Between rings and radials: logistics and inequality in the São Paulo Metropolitan Region

Entre anéis e radiais: logística e desigualdade na Região Metropolitana de São Paulo

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Abstract

Production restructuring in the era of globalization and neoliberalism has boosted broad territorial transformations, where urbanization seeks to support growing flows and logistics has acquired a fundamental role. In this context, the study explores changes related to logistical land use in the outskirts of the Metropolitan Region of São Paulo (1998-2021). The emergence of logistics condominiums was observed in environmental areas and vulnerable neighborhoods, led by large global companies in collaboration with the financial sector and with the government's support. The resulting spatial configuration of such dynamics reinforces the structural inequality of Brazilian society and the role the country has historically played in the international division of labor, in an urbanization process in which high technology and precariousness coexist in contradiction.

Keywords: urbanization, logistics, neoliberalism, financialization, social inequality.

Resumo

A reestruturação produtiva na era da globalização e do neoliberalismo impulsionou amplas transformações territoriais, onde a urbanização busca sustentar os fluxos crescentes e a logística adquire papel fundamental. Este estudo explora mudanças relacionadas ao uso logístico do solo na periferia da Região Metropolitana de São Paulo (1998-2020). Constatou-se o surgimento de condomínios logísticos em áreas ambientais e bairros vulneráveis, liderado por grandes empresas globais em colaboração com o setor financeiro e apoio do Estado. A configuração espacial resultante de tais dinâmicas reforça a desigualdade estrutural da sociedade brasileira e manifesta o papel historicamente ocupado pelo País na divisão internacional do trabalho, em um processo de urbanização no qual alta tecnologia e precariedade coexistem em contradição.

Palavras-chave: urbanização; logística; neoliberalismo; financeirização; desigualdade social.

Introduction

This study was motivated by the frequent contemplation of landscapes that are part of our daily lives, particularly the sprawling logistical complexes, high-tech structures that contrast with the poor and vulnerable neighborhoods characteristic of the periphery of the São Paulo Metropolitan Region (RMSP). These are scenarios where inequality is a constant, and where high technology and precarity establish visible and invisible boundaries - spaces where the new and the archaic coexist. Landscapes provoke questions, as Gourou (1973, apud Santos, 2002) noted, for "[...] a paisagem não é senão um ponto de partida" (the landscape is but a starting point), Santos adds (2002, p. 20). Thus, when observing the evident contradictions within these landscapes, we ask: what is their significance?

Initially, the emergence and proliferation of logistical complexes can be understood as the result of broad transformations that have

characterized the mode of production over recent decades (Chua, 2021; Danyluk, 2018; Raimbault, 2022). Capital's relentless pursuit of fluidity, marked by the increased volume and speed of commodity, goods, and capital circulation, has driven extensive territorial restructurings, reshaping urban landscapes across diverse locales. This phenomenon is tied to the reorganization of variables within the international division of labor, where the expansion of technical systems fosters high mobility of production factors and the diffusion of both productive and consumptive consumption (Silveira, 2021).

In this context, logistics plays an exceptionally significant role, as the global dynamics of intense circulation demand the implementation of systems and infrastructures designed to secure and intensify this fluidity. According to Danyluk (2018), logistics is responsible for redirecting underutilized capital into the built environment, as it requires comprehensive territorial infrastructure to adapt space for capital accumulation and



Figure 1 – Landscape observed in Guarulhos, São Paulo Metropolitan Area

Photo by the authors, August 28, 2022.



Figure 2 – Inequality in the landscape of Cajamar

Photo: Edson Lopes Jr., October 19, 2021. Available at: https://tab.uol.com.br/edicao/capital-dos-galpoes/#page5.

accelerate its circulation time, enabling a quicker return to the form of profit (Danyluk, 2018; Harvey, 2001). For these reasons, Chua et al. (2018) argue that logistics has transformed the very rationality through which space is organized.

In this context, the metropolis of São Paulo finds itself at the eye of a hurricane of cargo and capital flows, demanding responses from both the State and the market, which have shifted their focus toward enabling and materializing investments in physical infrastructure and logistical apparatuses. The Mário Covas Rodoanel (beltway), whose construction has

been underway since 1998, emerged as a State-led response to the aforementioned transformations. This 177-kilometer circular highway encircles the densest urban area of the São Paulo Metropolitan Area (RMSP), positioned 20 to 40 kilometers away from São Paulo city center. The implementation of this roadway has influenced new territorial landuse patterns, as the enhanced accessibility expanded location options for businesses—particularly those focused on logistics and retail—while also catering to interests in creating significant reserves for the real estate market (lacovini, 2013).

This article seeks to elucidate the expansion of logistical land use in the São Paulo Metropolitan Area (RMSP) and its spatial outcomes in terms of land-use patterns, identifying the key agents involved in this production - including the State - and the resulting impacts of the process. The findings reinforce dilemmas and phenomena already addressed in the literature on Brazilian urbanization, such as: structural inequality (Almeida, 2019; Kowarick, 1975; Oliveira, 1977, 2003); late industrialization and subsequent deindustrialization (Cano, 2012; Carvalho, 2018; Considera and Trece, 2022; Furtado, 1981; Morceiro and Guilhoto, 2019; Singer, 1998; Tavares, 1983); an export agenda centered on commodities and agricultural products (Carvalho, 2018; Contini et al., 2023; Frederico, 2015); dependency on and subordination to external interests (Bresser-Pereira, 2010; Oliveira, 2003; Santos and Silveira, 2001); informality and challenges of access to land and housing (Maricato, 1999; Martins, 2010; Rolnik, 2015); neglect by authorities and stakeholders toward environmental degradation; the State's role in the neoliberal era (Arantes, Maricato, and Vainer, 2000; Fonseca, 2019; Fontes, 2010); and the financialization of the economy (Cassiolato and Chesnais, 2014; Dowbor, 2018; Klink and Souza, 2017; Tavares, 1983; Zaneti, 2017). These elements highlight the complexity of the subject studied and its deep entanglement with Brazil's socio-economic history and dynamics.

Considering this is a case study, as the investigated phenomenon is intrinsically linked to its context and the complex dynamics in which it is situated (Groat and Wang, 2013), the methodological procedures adopted encompassed the development of a historical spatial mapping (1998–2020)

based on spatialized data from the RMSP and its relationship with other data related to the agents involved in this spatialization. The method was anchored in documentary research, constructing a narrative of events to help explain the phenomenon. The sources consulted included real estate brokers and research firms such as Buildings, Colliers, Cushman & Wakefield, and Herzog, as well as materials provided by developers and asset managers like Bresco, Fulwood, GLP, Golgi, Hines, Prologis, Sanca, TRX, and Xplog. To identify investment funds associated with these companies, a search was conducted through the Brazilian Securities and Exchange Commission (CVM). Another procedure involved collecting data and information on municipalities experiencing the highest proliferation of logistical complexes, alongside an analysis of current legislation at multiple jurisdictional levels. In the specific case of Cajamar, overlays of logistical complex expansion areas mapped by this study were cross-referenced with land-use maps, water spring locations, and federally owned lands available in the 2007 Master Plan (Complementary Law n. 095/2007; Cajamar Municipal Government, 2007) and the Cajamar Municipal Environmental Sanitation Plan (Conesan, 2010). Data were collected, organized, and documented, and in addition to descriptive analysis, maps, images, and graphs were used to represent them.

The proliferation of logistical complexes

The transformations in land use resulting from the construction of logistical complexes in the São Paulo Metropolitan Region (RMSP)

were extensive. In total, 120 properties were identified, encompassing an area of approximately 8.86 million m² by the end of 2020. The predominant location of these buildings on the edges of the metropolis's densest urban cluster emerged as the dominant trend. This trend can be understood through two key variables: the presence of the Mário Covas Rodoanel (beltway) and other highways, and the strategic distance from São Paulo's city center.

The Mário Covas Rodoanel (beltway) stands as the primary logistical infrastructure built by the State government in the RMSP in recent decades. Generally, plots near highway interchanges – where zoning laws permitted development – exhibited a high degree of attractiveness for logistical complexes.

However, due to their limited quantity and size, these "urbanized" plots became increasingly scarce amid high demand, a condition that ultimately expanded land-use transformations into even more distant areas of the territory. In total, 106 logistical complexes are located within 15 km of interchanges with radial highways, totaling 8.05 million m2. Figure 3 illustrates this relationship using 5 km radius intervals, while also segmenting the complexes into four groups by linking the property launch year to the construction period of each Rodoanel section.² This approach revealed the proliferation of logistical buildings in parallel with the highway's implementation, resulting in a doubling of the total built area in the most recent period. Regarding distance from the metropolitan center, areas between 30 km

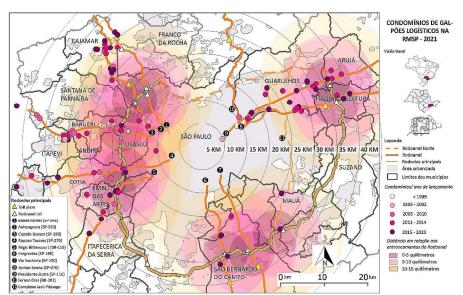
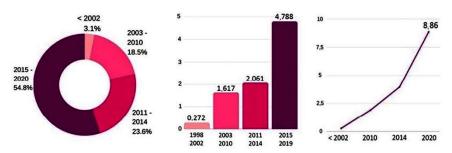


Figure 3 – Logistical complexes in the São Paulo Metropolitan Area as of January 2021

Source: prepared by the authors, January 22, 2022, based on data from: Buildings, Cushman & Wakefield, Sanca, GLP, Prologis, and Hines.

Graph 1 – Expansion of logistical complexes in the RMSP relative to the launch period of each Rodoanel section: share of total built area; constructed area of logistical complexes; evolution of total built area – 1998-2020.



Source: Prepared by the authors, based on data from Buildings, GLP, Prologis, and Hines.

and 35 km were the most sought-after, with 32 developments counted in these zones, totaling 4.6 million m^2 – over half of the total area, with an average of 143,918 m^2 per unit. By analyzing the four most relevant distance intervals, a trend emerged: the greater the distance from the center, the larger the average built area of the developments.

This proliferation of logistical warehouses has negatively impacted multiple municipalities across the metropolis. A significant number of complexes were established in environmental preservation zones (Environmental Protection Areas - APA) and sectors deemed to have high social vulnerability. In total, 32 logistical complexes were identified within APAs and Water Source Protection Areas (APM). Among the municipalities most affected, Cajamar stands out with 18 units, followed by Embu das Artes with ten. Though occurring on a smaller scale, the warehouses constructed in São Bernardo do Campo also raise concerns, as they are located within the Billings Reservoir Water Source Protection Area (APM).

Another noteworthy aspect is the relationship between logistical complexes and census sectors classified as having high or very high social vulnerability, as illustrated in Figure 5. While some complexes are located within these sectors, the map reveals that most were established near vulnerable neighborhoods, thereby exposing these populations to the issues stemming from such developments. A total of 20 logistical complexes were recorded in these areas, with the municipality of Cajamar having the highest number (five units), followed by Guarulhos (four units), and Jandira and Itaquaquecetuba (three units each).

The metrics indicating a pattern in the implementation of these facilities reveal that proximity to the highway is a decisive factor in location selection, as previously overlooked areas have become key "intermediary spaces", connecting the command and consumption center in the capital to dispersed and fragmented productive sectors in distant locations. The optimal location lies in balancing three factors: the advantages of proximity

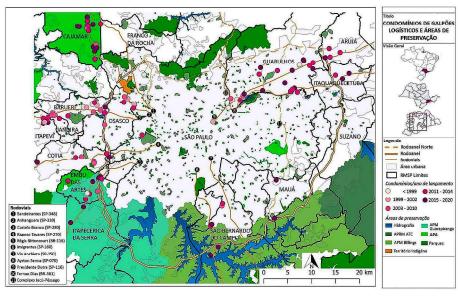


Figure 4 – Logistical complexes and preservation areas

Source: Prepared by the authors, March 15, 2022, based on data from CEM, Embrapa, Emplasa, and SIMA (São Paulo State Environmental Secretariat).

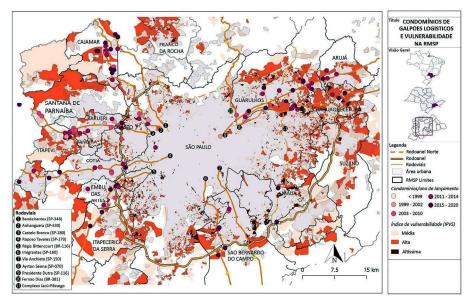


Figure 5 – Logistical complexes and social vulnerability in the RMSP

Source: prepared by the authors, March 15, 2022, based on data from: IPVS (2010), IBGE (2010), Embrapa, Emplasa, and SIMA.

to consumption centers; the benefits of infrastructure access; and the disadvantages tied to high implementation costs, rents, and taxes. These factors relate to agglomeration economies and diseconomies, shaped by the metropolis's centripetal and centrifugal forces, which repel or attract activities based on their degree of dynamism (Santos and Silveira, 2001; Sposito, 2015). This equilibrium is situated at the metropolitan margins, where there is greater land availability, lower costs, and rapid highway access.

Production system of logistical complexes

The transformations observed in the RMSP occurred through investments promoted by diverse sectors (logistics, real estate, industrial, commercial, and financial), facilitated and mediated by State involvement. The company with the most significant presence in this sector nationally is Global Logistic Properties (GLP), responsible for over 3.1 million m² of warehouses. Founded in Singapore in 2003, GLP is a global leader in investment management and business development across logistics, real estate, infrastructure, finance, and sectorspecific technologies. Specializing in the construction and administration of logistical and industrial complexes, the company also manages diverse funds. With operations in Brazil, China, Europe, India, Japan, and the U.S., GLP oversees US\$89 billion in real estate and private equity funds, maintaining a portfolio of 62 million m² across more than 2,000 properties in 630 logistics parks worldwide. According to information obtained from GLP's official website, its portfolio can store and distribute manufactured goods to 52% of the global population.

GLP entered the Brazilian market in 2012 through the acquisition of logistical complexes from Prosperitas, marking its initial involvement with a portfolio of 1.9 million m² of leasable warehouses. Investments were structured via two joint ventures established in partnership with the China Investment Corporation (CIC), the Canada Pension Plan Investment Board (CPPIB), and the Government of Singapore Investment Corporation (GIC). Collaborating with these partners, GLP has steadily expanded its investments in Brazil. By 2021, the company's land portfolio totaled 5 million m2, of which 3.1 million m² were developed, and 1.9 million m² were in its development pipeline. Within the RMSP, GLP holds the largest warehouse inventory – 1.94 million m² – distributed across 16 logistical complexes in the municipalities of Cajamar, Itapevi, Jandira, Santana do Parnaíba, Embu das Artes, São Bernardo do Campo, and Guarulhos (GLP, 2021).

GLP also operates through investment funds. A search conducted with the Brazilian Securities and Exchange Commission (CVM) identified five Equity Investment Funds (FIP) under GLP's name (GLP Investimentos Multi-Strategy Equity Investment Fund I – V), all managed by Votorantim Asset Management DTVM Ltda. Combined, these funds' net assets

exceed BRL 6.05 billion, held by three to four non-resident shareholders. Based on this data, GLP emerges as the primary agent driving the production of logistical complexes in Brazil, standing out significantly compared to other players (CVM, n.d.).

Another company with significant involvement is Prologis, headquartered in the U.S. The firm is a global leader in the development and management of logistical complexes, overseeing a portfolio of over 89 million m² across 4,655 warehouses in 19 countries and four continents. Founded in 1983, Prologis manages more than US\$136 billion in assets. In Brazil, since 2008, the company has partnered with Cyrela, a major national developer, forming Prologis/CCP. Its logistical complexes are strategically located in São Paulo and Rio de Janeiro, totaling approximately 1 million m² of built warehouses across 23 units. The company holds a land portfolio exceeding 2.15 million m² for future developments. Within the RMSP, Prologis has 0.86 million m² of built space, distributed across 17 warehouses in five complexes located in the municipalities of Arujá, Santana do Parnaíba, and notably Cajamar, where it operates approximately 0.77 million m² (Prologis, n.d.). Prologis also operates through a Real Estate Investment Fund (FII), registered with the Brazilian Securities and Exchange Commission (CVM) under the name Prologis Brazil Logistics Venture Real Estate Investment Fund, managed by BRL Trust Distribuidora de Títulos e Valores Mobiliários S.A. Established in 2018, the fund holds over BRL 2.7 billion in net assets, with two non-resident shareholders (CVM, n.d.).

Hines, in turn, distinguishes itself from the aforementioned companies by operating in more diversified market segments. Its activities in Brazil began in 1998, when it decided to branch out with a focus on logistical complexes. Its trajectory exemplifies the shifting landscape favoring investments in this sector post-2005, when most of Hines' Brazilian complexes were developed (Finatti, 2011). Currently, the company's real estate portfolio includes logistical complexes in only two municipalities within the RMSP. In Cajamar, these are located near the Anhanguera Highway, less than 12 kilometers from the Rodoanel (beltway), occupying 88,883 m² of built area on a 347,400 m² plot. Hines operates in Brazil in partnership with CalPERS - the pension fund for California public employees, one of the world's largest funds, managing over US\$360 billion in capital in 2018 for more than 1.6 million public employees, retirees, and their families. In 2007, CalPERS Brazil II (HCB II) acquired 360 acres (1.45 million m²) of land in Embu das Artes. Two years later, part of this land was developed into the Distribution Park Embu, comprising 180,500 m² of built area on a 964,000 m² site. The Distribution Park Embu 2 followed in 2013, with 52,300 m² of built space on a 127,000 m² plot (Hines, n.d.).

Another prominent company is Sanca Galpões, a division of Sanca Construções, a Brazilian contractor and real estate developer founded in 1978. In addition to logistical warehouses, the company is involved in residential subdivisions, housing construction (both low-rise and high-rise), and commercial buildings. Over its trajectory, Sanca has amassed over 3 million m² of built area, including 1.6 million m² in residential and commercial developments and 1.5 million m² in logistical centers. Ten logistical complexes developed by Sanca have been identified in the RMSP, covering 0.73 million m², with two additional complexes under construction. The absence of visible ties to investment fund structures suggests the company operates more in line with traditional contractor approaches, distinguishing it from the other firms analyzed, which rely on financial market liquidity and support to sustain their investments.

In this context, Real Estate Investment Funds (FII) play a significant role in the total square meters traded. Beyond purchasing, selling, and leasing warehouses, these funds establish partnerships with retailers and contractors, actively participating in the production of developments. This is exemplified by the Xplog fund, identified as the agent with the largest share of built area in the RMSP operating under this model. Xplog is an FII focused on the logistical warehouse market, managed by XP Asset Management, a firm overseeing over BRL 49.5 billion in assets. The fund aims to generate income through asset leasing and real estate profits, constantly recycling its portfolio by buying and selling stakes in developments according to market fluctuations and investor performance interests. Xplog holds 0.29 million m² of assets in the RMSP, with 0.24 million m² located in Cajamar and the remainder distributed between Santana do Parnaíba and Barueri. While FIIs' participation remains less pronounced compared to real estate developers, the rising number of investors and stock values have significantly expanded traded areas in recent years.

The cases of Cajamar and Embu das Artes

Cajamar

The production of logistical complexes in the studied municipalities involved active participation by local authorities, enabling their development. Located 30 kilometers from São Paulo's city center, Cajamar has emerged in recent years as a critical logistical hub within the metropolis, integral to multiple production chains due to its connectivity with the northwest highway corridor (Anhanguera and Bandeirantes highways) leading to Brazil's interior and Midwest regions. Additionally, its proximity to the western section of the Rodoanel (beltway) facilitates access to BR-116 (connecting to southern Brazil) and the southern beltway segment, which links to Via Imigrantes highway, extending to the Port of Santos. Between 2006 and 2021, Cajamar's urban and territorial landscape underwent significant transformations driven by the actions of developers, landowners, and municipal government policies.

The substantial changes to the urban perimeter, strategic land-use planning instruments, and infrastructure played a vital role in the observed transformations.

Since 2007, successive zoning modifications have allowed the construction of logistical complexes in various areas of the city. In 2019, further changes increased the development potential in zones designated for logistical activities, while the creation of the Smart Urban Zone enabled the construction of logistical complexes in a new expansion area. The legalization of logistical complexes over green spaces becomes even more alarming when considering that the entire municipality of Cajamar has been classified as an Environmental Protection Area (APA) since 1984 under State Law n. 4.055/1984 (São Paulo, 1984).

Fiscal incentives were also implemented through complementary laws over the years, aiming to attract companies to the region to spur

economic growth. In exchange, these incentives required substantial local contributions, such as hiring workers from the municipality. Exemption from the Urban Property and Territorial Tax (IPTU) was established under Law n. 1470/2011 (Município de Cajamar, 2011), granting logistical companies in Cajamar a 13-year tax exemption – later extended to 25 years in 2018 and subsequently reduced to five years in 2019. Similarly, a 2% rate for the Service Tax (ISS) on logistical activities was introduced via Complementary Law n. 68/2005 (ibid., 2005).

These circumstances have collectively transformed Cajamar into a focal point for corporate interests, resulting in significant expansion, with approximately 2 million square meters (m²) of built area. While these transformations have contributed to economic

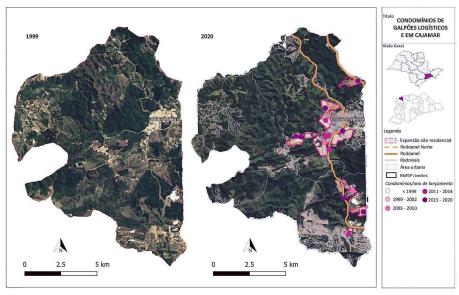


Figure 6 – Expansion of logistical complexes and distribution centers in Cajamar, satellite images: 1999-2020

Source: Prepared by the authors, August 2020.

growth, they also raise concerns regarding planning, land occupation, and environmental impacts. To put this into perspective, this area equates to over 294 soccer fields covered by impermeable concrete and asphalt paving—all situated within an Environmental Protection Area (APA).

In this context, the local population continues to face numerous challenges and precarities. While international capital has received exemptions and incentives for over a decade, Cajamar is home to 2,500 families living in risk-prone areas, and 24% of households still lack access to formal sewage systems (G1 SP, 2012; IBGE, 2010). Evictions have surged, making way for road infrastructure essential to logistical developments (Garcia Júnior, 2021; Jeronymo, 2016; Siqueira, 2001, 2009; TJSP, 2014; Yassu, 2021). A quick search using Google reveals that both local newspapers and mainstream media outlets report ongoing eviction lawsuits and the emergence of new informal settlements in the municipality. The inequality is starkly evident in data from the IBGE Cidades platform (2017): while Cajamar's GDP per capita is estimated at BRL 180,000, ranking it 7th among São Paulo's 645 municipalities, approximately 35% of the population survives on half the minimum wage. Furthermore, in education, Cajamar ranks a dismal 576th for the enrollment rate of children aged 6-14. In sanitation infrastructure, it ranks 548th statewide. Politically, the municipality suffers from profound instability, with 13 mayoral changes between 2012 and 2018 (Silva, 2018).

Beyond the issues discussed thus far, it is critical to consider certain structural characteristics that became evident when analyzing Cajamar's recent urbanization process. This is particularly visible when examining the land tenure history of the area where most logistical complex expansion occurred. This aspect is directly tied to the holdings of a single family - the Abdallas whose heir and landowner is ranked as Brazil's third-richest Chief Executive Officer (CEO), with an estimated net worth of BRL 15.3 billion (Forbes, 2023). However, the family's lands remained under federal trusteeship and embroiled in legal disputes until the mid-2000s due to a series of legal complexities, notably tax evasion allegations (Jeronymo, 2016; Sigueira, 2001, 2009; São Paulo State Court [TJSP], 2014). These lands are estimated to cover approximately one-quarter of the municipality's territory. After their release for commercialization, local companies began preparing large plots for future developments by converting raw land into buildable plateaus (Yassu, 2021). This study's findings demonstrate that the sale of these areas to developers led to interventions that produced most of the logistical complexes currently operating in Cajamar.

Since then, the environmental impacts caused by these "space-devouring enclaves" have become increasingly evident. In 2011, following a request from Tetraquímica Indústria e Comércio Ltda., the Public Prosecutor's Office (MP) launched an investigation, arguing that the company was suffering

severe consequences from floods caused by the irregular and disorderly occupation of adjacent properties. The situation was alarming, as the medium- and large-scale developments installed at the site caused numerous environmental impacts, significantly degrading springs and watercourses in the area (TJSP, 2014). During the legal process, a key point of conflict and debate emerged: on one side, the municipality, developers, and the São Paulo State Environmental Agency (Cetesb),4 who claimed no springs existed in the area where earthmoving occurred; on the other, the MP sought evidence to prove their existence (ibid.). In 2022, the MP argued that environmental damage had occurred due to interventions in preservation areas, noting that the site had long lost its environmental function due to urbanization. Initially, an expert report concluded that dismantling the structures was unfeasible and risked causing public health issues in the region. Consequently, the São Paulo State Court (TJSP) ruled in favor of an environmental compensation proposal by the appellants (developers and the municipality), requiring the restoration of an area seven times larger than the site occupied by Prologis' warehouse, the primary affected zone. The ruling was revised to mandate environmental restoration via compensation, with no financial restitution for irreversible damages (TJSP, 2022).

For comparative and analytical purposes, the map of water springs produced by the Brazilian Foundation for Sustainable

Development (FBDS, 2012) was overlaid onto areas of logistical complex expansion, revealing that 13 springs were buried beneath the current Prologis site and its other warehouse under construction. Further observations showed springs covered at multiple points across the municipality, including developments by another major industry player, GLP, and a recent facility leased to retail giant Leroy Merlin – an asset of the Xplog Real Estate Investment Fund (FII, 2022) – located along the Bandeirantes Highway.

In this case, the collaboration of these agents enabled the expansion of this frontier: a global corporation operating in both financial markets and real estate development and management (Prologis), in partnership with a major national developer (Cyrela), a local contractor responsible for land preparation (Pillar), the public sector (municipal government) that facilitated, guaranteed, and incentivized production, and the large landowner (Abdalla family). Thus, local agents prepared the land - providing infrastructure, leveled plateaus, approvals from regulatory bodies, favorable zoning, and urban boundaries - alongside a suite of tax exemptions. All that remained was for a capital-rich corporation like Prologis to materialize the investment sought by this coalition of local actors. Analyzing these agents through this lens reveals critical insights into the role played by the State.

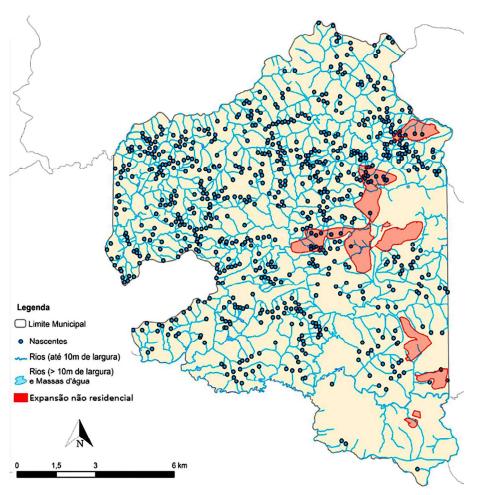


Figure 7 – Water springs and expansion of logistical complexes

Source: Prepared by the authors, January 28, 2021, based on the Support Project for the Implementation of the Rural Environmental Registry (FBDS – Brazilian Foundation for Sustainable Development, 2012).

Embu das Artes

While exhibiting less alarming factors and conditions compared to Cajamar, the municipality of Embu das Artes, located southwest of São Paulo's city center (toward southern Brazil) at the intersection of the Rodoanel (beltway) and Régis Bittencourt Highway (BR-116), displays similar characteristics. According to 2018 projections by the Brazilian Institute of Geography and Statistics (IBGE), the municipality housed nearly 268,000 inhabitants, with a geometric annual population growth rate of 1.23% between 2008 and 2018 – higher than both the RMSP (0.73%) and the state of São Paulo (0.81%). In terms of logistical complex production, Embu das Artes has an inventory of 0.72 million m² of built area.

The Rodoanel (beltway) played a significant role in the transformations observed in the municipality, generating land value appreciation expectations even before the completion of its southern section. Since 2009, the municipal government has offered tax exemptions and incentives, creating an attractive environment for private investment. Buildings magazine (2018), a real estate market specialist publication, highlighted that Embu das Artes had policies allowing fiscal incentives such as exemption from the Urban Property Tax (IPTU) and a 2% Service Tax (ISS) rate - compared to São Paulo city's 5%. This made the region a sought-after destination for companies aiming to reduce tax burdens, a practice known as "tax avoidance". However, if Embu, like Cajamar, can be considered a

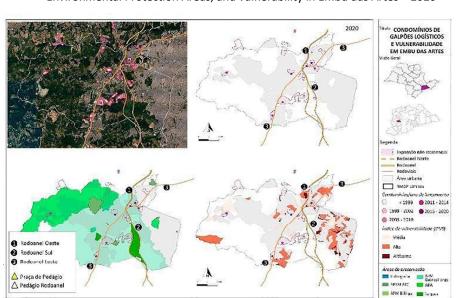


Figure 8 – Logistical complexes, infrastructures, Environmental Protection Areas, and vulnerability in Embu das Artes – 2020

Source: prepared by the authors, February 10, 2020.

"paradise" for warehouses, the flip side of this coin reveals another reality: 36.2% of Embu das Artes' residents survived on incomes of half the minimum wage or less, according to IBGE data (2010).

Two years after the inauguration of the Rodoanel (beltway), the 2012 Master Plan of Embu das Artes introduced guidelines enabling the intense proliferation of logistical complexes. The proposal authorized an industrial corridor cutting through the Embu Verde Environmental Protection Area (APA) and the Guarapiranga Water Source Protection and Recovery Zone, impacting an area of 2.4 million m². The plan also increased development potential in the Consolidated Urban Zone (ZUC 3), encompassing the historic city center's surroundings, permitting large-scale residential, commercial, or logistical developments measures that risked affecting the municipality's tourist areas (Azevedo, 2017). Media reports at the time revealed heated debates between residents, environmentalists, and the municipal government. Residents argued that the Master Plan's proposal had been altered in final meetings, with the industrial corridor only appearing in the latest maps. "The city's name is Embu das Artes [Embu of the Arts], and all you find are warehouses?" questioned one resident (Costa, 2012). Four years later, the municipality reopened discussions to introduce adjustments and new proposals, which also faced scrutiny. Unanimously approved, Complementary Law Project (PLC) No. 017/2016 revised zoning in ten sectors, reduced Areas of Social Interest (Zeis) and Environmental Interest Zones (ZIA and Zeia), and reoriented them toward real estate

development, urban infrastructure upgrades, and the installation of industries, commerce, and logistics (Azevedo, 2017).

These consolidated developments have driven the expansion of logistical complexes into preservation areas. The municipality hosts ten logistical complexes located within regions that are part of the São Paulo Green Belt Biosphere Reserve and the Guarapiranga Water Source Protection and Recovery Zone. This renders the urban occupation and expansion in these areas highly questionable, raising serious concerns about the role of municipal actors in enabling such developments. In this context, Azevedo (2017) observes that Embu das Artes historically a settlement area that evolved into an economic hub of culture and leisure—now aspires to become a significant industrial and logistical pole, spurred by the RMSP expansion and the directives of its Master Plan.

The system's functioning

Analyzing the modes of action and roles of various agents has enabled connections to be drawn between the study's subject and key concepts, culminating in the schematic representation of a system that demonstrates how these actors interact in the production of logistical complexes across a cycle of production, circulation, and realization. This system is driven by the financial market, which finances supply while simultaneously constituting demand, as it requires these assets – viewed as exchange value – to demonstrate strong performance and maintain

a robust investment portfolio. Logistics, in turn, emerges as a demand of globalization and the current configuration of the productive system, wherein elements and factors are increasingly dispersed and fragmented, necessitating spaces for storage and distribution—a demand rooted in use value.

In this context, real estate developers play a pivotal role in the production and management of these properties, addressing the demands of both processes. Their operations can span traditional circuits or the so-called integrated circuit. In this framework, Raimbault (2022) made significant strides by examining logistics-sector companies that act as developers, investors, and real estate fund managers. The author argues that the logistical real estate sector has adopted a unique trajectory of financialization, operating within an integrated circuit that contrasts with the fragmented traditional circuit, which faces limitations in investment scale. However, Raimbault also contends that the hegemony of these globally integrated firms depends on their ability to forge alliances with local agents. This conclusion gains credence in light of the findings presented regarding the expansion of logistical complexes in Cajamar and Embu das Artes.

Within this broader context, state intervention becomes essential to enable and articulate this system. The State's role reflects the growing influence of neoliberal rationality, revealing a political and social subordination to globalization and financialization (Dardot and Laval, 2016). This implies that the State's role is not defined by withdrawal, mere absence, or the transfer of its functions to the private sector, but rather through active and direct participation. By regulating financial and real estate markets, implementing infrastructure and incentives, the State's presence in this system transcends municipal governance; across all stages of this process, it demonstrates that neoliberalism operates as the predominant management model at every level.

Thus, the product generated by this system's operation – along with all its implications – emerges bearing its alienating characteristics, establishing an interaction with Brazil's urban environment and its specificities within the global productive system. This connection, materialized in space and expressed through the landscape, lays bare the resulting spatial configuration.

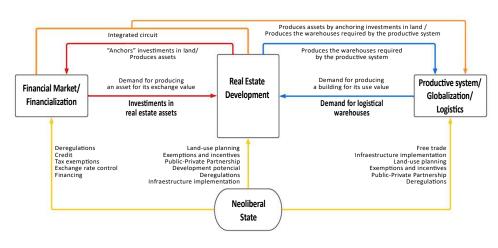


Figure 9 – Production, circulation, and realization system of logistical warehouse complexes

Source: prepared by the authors, October 26, 2022.

The resulting spatial configuration

As described in the Introduction, the intuitive observation of everyday landscapes motivated the writing of this article. They seemed to point to the persistence of historical inequalities, albeit in new forms, highlighting an urbanization process where high technology and precarity coexist in contradiction. They also appeared to warn that the observed logistical use was generating expansions without any restrictions in terms of spatial planning.

Zioni (2009) emphasized that the implemented logistical complexes introduced a new form of urban occupation, causing changes

in the morphology of metropolitan areas and generating a pattern of discontinuity and dispersion in the urban fabric. The author noted that these spaces differed from traditional storage and warehouse areas due to their scale, giving them an enclave-like character. Citing Monclús and Dematteis (1998), she argued that these technical facilities were increasingly becoming "space-devouring", creating autonomous units that juxtaposed discontinuously, resulting in interstitial spaces and urban voids (apud Zioni, 2009, p. 218).

By occupying a place in the landscape adjacent to logistical complexes, low-income populations have become directly affected by the main problems caused by them. Beyond a series of evictions (Garcia Júnior, 2021; Yassu,

2021), one key factor involves land value appreciation, which leads to higher living costs due to high investor demand. This includes land-use planning by local authorities, who prioritize logistical land use over residential, reducing the availability of land for housing. Furthermore, these developments are often marketed as "clean" companies or industries, under a sustainability paradigm and the execution of non-polluting activities. However, as highlighted by Strale (2019), the marketed sustainability concept is highly questionable, as it disregards factors such as noise; the sharp increase in truck traffic and consequent CO2 emissions; rising traffic accidents; wear and tear on local roads and infrastructure; and drainage and water management issues, given the large impermeable concrete and asphalt surfaces they occupy.

Oliveira (1977) had already set up the "Columbus egg" by revealing the underlying logic of the apparent disorder in the Brazilian urbanization process. He understood inequality as something functional to accumulation and the development of capitalism in the country; the high concentration of income as a structural characteristic linked to high rates of labor exploitation (Oliveira, 1977, 2003). The author demonstrated how inequality has roots in Brazil's colonial and slave-owning past, leaving deep marks on power structures and a historical legacy. These conditions later manifested in the colonato regime and were consolidated through late and highly income-concentrating industrialization. This process resulted in urbanization based on low wages (Maricato, 2000; Oliveira, 1977, 2003).

In the context addressed in this article, the archaic is also functionalized by the new in the precarious labor relations offered in logistical complexes, as well as in their lowcost reproduction. A significant portion of jobs are temporary, characterized by high turnover, low wages, or production-based pay, lacking labor rights (Calle and Gómez Fernández, 2013; Góes, 2022; Nesri, 2017). Another portion of the jobs generated by these warehouses can be categorized as part of what has become known as the "uberization of labor", on one hand, and the "platformization of labor", on the other. For Abílio, Amorim, and Grohmann (2021), uberization emerges as a new type of labor management and control, consolidating on-demand work, while platformization refers to dependence on digital platforms to perform labor activities.

According to the authors, this phenomenon, though seemingly "new" in labor relations within the most developed capitalist countries, in fact represents the global dissemination of structural conditions in the capital-labor relationship that have historically occurred in Brazil and other peripheral nations. Under these circumstances, the surplus value generated in the productive process is increasingly appropriated by large corporations, which exploit not only a sizable reserve army of labor (which alone reduces the cost of labor reproduction) but also, in Brazil's case, the perpetuation of historical precarious and informal labor conditions that have now become the general rule of the system (Abílio, Amorim, and Grohmann, 2021; Oliveira, 2003).

If in the capital-labor relationship we observe the generalization of historical characteristics intrinsic to the formation of peripheral countries, dependency development theorists had already drawn attention to the dynamics of unequal urbanization and the evident disparities postulated through a correlation of forces underpinning the international division of labor. Imperialism, as a form of domination, reconfigures - more directly, rapidly, and forcefully – the relationship between hegemonic powers and colonized regions. In this context, Brazil's subaltern position, as noted by Fontes (2010), reveals its insertion into what she terms "imperialist capital". The implementation of a post-1964 financial system became intertwined with the monopolization of the dependent economy. The author emphasizes that neither during the "lost decade" of the 1980s, nor during the market liberalization under the Collor and FHC governments in the 1990s, nor even amid the crises of 2000 and 2008 did the capital-concentrating drive diminish; instead, it emerged strengthened. Throughout Brazil's history, this rigid structure of big capital has shaped the country's accumulation patterns, exploited historical vulnerability as a means of reproduction, and exhibited Brazil's constant adaptation to global productive/financial arrangements.

In general, the adaptation to the reconfigurations of the productive system under a neoliberal context has had a substantial impact on Brazilian industrial production levels. The financialization process, intensified by technological advancements and agribusiness expansion, combined with the return to exporting commodities and low value-added products amid marked deindustrialization, has increased dependency on imports of goods not

domestically produced, both for production and consumption purposes (Carvalho, 2018). In this scenario, the ongoing evolution and intensification of circulation volume and speed - exacerbated by Brazil's role in the international division of labor - have triggered sweeping transformations that rendered the territory dependent on the efficacy of logistical strategies and the growing dominance of financial agents, markets, practices, metrics, and narratives across multiple scales. Logistical complexes proliferate under this global and domestic conjuncture, as they play a pivotal role in facilitating the distribution of mostly imported goods while also functioning as assets in the financialized real estate market.

In this context, the rents and profits generated by the production, management, and use of warehouses are directed and distributed among real estate developers, financial investors, and large global retailers. Amid industrial decline and the metamorphosis of national capital investments, international capital - with its vast capacity for high-level investments - saw an opportunity to enter and obtain extraordinary profits in a scenario of economic growth, operating in partnership with a range of local agents. This dynamic reinforces Santos and Silveira's (2001, p. 257) notion that "[...] o território de um país pode se tornar um espaço nacional da economia internacional" (a country's territory can become a national space of the international economy). Logistical warehouse complexes illustrate how this relationship is not limited to agricultural areas due to high export volumes but intensifies in urban agglomerations, with international developer and financial capital increasingly engaging in the production of urban space. The result is a territorial adaptation to the interests of international capital – not only through logistical complexes but also via state-implemented infrastructures and public policies designed to streamline circulation and facilitate the deployment of these facilities.

Therefore, the phenomenon addressed reinforces aspects of a long-envisioned contradiction in Brazilian cities, where the newest elements share the landscape with the old, and where the highly technological borders the precarious. In other words, this is a landscape that mirrors the "platypus" metaphor - invoked by Oliveira (2003) to define the form acquired by Brazilian society, rooted in its peripheral status within the global economic order and dependency on external interests. The installation of the "new" described in this article reflects this structural characteristic, where it not only coexists with the old but is conditioned by the actions of capitalism's most advanced sectors, which, despite being metamorphosed, continue to propel the gears of backwardness at their core.

As an allegory, there are two distinct cities occupying the same geographic space, where unequal landscapes accumulating

on the metropolis's fringes evoke the cities described in the science fiction novel The City & the City by Miéville (2017), in which one is marked by prosperity while the other grapples with precarious conditions. If the first reveals a landscape defined by elements of high architecture, haute couture, luxury vehicles, and gleaming neon storefronts, the second remains entangled in the old, everyday violence, and poverty. In the context of the São Paulo Metropolitan Region (RMSP), visible and invisible boundaries can be observed between the logistical city, where large corporations' logistical complexes rise, and the dormitory city, where the working class finds its place. Though one is functional to the other, they remain alienated from each other. While one receives the most sophisticated developments and attracts substantial investments from the State, as well as national and international capital, the other continues to reflect characteristics of backwardness, often going unnoticed or even being "unsee" (desvista), as termed in the book, unveiling this dialectically contradictory relationship.

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Notes

- (1) When built in isolation, these structures are commonly referred to as "logistical warehouses" in Brazil.

 Developers often choose to cluster them under a condominium management model, hence the term "logistical complexes".
- (2) The western section of the Rodoanel was constructed between 1998 and 2002; the southern section between 2003 and 2010; and the eastern section from 2011 to 2015. The northern section remains under construction (ongoing as of 2023).
- (3) Civil Inquiry n. 14.1094.000017/2012-1, later registered as Process n. 0000958-65.2014.8.26.0108 (São Paulo State Court).
- (4) The São Paulo State Environmental Agency (CETESB), responsible for regulating and monitoring activities with potential environmental impacts.

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