



THE TRANSFORMATION OF CERRADO OF GOIÁS INTO A GLOBAL EXTRACTIVE PERIPHERY

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ABSTRACT

The transformation of the *Cerrado* of Goiás into an export territory of agricultural, livestock, and mineral commodities is related to the expansion of global extractive borders. Land, water, seeds, carbon stock, and minerals are appropriated and surrounded by national and international corporations. In this sense, this research aims to show how the *Cerrado* of Goiás, as an export territory of commodities, turned into a global extractive periphery. The methodology includes a literature review and data and information collection in sources such as the Mauro Borges Institute (IMB), Brazilian Institute of Geography and Statistics (IBGE), and Brazilian National Mining Agency (ANM). The results indicate that the *Cerrado* territories became specialized to produce grains, meat, and ores, which are the main items in the export agenda of Goiás. Moreover, given the deepening of the predatory extractivist model, the export of primary and semi-finished products highlights the unequal integration of Goiás into the capitalist world-systems as an extractive periphery.

Keywords: Cerrado, Goiás, Territory, Extractive periphery.

A TRANSFORMAÇÃO DO CERRADO GOIANO EM PERIFERIA EXTRATIVA GLOBAL

RESUMO

A transformação do Cerrado em Goiás em território exportador de *commodities* agrícolas, pecuárias e minerais está relacionada com a expansão das fronteiras extrativas globais. Terra, água, sementes, estoque de carbono e minérios são apropriados e cercados por corporações nacionais e internacionais. Nesse sentido, o objetivo desta pesquisa é demonstrar como o Cerrado goiano, enquanto território exportador de *commodities*, transformou-se em uma periferia extrativa

global. A metodologia conta com revisão bibliográfica e levantamento de dados e informações em fontes como o Instituto Mauro Borges (IMB), Instituto Brasileiro de Geografia e Estatísticas (IBGE) e Agência Nacional de Mineração (ANM). Os resultados sinalizam que os territórios do Cerrado foram especializados para produzir grãos, carne e minérios, principais itens da pauta exportadora goiana. Ademais, diante do aprofundamento do modelo extrativista predatório, a exportação de produtos primários e semielaborados evidencia a integração desigual de Goiás no sistema-mundo capitalista como periferia extrativa.

Palavras-chave: Cerrado, Goiás, Território, Periferia extrativa.

INTRODUCTION

The research carried out in this article interprets the transformation of the Cerrado territories of Goiás into extractive peripheries exporting commodities, subjected to the *modus operandi* of corporations in the agricultural and mining sectors. The appropriation of the territories of Cerrado of Goiás promotes the enclosure of natural and social goods. This fosters the movement of monopoly formation, mergers, and alliances of capital with oligarchies and the State to optimize the extraction of primary products that characterizes the Cerrado of Goiás as a global extractive periphery.

In view of this, it is important to understand how the constitution of a spatial matrix for the insertion of Cerrado into the capitalist world-system took place. The unequal integration of this territory into the capitalist world-system as an extractive periphery relies on the export of agricultural, livestock, and mineral commodities (IMB, 2023; ANM, 2023). Consequently, the Cerrado has been transformed into a supplier of primary and semi-finished products to be benefited in the bright spaces of globalized capitalism. This fact represents the historical reproduction of the position of this territory in the International Division of Labor (IDL).

After World War II, there was a movement, on the part of the automobile and arms industries, in conjunction with the governments of the capitalist countries that benefited economically from the war, towards consolidation as economic and geopolitical powers. This consisted in promoting a mega-exporting extractive economic model in the underdeveloped regions. In this process, the Cerrado of Goiás, since the military intervention during the military dictatorship, became a territory that produces raw materials to supply the Global North. This transformation took place with the constitution of a new spatial matrix (Gomes, 2008; Gonçalves, 2016; Chaveiro, 2019).

The constitution of the new spatial matrix of Cerrado of Goiás (Gomes, 2008) is related to the modernization of agriculture in Brazil. According to Moore (2013), since the emergence of capitalism there has been an intensification of the exploitation of natural resources to remedy the new and continuous consumption needs. The solution to resource-intensive environmental crises has always been

expanding towards new extractive frontiers. Indeed, the process of modernization of the territory and agriculture in the Cerrado of Goiás is inscribed in world history as a palliative adopted to solve an environmental crisis.

By a developmentalist discourse, the Cerrado territory was captured for the global company. Along with the intensification of extractive policy by agriculture, the expansion of exploitation occurs by deepening the extraction underground, capturing groundwater and minerals, and promoting intensive use of soil by chemical changes. Cultivars are genetically modified and environments and workers are exposed to harmful substances such as pesticides (Pignati et al., 2017). Instead of a transformation in the way they relate to nature, capitalists deepen environmental crises by intensifying resource extraction in the global extractive peripheries.

To strengthen the understanding of how the process of constitution of the new spatial matrix of the Cerrado of Goiás is consolidated as a global extractive periphery that exports commodities, the research has a theoretical framework based on authors such as Gomes (2008), Inocêncio (2010), Gonçalves (2016), Chaveiro (2019), and Silva (2021). Indeed, research shows that the agents of big capital act in the territories, promoting “policies of scale” (Milanez, 2023) that exclude other agents and strengthen the power of corporations in access to land, water, credits, carbon stock, patents, concessions, and subsidies, producing oligopolies that monopolize the exploitation of Cerrado of Goiás.

In addition to this introduction and final remarks, this text is divided into three parts. Initially, the expansion of the borders of global extractive capital is discussed, with consequent enclosure of the gifts of nature in Cerrado. This critical discussion is related to the second moment of the text, proposing the interpretation of the new territorial matrix of Cerrado of Goiás, which created the technical, technological, political, and economic conditions to transform this territory into a global extractive periphery. In the third and final topic, we show how the Cerrado territory of Goiás became specialized in the export of primary and semi-finished products. Finally, we consider that the results presented in this article contribute to a territorial, integrated, and critical approach of Cerrado of Goiás.

THE FRONTIERS OF GLOBAL EXTRACTIVE CAPITAL

Moore (2013) considers the current global ecological crisis from a world-history perspective. Adopting a long-term and large-scale analysis (even if centered on his place of enunciation situated in the Global North), the author problematizes what is new and repetitive in the contemporary environmental crisis. Turning to the breadth of world-history provides a glimpse that the environmental crises of the history of capitalism stem from the fact that the same solution was applied since the first one. Instead of searching for alternatives to the consumption of resources in crisis, the solution found was the expansion of resource capture by the occupation of new borders or the deepening of predatory extractivism (Moore, 2013; Svampa, 2019).

The author addresses agrarian issues as constituents of the modern world-system that can be characterized by its heterogeneity. This complex global system is not understood as the parts that make up the whole, or with the whole determining the parts. The relationship between the parts and the whole does not take place in an equivalent way, there is an unequal international division of space. Agriculture is one of the fundamental battlegrounds of neoliberal globalization. Modernization makes the effort to give agriculture the face of capital, by its export orientation.

The main agricultural and ecological revolutions, according to Moore (2013), occurred in periods in which the expansion of agricultural and raw material surpluses was indispensable. The rise in food prices in the early 19th century, for example, threatened development. The solution to the lack of resources was the expansion of agricultural exploitation. English workers ate bread and jam made from wheat and sugar produced in the Americas and India. The expansion of the frontiers of “extractive imperialism” (Harvey, 2016) to new areas, as demonstrated by the history of capitalist accumulation (Luxemburgo, 1985), spreads deforestation, genocide, and loss of soil fertility. Food surpluses are achieved by the occupation of border areas (Moore, 2013). This is the solution found by capital to maximize productivity. In this sense, Moore (2020, p. 258) understands capitalism as a frontier: “El capitalismo no sólo tiene fronteras, sino que está definido, fundamentalmente, por el movimiento de las mismas.”

Examples of how capital expands in a way dependent on the appropriation of extractive borders illustrate the dynamics of capitalist production in different regions of the world. Moore (2013) highlights the spread of transgenic soybean in countries of the Global South such as Brazil. Such expansion made it possible for the country to move to the center of the world agricultural scene, after the boom of sugar in the 18th century. Over the years, the solution to the crisis was revealed as a postponement of the contradiction. The Green Revolution was a process of expanding new agricultural frontiers in the course of the 1960s and 1970s in the 20th century. It was not just a technological innovation. One of the locus of expansion were some parts of the territory of Cerrado of Goiás, those of greater geopolitical interest, as defended by Inocêncio (2010).

In fact, the Green Revolution used the processes that sustained the dynamics of accumulation from the 16th century onwards, the enclosure and exploitation of nature as if the availability of natural goods were infinite and free. Its expansion to Cerrado was only possible from the appropriation of flat land, agricultural soils, availability of surface and groundwater, and compulsory expropriation of native populations. Therefore, this is part of the violent process of extractive capital in the peripheries of the capitalist world-system.

Transforming the territories of Cerrado into soybean, corn, and sugarcane fields, underground and open-pit mines was part of the project to expand the frontier of extractive capital in the context of the Green Revolution. In the 1970s, policies of the National Development Plans (PND's) promoted the capitalist appropriation of Cerrado with territorialization of the agro-export model, construction of technical networks, and production of a spatial matrix of large development projects. An

example of this was the creation of the Japanese-Brazilian Program for the development of Cerrado (Prodecer) (Inocêncio, 2010), with the argument of the need to transform Cerrado into a food producing and exporting region.

However, at the center of the advance of extractive capital in the Cerrado are the strategies of appropriation and enclosure of nature inherent to historical capitalism. In this sense, the interpretations of Harvey (2016) show that the history of capitalism is based on continuous dispossession.

Common lands were fenced off, divided, and put up for sale as private property. The gold and silver that constituted the first money commodities were stolen from the Americas. Workers were forced to leave the land and were given the title of “free” wage workers, being able to be freely exploited by capital, when not directly hired or enslaved. These forms of plunder were fundamental to the creation of capital. And it is important to note that they never disappeared. Not only have they been central to the vilest aspects of colonialism, but even today the policies of dispossession of access to land, water, and natural resources generate massive movements of global unrest (Harvey, 2016, p. 63).

Harvey's (2016) arguments show that global extractive capital needs to expand its borders. As this occurs, populations that use the waters, seeds, and soils in a common way are expropriated. Compulsory deterritorialization opens space for the advancement of private property, land speculation, and exploitation of wage labor. Soils, forests, and rivers of vast territories of abundant socio-biodiversity are surrounded by the large-scale extractive economic model.

The Cerrado territories of Goiás show the consequences of the large-scale predatory extractive model (Gonçalves, 2016; Chaveiro, 2019). The monocultures of soybean, sugarcane, and corn; the open-pit and underground mega-mines; the agro-industrial complexes; the railways, highways, and dry ports through which primary and semi-finished products circulate for export can be characterized as landscapes of contemporary capitalism. The diverse nature was denied by the unequal economic model (Chaveiro, 2019). This also reveals the new territorial matrix of Cerrado, constituted in the course of the last decades.

THE NEW TERRITORIAL MATRIX OF CERRADO IN GOIÁS

Given the unequal incorporation of the territory of Cerrado of Goiás into the capitalist world-system, Chaveiro (2019, p. 106) highlights that there is a historical bridge that unites this territory with its ancient and contemporary use: territory of

“ores, oxen, and grains.” On the border of the predatory hegemony of Cerrado (Chaveiro, 2019), these products were metamorphosed into commodities for the international market. Moreover, currently the enclosures also advance on carbon stocks, light and heat of the sun, and the active ingredients of plants.

Since the condition of colonial territory in the 18th century, the Cerrado of Goiás has been forged to be a global extractive periphery. Each phase of Goiás history reveals the materialization of an unequal territory, precarious for the poor, of mines or fertile lands, controlled by large-estate colonels or transnational mining and agricultural companies (Chaveiro, 2019). Contemporary enclosures produce a territory under the primacy of external variables, by who controls the reproduction of capital, transforms the natural environment into an environment captured by economic interests (Chaveiro, 2019).

The territory of Cerrado of Goiás was modernized and urbanized, according to Chaveiro and Calaça (2008), from three historical-spatial phases. The first phase refers to the construction of Goiânia, in the 1930s, and is extended until the 1970s, period of modernization of agriculture. The second phase occurs when mechanized agriculture began to penetrate the State, in the 1970s, a time of densification of agricultural techniques and State intervention directed to the territory of Goiás. In this phase, the geopolitics of the Green Revolution strongly interfered in the spatial management of the Cerrado territory. The third phase comprises the period of consolidation of soybean monoculture, the implementation of agribusiness and agroindustry, beginning in the 1990s and currently underway. In the characterization of the world-history of the environmental crises of the history of capitalism, made by Moore (2013), this last phase would be that of a deepening of extractivism to the subsoil and an intensification of exploitation by new techniques and technologies.

The consolidation of Cerrado as an international matrix is not dissociated from geopolitical factors (Inocêncio, 2010; Chaveiro, 2019). According to Inocêncio (2010) and Chaveiro (2019), the hegemonic architects of capital saw productive economic potential in the open fields of land, underground with plenty of water and ore, and the location of Cerrado as a bridge between the South and Southeast of the country with the Amazon region.

According to Gomes (2008), several geographical, natural, and social factors favored the unequal spatialization of modern capitalist agriculture at Cerrado of Goiás. Among the natural factors, areas with flat-undulating topography were prioritized, as well as favorable conditions in terms of rainfall, temperature, and humidity. The quality of the soils, the nature of the rocks, the surface and underground water resources, the large extension of agricultural land influenced the selection of certain regions over others as priorities for the modernization of the territory and of agriculture. The social factors include some of economic order, such as the affordable price of land and the existence of vast cheap labor.

Financial-commercial factors also influenced the unequal territorialization of agricultural modernization at Cerrado of Goiás. Incentive policies promoted by the

several public realms; the existence of a financial-commercial belt, dynamized by metropolitan regional centers, such as Goiânia (GO), Anápolis (GO), and Brasília (DF), as well as other regional centers such as Rio Verde (GO) and Jataí (GO), in southwestern Goiás, and Itumbiara (GO), in southeastern Goiás. The presence of these regional economic centers facilitated the circulation of capital and infrastructure for territorial transformation. As a factor of contradiction, for Gomes (2008), all these economic centers that stimulate the circulation of capital are spaces of concentration of poverty, with a high migrant population (Soares, 2020) marginalized in their peripheries.

Through geopolitics, the modernization of Cerrado of Goiás, according to Chaveiro (2019), was integrated into global changes in food standards, which coordinated public and private, national and international interests. Agricultural frontiers were expanded with the appeal of filling demographic voids. In return for the loan capital, Brazilian governments made concessions for multinational companies to settle on the surfaces considered favorable to economic uses, without considering the natural and cultural conditions previously present in the places (Gomes, 2008).

The process of modernization of Cerrado of Goiás, according to Gomes (2008), was financed by foreign capital and lent to the Brazilian government. This money, aimed to be used to develop national agriculture, returned to its original owner, with corrected and increased interest, as it was directed to finance investments to insert the territory into the production chain managed by multinational companies. An example of foreign investment returning to serve foreign interests is the soybean green belt that covers the southern, southwestern, and eastern portions of Goiás, where the largest agribusiness companies operate. These regions produce more than two-thirds of what is exported by Goiás, exports linked to the primary sector, to be processed in industrialized countries.

The process of modernization of agriculture at Cerrado of Goiás is unequal and conservative. The demographic structure was transformed, but the bone structure of the territory was preserved, especially regarding inequality in its territorial distribution (Chaveiro; Calaça, 2008). The asymmetry that divides the north-northeast of the state with the south, separated by the axis Goiânia-Anápolis-Brasília, remains conserved. The disparity is caused by the hegemony of the Southeast region of Brazil, which imposes itself on the state of Goiás, defining the “dynamic and opaque zones” (Chaveiro; Calaça, 2008, p. 299).

If in practice everything has changed, the social content has remained unchanged. The demography of Goiás has changed in an overwhelming way, maintaining the mark of social and territorial inequalities. The use of land concentrated in the hands of capital actors and the population of Cerrado excluded from this process was a planned purpose since the beginning of the modernization of the territory, in its first phase, in the 1930s (Chaveiro; Calaça, 2008).

The enclosure of Cerrado of Goiás to meet the interests of transnational corporations based in other countries produces, according to Gomes (2008), a predatory action, therefore going against the ethics of nature, considering that the

environment is seen as an object of use, disposable. This treatment against ethics produces harmful consequences for the territory, such as geological-geomorphological fragmentation; degradation of the protective vegetation cover of the soil; reduction of animal, plant, and genetic biodiversity; siltation and reduction of the drainage network; destruction of archaeological sites and natural monuments (Gomes, 2008).

The ideological diffusion of naturalization of developmentalism as a historical stage of progress causes the rulers and those ruled to evaluate the context from the point of view of capitalist and neoliberal morality. The economicist vision, added to the lack of knowledge of the national territory from the perspective of its regional particularities, strengthens the praise of grain super-crops for export as saviors of the country, reproducing the discourse in defense of the productive leaders of agribusiness. Brazil's position in the world ranking of soybean export is the argument for discourses and actions that defend the neoliberal capitalist economic development model. The social and environmental impacts resulting from such a model are disregarded (Gomes, 2008).

The Cerrado of Goiás, which was integrated into the modern capitalist world-system as a territory destined to the production of raw materials and food, primary and semi-finished goods, especially to supply the industrialized regions, is being degraded by leaps and bounds (Barbosa, 2022). The main agents of this plunder, according to Gomes (2008), are large companies, which control the economic and financial power of the country. They are economic actors who do not have any identification with the territory as a shelter for ways of life and common goods. Such agents are motivated by pragmatic interests determined for the accumulation and concentration of mega-exporting extractive capital.

Another facet of the new territorial matrix of Cerrado of Goiás, incorporated into the capitalist world-system as a global extractive periphery, is the spatial/urban one, which currently reaches alarming rates of inequality. There are areas with great population density, such as in the Metropolitan Region of Goiânia and in the surroundings of Brasília, regions that house more than 50% of the state's population (IBGE, 2023). On the other hand, there are regions with a rarefied population. In regions controlled by large-scale monocultures, there are voids of people and density of technical structures, due to the expulsion of rural populations for the entry of big capital into the field. This population change occurred in Goiás during the 1970s, when the field was incorporated into the market economy, and its inhabitants were forced to migrate to urban centers (Gomes, 2008).

Thus, it is verified that the Cerrado of Goiás has become a mega-exporting territory of commodities. This is the result of a planned action of extractive capital in the course of the last decades. The Cerrado was unevenly integrated into the capitalist world-system. Its condition as a global extractive periphery requires an effort of geographical interpretation aimed at the territorial, critical, and integrated approach.

Mega-exporting territory of commodities: Cerrado as a global extractive periphery

As demonstrated by researchers who have developed a consistent geographical interpretation of Cerrado of Goiás (Gomes, 2008; Inocêncio, 2010; Chaveiro, 2019; Silva, 2021), the territorial approach does not disregard the geopolitical turnaround that has transformed Goiás into a mega-exporter of commodities. Understanding Cerrado as a territory demonstrates that it is in dispute, that its physical-environmental attributes are inserted in the frontier of corporate appropriation and control of nature in the contemporary stage of capitalism, considered by Moore (2014, 2015) as Capitalocene. At this stage of capitalism, the radical transformation of the goods of nature into commodities is necessary to move the global networks controlled by large corporations (Moore, 2014, 2015; Gonçalves, 2018). Thus, the analysis of the main products that make up the Goiás export agenda shows how Cerrado has become an essential territory to supply the global extractive networks (Table 1).

Table 1. Main products of the Goiás export agenda – 2022.

Produtos	Valor (milhões FOB¹ US\$)	Volume (toneladas)
Soybean complex	7,545.08	14,293,055
Meat complex	2,023.59	579,449
Ore complex	1,537.00	639,073
Corn and derivatives	1,294.62	5,269,162
Sugar	612.97	1,204,034
Leather	141.18	62,781
Cotton	107.44	56,379
Coffee and spices	53.78	15,142
Ethyl alcohol	50.32	61,490
Dairy	1.15	339
Others	479.18	204,777
Total	13,846.31	22,385,681

Fonte: IMB (2023). Elaboração: IMB (2023); adaptada pelos autores.

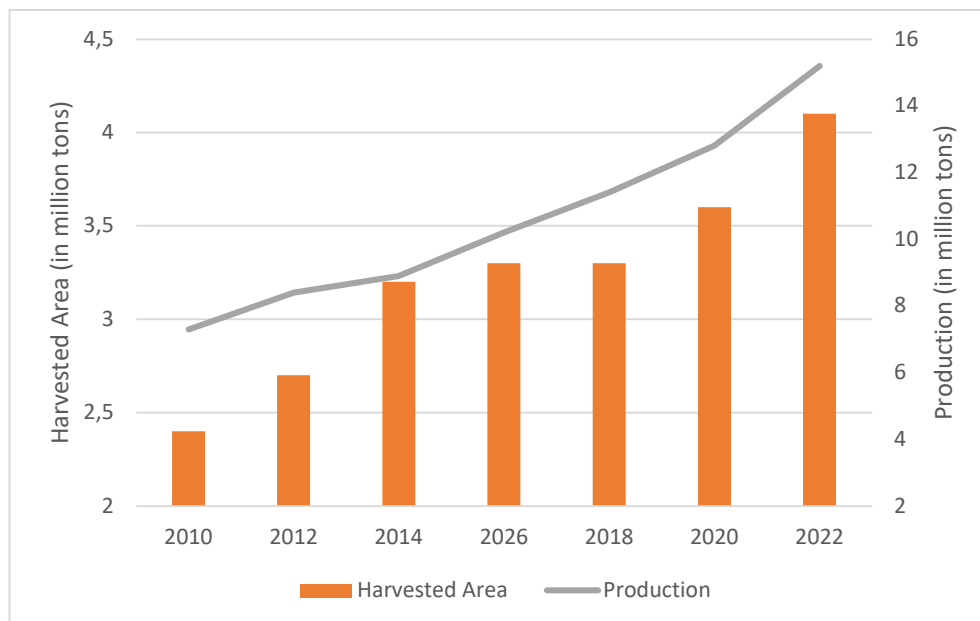
According to the data in Table 1, the soybean complex is identified as the main item on the Goiás export agenda. The value of soybean complex exports in 2023 was US\$ FOB 7.5 billion, and accounted for 54.5% of the total. The strength of the soybean complex in Goiás can be seen in municipalities such as Rio Verde. In 2023, the municipality's export agenda amounted to US\$ FOB 4.4 billion, and the soybean complex contributed 90% of the municipality's export value. The meat complex, in turn, is the second main sector of the export agenda in Goiás. In 2023, it reached US\$ FOB 2.0 billion and represented 14.6% of the total value of Goiás exports that same year. The ore complex reached a value of 1.5 billion (11% of the total) and represented the third main item of Goiás exports.

The other items on the export agenda, such as corn and derivatives, sugar, leather, cotton, coffee, ethyl alcohol, and dairy products, show that the productive

structure of the Goiás territory is dependent on intensive extraction of natural goods. The condition of exporter of primary and semi-finished products reveals a fractured territory on a large scale (Gonçalves, 2020), dependent on the appropriation and control of water, land, and mineral deposits. In addition, given the commoditization of nature, Cerrado has become a new frontier of Payments for Environmental Services (PSA)ⁱⁱ, such as carbon credits (Canassa et al., 2022).

Among the products of the Goiás export agenda, the soybean complex is emblematic, by explaining how the landscapes of Cerrado are converted into grain-producing monocultures. In the period between 2010 and 2022, there was a significant growth in harvested area (in millions of hectares) and production (in millions of tons) in the Cerrado territories of Goiás (Figure 1).

Figure 1. Evolution of harvested area (in million hectares) and production (in million tons) of soybeans in Goiás – 2010 to 2022.



Source: IMB (2023). Preparation: the authors.

According to the data in Figure 1, the harvested area of soybean in Goiás increased from 2.4 million hectares in 2010 to 4.1 million hectares in 2022. This represented a growth of 71%. The expansion of the harvested area was also accompanied by an increase in soybean production in the same period. Production rose from 7.3 million tons in 2010 to 15.2 million tons in 2022, an increase of 108.2%.

In view of this, different environmental and territorial implications affect Cerrado of Goiás, such as the “sequestration of waters” (Moraes, 2022) for uses in central pivots, maintenance of land concentration, pesticide poisoning (Souza, 2023), and the advance of deforestation. Between 2010 and 2020, for example, Goiás lost

almost 1 million hectares to deforestation (UFG, 2021). This reality shows that the Cerrado of Goiás, appropriated by large-scale monocultures, becomes a fractured territory (Gonçalves, 2020), specialized in the export of commodities.

The expansion of the harvested area and soybean production at Cerrado of Goiás in the analyzed period explains how this territory has been transformed into a spatial matrix of global extractive capital. Large-scale monocultures represent the strength of predatory hegemony in the Cerrado. The life of local communities is threatened by expropriation or surrounded by the use of pesticides, depletion of springs, deforestation, and pressure from land speculation. For the major national and international economic actors, it matters that Cerrado is a producer of commodities and not of food that goes to the table of the Brazilian working class.

Thus, the position of Cerrado of Goiás in the IDL as an extractive periphery is evident given the presence of the main export destinations of primary and semi-finished products (Table 2).

Table 2. Main destinations of Goiás exports, by value (million US\$ FOB) and volume (tons) – 2022.

Países	Value (million US\$ FOB)	Volume (Tons)
China	7,101.82	12,878,445
Indonesia	438.34	890,376
Spain	377.08	309,010
Vietnam	363.38	1,016,681
Thailand	332.60	618,680
United States	331.17	203,977
Japan	287.90	735,424
Netherlands	279.69	286,062
India	275.01	406,118
United Kingdom	265.94	96,953
Others	3,792.60	4,943,120
Total	13,846.31	22,385,681

Fonte: IMB (2023). Elaboração: IMB (2023); adaptada pelos autores.

In 2022, the state of Goiás exported products to 165 countries, distributed on all continents. However, it is perceived that China is the main destination of the products that make up the Goiás export agenda. In the year analyzed, the value of Goiás exports to China reached US\$ FOB 7.1 billion, 51.3% of the total (US\$ FOB 13.8 billion).

China's position in the global trade of primary and semi-finished products is addressed by Harvey (2018, p. 178):

In recent years, more than half of the world's steel production and consumption has occurred in China. It

takes a lot of iron ore to make this amount of steel. It comes from regions as far away as Brazil and Australia. Other materials, such as copper, sand, and minerals of all kinds, were consumed at completely unheard-of rates.

The arguments of Harvey (2018) contribute to the systematic interpretations from the destination of Goiás exports. The growth of the Chinese economy in recent years has begun to demand primary and semi-finished products from all over the world. With this, Goiás also became a major exporter of ores, grains, and meat to this Asian country. Nevertheless, the information in Table 2 still indicates that the main importers of Goiás products are the countries that stand out in Western world economy, such as the United States, Spain, the United Kingdom, and the Netherlands. Countries located in Asia, in addition to China, also appear as major importers, such as Japan, India, Vietnam, and Thailand. Thus, the data in Table 2 contribute to the interpretation of the unequal insertion of Goiás in the “global capital ecosystem” (Harvey, 2016) as an extractive periphery.

The ecosystem of capital has been global since the beginning, of course. International trade of goods implies a real or virtual transfer of inputs from one part of the world to another (water, energy, ore, biomass and nutrients, as well as the effects of human labor). This trade is the glue that holds the capital ecosystem together, and it is the expansion of this trade that amplifies and intensifies activities within the ecosystem (2016, p. 237).

The export of commodities does not mean the simple sale of non-industrialized products. Trade of raw materials implies the transfer of natural goods extracted from soils, forests, rivers, and subsoil to other parts of the world, especially to industrialized and rich countries. To produce the tons of ores, grains, and meat, millions of hectares of land are exploited, forests are cut down, and rivers are split. In view of this, for the *Cerrado* to be transformed into an exporter of commodities, for it to be integrated into the global capital ecosystem, the power of corporations had to be rooted in the distinct scales of social, political, economic, and environmental life.

Mining companies such as the Chinese CMOG Group Limited (niobium and phosphate in Catalan and Ouidor), the American Mosaic Company (phosphate in Catalan and Ouidor), the Canadian Yamana Gold Inc. (copper and gold in Alto Horizonte), the British conglomerate Anglo American (with nickel operations in Barro Alto and Niquelândia), and the South African AngloGold Ashanti (with gold extraction in Crixás) (ANM, 2023) show how the corporate control of territories

(Silveira, 2008) advances to transform the *Cerrado* of Goiás into a global extractive periphery.

The power of corporations also stands out from the process of capital densification, by global oligopolization, which occurs by the deepening of mergers, acquisitions, associations, and direct external investments (Silva, 2021). There was, at the *Cerrado* of Goiás, as well as in Brazil, a process of association and sale of national companies to transnational companies. These dynamics make it possible for transnational corporations to capitalize, territorializing in places, intervening in spatial management according to their interests. The global oligopolization of agents promotes a leap in scales (Milanez, 2023), which excludes the peasantry from the dispute for access to resources and privileges multinational companies active in predatory extractive sectors such as mining, agribusiness, tourism, and the hydroenergetic business (Gonçalves, 2016; Silva, 2021).

In the areas appropriated by agro-industrial complexes, according to Silva (2021), one can observe the process of incorporation of regional and national agents into multinational corporations, each with its own particularities. Among multinationals there is competition, but also cooperation and dependence between groups, for the establishment of monopolies (Silva, 2021). These corporate relations are intended to promote a leap of scales to an exclusive negotiation level of large companies with governments, to capture credits and acquire licenses (Milanez, 2023).

In the field of seed production, national companies do not have the capacity to resist multinationals. In addition to financial disparities, national seed companies were left behind due to agreements that were signed between the Brazilian Agricultural Research Company (Embrapa) and seed corporations, for the development of new varieties that made traditional seeds unfeasible. Multinationals appropriate technologies and knowledge, negotiating patents and licenses, promote customer loyalty and control over distribution networks, which ensures a monopoly on the market for these companies (Silva, 2021).

Between 2000 and 2009, Monsanto (acquired by Bayer in 2018) bought 27 seed companies; Syngenta bought 20; and Dupont acquired four (Silva, 2021). These three companies compete for the monopoly on the seed market in the country, with a consequent threat to the agricultural biodiversity accumulated over centuries by local populations in the *Cerrado* territories.

In the pesticide sector, in 2016, 83.56% of the registrations released in Goiás were from multinational companies, while 16.43% were from national companies located in the South and Southeast of Brazil (Silva, 2021). Corporations in this sector use the strategy of acquiring local companies, or making agreements for the use of infrastructure, since local companies are already adapted to the social, cultural, political, environmental, and economic conditions of the places. There is an international/national division of labor in the pesticide sector. Monopolies belong to the groups of the central countries and the southern region of the country. Four

companies control the market in the sector: Syngenta, Bayer/Monsanto, Dupont/Dow AgroSciences, and Basf (Silva, 2021).

According to Silva (2021), in the fertilizer sector, there are some national companies, but multinational corporations are the majority of those that appropriate all segments of the sector, from the production of raw materials to marketing and distribution, such as the American Mosaic Fertilizantes, which operates in Catalão (GO) and Ouidor (GO). Multinational companies have been acquiring national companies to control strategic inputs and incorporate direct contact with the consumer, promoting market control (Silva, 2021). In the agricultural machinery segment, there is an unequal national division of labor, in which 30.6% of industries are concentrated in the Southeast and 69.4% are in the South of the country (Silva, 2021).

Silva (2021) points out that multinational companies are not only based in rich countries, but also the so-called Global North. There are Brazilian multinational companies in the commodities sector. The emergence of this type of companies based in Brazil began to occur in the Lula government, with the internationalization policy of national companies. By the alliance between a portion of the trade union sector, the State, and the bourgeoisie, in a period of weakening of social movements, they provided the resumption of the idea of Brazil as a power, a discourse inaugurated in the military dictatorship.

The country assumed, according to Silva (2021), a position of sub-imperialism (Marini, 1992), promoting foreign investment and controlling the natural resources of the countries served, especially in South America. Brazil has become a medium center of accumulation, with multinationals financed by the Brazilian Development Bank (BNDES). JBS is the main example of a Brazilian multinational in the agribusiness sector. By the acquisition of other companies and alliances with other groups, JBS has taken control of the fattening, slaughtering, and internal and external logistics sector. The association between slaughterhouses JBS S/A, Marfrig Global Foods S/A, and Minerva S/A formed a monopoly in the meat market that subjugated producers to their services (Silva, 2021).

The power of corporations affects the territories of *Cerrado* and influences the pace of deepening of predatory extractivism, aimed at sustaining the commodities mega-exporting model. Against this economic pattern that considers the *Cerrado* only an extractive periphery of the world-system, critical geographical research approaches the struggles of communities and popular movements that defend this territory as a place of life in abundance and diversity.

FINAL REMARKS

The results presented in the course of this article contribute to the interpretation of the contemporary spatial matrix of Cerrado of Goiás in its categorization as a global extractive periphery located within a world-system that produces an unequal spatial and economic division. From the resource of world-history, developed by Moore (2013), we have shown how the Cerrado of Goiás was incorporated as part

of a strategy to remedy the environmental crises of capitalism without solving its contradictions, but intensifying the exploitation of territories and territorialized subjects in regions where capitalist agriculture advances and devastates.

The geographical interpretations of the Cerrado of Goiás defended in this text have shown that the new spatial matrix of Cerrado, consolidated since the end of World War II, created the technical and technological conditions to transform its territory into a global extractive periphery. Foreign and national investments; the performance of companies in the agricultural, mineral, and energy sectors; the territorialization of large logistics infrastructure works; and the mobility of workers contributed to create favorable conditions for the advance of extractive imperialism. This resulted in the enclosure of natural and social goods to deepen and expand the production and export of agricultural, livestock, and mineral commodities.

Therefore, the specialization of Cerrado as a producer of commodities synthesizes the contradictions and conflicts of the extractivist economic model. On the one hand, there is the growth of the Gross Domestic Product (GDP) of cities related to agribusiness and mega-mines, an increase in the export scales of grains and ores, technical and technological modernization for the flows of goods and information. On the other hand, contradictorily, the expansion of predatory extractivism at Cerrado of Goiás occurs by compulsory expropriations, deforestation, siltation and “hydrocide” of rivers, contamination of workers by pesticides, genetic erosion, high rates of population in poverty and low income, and maintenance of the unequal land structure.

For this reason, we defend the importance of the struggles of communities, indigenous peoples, and popular movements that stand up in defense of Cerrado and its socio-biodiversity. The Cerrado, for the communities and people that inhabit it, is a territory of belonging and a place of diversity of people and culture. For them, environments, landscapes, waters, seeds, and fruits serve for life in abundance, not for the predatory economic model that only sees nature as a source of commodities.

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ⁱ *Free On Board* (FOB) quer dizer que o “exportador é responsável pela mercadoria até ela estar dentro do navio, para transporte, no porto indicado pelo comprador. Por que *free*? Porque a mercadoria já deve ter sido desembaraçada na alfândega de partida e estar livre para ser levada” (Wolffenbuttel, 2006, p. 1).

ⁱⁱ As shown by Canassa et al. (2022, p. 1): “In the normative field, in the last two years, Brazil has edited Federal Law No. 14,119/2021, which established the National PSA Policy; Federal Decree No. 10,828/2021, which addressed the Rural Product Note – Green CPR; and Federal Decree No. 11,075/2022, which dealt with Sectoral Climate Change Mitigation Plans and sought to encourage the prototype of a regulated market.”