC Agrícola (and Land Co.) and Radar S/A have land, have been integrated into the soy and land markets in recent years. With the increase in production costs and decrease in rainfall brought on by deforestation in the Cerrado, this land has become unproductive in relation to the price of soy on the futures market. However, these pieces of land are traded as speculative financial assets by corporations that use them to inflate their portfolios until they sell them to generate capitalized income from the land.

As an example, we can highlight Radar S/A, the company created as a result of a merger between Cosan and TIAA. After beginning its operations in 2008 and expanding its business, in 2016, Cosan sold the majority of its shares to TIAA,²⁵ earning profit from capitalized income from land, despite the sharp drop in commodity prices. As land prices continued to rise, stimulated by

speculation, Cosan bought half of Radar back from TIAA in 2021. This mechanism is used to keep land prices high, even in times of economic crisis.

An interview with the manager of Fazenda Parnaíba (a farm owned by SLC Agrícola and SLC LandCo) in Tasso Fragoso, Maranhão revealed that areas in southern Piauí have generated losses and that this land was used for “speculation” (in his own words). According to his calculations, the cost of establishing a farm in the region was R\$5,000 per hectare over a five-year period, which involves deforesting the Cerrado, correcting the soil, and installing basic infrastructure. The land is then sold for at least R\$15,000 per hectare.²⁶

In the 2015-2016 harvest year, the decrease in production and productivity in MATOPIBA was greater than in other soy-producing regions in Brazil and the national average. In the MATOPIBA region, in 2014-2015, 10,559,000 tons of soybean were produced; this number fell to 6,793,000 tons in the 2015-2016 harvest year – a drop of 35.6%, much higher than the 0.8% decrease at the national level.

24 PITTA, Fábio T.; CERDAS, Gerardo; MENDONÇA, Maria Luisa. *Transnational Corporations and Land Speculation in Brazil*. São Paulo, Outras Expressões, 2018. Available at: <https://social.org.br/pub/booklets-english/210-transnational-corporations-and-land-speculation-in-brazil>

25 Ibid.

26 Ibid.



Fire in Maranhão, 2019
Photo: Debora Lima

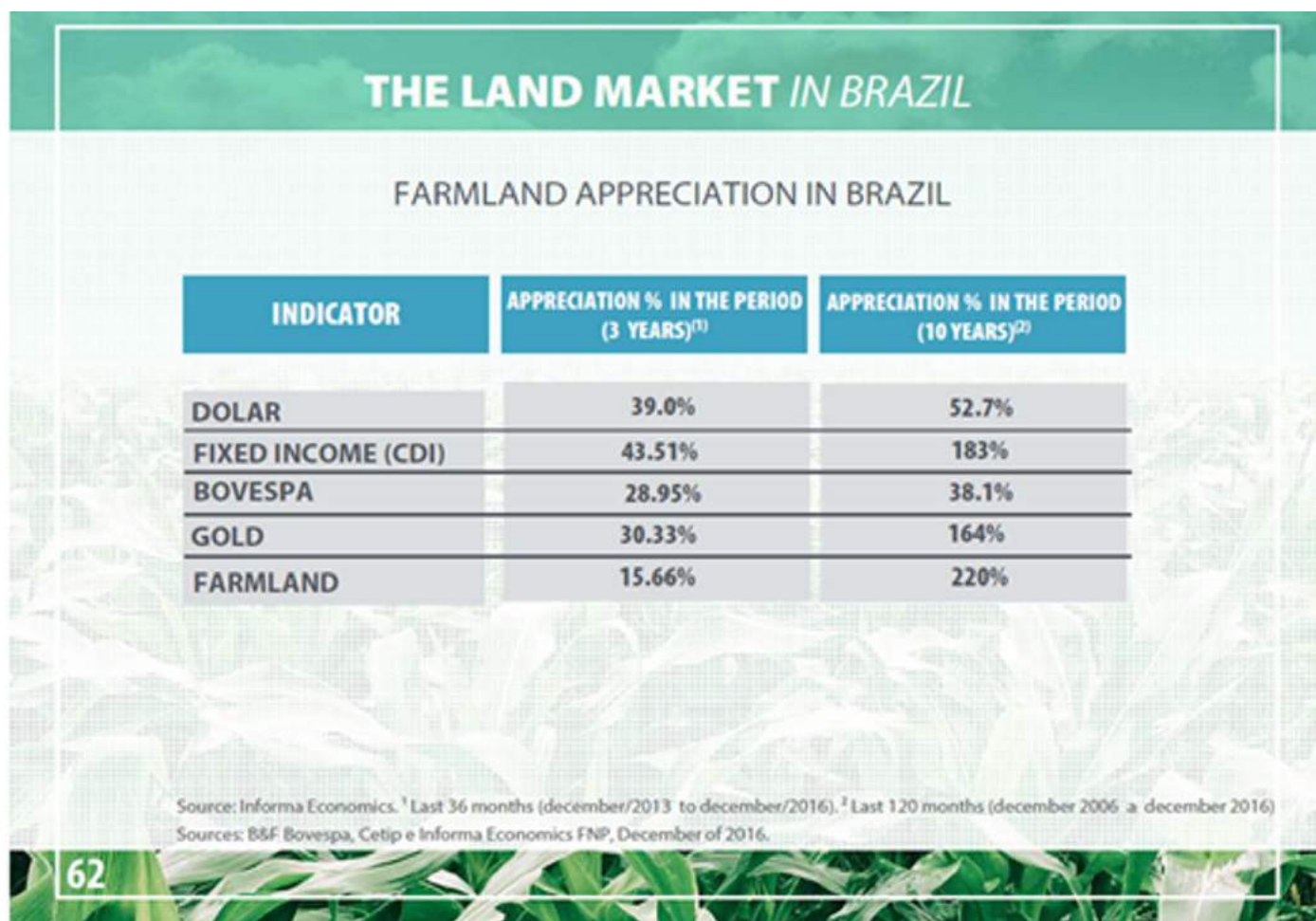
The interview mentioned above confirms that the incorporation of new areas into soy production serves as backing for loans based on the expectation that the price of this commodity will increase on the financial markets. It is also a way for corporations to accumulate land to inflate their portfolios and share prices on the stock market. The land also serves as a financial asset whose value is relatively independent from the price of the products that can be grown on that land.

When we examine Graph 1 and its relationship with Table 2 above (farmland appreciation in Brazil), we find that even after commodity prices went down, land prices continued to rise. This suggests a certain “detachment” between the

production of goods and the earnings generated from the exploitation of land as a financial asset.²⁷

After the global economic crisis in 2008, financial and agribusiness corporations such as Cosan, SLC Agrícola, BrasilAgro, Sollus Capital, and TibaAgro (via Fundo Vision Brazil Gestão de Investimentos e Participações Ltda.) began operating in the Brazilian land market. In the cases of Cosan and SLC Agrícola, which are publicly traded corporations set up as holdings, they created two rural real estate firms to carry out land deals: Radar Propriedades Agrícolas and SLC LandCo. These firms were set up as joint ventures with international pension or investment funds.²⁸

Table 2: Inflation of the price of land used as a financial asset in Brazil (2013-2016; 2006-2016)



Source: SLC. *Relatório de desempenho 1T17*. Porto Alegre, 2017. Available from <http://ri.slccagricola.com.br/>. Consulted in June 2017.

27 PITTA, Fábio T.; CERDAS, Gerardo; MENDONÇA, Maria Luisa. *Transnational Corporations and Land Speculation in Brazil*. São Paulo, Outras Expressões, 2018. Available at: <https://social.org.br/pub/booklets-english/210-transnational-corporations-and-land-speculation-in-brazil>

28 PITTA, Fábio T. & MENDONÇA, Maria Luisa. *A empresa Radar S/A e a especulação com terras no Brasil*. São Paulo, Outras Expressões, 2015.

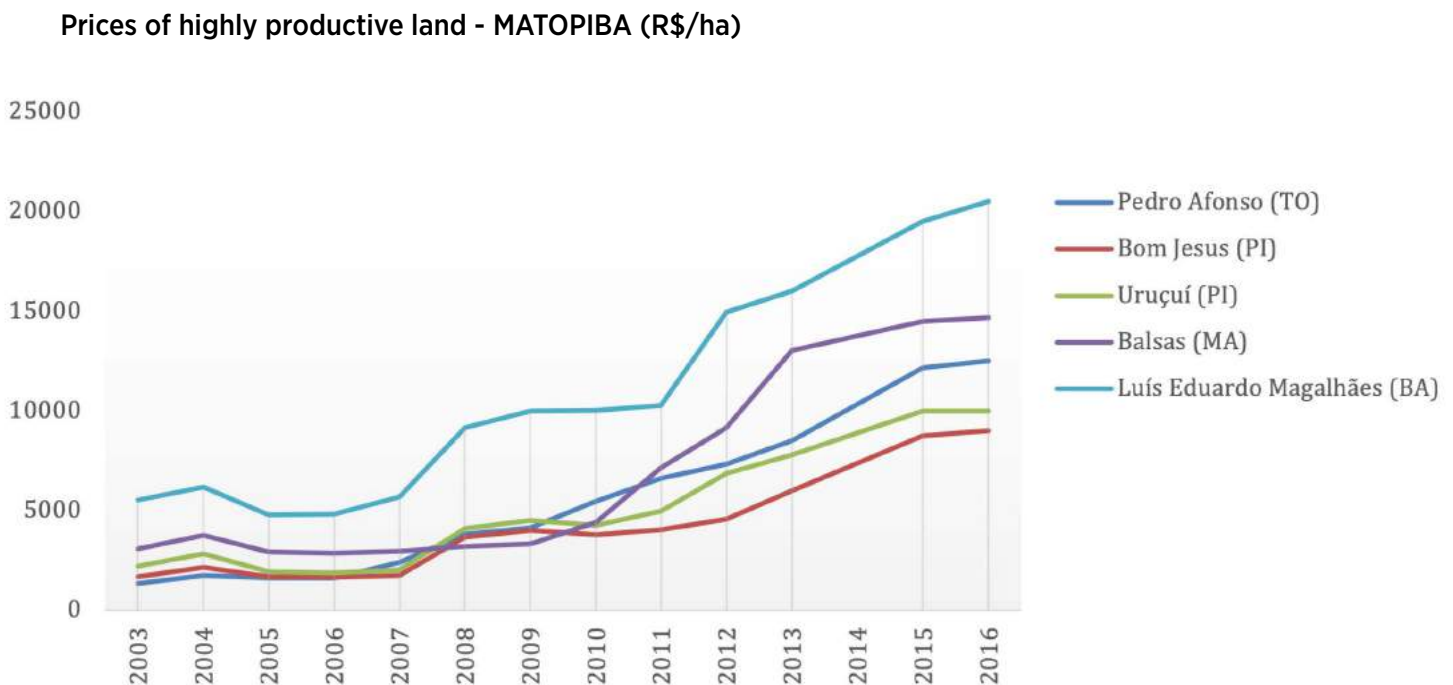
This mechanism fueled the increase in commodities prices on the futures markets and drove the expansion of soy monocropping into MATOPIBA, especially in public lands of common use on the plateaus historically shared by peasants and indigenous communities. Covered in vegetation native to the Cerrado, these areas were being used collectively by local populations when foreign corporations partnered with local land-grabbers to promote speculative deals that exploit land as a financial asset.

This type of deal became important to the soy industry, which incorporated it into its portfolio. Increases in a company's share value can serve as backing for new debts, which function as a new investment and a promise of future production. This drives the expansion of monocropping into newly incorporated pieces of land, which once again pushes up the value of companies' shares. The creation of transnational real estate firms led to even greater increases

in the price of land used as financial assets, which are independent from commodity prices, thus revealing the speculative nature of this type of deal.²⁹

Graph 2 above demonstrates the increase in land prices since the commodities boom in areas affected by the expansion of soy in MATOPIBA. Even after the fall in international commodity prices in recent years, land prices continue to rise. This has spurred land-grabbing, the expropriation of peasants, and the deforestation of the Cerrado.

Graph 2: Land prices in MATOPIBA (2003-2013)



Org.: Débora Lima in PITTA, Fábio T.; CERDAS, Gerardo; MENDONÇA, Maria Luisa. *Transnational Corporations and Land Speculation in Brazil*. São Paulo, Outras Expressões, 2018. São Paulo, Outras Expressões, 2018. Prices were adjusted based on the General Market Price Index (IGP-M) of April 2015.

29 MENDONÇA, Maria Luisa & PITTA, Fábio. "The role of international financial capital in the Brazilian land market." *Latin American Perspectives (LAPs)*, University of California, Riverside, California, U.S., Volume 45, Issue 5, September 2018.



Fire scars on SLC land, South Piauí 2019
Photo: Daniela Stefano

Rural real estate corporations are companies whose main source of revenue is their transactions on the rural land market. The emergence of this type of company is recent and is related to the territorial expansion of agribusiness and the increase in commodity prices on the world markets and the prices of farmland used as a financial asset by international investors. Several of these companies offer their shares on stock markets (BM&FBOVESPA), such as BrasilAgro and other ones created by Brazilian agribusiness corporations – for instance, SLC Land Co., founded in 2012 as a subsidiary of SLC Agrícola S/A (whose shares have been publicly traded on the market since 2007) and Radar Propriedades Agrícolas S/A. The latter was set up in 2008 as a subsidiary of Cosan S/A (with shares on the market since 2005), in partnership with the TIAA pension fund from the U.S.

In recent years, trade competition between the U.S. and China spared the soy industry in Brazil from an even deeper crisis, like the one experienced by other agricultural

industries such as sugarcane. Due to various trade blockades between the two countries, China, the world's largest consumer of soy, began to concentrate its acquisitions in the Brazilian market. This generated a gap between the price of soy that the Chinese market paid Brazilian producers and the prices on the international financial markets. This preference, which is also tied to the depreciation of the Brazilian real, favored the expansion of soy production, productivity, and the area planted in Brazil, and caused even more social and environmental impacts.

Since mid-2021, with the economic reopening after the onset of the COVID-19 pandemic, commodity prices have started to rise on the derivatives markets again, reminding us of the peaks of 2008 and 2011. This could be a sign that a financial bubble is in the making. Our research indicates that both when commodity prices are rising (which stimulates the expansion of soy production) and when they are falling (with production and productivity also on the

decline), soy monocropping continues to expand to new areas. This expansion is part of a strategy for paying off debt with banks and trading companies when prices are low, in a speculative process that wagers that land prices will continue to rise.

In conclusion, it is important to highlight that the current escalation of commodity prices on the futures markets is having a direct impact on the prices of goods, contributing to global inflation. This fuels the expansion of soy monocropping in Brazil, especially in places on the edge of the agricultural frontier, such as southwestern Piauí in the MATOPIBA region. The expansion of soy agribusiness stimulates land-grabbing and deforestation, with catastrophic consequences for nature and rural communities. We must denounce these impacts, hold the corporations involved liable, and build solidarity with peasant, indigenous, riverine, and quilombola communities who defend the biodiversity of their territories.



Tractor and truck movements take a heavy toll on the land and life of communities in the South of Piauí.

Photo: Daniela Stefano



Land cleared for soy, South Piauí.
The majority of all soy produced in this region is sold by Bunge.

Photo: Mariella Paulino