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on Ecological  
Transitions in  
Brazil**

Working Paper nº 02/2024

**Michelle Ratton Sanchez-Badin**

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## Legal Challenges on Ecological Transitions in Brazil

By Michelle R. Sanchez-Badin

*Art. 145. Todos os Brasileiros são obrigados a pegar em armas, para sustentar a Independencia, e integridade do Imperio, e defende-lo dos seus inimigos externos, ou internos. (Constituição Política do Império do Brazil de 1824)*

All Brazilians are obliged to take up arms to support the Independence and integrity of the Empire, and to defend it against its external or internal enemies. (Political Constitution of the Empire of Brazil, 1824)

*Art. 225. Todos têm direito ao meio ambiente ecologicamente equilibrado, bem de uso comum do povo e essencial à sadia qualidade de vida, impondo-se ao Poder Público e à coletividade o dever de defendê-lo e preservá-lo para as presentes e futuras gerações. (Constituição da República Federativa do Brasil de 1988)*

Everyone has the right to an ecologically balanced environment, as a common good of the people and essential to a healthy quality of life, imposing on the Public Power and the community the duty to defend and preserve it for present and future generations. (Constitution of the Federative Republic of Brazil, 1988)

### Crossing borders...

Heading north to the north, Oslo, coming from the southern hemisphere south takes me to cross, beyond an ocean, many borders. The invitation is to contemplate "the central role of constitutional law in the exploitation of nature and society. (...) the deep-seated neoliberal crisis, and the complex yet ever-present popular resistance to it." Along this journey, it is worth sharing where I come from and what I come for.

I am based in Brazil, a country whose territorial expanse encompasses many "Brazils" and numerous narratives in dispute about what is, what should (or shouldn't) be, and what could (or couldn't) be. In these “Brazils”, the reality often resembles that of other South American countries, with abundant natural and cultural wealth, significant economic and political inequality that brings historical tensions to these spaces. Brazil also has its historical and geographical peculiarities: it was the seat of the Portuguese empire (1808-1821), harboring a nobility full of privileges, was home to a plurality of indigenous populations with different cultural backgrounds – expelled from their lands and exterminated in repeated waves of advancement inland – and was the site of one of the largest migrations of African populations resulting from the slavery regime (16th to 19th centuries), as well as Japanese migration (20th century) and European migration. These traits that describe a bit of this place are important for the cases presented herein.

The trip to Oslo is to share the results of ongoing researches, for dialogue in the axis of "extractive constitutionalism." My research stems from the diagnosis of a mismatch between legal doctrine and economic operations in the transnational space. Thus, my research has focused on how Brazil's economic relations with other countries have been legally structured, seeking to understand the relevant public and private agents and their instruments to structure and guide economic actions. Whether law is present or absent, with the main objective of intensifying economic relations, is the main object of analysis. When present, I aim to understand the profile of these rules and the unbalanced rights and duties between the economic agents in such transactions. Being provoked about an extractive system my work aims at identifying who is effectively extracting, beyond the “borders”/ letters of the rules. Such exercise may help to inform actions towards the beneficiaries, whether the constitution is capturing or not such realities...

### In this vastness of “Brazils”, where to fix one's gaze?

I decided to focus for this draft in two cases regarding the operationalization of transnational economic relations: one about investments in the agricultural sector in soybeans and another in the lithium mining sector; the latter is less detailed at this point. Both cases depict situations where there is a centrality of natural resource exploitation, an ambition of the Brazilian government to integrate into globalized chains, and highly financialized forms of coordination with the international market. The private financialization of these relationships has been empowered by rights granted by national regulation. Such regulation is a result of reforms in line with neoliberal policies implemented in Brazil in the last three decades. At the same time, such financial operations mask the beneficiaries and decision-makers in many of the transactions, leaving a gap in the design of responsibilities and duties before those negatively affected by those operations.

Both cases focus on experiences in the “Cerrado” region in Brazil, a central area of the country with drier vegetation, known as the Brazilian savannas, less appreciated by its environment and less internationally targeted<sup>1</sup>. Soybean production occurs in the

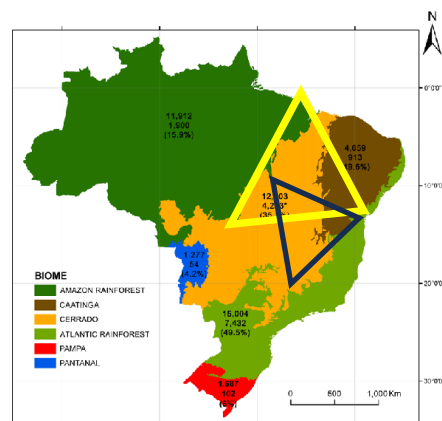
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<sup>1</sup> On a small note, we understand that the Brazilian Constitution itself disregards the Cerrado, when not listing it as protected biomes. See Article 225 (on the environment) “(...) § 4 The Brazilian Amazon Rainforest, the Atlantic Forest, the Serra do Mar, the Pantanal in Mato Grosso, and the Coastal Zone are national heritage, and their use shall be regulated by law, ensuring environmental preservation, including the use of natural resources.” (free translation from Portuguese into English by the author).

region that comprises parts of the states of Maranhão, Tocantins, Piauí, and Bahia (collectively known as MATOPIBA), as illustrated below<sup>2</sup>. MATOPIBA encompasses a diversity of forms for occupation of the land: more than 324,000 rural properties; 1,053 agricultural settlement from agrarian reforms; 35 indigenous lands; and 36 quilombola territories<sup>3</sup>. MATOPIBA is a region more recently explored with the advancement of agriculture exploitation, and with a changing landscape due to the wealth of intensive agriculture and the still poor people living in the region<sup>4</sup>.

The exploitation of lithium also occurs in the Cerrado region, crossing the Jequitinhonha valley, in states of Minas Gerais and Bahia. This is a historical site of mineral exploitation, known for the poorest indexes of human development in Brazil - then nicknamed as the misery valley<sup>5</sup>.

Figure 1: Map of Brazil by biomes, the MATOPIBA region and the Jequitinhonha Valley



Sources: Zappi DC et al.. Growing knowledge: an overview of Seed Plant diversity in Brazil. **Rodriguésia**, v. 66, n. 4, pp. 1085–113, 2015, available from: <https://doi.org/10.1590/2175-7860201566411>.

Note: for reference, the yellow triangle corresponds to the MATOPIBA region; and the black triangle to the Jequitinhonha Valley approximately. These are author’s editions to the map.

<sup>2</sup> The MATOPIBA is not only a region delimited geographically but also legally, according to Decree No. 8,447/2015, which defines the Agropecuary Development Plan of MATOPIBA and the creation of its Managing Committee.

<sup>3</sup> Data available from EMBRAPA, GITE, at <http://mapas.cnpm.embrapa.br/matopiba2015/?link-pag-tema-matopiba>, and prepared by Peres S. e Merlino T. O que estamos perdendo com o avanço da última fronteira agrícola do Brasil, in **O joio e o trigo**, October, 25, 2023, at <https://ojoioetrigo.com.br/2023/10/ultima-fronteira-agricola/>

<sup>4</sup> See on this sense, the data prepared by the IPEA study, Porcionato, GL; CASTRO, CN, PEREIRA, CN; Aspectos Sociais do Matopiba: Análise sobre o Desenvolvimento Humano e a Vulnerabilidade Social, **Texto para Discussão n. 2387**, Brasília, IPEA, 2018.

<sup>5</sup> About the historical development of the region, see SILVA, LF et al. O Distrito Florestal do Vale do Jequitinhonha: uma análise a partir dos paradigmas e das narrativas, **Research, Society and Development**, v. 10, n. 3, 2021, pp. 1-15.

Before presenting the case, there is a brief section on elements of these sectors in Brazilian history and constitutional regulation. In the sequence, I will briefly describe the cases, leaving elements for discussion in this workshop in Oslo in my final notes.

## Visibilities and Invisibilities in the Extractivist Vastness

The intensive profile of agrarian and mining exploitation in Brazil is associated with the process of European colonization. The intensive mining exploitation process was a central reason for the so-called "interiorization" of colonization, particularly highlighted in the 18th century with the "gold cycle."<sup>6</sup> Intensive agriculture, in turn, began its exploitation along the coastal zone in the 16th century but expanded inland in Brazil starting from the 1960s, during the military regime. Such relatively recent intensive production in agriculture was based in the use of machines and biotechnologies, as well as in the intensification of productive inputs<sup>7</sup>.

It's worth noting that these two types of activities were presented in the country as a way to occupy the territory and designate its economic role in the world. This nation-building project was reflected in Brazilian constitutional regulation. The first constitution of independent Brazil (1824) was essentially aimed at regulating the structure of the state and caring for the only common good, which would be the territory and its defense; no other provision disciplined the economic order, except for the protection of private property (e.g., article 179). Nevertheless, the infraconstitutional legislation designated that the ownership of subsoil assets belonged to the empire<sup>8</sup>. However, in 1891, the new

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<sup>6</sup> The "gold cycle" was the period in Brazilian history when gold mining was the main economic activity. It occurred in the 18th century in the central region of Brazil, where the states of Minas Gerais, Goiás, and Mato Grosso are located today. This cycle was a turning point in the history of Brazil and Portugal. During the gold cycle, Brazil held half of the world's production of the mineral, so much so that "[economic] repositioning to Brazil, changed Portugal's colonial vocation, from trade and navigation to tropical slave plantations and mineral extraction", cf. COSTA LF, PALMA N, REIS J (2013) The great escape? The contribution of the empire to Portugal's economic growth, 1500-1800. University Carlos III de Madrid, **Working papers in Economic History**, WP 13-07, pp. 12-23. <http://hdl.handle.net/10451/22996>. In Brazil's case, this wealth led to many people immigrating from Portugal to Brazil, drastically increasing the colony's population during this period. The gold cycle lasted only a century but transformed Brazil, connecting various regions, urbanizing the country, and laying the groundwork for its future independence just decades after the cycle's end. See MACHADO, I.; FIGUEIRÔA, S.. Mining history of Brazil: a summary. **Mineral Economics**, v. 34, p. 1-13, 2022.

<sup>7</sup> V. LEMOS, M. B. et al. A nova configuração regional brasileira e sua geografia econômica. **Estudos Econômicos**, v. 33, n. 4, p. 665-700, out./dez. 2003; BUAINAIN, A. M. et al. (ed.). **O mundo rural no Brasil do século 21: a formação de um novo padrão agrário e agrícola**. Brasília: Embrapa, 2014; VIEIRA FILHO, J. E. R.; GASQUES, J. G. (ed.). **Agricultura, transformação produtiva e sustentabilidade**. Brasília: Ipea, 2016; VIEIRA FILHO, J. E. R.; FISHLOW, A. (ed.). **Agricultura e indústria no Brasil: inovação e competitividade**. Brasília: Ipea, 2017.

<sup>8</sup> TEIXEIRA, I. Uma pequena história da mineração brasileira. **Conjuntura Econômica**, 1993, p. 16-7.

constitution adopted the model of the United States and defined that the ownership of mines and deposits (including the subsoil) would belong to the owners of the land (article 72)<sup>9</sup>.

Since the 1930s, spurred by increased mineral demand driven by European warfare and industrial expansion, a nationalist movement initiated revisions to existing constitutional provisions regarding subsoil assets. These revisions stipulated that such assets would be under state ownership, with industrial exploitation of mines and mineral deposits contingent upon state concession and authorization (articles 118 and 119). Moreover, the constitution, for the first time, articulated the state's obligations toward common goods and the quality of life of its citizens. Subsequently, in the 1960s-70s, a new constitution was promulgated during the military regime (1967, with amendments in 1969), reflecting concerns regarding state assets, including deposits, mines, and land ownership. During this era, international pressure for environmental protection began to influence legislation, albeit primarily at the infraconstitutional level<sup>10</sup>.

In 1988, a significant milestone occurred with the inclusion of a dedicated chapter on the environment in the Constitution (Article 225, as referenced in the epigraph), marking the first time environmental concerns attained constitutional status. This provision established constitutional obligations concerning the environment, significantly broadening the scope of those responsible for advocating for its protection, as well as imposing a series of duties on the part of the Public Power. Environmental protection is now woven throughout the constitutional fabric, spanning from the fundamental rights of citizens to the responsibilities of federative entities, the regulation of the economic order, and a dedicated chapter on the subject (articles 5, 23, 24, 129, 153, 170, 174, 186, and 225).

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<sup>9</sup> Cf. TEIXEIRA, footnote 8.

<sup>10</sup> Until them, the environment did not have constitutional status. There were environmental protection rules in infraconstitutional regulation, such as under the Civil Code of 1916 (e.g., articles 584, 554, 555, 566), the Hunting Code (Law 5,197/67), the Forest Code (Law 4,771/65), the Mining Code (Decree-law 227/67), the Law of Civil Liability for Nuclear Damage (Law 6,453/77), and the Urban Land Law (Law 6,766/79). All of them made reference to the environmental based on a purely economic approach. In 1973, given the pressures resulting from the Stockholm Conference, a Special Secretariat for the Environment (SEMA) was created, coordinated by the Ministry of the Interior. In 1981, the first National Environmental Policy was then published (Law 6,938/81), with the environment being announced, for the first time, as a unique, immaterial, and indivisible good, worthy of autonomous protection.

The regulatory framework of the 20th century was shaped by the aspiration to foster a modern, industrial economy while eradicating lifestyles and production methods deemed incompatible with "modern standards"<sup>11</sup>. Brazilian forests and native vegetation were often viewed through the lens of a primitive and archaic world, seen merely as resources to be exploited for the country's economic advancement. Restrictions on exploitation were primarily seen as measures to safeguard national territory and shield against the competitive pressures of foreign investors. This perspective reflects an anthropocentric approach to exploitation, where legal taxation and authorizations for economic entrepreneurs served as the principal means of control. Furthermore, the perception of the environment as separate from humans led to the latter being viewed as the sole active agents and rights holders.

In 1988, a notable shift occurred towards recognizing the social function of property and promoting sustainable land use practices<sup>12</sup>, alongside a growing emphasis on preserving and restoring ecological processes<sup>13</sup>. This marked the beginning of specifying environmental obligations, including civil and criminal liability for both citizens and the state, and the establishment of specialized agencies tasked with protecting these rights. Article 225, in particular, stands as a cornerstone for devising appropriate measures for environmental protection, emphasizing precautionary and mitigation actions.

Following the enactment of the 1988 constitution, celebrated as a charter for citizens amidst the redemocratization movement, Brazil saw the rise of neoliberal governments, starting with Collor de Mello in 1990. Subsequent administrations pursued neoliberal reforms aimed at liberalizing the economy, privatizing public services, and institutionalizing austerity measures<sup>14</sup>. Among these reforms, the reduction of public

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<sup>11</sup> See, e.g., SILVA, LF et al., footnote 5; OLIVEIRA, G. The geopolitics of Brazilian soybeans, **The Journal of Peasant Studies**, v. 43, n. 2, 2016, pp. 348-372.

<sup>12</sup> With an impact on the exploitation of land for intensive agricultural production, see Article 186. "The social function is fulfilled when rural property simultaneously meets, according to criteria and levels of requirement established by law, the following requirements: I - rational and adequate utilization; II - appropriate use of available natural resources and preservation of the environment; (...)" (free translation from Portuguese into English by the author).

<sup>13</sup> Regarding mining exploration, see Article 225 "(...) § 2. Those who exploit mineral resources are obliged to restore the degraded environment, according to a technical solution required by the competent public authority, in accordance with the law." (free translation from Portuguese into English by the author).

<sup>14</sup> See Bresser-Pereira, L. C. Quase estagnação no Brasil e o novo desenvolvimentismo. **Brazilian Journal of Political Economy**, v. 42, n. 2, 2022, 503–531.



financing for domestic economic activities and cuts in government spending had significant repercussions.

In the 21st century, amid a flurry of reforms, Brazil emerged as a key player in global commodity markets, particularly in soybeans, oil, and iron ore, integrating itself into global value chains. This expansion was facilitated by the adoption of new technologies in mineral exploration for mining, driven by foreign investment, and advancements in agricultural production techniques. While investors in the mining and agricultural sectors in Brazil vary in profile<sup>15</sup>, they share a common reliance on the growing influence of the financial system, characterized by diverse structures and highly transnational financial instruments. Legislative reforms in Brazil, which curtailed public financing and fostered dependence on external financing structures, further shaped the trajectory of these sector, as detailed below.

## The 20<sup>th</sup> century “green revolution”: soybeans expanding agricultural frontiers in Brazil <sup>16</sup>

### The context

At present, Brazil and the US compete for the leading position in global soybean production and exportation, collectively accounting for approximately 70% of the world's output<sup>17</sup>. The remarkable surge in soybean production, which began in the 1970s when soybeans emerged as a pivotal commodity in Brazil's agricultural and economic landscape, can be attributed to a multitude of factors. These include the consistent cultivation efforts of Japanese migrants at the start of the 20th century, financial support from Japan, the pursuit of economic opportunities by European migrant farmers, military

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<sup>15</sup> E.g. MACHADO & FIGUEIRÔA, footnote 6 (2022, p. 257) calls the attention to the difference of political power amongst those groups: “In contrast to Peru, Chile, and Bolivia, Brazilian laws were more influenced by farmers than by miners, strengthening the voice of landowners vis-à-vis the latter group.”

<sup>16</sup> This section is based on the research conducted under the project Brazil-China economic relations, especially the article in progress **Chinese Investments in Brazil's Agribusiness: Shifting Legal Strategies from Land Ownership to Supply Chain Control**, written by me in co-authorship with Marco Germano and Fabio Morosini. FAPESP funds benefited this research (Grants 2018/00498-2, 2018/03393-7, 2019/08878-1, and 2023/05922-5).

<sup>17</sup> The soybean market is highly concentrated, with 80% of the production coming from three countries: Argentina, Brazil, and the US. However, these nations only consume 26% of their own production, exporting the remainder. See MARQUES, T.; CAMPOS, R. Uma análise do comércio bilateral brasil-china: a deterioração dos termos de troca e o caso da soja. **Revista Tempo Do Mundo**, v. 24, 2021, pp. 379-402. More recent data, appoints Brazil as the first producer in 2023, when its exports have surpassed up at least 16% from 2021's full-year record, cf. <https://www.reuters.com/markets/commodities/massive-brazilian-soybean-exports-too-heavily-leaning-china-2023-12-20/>.

strategies aimed at territorial occupation, considerations of food sovereignty, transnational investments in agriculture, technological innovations, the geopolitical context of the Cold War and the ideological rivalry with communism, among other geopolitical motivations<sup>18</sup>. This expansion of soybean cultivation was closely associated with the concept of a "green revolution," a term coined to contrast with the communist "red revolution," symbolizing a concerted effort to implement extensive technical enhancements in global grain production, as noted by Patel<sup>19</sup>.

Public institutions such as EMBRAPA – a governmental technical agency linked to the Ministry of Agriculture – played a pivotal role by developing soybean varieties suited to Brazil's diverse climates and soils, particularly in the expansive Cerrado region. Furthermore, both private and public investments in infrastructure, financing, and favorable tax policies acted as magnets, drawing new economic players from various regions within Brazil and from abroad into the soybean industry.

Figure 2: Picture of intensive soybean production in contrast to the natural Cerrado biome



Source: (TBA).

Intensive soybean production in the Cerrado region has undeniably strengthened Brazil's position as a global agricultural leader. However, it also raises concerns regarding economic diversification, environmental repercussions, and the sustainability of a trade model heavily reliant on a single commodity. Reports of pressure on local populations

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<sup>18</sup> For a more detailed and historically coherent presentation of such factors, see OLIVEIRA, G., footnote 11.

<sup>19</sup> See Patel, R. 2013. The long green revolution. *Journal of Peasant Studies*, v. 40, n 1 pp. 1–63.

and land takeovers have been widespread, prompting legal activists to assist the oppressed by pursuing cases against local land grabbers<sup>20</sup>.

Land grabbing in Brazil is a historical issue dating back to European colonization, often associated with violence and coercion. More recently, the concept of global land grab has emerged, reflecting the aggressive acquisition of large land parcels by foreign actors<sup>21</sup>. In Brazil, the regime of the 1970s prioritized national security and restricted foreign access to land. However, liberalizing changes in the 1990s led to a reinterpretation of land ownership laws, facilitating increased foreign land acquisition until 2010. In 2010, the Attorney General's Office issued an opinion asserting that the 1970s property rights regime was compatible with the 1988 Constitution<sup>22</sup>. This necessitated the re-registration of all land acquisitions by foreigners, subject to revised restrictions on property size.

According to the Attorney General's Office, the restriction on land ownership was deemed essential due to various strategic concerns. These included potential environmental impacts such as the encroachment of agricultural activities into protected areas and the rapid depletion of land reserves for agrarian reform. Economic considerations were also significant, including escalating land prices due to speculative real estate practices and increased costs of land expropriation for agrarian purposes. Moreover, the Attorney General's Office expressed alarm over illegal land transactions, including the use of laundered money for purchases, and identified national security risks associated with practices like land grabbing, proxy buyers, biopiracy in the Amazon, unregulated expansion of biofuel production, and acquisitions near national borders.

However, it's crucial to recognize that soybean production is intricately linked to a global market supply chain. The following chart illustrates the key players in this chain,

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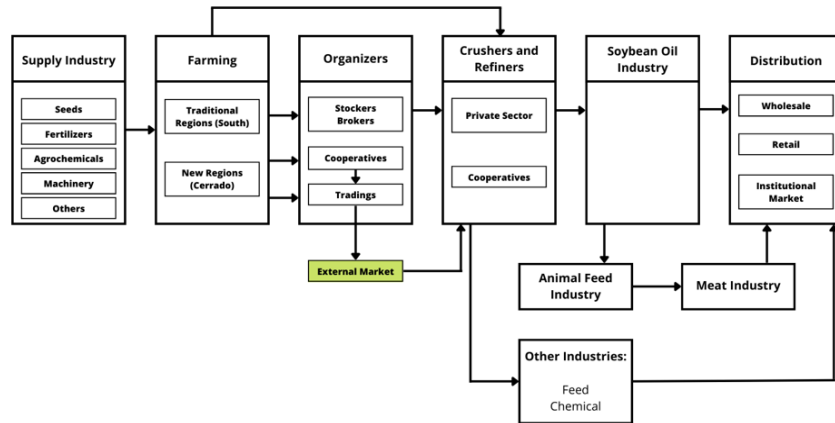
<sup>20</sup> See, e.g., the works of Rede Social de Justiça e Direitos Humanos, mapping the land grabbing process in the MATOPIBA region, available at <https://social.org.br/revistas/revistas-portugues>.

<sup>21</sup> According to Gustavo Oliveira, the global land rush has been characterized by two trends: 1) large-scale land acquisitions by companies and governments from "land-poor/capital-rich" countries and 2) investments in "land-rich/capital-poor" countries oriented towards exports, cf. OLIVEIRA, G. Regularização fundiária e a “corrida mundial por terras” no Brasil, **Campo-território: revista de geografia agrária**, edição especial, jun. 2016, pp. 43-75, p. 43. [ADD REF CONNECTING LOCAL AND GLOBAL LANDGRABBERS]

<sup>22</sup> The full content of the AGU Opinion is available at BRASIL (2010). Presidência da República. **Parecer nº LA 01**, de 19 de Agosto, [https://www.planalto.gov.br/ccivil\\_03/AGU/PRC-LA01-2010.htm](https://www.planalto.gov.br/ccivil_03/AGU/PRC-LA01-2010.htm). A more extensive analysis of such change in the regulation is done by COUTINHO, D.R.; PROL, F.M.; CASTRO, H. A (2018). Brazil For Sale: As Transformações do Regime Jurídico da Aquisição de Terras por Estrangeiros. In: UNGARETTI, D. et alii (Orgs.). **Propriedades em Transformação: Abordagens Multidisciplinares sobre a Propriedade no Brasil**. Blucher, 217-240.

followed by an examination of the impact of domestic regulations, policies, and private legal arrangements on their actions:

Figure 3. Soybean supply chain



Source: (TBA).

The soybean production process involves various actors with distinct economic profiles interconnected through legal and financing mechanisms. These mechanisms play a pivotal role in coordinating the interdependent activities of the industry, forming a complex and integrated system to ensure a stable grain supply.

Before delving into the legal arrangements, it is crucial to highlight the significant concentration of economic power at the global level within both the supply industry and trade organizations. At the supply level, three major transnational seed companies (Monsanto, DuPont, and Syngenta) dominate 55 percent of the global soy seed market, while the top three agrochemical companies (Bayer, BASF, and Dow Chemical) control 76 percent of the global pesticide and herbicide markets<sup>23</sup>. Similarly, in the trade organization sphere, approximately eight transnational trading companies (ADM, Amaggi, Bunge, Cargill, COFCO, LDC, Olam, and Viterro) command over 90 percent of the international soybean trade<sup>24</sup>. Furthermore, the Chicago Board of Trade serves as the primary platform for establishing international soybean prices and hosts the majority of

<sup>23</sup> Silva, M.; Costa, L. A indústria de defensivos agrícolas. **BNDES Setorial**, v. 35, 2012, pp. 233–76.

<sup>24</sup> See their declaration at COP28, available from <https://www.tropicalforestalliance.org/assets/Soy-sector-collective-progress.pdf>. In 2014, Wesz calculated that four of those companies (ADM, Bunge, Cargill, LDC/Luis Dreyfus) controlled 50 percent of installed crushing capacity and 85 percent of soybean exports in South America, cf. Wesz, V. Jr.. **O mercado de soja e as relações de troca entre produtores rurais e empresas no Sudeste do Mato Grosso (Brasil)**/ The soy market and exchange relations between farmers and firms in the southeast of Mato Grosso (Brazil). Doctoral dissertation. Graduate Program of Social Sciences, Federal Rural University of Rio de Janeiro (UFRRJ), 2014.

soybean futures market trading and hedging activities. When juxtaposed with Figure 3, this data illustrates how the farming sector is situated between the dominant suppliers and traders.

### Economic arrangements and their legal structures: the impact of financialization

As mentioned earlier, Brazil implemented restrictions on land acquisition by foreigners in 2007. Consequently, soybean farming remains predominantly concentrated among national producers, including small-scale soybean farms operated by family agriculture and large properties.

While policies supporting agricultural expansion in the 1970s initially featured innovative financing structures by public institutions, the state eventually withdrew its support. A pivotal moment occurred in 1994, with the combination of legal reforms and financial innovations igniting privatization and globalization, leading to a significant transformation in Brazil's agribusiness supply chain. This shift not only enhanced funding liquidity and bolstered production but also ushered in an era of customized financing contracts. Under these arrangements, international trading companies seized opportunities to directly manage origination<sup>25</sup>.

The cohesiveness of Brazil's soybean supply chain is highlighted by the integration of operations like Barter Contracts, which align the interests and activities of diverse stakeholders. While many countries typically rely on post-harvest mechanisms such as loans or Warehouse Receipt structures, Brazil predominantly utilizes Barter Contracts, a pre-harvest financing instrument established in the country since the 1990s. This instrument allows cooperatives and trading firms to finance production in exchange for a future commitment to deliver rural products. Essentially, these agreements require farmers to pay for inputs by committing to sell their future production either to the initial input provider or to another entity willing to accept the commitment to receive the goods in kind or as a monetary equivalent. Barter Contracts are facilitated through the issuance

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<sup>25</sup> Data illustrating such change: between 1995 and 1997, at the peak of privatizations and opening to foreign capital, the share controlled by the ABCD companies increased from 22% to 43%, primarily through mergers and acquisitions. As a result, by 2010, the ABCD companies dominated 65% of the fertilizer market, 50% of the crushing and refining capacity, and 85% of the foreign trade in grains. cf. Wesz Jr, Strategies and hybrid dynamics of soy transnational companies in the Southern Cone, *Journal of Peasant Studies*, v. 43. N. 2, 2016, pp. 286-312, and Wesz Jr. footnote 24.

of a credit instrument, notably a Crop Receipt, where credit is received under the obligation of repayment secured by the future crop collateral.

More recently, the 2008 financial crisis reshaped the dynamics of transnational capital and land overaccumulation, positioning Brazil as an attractive destination for foreign investors with speculative goals and rent-seeking interests. The transformation of land into a financial asset is evidenced by the emergence of various financing instruments in recent decades. However, while these mechanisms have expanded financial options for producers, they have also introduced complex issues surrounding land ownership and production dynamics. This trend has sparked discussions on revising laws related to foreign land acquisition, prompting debates in various sectors, including the Supreme Federal Court (STF) and the legislative body.

The STF is currently deliberating on two cases (ADPF 342 and ACO 2463) challenging the constitutionality of treating Brazilian companies with foreign capital as foreign entities under land acquisition laws. Simultaneously, the legislative branch is considering several bills aimed at modifying existing restrictions on foreign land ownership. Recent legislation, such as the Agribusiness Law of 2020 and the Law of Investment Funds in Agroindustrial Production Chains of 2021 (FIAGRO), has introduced exceptions to foreign land control and facilitated resource mobilization for the rural sector, enabling indirect land control by foreign entities through investment funds. Furthermore, legislation proposing significant easing of land ownership restrictions passed the Federal Senate in December 2020 but has since stalled.

These developments signify a significant change in the perception and utilization of agricultural land within the broader economic landscape, influencing both land ownership and farming finance. For example, as of the 2021/2022 period, nearly 25% of soybean farming in the State of Mato Grosso, a key agricultural region in Brazil, was financed through capital markets—an increase from just 8% in 2008<sup>26</sup>. Despite this growth, trading companies remain the dominant source of capital, consistently holding a 30% lead on average.

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<sup>26</sup> SIMIONI, B.; ESTEVAM, R.; SILVA, R. Funding Soja. Instituto Mato-Grossense de Economia Agropecuária (IMEA), 2023. For detailed operations, see BICALHO, B.C.D.. *Financeirização, Land Grabbing e Acumulação de Capital na Agricultura Brasileira: processo de dominação das finanças e o papel da burguesia agrária*. Doctoral dissertation. Graduate Program of Population, Territory and Public Statistics, National School of Statistical Sciences, Brazilian Institute of Geography and Statistics, 2020.

## The 21st century “green revolution”: the extraction of lithium in the name of energy transition<sup>27</sup>

### The context

This section intends to explore the case of a new green revolution taking the example of a specific project branding the idea of “green lithium” to be explored in one of the poorest regions in Brazil, Jequitinhonha Valley. The project has had the support of public authorities due to the potential to explore one of the most demanded minerals for the digital-technological development and energy transition policies.

The lithium exploitation in Latin America, especially in Chile and Bolivia, is very well explored in the literature, including its development approaches.<sup>28</sup> The case of Brazil holds a particularity due to (1) the fact that Brazil is not a superpower on lithium, but the existence of this mineral combined with other SCM, with the potential to attract investment in the upstream part of the value chain and (2) the capacity or at least the potential to combine the upstream production with the development of a midstream and downstream industry connected to lithium as a source – being the case of electric cars and batteries as part of the energy transition GVC its target.

Such (neo)extrativism may however be justified by the historically attractive discourses of (neo)industrialization and (neo)desenvolvimentism. Additional pressure for reallocation/reshoring or de-risking of the production and treatment of critical minerals – such the lithium - may add additional pressure to such course in Latin America and Brazil. In this context the constitutional structures of the state are tested, and maybe justified in the paradoxes of such governments for optimism or skepticism or even be convenient under the extreme right authoritarian governments floating in the region<sup>29</sup>.

The case to be analyzed is about Sigma, a company incorporated in Canada, having as the controller a fund structure of a Brazilian citizen and resident. Other minor shareholders include large investment funds, such as Blackstone. In 2020, Sigma invested

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<sup>27</sup> This section draws upon ongoing research focused on the legal and economic dimensions of Brazil's integration into the supply chain of batteries and electric cars. I extend my gratitude to Celio Hiratuka, Maria Eugenia Kroetz, Mayra Contin, and Natalia Figueiredo for their invaluable contributions to this endeavor, as well as for providing insights and information on the subject matter.

<sup>28</sup> [CITE ARTICLES ABOUT THE EXPOLOITATON OF LITIUM IN LATIN AMERICA AND DEVELOPMENTAL DAMAGES]

<sup>29</sup> See PAL Project.

in the Grota do Cirilo project in the municipalities of Araçuaí and Itinga, which covers a total area of 18,887 hectares of the Jequitinhonha Valley, comprising 28 mining titles, 7 mining concessions, 3 research authorizations, and 4 mining requests. The project encompasses 5 pits with a history of lithium production. In 2023, Sigma received the final operating license to commence lithium commercialization.

The lithium exploration in the Jequitinhonha Valley has brought consequences for indigenous populations, quilombolas, among others, who report the unusual appearance of animals in the region, as well as large clouds of dust and constant noise. There is also concern regarding the expansion of extraction into indigenous territories that are under constant struggle and demarcation process, along with the increase in rates of violence, prostitution, and cases of rape, compared to cities without the presence of these mining enterprises.

Figure 4. Picture of a lithium extraction mine in Jequitinhonha Valley



Source: (TBA).

### Economic arrangements and their legal structures: the impact of financialization

The economic dynamics of the mineral extraction sector in Brazil differ from those in the agriculture sector. The domestic lack of technological capacity and exploration knowledge has historically attracted large transnational companies, with the exception of Vale (a Brazilian company privatized during the 1990s). The key regulatory aspect lies in the ownership structure, which designates the subsoil as state property. Therefore, its exploitation necessitates formal authorizations, concessions, and other forms of state control. However, the governmental agencies responsible for this oversight have historically been under-equipped. The objective is to comprehend the structures perpetuating this capacity gap within the state framework.

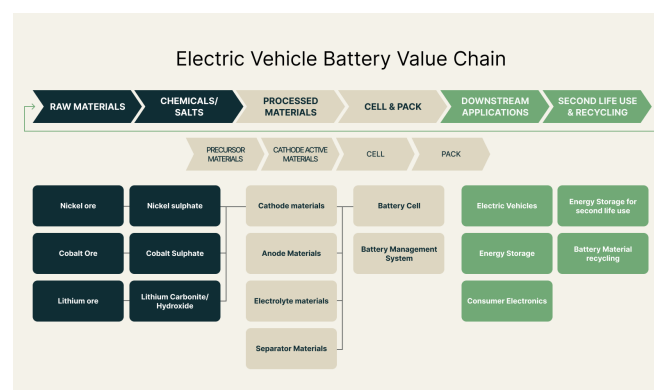


The legal framework of investment already underscores the importance of utilizing transnational financial structures. Similar to the soybean industry, current mineral production is predominantly exported. However, the government has encouraged investment in battery and electric car industries in Brazil, fostering integration throughout the entire supply chain. Furthermore, transnational groups have expressed interest in acquiring Sigma and integrating the value chain.

According to public statements by Sigma's CEO, given that their primary buyer is the fine chemical industry, supplying adequately pre-processed products is crucial. In this context, supply contracts play a central role in the business's success. The technological routes of beneficiation represent the most value-added process, as stated by Sigma's CEO: "This is where we truly capture value, not in mining, up to 13 times the price of the ore - in this technological aggregate that we create. That's the great commercial success of Sigma today. That's why we're able to make these pre-sales." Hence, understanding private coordination within the value chain appears essential for delineating responsibilities in this context.

The figure below illustrates one of the most notable value chains developed around lithium. There has been significant investment from both public and private sectors in recent years to strengthen this value chain.

Figure 6. Electric vehicle battery value chain



Source: (TBA).

## Last remarks for discussion

The first epigraph in this paper draws attention to a state calling upon its citizens to fight for the integrity of its territory. The second epigraph, while acknowledging the

richness of life within the territory and emphasizing the state's responsibility to protect the environment, still urges citizens to "battle" for it.

Such a battle may be ignominious, but we must resist. The questions raised revolve around: how can we effectively advance towards an ecological transition that encompasses our present and future existence? How can we rethink current notions of jurisdiction to involve the responsibilities of the true beneficiaries of economic production systems? And, finally, how can we take our collective responsibility more seriously within a more responsive ethical framework?

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