



# Soybean, a Commodity without Borders: Socio-Environmental Impacts in Protected Areas and Indigenous Communities in Mato Grosso do Sul/Brazil

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## Keywords

Land use  
Deforestation  
Agro-export economic model  
Territory

## Abstract

The occupation of the cone-south region of the state of Mato Grosso do Sul is not exclusively territorial, it is successively temporal and depends on public and private social actors, who build, elaborate, and provide conditions for the existence of the dynamics that are established there. The economic spatial expansion, especially for agricultural and cattle raising activities, attracts capital to change land use, intensifying the pressure on more vulnerable areas, such as conservation units and indigenous lands. The main change in land use and cover observed in the last 30 years was the loss of native vegetation inside conservation units (-29%) and indigenous lands (-34%) and the conversion of pasture areas, which had a reduction of 76% and 38%, to plant soy, which increased 536% and 98% inside indigenous lands and conservation units, respectively. Thus, it is clear that delimiting a conservation area or circumscribing traditional populations in a small area without resources prevents them from reproducing their way of life and, paradoxically, induces them to develop predatory practices against the environment or to lease their lands to large landowners, as the only means of guaranteeing their subsistence and not falling into poverty. This study highlights the urgent need to rethink territorial policies to ensure sustainable and socially just land use models.

## INTRODUCTION

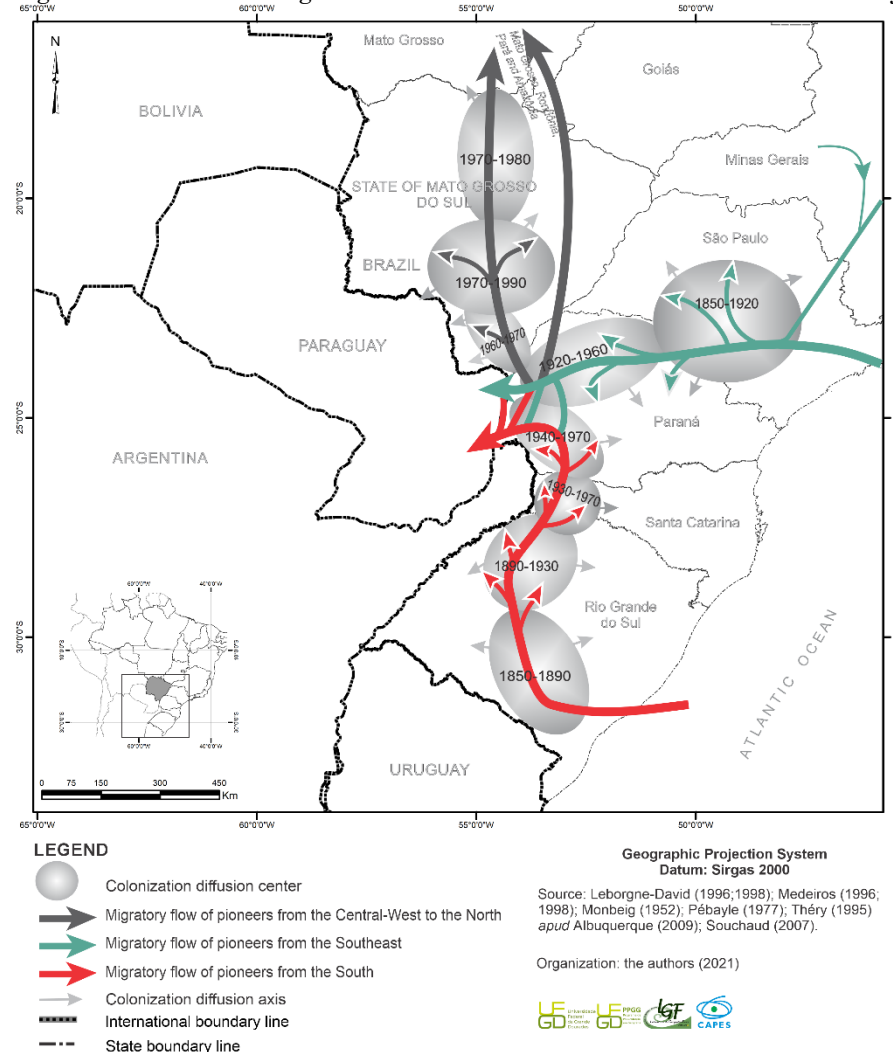
The early 20th century in Brazil was marked by a vast territory that was unequally populated, with regions exhibiting highly differentiated technological standards and asynchronous capacities for participation in the national economy, as pointed out by Rangel (1981). From the 1930s onwards, the structuring of an industrial dynamism centered in the southeastern region of the country functioned as a guiding axis, progressively influencing other Brazilian regions. This process gave rise to multidimensional changes—social, economic, cultural, political, and environmental—both qualitative and quantitative, particularly in the most modernized areas of peripheral regions (Le Bourlegat, 2014).

Following the 1940s, the colonizing and expansionist government policy known as the

“March to the West” reinforced this model and served as a foundation for the integration of the Midwest into the national economy. Various land settlement projects attracted southern migrants from Paraná and, later, São Paulo, who invested in the region and consolidated a new expansionist front, initially occupying arable land (Figure 1).

In the 1970s, federal planning through public policies favored the expansion of the agricultural frontier in the Midwest, adopting the “Green Revolution” as its guiding paradigm. This expansion began with the occupation of vast, low-cost tracts of fertile, mechanizable land under favorable climatic conditions, notably in Mato Grosso do Sul and Goiás. The new expansion model was grounded in the modernization of production techniques, aiming to reduce the cost coefficient and to obtain agricultural commodities—primarily soybeans (Le Bourlegat, 2014).

Figure 1 – Brazilian migration flows towards the Midwest of the country



Source: The authors (2025). Adapted by the author of Souchaud (2007) and Albuquerque (2009).

The conditions that favored the vertiginous expansion of agriculture, particularly soybean, into the Brazilian Cerrado, may be understood as the outcome of a complex interplay of economic, political, demographic, and geographic (Frederico, 2008; Carneiro Filho; Costa, 2016), social, environmental, and cultural factors (Bolfe *et al.*, 2020), all operating within a specific temporal-spatial scale.

Thus, to comprehend the development of soybean production in Brazil requires an examination of the panorama of the last five decades, framed within the global context. After the 1970s, agriculture became increasingly dependent on upstream and downstream services and sectors—ranging from machinery, pesticides, fertilizers, seeds, and financing to infrastructure, agro-industries, trade networks, and export systems (Mendes; Padilha Junior, 2007).

Since the 1970s, the agribusiness-driven development model has spread throughout the Midwest and extended into northern Brazil. At first, the State worked as the articulator and financier for the expansion of this agricultural frontier (Frederico, 2013), implementing policies of agricultural modernization and colonization that enabled the construction of transportation and storage infrastructure, the provision of tax incentives (such as the Tax War and the Kandir Law), and the allocation of rural credit (subsidized by Banco Nacional de Desenvolvimento Econômico e Social – BNDES) (Brazilian Development Bank) (Mesquita, 2016). A significant element of endogenous forces in this process occurred with investments in technology and research, highlighting the role of Empresa Brasileira de Pesquisa Agropecuária - Embrapa (Brazilian Agricultural Research Corporation), to develop a variety of plants, manure and fertilizers to grow soybeans in the acidic and low fertility soils of the Cerrado (Dall'agnol, 2016).

The developing countries have been affected by the rhythm decreed by large companies that include or exclude according to the global economic dynamics. Thus, social and regional inequalities are accentuated, triggering migratory flows towards dynamic regions, intensifying conflicts and pressures on social and planning policies (Brasil, 2005). In the 1990s, the State started to lose space for the political action of large transnational companies to commercialize grains and agricultural inputs, due to the adoption of neoliberal policies and the opening of the market (Frederico, 2013). In this context, we highlight Bunge, Cargill, ADM and Louis-Dreyfuss that operate on the supply side of the production chain. In the 2000s, the

significant external environment of growth in world trade promoted the boom in the production of commodities, motivated by the increase in demand from emerging countries (Maranhão; Vieira Filho, 2016).

These developments have consolidated a sui generis, exclusionary development model that benefits a select group of large landowners and their associated sectors. In the late 20th and early 21st centuries, the aggressive advance of this agro-export model was based on the appropriation and degradation of natural resources (Mesquita, 2016). It was characterized by large-scale monoculture on concentrated landholdings, oriented toward foreign markets, and supported by government subsidies and promotion policies.

Although the model has undergone adjustments—particularly due to environmental constraints—its core dynamics remain intact. The incorporation of the agro-export model into the territory is central to this analysis, as it underlies the formation of regions defined by specific economic activities and structured around their corresponding sectors. In this regard, the role of flex crops—versatile crops such as soybeans, which serve multiple purposes including food, animal feed, and biofuels—is especially notable (Borras *et al.*, 2016).

Soybeans may be identified as the raw material that best represents the category of agricultural product (Faccin, 2019) capable of resisting short-term bumps due to the global market situation and adapting to the needs imposed by the market (Oliveira, 2003). In addition, soybean add several relevant segments in its production chain (Silveira, 2004) that assume specific and increasingly specialized functions. According to Oliveira (2003), in Mato Grosso do Sul, soybean cultivation is configured as an element capable of transforming and reconfiguring regions prior to its arrival in this new dynamic. Mato Grosso do Sul had livestock as its most traditional activity, however, changes have occurred in the economic profile and in the appropriation of territory (Oliveira, 2003) over the last four decades, due to the advance of soybean cultivation. The most significant changes have occurred in the peripheral areas of the state, which were evidently suitable for cultivation.

This scenario invites reflection on the main processes that have culminated in the formation and consolidation of the soybean-based agro-export model in Mato Grosso do Sul, as evidenced by Ferreira and Silva (2023b). In this context, we aimed to analyze not only the development and maintenance of this model but

also the socio-environmental consequences it has engendered—especially concerning protected areas.

To broaden this reflection, it is important to consider the perspective of Delgado (2012), who argues that the recent expansion of commodity production across Brazilian territory—particularly in the early 21st century—cannot be understood in isolation from what he terms a "new political economy pact of agribusiness". This pact, forged through strategic alignments between the state, large-scale capital, and global market demands, redefined the territorial logic of agricultural production.

In this view, the advance of soy cultivation in states like Mato Grosso do Sul is not merely the result of technological innovation or market opportunities, but the outcome of a deliberate and institutionalized political-economic arrangement that favors the consolidation of agribusiness interests over broader social and environmental considerations.

### THE MULTI-SCALE CONNECTIONS BETWEEN PLACE, BORDER AND THE WORLD OF THE SOY COMMODITY

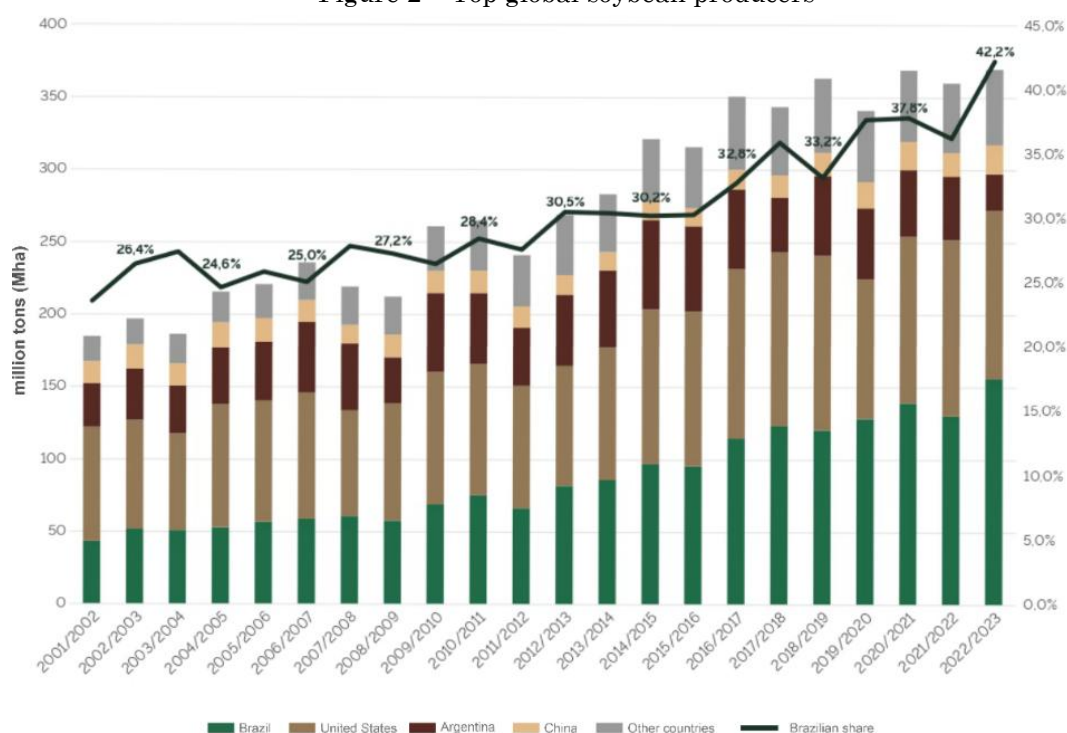
Currently, most countries depend on commodity imports from various regions of the world. The so-called flex crops – such as soybeans, palm oil, corn, and sugarcane – have gained significant

relevance in the globalized economy due to their marketing flexibility and diverse uses (Borras *et al.*, 2016). The export-oriented production of these crops has become an attractive economic strategy for many nations.

In Brazil, soybeans, sugarcane and corn stand out as the three main monocultures of agribusiness in terms of production volume – had a gross production value of US\$60.6 billion, contributing with 3.4% of GDP (WITS, 2019) and soybeans responsible for over US\$ 20 billion as the most valuable export commodity in Brazil (TRASE, 2018). The demand for these commodities stimulated a notable increase in agricultural production, mainly soybeans.

Over the past four decades, soybeans have consolidated their position as one of the most significant and profitable global commodities (WWF, 2016). Global soybean production has grown by approximately 185 million tons so far this century, rising from 184.9 million tons in the 2001 harvest to 369.7 million tons in the 2023/2024 season (USDA FAS, 2024). Of this total increase, 112.5 million tons originated from Brazil's harvest alone, reflecting the country's central role in global supply expansion. In other words, Brazil accounted for nearly 60% of the global growth in soybean grain production over this period, reaffirming its strategic position in the international agribusiness landscape (USDA FAS, 2024; CONAB, 2024) (Figure 2).

Figure 2 – Top global soybean producers



Source: USDA (2024), adapted by MAPA (2024).

South America continues to experience a vertiginous expansion of soybean cultivation. Brazil and Argentina currently account for approximately 51% of global soybean production—an extraordinary leap from the mere 3% share held fifty years ago. In 1970, soybean crops covered about 1.4 million hectares across the region; by 2024, that figure had surged to 56 million hectares (FAO, 2023). Together, these two countries account for 202.7 million tons of global soybean production.

Soybeans remain the most widely traded agricultural commodity on the continent, largely

driven by the increasing global demand for animal feed. As shown in Table 1, China stands as the world’s largest soybean consumer, currently accounting for approximately 121 million tons—equivalent to nearly 32% of global consumption in the 2023/2024 season. Overall, the top four consumer markets (China, United States, Brazil, and Argentina) together represent 289.5 million tons, or about 75.5% of total global soybean demand, which is estimated at 383 million tons (USDA, 2024).

**Table 1** – The top soybean-consuming countries in 2023

Countries	Soybean consumption	
	(million tons)	(%)
China	121.8	31.8
United States	65.6	17.1
<b>Brazil</b>	<b>58.3</b>	<b>15.2</b>
Argentina	43.8	11.4
Other countries	93.8	24.5
Total	383.3	100

Source: The authors (2025). Adapted by the author of FIESP (2025).

Global soybean consumption is a key indicator for understanding the dynamics of global agribusiness, especially in relation to the production of plant-based protein for both human and animal consumption.

Brazil currently stands as the world's leading soybean exporter and the second-largest producer, following the United States in total output. In the 2022/2023 season, Brazil produced approximately 154.6 million tons of soybeans (CONAB, 2024), and exports reached record levels. According to data from the Secretariat of Foreign Trade (SECEX), exports of soybeans in grain alone totaled over 101.9 million tons in 2023, followed by soybean meal (21.4 million tons) and soybean oil (2.1 million tons), generating more than US\$ 60 billion in total revenue (SECEX/MDIC, 2024). These figures reinforce soybean’s status as Brazil’s most valuable export commodity.

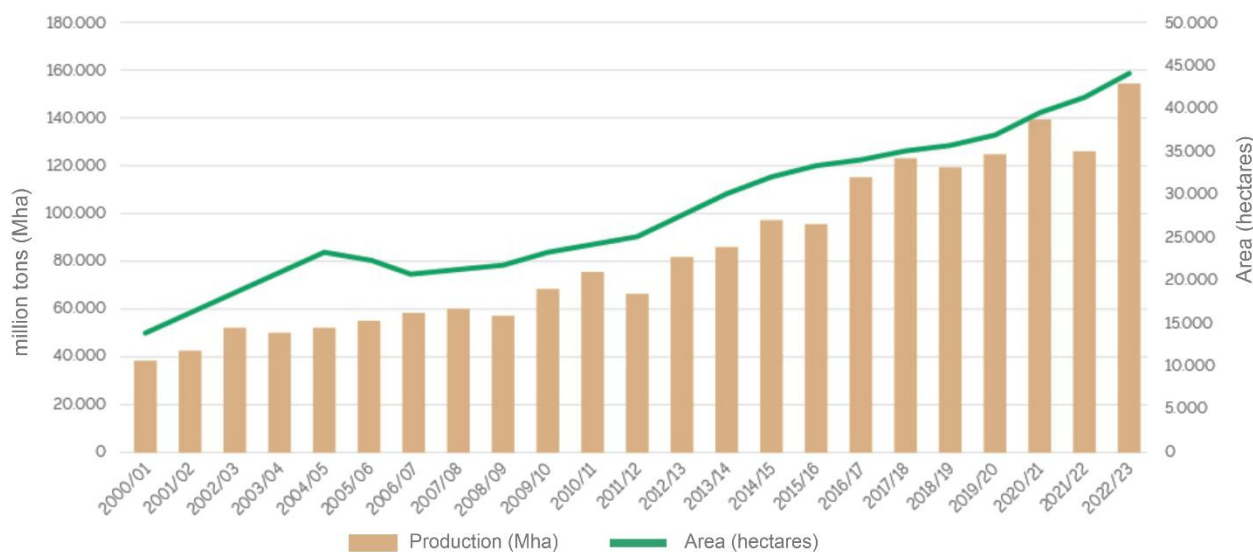
Recent projections by the Food and Agriculture Organization (FAO) and the Organization for Economic Co-operation and Development (OECD) suggest that Brazil will

continue to strengthen its global leadership in soybean exports. By 2032, Brazil is expected to increase its share of global soybean exports to approximately 50%, while the United States' share is projected to decline to 30% (FAO/OECD, 2023). These projections reflect both the expansion of cultivated areas—particularly in the Cerrado biome and MATOPIBA region—and investments in infrastructure that have improved the country’s export logistics.

The volume and value of soybean exports continue to grow year after year. For example, in the first two months of 2023 alone, Brazilian soybean exports showed a 32.5% increase compared to the same period in 2022 (MAPA, 2024). Nonetheless, the international soybean trade remains sensitive to geopolitical dynamics, particularly trade relations between major players like the United States and China. Episodes such as the U.S.–China trade war and subsequent tariff negotiations have contributed to fluctuations in Brazil’s export volume, benefiting Brazilian producers in some cycles while introducing volatility to others (Figure 3).



Figure 3 – Temporal evolution of cultivated area and amount of soybean produced in Brazil



Source: CONAB (2024), adapted by MAPA (2024).

In Brazil, the Midwest region has become the area of expansion of the agricultural frontier, due to the migratory fronts from the south and southeast of the country, allied to the implementation of public policies of subsidy and financing. Thus, the states of Goiás, Mato Grosso, and Mato Grosso do Sul have become granaries, essentially producers of grains, especially soybeans for export (Table 2).

For comparison purposes, at the end of the 1970s, over 80% of Brazilian soybean production was concentrated in three states of the South region, and less than 2% of national production

was in the Midwest region. In 1990, the central region of Brazil comprised 33% of the national production, and 34% of the cultivated area. In the 2000s, the percentage reached over 40% in terms of area and production, and currently, the Midwest region is the main oilseed producer in the country (IBGE, 2018). In territorial terms, Brazilian soybean production occupies the Midwest and South of the country, areas belonging to the Cerrado and Atlantic Forest biomes, comprising more than 45 million and 32 million tons, respectively, of the total production in the 2017 harvest.

**Table 2** – The ten largest soybean producing states in Brazil - 16/17 harvest (mi t)\*

State	TOTAL (mi t)	Original biome						Unknown
		Amazon	Cerrado	Atlantic Forest	Pantanal	Pampa	Caatinga	
Mato Grosso	30,4	12,1	14,7	-	0,1	-	-	3,5
Paraná	19,7	-	0,2	15,4	-	-	-	4,0
Rio Grande do Sul	18,2	-	-	10,5	-	7,5	-	0,2
Goiás	11,4	-	9,9	0,1	-	-	-	1,3
<b>Mato Grosso do Sul</b>	<b>8,6</b>	-	<b>4,8</b>	<b>2,7</b>	<b>0,04</b>	-	-	<b>0,9</b>
Minas Gerais	5,6	-	4,0	0,5	-	-	0,004	1,1
Bahia	5,0	-	4,8	-	-	-	-	0,3
São Paulo	3,9	-	1,2	1,1	-	-	-	1,7
Maranhão	2,4	0,2	1,9	-	-	-	0,001	0,4
Demais	9,2	-	-	-	-	-	-	-
Total País	114,6	14,9	46,0	32,4	0,1	7,5	0,04	13,5

\*Values rounded to millions of metric tons (mi t)

Source: The authors (2025). Adapted by the author of Trase (2018).

Regarding soybean marketing networks, according to Achkar *et al.* (2008) the southern cone countries of Latin America are established as efficient territories for transnational cooperation, due to ecological, economic,

infrastructure, political and cultural conditions that offer to processing and trading companies, total security of an effective return on their investments. A large part of trading in the state of Mato Grosso do Sul, about 50%, is carried out

through the quartet known as the ABCD group (Table 3).

**Table 3** – Main trading companies of the soy complex in Mato Grosso do Sul

Company		Trading	
		(mi t)	%
Export	ADM	1,4	16.4
	Bunge	1,3	15.2
	Cargil	1,0	11.5
	Lois Dreyfus	0,5	6.2
	COFCO	0,3	3.1
	COAMO	0,2	2.6
	Lar Cooperativa Agroindustrial	0,2	2.1
	Amaggi	0,2	2
	Others*	1,0	12.1
	Domestic consumption	2,5	29
<b>TOTAL</b>		<b>8,6</b>	<b>100</b>

Source: The authors (2025). Adapted by the author of Trase (2018).

The companies have different levels of vertical integration operating in a network of facilities related to the soy complex, which delimit their different supply regions both in the state territory and throughout Brazil, including not only storage units, but also crushing and logistics infrastructure. In the commercial scenario, China is the main soybean importer

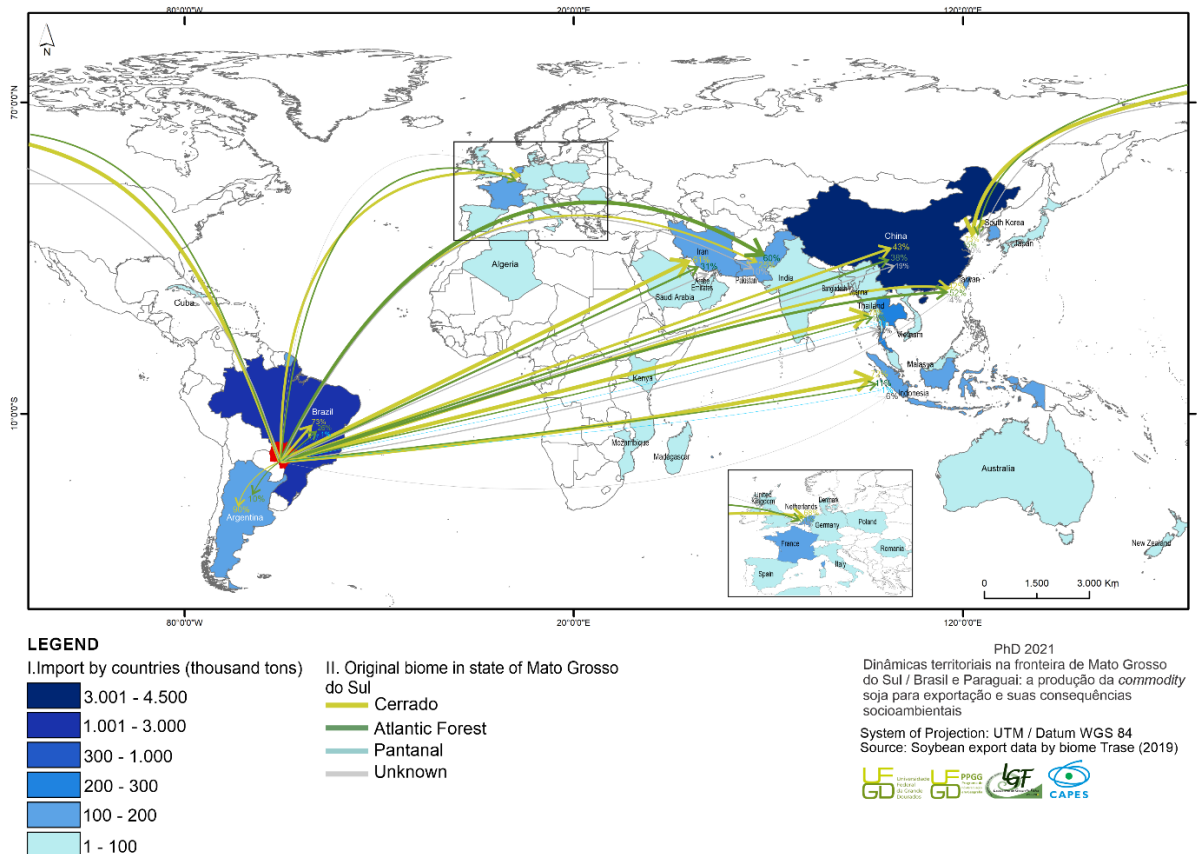
from Mato Grosso do Sul, which exports about 50% of its production to the country (Table 4 and Figure 4), representing more than US\$ 1.5 billion (69%) of the total exported. The state doubled its production between 2003 and 2017, while the volume imported by China increased tenfold in the same period, consolidating itself as the main trading partner.

**Table 4** – Main trading destinations for soybean production in the state of Mato Grosso do Sul

2003		2017	
Countries	Volume (tons)	Countries	Volume (tons)
Export	China	China	4,323.668
	France	Thailand	311.290
	Germany	Argentina	183.796
	Netherlands	Taiwan	176.417
	South Korea	Paquistan	167.586
	Spain	Indonesia	143.260
	Italy	Netherlands	136.299
	Iran	South Korea	123.220
	Indonesia	Iran	122.905
	Domestic consumption		2,509.886
<b>TOTAL</b>		<b>8,647.723</b>	

Source: The authors (2025). Adapted by the author of Trase (2018).

Figure 4 – The top ten soybean export destinations of Mato Grosso do Sul



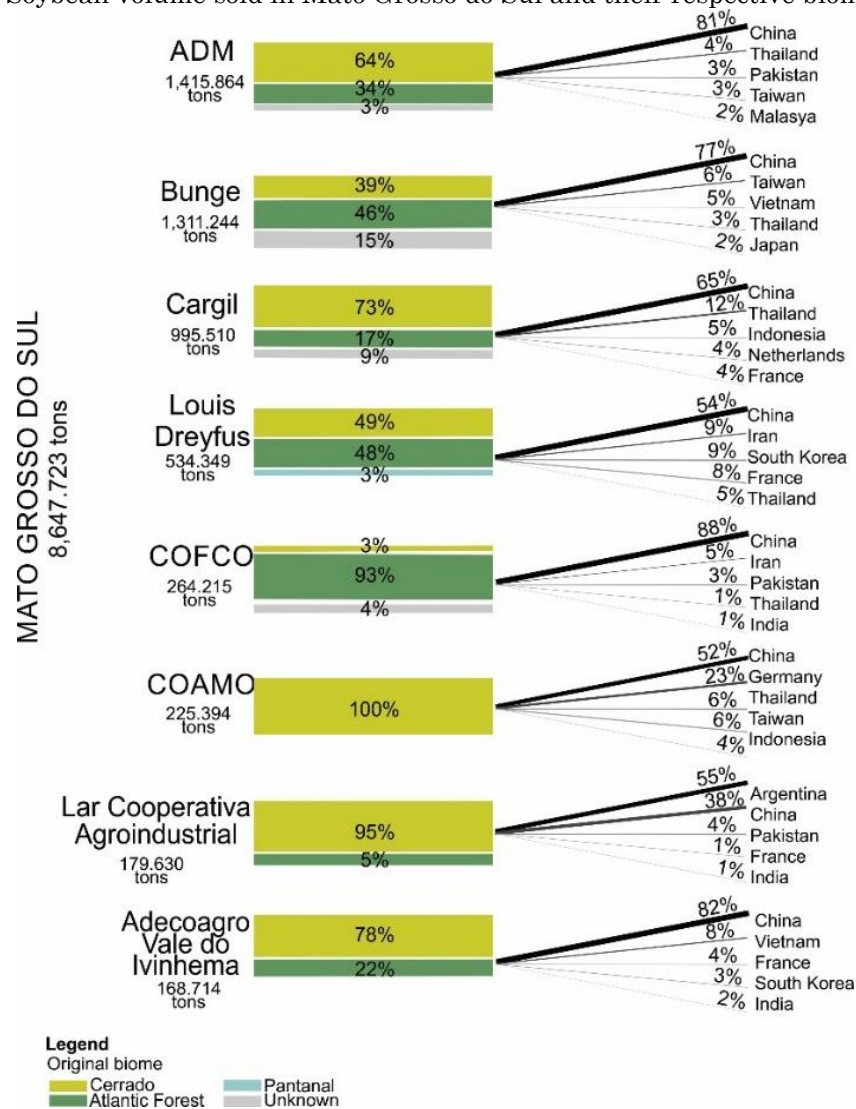
Source: Ferreira (2021).

Soybean production increased from 4 million to 8 million tons in Mato Grosso do Sul between 2003 and 2017. 56% of it, was produced in the Cerrado area, 33% in the Atlantic Forest, 1% in Pantanal, and 10% from unknown origin. The

produce was commercialized by more than 50 companies, according to Figure 5, showing that in addition to having a large network for exports, they also operate in distribution for domestic consumption.



Figure 5 – Soybean volume sold in Mato Grosso do Sul and their respective biomes of origin



Source: The authors (2025). Adapted by the author of Trase (2018).

According to Costa (2012) and Frederico (2008), the storage and trading segment of the production chain – where trading companies operate—constitutes one of the most strategic and influential links in the agribusiness process.

The large traders, in addition to funding resources to guarantee the receipt of soybean produced by farmers, also transfer and/or sell the product to agro-industries, and/or export the grain or provide services to facilitate the export of cooperatives, as well as small and medium-sized companies. It is clear that the soybean agro-export model is capable of stimulating the emergence of new ventures aiming to suppress the needs of each of the upstream and downstream links of the production chain (Hefferman; Constance, 1994; Wesz Junior, 2014).

We highlight that the Cerrado biome presents relatively low levels of legal protection, and the deforestation due to soybean crops is most notable in tropical forests in Brazil, as well as in all South America. Significant deforestation occurs in the dry subtropical forests of the Gran Chaco in Argentina, Paraguay, and Bolivia, where typical biodiversity and a large number of indigenous populations are placed. The combination of new varieties of soybeans more resistant to drought and high temperatures contributed to expand the cultivation area in the Western Region of the Chaco. Therefore, these countries share the social, environmental, cultural and economic consequences and implications of this production model.

## PROTECTED AREAS: THE RELATIONSHIP BETWEEN ENVIRONMENTAL PRESERVATION, LAND USE AND OCCUPATION

The mismatch between the territorial dynamics led by the development model and the conservation and preservation measures generates environmental, social and economic polarities that create excluding discourses in which the value of land use, conservation and preservation of natural resources are opposed. The demand of legal support for protected areas is linked to their fragile characteristics, and their social and cultural relevance. According to an environmental view, when subjected to degradation actions, imbalances may result in various biotic and abiotic compartments that constitute ecosystems, impacting and causing damages to human beings.

In the present sub-item, we seek to exercise the practice of articulating data and information presented in the process of appropriation of the territory by the agro-export economic model. We define a spatial cut of the central-south region of the state and Mato Grosso do Sul to obtain a high level of details. Three Conservation Units and thirteen areas belonging to indigenous communities are located in the study area.

Land use and land cover information for Mato Grosso do Sul were extracted from the database of MapBiomias 4.1 collection project (MapBiomias, 2020), obtained from Landsat satellite images and made available in GeoTIFF format with 30 meters of spatial resolution. After processing data, the information regarding the Conservation Units (CUs) and Indigenous Lands (ILs) inserted in the study area, using the QGIS Field Calculator. The areas corresponding to each thematic class were quantified in the 1985, 1995, 2005, and 2018 scenarios.

## *Spatial Analysis of Soybean Production in the Southern Cone of Mato Grosso do Sul*

Historically, the region has been linked to the production of yerba mate and its chain, to extensive livestock farming, logging, and grain production (Ferreira; Silva, 2023a). Companhia Mate Laranjeira started its activities on the banks of the Verde River in 1833 attracting great number of people to the region. The Company headquarter was located where the municipality of Coronel Sapucaia is currently located. The region is heavily influenced by the Grande Dourados Region, that is, the mainstay of agriculture in Mato Grosso do Sul (Figure 6).

Although livestock is the most traditional activity, the agricultural sector presents relevant production of soybean/corn binomial, and recently, sugarcane. As the cultivation of soybean has been consolidated in the southwest region of the state for a longer time, it is also more present in indigenous areas than sugarcane. The arc of expansion of soy from the center-south towards the extreme south of the state is perceptible. Figure 8 presents two clearly defined regions: (i) to the north of the Amambai River, the intensive use and occupation of soybeans comprising the Serra Geral Formation and high agricultural potential soils; and (ii) to the south of the Amambai River encompassed by Caiuá sandstone, pastoral farming occupies the area, where soils present high potential for sanding, causing erosion and silting of water bodies. According to the ZEE-MS (Mato Grosso do Sul, 2015), the potential of this region is linked to the use condition of its lands, related to a set of agropastoral and industrial products. Thus, synchronizing the expansion of agricultural activities with the conservation of natural resources is one of the main challenges as well as a difficulty for public policies in the state (Cunha *et al.*, 2020).

Figure 6 –Grain storage and processing agro-industries



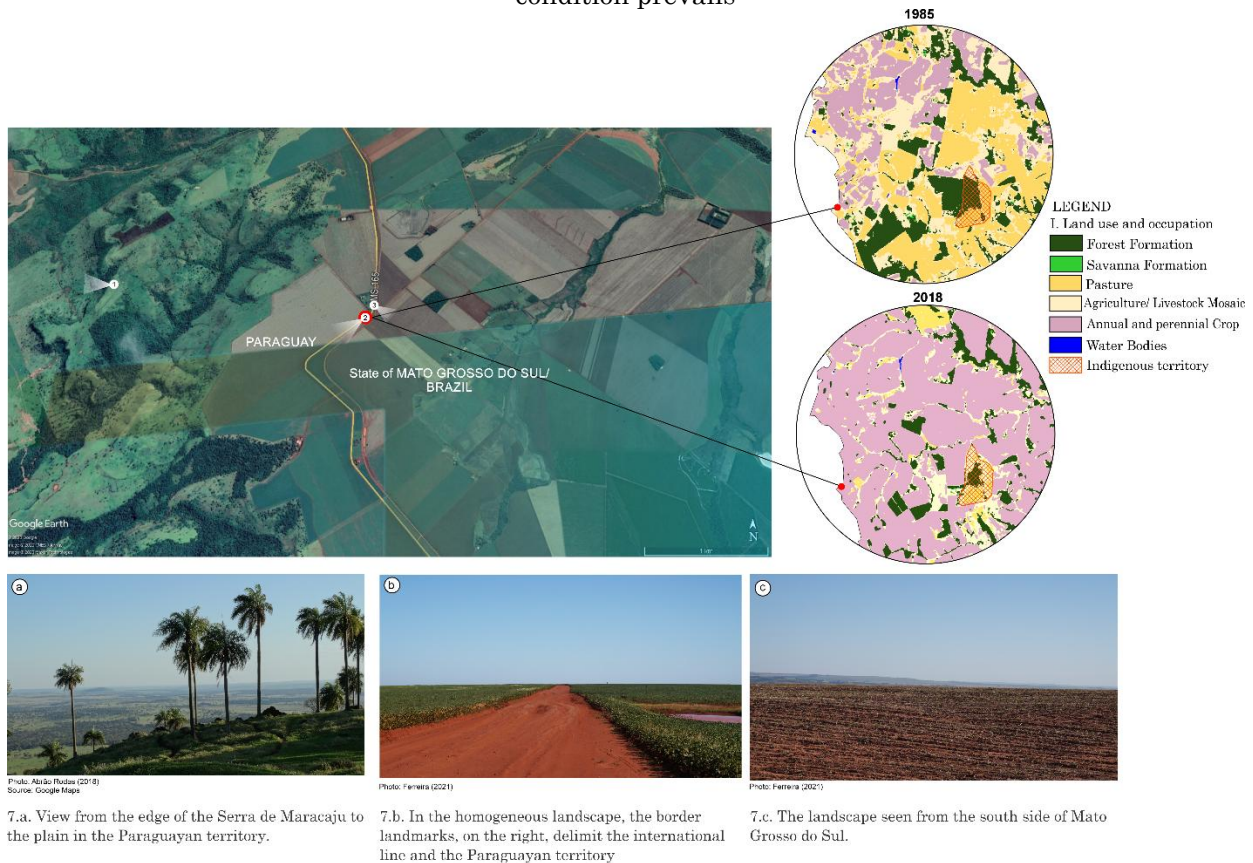
Located along BR-163 in the Grande Dourados region, Mato Grosso do Sul, Brazil.

Source: The authors (2021).

Dourados may consolidate itself as the great center of commercial articulations for the region, however, near there, Ponta Porã and Pedro Juan Caballero (PY) border cities in Brazil – Paraguay offers significant working, income and service relationship to Brazilians and Paraguayans. The two cities cover an urban agglomeration close to 180 thousand inhabitants. On the Brazilian side, residents of Aral Moreira, Laguna Caarapã, Antônio João, and Amambai are attracted by the re-export market, as well as residents on the Paraguayan side, whose radius of influence encompasses the

cities of Concepción, Capitan Bado, Coronel Orviedo reaching the vicinity of the capital, Asunción ([Mato Grosso do Sul, 2015](#)). On the Paraguayan side, in the areas of the slopes of Serra de Maracaju, the area remains relatively protected due to its relief, as well as along the rivers that drain to the southwest into the plateau. The corridors, formed mainly by riparian vegetation, are what is left of properties that converted native vegetation to the edge of the plateaus with mechanized agriculture (Figure 7).

Figure 7 – In the monoculture landscape the landmark borders disappear, the transboundary condition prevails



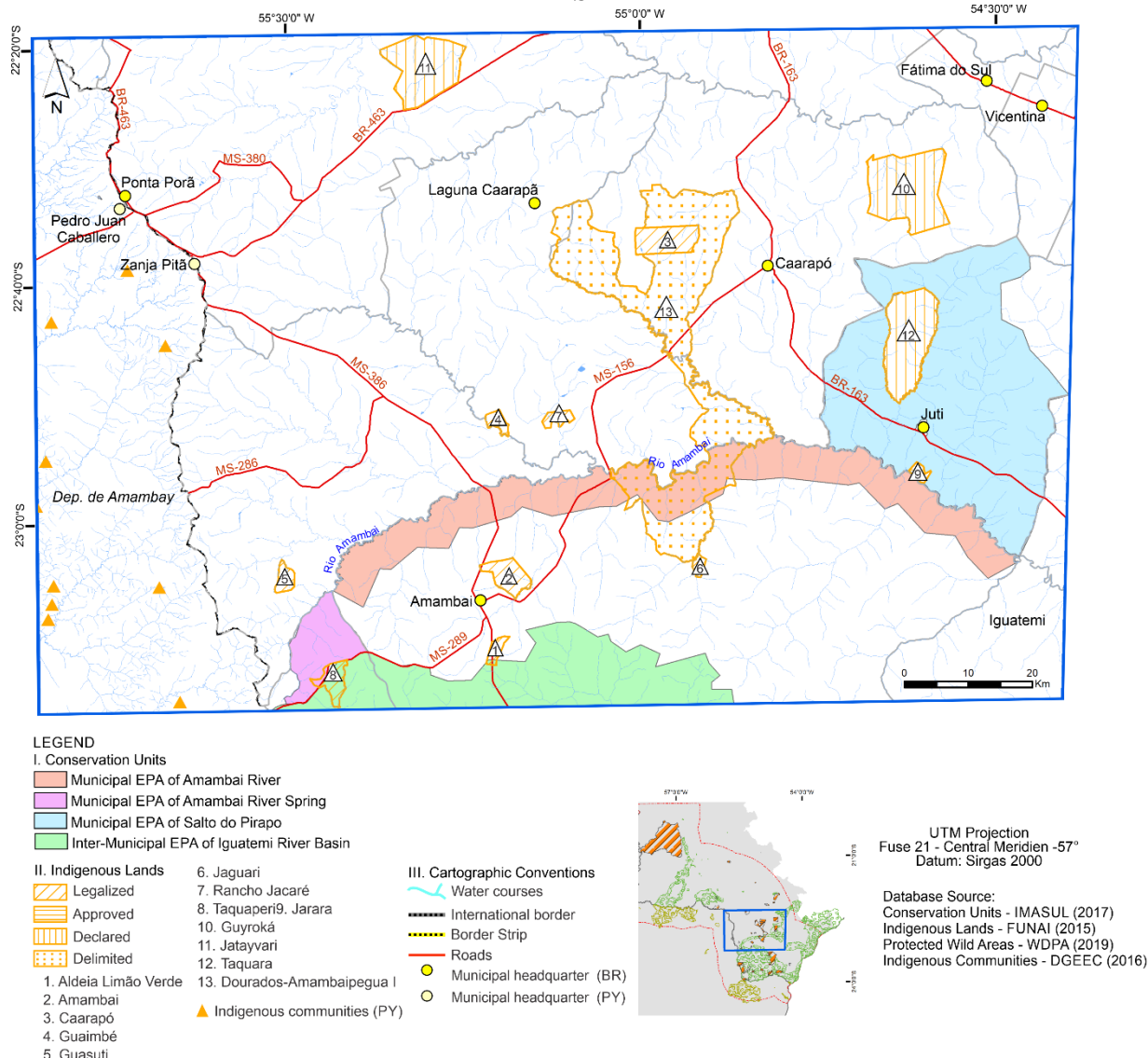
Source: Ferreira (2021).

In areas where the practice of agricultural activities is consolidated, the relief is flat and soy production occurs intensively, extending over the entire horizon line in the landscape. Regarding the protected areas, Figure 8 shows the three Conservation Units (CUs) of Environmental Protection Area (EPA) category, and the 11 Indigenous Lands (ILs), totalizing 161,917 and 88,137 hectares, respectively. The Amambai River EPA is composed of a contiguous strip of land of about 5 km wide

bordering the entire length of the Amambai River in the limits of the homonymous municipality. It was created by Municipal Decree nº 185/2006. The Amambai River Basin EPA, established by Municipal Decree No. 040/2005, covers a smaller area and comprises the portion where the river spring is located. The Salto do Pirapó EPA is linked to the protection of the Amambai River, in the portion of Juti municipality, and the Taquara indigenous land is located in it.



Figure 8 – Protected areas (CUs and ILs) of the southern cone border of the state of Mato Grosso do Sul



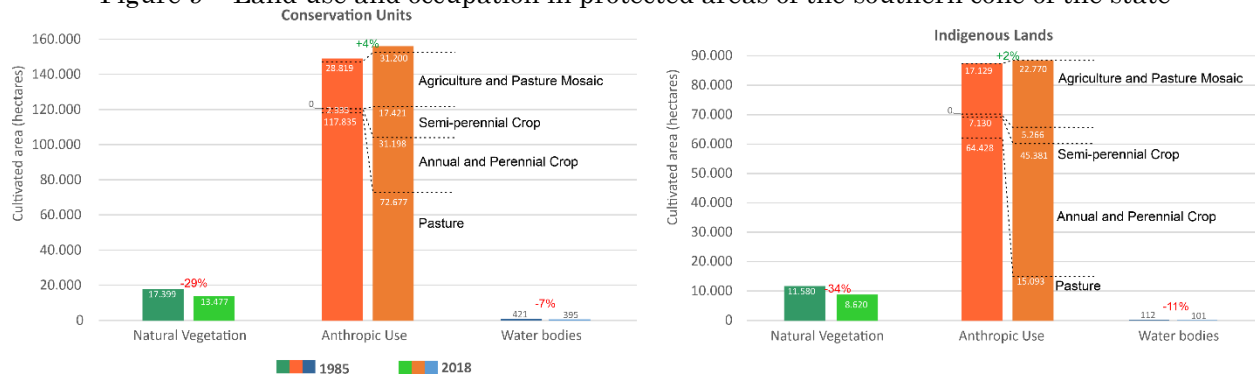
Source: The authors (2021).

The main change in land use and land cover observed in the last 30 years was the loss of native vegetation inside conservation units (-29%) and indigenous lands (-34%) and the conversion of pasture areas, which had a

reduction of 76% and 38%, to plant soy, which increased 536% and 98% inside indigenous lands and conservation units, respectively (Figure 9).



Figure 9 – Land use and occupation in protected areas of the southern cone of the state

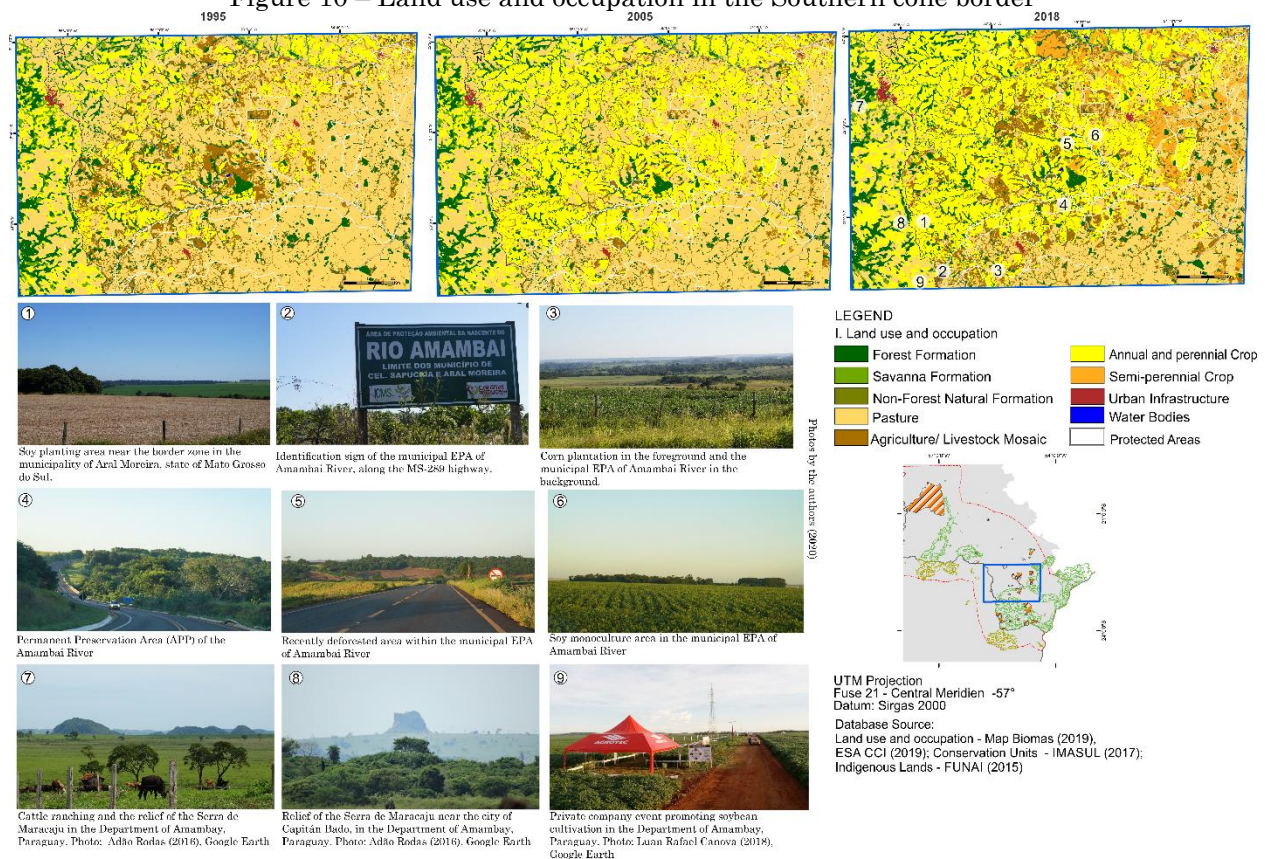


Source: The authors (2021).

The expansion of soy in the region is the most expressive. The monoculture enters the territory of protected areas and being appropriated by the agro-export model, it

intervenes in the proposed objectives for the areas. Moreover, it incorporates the premises of the development model, creating conflicts (Figure 10).

Figure 10 – Land use and occupation in the Southern cone border



Source: Ferreira (2021).

An emblematic situation is that the region concentrates most of the indigenous communities in the state. The southern region is one of the most expressive centers of rural settlements of the Movement of Landless Rural Workers (Movimento dos Trabalhadores Rurais Sem-Terra - MST). Thus, the areas were the

most affected areas by land policies and the advancement of agribusiness. The different interests of these social actors combined result in intensive conflicts and impacts to the territory. As agribusiness advances on the borders of indigenous territories, the number of conflicts over land intensifies.

Figure 11 – Resistance and resilience of indigenous communities in the extreme south of Mato Grosso do Sul



Source: Ferreira (2021).

In the last 25 years, a significant part of the indigenous areas has been recovered from farms, other areas were identified and, with exceptions, demarcated, however, without definitive possession. They were prevented by legal actions that take years to be resolved in court. Thus, insignificant is the actual occupation of the area already recognized as indigenous land (Figure 10).

Concurrently, deforestation and environmental degradation have persisted—not only in areas legally incorporated into indigenous patrimony but even more extensively in lands still recognized as private property—thereby converting traditional territories into large monoculture estates directed toward agro-exportation (Mota, 2015).

This dynamic reflects a process of territorial expropriation that has directly impacted indigenous autonomy and subsistence strategies. The soils in many of these reclaimed areas are impoverished and require chemical correction with lime and fertilizers due to years of intensive use and repeated burning. As a result, many indigenous communities find themselves vulnerable to leasing arrangements with ranchers and soybean or sugarcane producers (Pereira, 2020) or are compelled to resist repossession actions despite being confined to small portions of their traditionally claimed *tekoha*, defined by indigenous people as “a place where we realize our way of being or community” (Meliá; Grünberg; Grünberg, 1976, p. 218).

The inability to access and sustainably manage their ancestral lands has led to a cycle of socio-economic marginalization. Indigenous families face chronic poverty, food insecurity, and lack of access to education and healthcare, often living in precarious conditions adjacent to industrial agricultural zones.

The official indigenist practice and the decisive presence of agricultural companies, as well as the soy and sugarcane agroindustry in

Mato Grosso do Sul have resulted in poverty and social exclusion aggravated by growing racism (Mota, 2015). In this context, the struggle for land is not merely a legal or environmental issue, it is fundamentally a struggle for cultural survival, dignity, and social justice.

## FINAL CONSIDERATIONS

The territorial expansion of soybean cultivation intensifies pressure on protected areas and natural ecosystems, particularly in border regions where low population density and weak enforcement create conditions conducive to illegal activities. This expansion overlaps with an agrarian structure composed of traditional communities and family settlements, confined to small land areas and highly vulnerable to the socio-environmental impacts of the agro-export model.

In the central-western region of Mato Grosso do Sul, conservation units and Indigenous lands have become isolated enclaves surrounded by mechanized monocultures. These areas face escalating land conflicts, deforestation, and restricted access to natural resources—consequences directly linked to the encroachment of soybean production, especially on Indigenous lands still undergoing legal recognition. The delays in demarcation processes aggravate tensions between rural producers and Indigenous peoples, whose ways of life are under threat from the growing influence of commodity agriculture, notably soy, corn, and sugarcane.

The territories constitute historical elements that resulted from the clash of appropriation and interests of the various social actors, such as peasants, indigenous peoples, quilombolas - the descendants of Afro-Brazilian slaves who escaped from slave plantations - settlers, agricultural landowners, ranchers, researchers,

etc., their power scales, as well as their territorial dynamics.

The preservation of protected areas and the full recognition of Indigenous territorial rights are fundamental for environmental sustainability and social justice. This requires coordinated, integrated actions involving multiple social actors and institutions, acknowledging that these territories are not merely productive spaces but historical, symbolic, and ecological landscapes shaped by disputes, resistance, and diverse forms of occupation and belonging.

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## AUTHORS CONTRIBUTION

Patricia Silva Ferreira: Conceptualization, formal analysis, investigation, methodology, visualization and writing – original draft.

Charlei Aparecido da Silva: Conceptualization, funding acquisition, supervision and writing – review & editing.



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