

Urban socio-environmental inequality in the municipality of São Paulo: The case of Jardim Panorama

Desigualdade socioambiental urbana no município de São Paulo: O caso do Jardim Panorama

Andrei Celestino Godinho¹ , Ailina Tiemi Asano Oshiro¹ , Maria Eduarda de Oliveira Pinto¹ ,
Beatriz Sakamoto Lopes Ramos¹ , Gabriela Caciatore dos Santos¹ , Elisabete de Araújo Rodrigues¹ ,
Clara Ferraresi de Oliveira Costa¹ , Ana Paula Fracalanza¹ 

ABSTRACT

This study investigates the socio-environmental inequality affecting the Jardim Panorama neighborhood, located in the west side of São Paulo, State of São Paulo, Brazil. The area is marked by the presence of a high-end condominium, Parque Cidade Jardim, and a small, impoverished *favela*, Favela do Jardim Panorama, separated by less than 100 m. The article explores the historical background and conceptual frameworks of socio-environmental inequality, including gentrification and environmental injustice, aiming to highlight the dynamics and impacts on the populations living in Jardim Panorama. A qualitative approach is adopted, involving the analysis of public documents and the collection of data on the area from research institutions and public platforms. At a local scale, the study area reveals the stark social contrasts characteristic of major Brazilian cities. The findings indicate that Jardim Panorama is subject to processes of gentrification and environmental injustice, exposing intense socio-spatial segregation driven by affluent residents and the resistance of a socio-environmentally vulnerable population, rendered invisible by the State.

Keywords: socio-environmental inequality; gentrification; environmental injustice; socio-spatial vulnerability; favela.

RESUMO

Este trabalho investiga a desigualdade socioambiental que afeta o bairro do Jardim Panorama, localizado na zona oeste do município de São Paulo, estado de São Paulo, Brasil. O bairro conta com a presença de um condomínio de alto padrão, o Parque Cidade Jardim, e uma favela pequena e empobrecida, a Favela do Jardim Panorama, separados um do outro por menos de 100 metros. O artigo explora o histórico do local e os conceitos de desigualdade socioambiental, tais como a gentrificação e a injustiça ambiental, com o objetivo de ressaltar atuações e impactos nas populações que moram no Jardim Panorama. O estudo adota uma abordagem qualitativa, com análise de documentação pública e levantamento de dados sobre a área em instituições de pesquisa e plataformas públicas. A área de estudo revela, em escala local, os contrastes sociais presentes nas grandes cidades brasileiras. Os resultados revelam que o bairro Jardim Panorama sofre com ações de gentrificação e injustiça ambiental, indicando intensa segregação socioespacial promovida pelos moradores de alta renda e a resistência da população socioambientalmente vulnerabilizada, invisível aos olhos do Estado.

Palavras-chave: desigualdade socioambiental; gentrificação; injustiça ambiental; vulnerabilidade socioespacial; favela.

¹Universidade de São Paulo – São Paulo, SP, Brazil.

Corresponding author: Ana Paula Fracalanza – School of Arts, Sciences and Humanities, University of São Paulo – Rua Arlindo Bétio, 1000 – CEP: 03828-000 – São Paulo (SP), Brazil. E-mail: fracalan@usp.br

Funding: none.

Conflicts of interest: the authors declare no conflicts of interest. Received on: 07/31/2025. Accepted on: 09/27/2025.

<https://doi.org/10.5327/Z2176-94782721>



This is an open access article distributed under the terms of the Creative Commons license.

Introduction

The term “environmental injustice” emerged as a way to describe the imbalance in the distribution of environmental impacts among different social groups. This concept refers to the injustice that takes place when marginalized and vulnerable communities face an unproportional charge of pollution, environmental damage, and lack of access to natural resources — even when they have done little to contribute to these issues — while benefits are focused on more privileged sectors. Moreover, environmental injustice also covers the hardships imposed by urbanization, which, besides repressing, excludes certain groups from participating and using spaces such as shopping malls, stores, markets, and clubs (Acsehrad et al., 2012; Lane et al., 2022). Paradoxically, these marginalized populations are often the same ones who work in the construction and maintenance of these spaces, further expanding inequality.

With that, social inequality ends, changing its name. What used to be defined as social inequality becomes socio-environmental inequality, once, besides facing social exclusion, these communities suffer segregation and social invisibility (Acsehrad et al., 2012; Lane et al., 2022). Given the wide range of spaces that suffer socio-environmental inequality, the studied area will be Jardim Panorama, located in the Morumbi district, in the west side of São Paulo, a place covering areas of extreme social vulnerability and high-end spaces that serve as an object of study and as a source of comparison to other territories in Brazil.

The Morumbi district, part of the Butantã sub-prefecture, is known for harboring affluent neighborhoods, such as Jardim Panorama, traditionally known as a prestigious location. However, Morumbi does not only harbor upscale populations. Its occupation was characterized by the simultaneous presence of high-end allotments and *favelas*, creating a hybrid urbanization pattern, in which a street, slope, or simple geographic division can separate deeply distinct socio-economic realities (Gohn, 2010). However, something that is not seen by those unfamiliar with the area is the striking presence of socio-environmental inequality due to the existence of the *favela* located in the same neighborhood, the “favela do Jardim Panorama,” which coexists with a very distinct reality from its own. The Parque Cidade Jardim is located around 100 m from it — a multimillionaire enterprise that covers: business towers, luxury apartments, and the Cidade Jardim Shopping Mall.

In the city of São Paulo, the region of the Jardim Panorama *favela* and the Parque Cidade Jardim Condominium is an example of the existing inequality between such geographically close areas. This inequality interferes with basic life conditions of each resident of these areas, especially those harmed by socio-spatial segregation.

In the Jardim Panorama neighborhood, this segregation reinforces the lines that divide society, leading to great social and environmental impacts, mirroring a wider pattern of social exclusion that permeates Brazil (Paloni, 2012). The extreme reality contrast within the same neighborhood raises the question of why socio-environmental inequality persists in geographically close areas, such as the Jardim Panorama *favela* and the Parque Cidade Jardim Condominium.

The object of study was chosen due to the territory’s potential for expressing urban contradictions and socio-environmental inequalities, which allows us to deepen the context and territory analysis of environmental injustices.

Given this issue, this article aims to investigate and analyze the causes and effects of the socio-environmental inequality observed in a part of the municipality of São Paulo, based on two territorial selections of the Jardim Panorama neighborhood, the Jardim Panorama *Favela*, and the Parque Cidade Jardim Condominium.

Methodology

This article is a qualitative study focused on the socio-environmental analysis of the Jardim Panorama territory, located on the west side of the municipality of São Paulo, within the Morumbi district, and under the administration of the Butantã sub-prefecture.

The adopted conceptual framework combines the socio-environmental references (Godoy et al., 2020; Cole et al., 2021; Scarlett et al., 2021), environmental injustice (Acsehrad et al., 2012; Faber et al., 2021; Shao et al., 2021), and gentrification (Cole et al., 2021), which allows for a critical reading of the relationships among urban space, unequal city production, and the environmental impacts on peripheral populations.

The analysis collection process was divided into:

A — Data analysis of articles in portals (Scopus, CAPES Journal Portal, and Web of Science); the filters and criteria used for the search were: Jardim Panorama, Morumbi, and socio-environmental inequality. With a time cut-out from 2020 to 2024;

B — Document source — Analysis of documents from the Avenues school, a report from the Laboratório Rio Pinheiros (2023), and previous studies on the neighborhood.

C — Indirect observation — Analysis of data from the public platform Geosampa, satellite images, and maps.

For the analysis, the following categories were considered: housing conditions, access to urban infrastructure and basic services, land occupation, presence of environmental risk areas, and socio-spatial distance from the formal city.

The analysis was organized into two phases: (1) data collection and systematization, and (2) interpretation of the theoretical references, aiming to identify socio-environmental inequality indicators and their expressions in the studied territory

Study area

Located in the west side of São Paulo, the Jardim Panorama neighborhood is located within the Morumbi district and is administered by the Butantã sub-prefecture. The neighborhood, located in one of the most affluent regions of São Paulo, is characterized by the presence of the Jardim Panorama *Favela*, which shares its walls with high-end real estate enterprises, enclosing it (Figure 1). Among them, the most notable one is the Cidade Jardim compound, composed of a high-end condominium on top of the Cidade Jardim shopping mall — one of the most luxurious in the city — which is also connected to the business center.

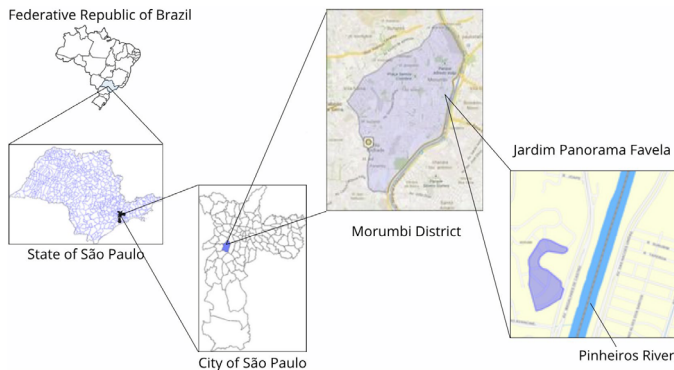


Figure 1 – Location chart of the Jardim Panorama Favela. Adapted from GeoSampa.

Separated from the compound, the Avenues school, next to the *favela*, is striking for being an elite school for the city of São Paulo. Therefore, the neighborhood shows a strong contrast among social classes coexisting within its domains.

The formation of the Jardim Panorama neighborhood took place in the context of urban growth propelled by the enhancement of the region due to coffee commercialization and the industrialization of the first 20th century decades, with the Jardim Panorama *Favela* having its first record in 1957, according to D'Andrea (2008). The economic expansion strengthened the neighborhoods around the Pinheiros River — such as Pinheiros, Butantã, and Morumbi — establishing them as valued areas. This process was followed by improvements in urban infrastructures, which mainly benefited the São Paulo elites. While real-estate speculation drove lower classes away. This process led to the occupation of irregular areas, which are environmentally vulnerable and present safety and health risks (D'Andrea, 2008; Campolim, 2017; Feitosa et al., 2021).

Bibliographic review

Socio-environmental inequality, environmental injustice, and gentrification

Socio-environmental inequality refers to the overlying social and environmental injustices, in which groups such as women, impoverished people, and racialized populations are more vulnerable to environmental risks (Scarlett et al., 2021). This scenario highlights a persisting pattern of environmental injustice, defined as the disproportional burden of negative impacts of environmental degradation over vulnerable populations in structurally unequal contexts (Acselestad et al., 2012). Shao et al. (2021) observe that this injustice is expressed by the direct relationship among race, socio-economic status, and a higher exposure to pollutants and environmental degradation. This scenario affects historically marginalized communities in special, both from the political and territorial point of view, which face systematic process of destruction of their spaces, contamination of

water resources, degradation of air quality, and damage to collective health (Faber et al., 2021).

Within the urban space, these inequalities are intensified. According to Cole et al. (2021), there is a direct correlation between social and spatial inequalities and the different levels of exposure to environmental risks. Inhabitants of impoverished areas and those belonging to ethnic minorities often live in areas with precarious infrastructure, more susceptible to floods, pollution, and the lack of basic services and environmental protection.

In this context, the phenomenon of gentrification emerges and escalates. Cole et al. (2021) characterize this process as the transformation of neighborhoods whose demographic, real estate, and commercial dynamics indicate a transition toward privileged populations. This transformation, often promoted by urban regeneration policies, leads to an increase in local living costs, resulting on the expulsion or indirect displacement of low-income inhabitants.

Even though these urban interventions lead to improvements in infrastructure, mobility, and environmental quality in historically neglected areas, they also pose a risk of displacement for the local populations. The implementation of new housing, green areas, cultural facilities, and high-end commerce not only reshapes the physical space but also its identity, making it less accessible to its original inhabitants. Thus, gentrification represents a direct unfolding of the socio-environmental inequality and environmental injustice dynamics in contemporary cities (Cole et al., 2021).

Climate change, in its turn, works as a magnifier of such inequalities, worsening existing risks and deepening spatial segregation. According to Godoy et al. (2020), extreme events such as floods, landslides, and heat waves became more frequent and intense, impacting socially precarious regions more severely. At the same time, urban strategies of adaptation to climate change usually favor central and more valued areas, while more vulnerable groups remain exposed to risks and with limited access to public policies of mitigation. The so-called climate governance tends to prioritize adaptation projects in high-end areas, while vulnerable populations keep on being exposed to risk with no equal access to public policies of mitigation (Godoy et al., 2020).

Therefore, climate change stresses processes of environmental injustice, incurring what is considered climate injustice, through which socio-environmentally vulnerable populations are more exposed to the effects of these changes, despite not being the ones who contribute the most to the issues interfering with climate changes. Next, we present an analysis of the Jardim Panorama neighborhood, which illustrates how the concepts of socio-environmental inequality, environmental injustice, gentrification, and climate injustice are not restricted to abstract ideas but materialize concretely in contemporary urban dynamics. Literature shows how these processes of spatial reshaping, along with real estate valuation, produce territories characterized by urban segregation.

Results and Discussion

Gentrification applied to socio-spatial segregation in the Jardim Panorama neighborhood

According to Villaça (2011), the most common way of understanding urban segregation is through a center *versus* periphery dynamic. This approach, despite being widely used, is flawed in contexts of big cities, since the premise of having richer people in the center and the poorer in the periphery is not always true. In this sense, when analyzing the spatial distribution of social classes in the city of São Paulo, it can be seen that there is a specific region where there is an exponential concentration of higher-end classes. This region, composed of districts varying from the south and west sides, is called “Southwest Quarter” and concentrates the households, the work places and other life activities of higher-end classes, and it is where the most pleasant temperature levels are registered — since it encompasses the higher rates of green surface in the city (Villaça, 2011; Schutzer et al., 2022).

One of the most important districts that compose the “Southwest Quarter” of the city of São Paulo is Morumbi, located in a region that used to be industrial and middle class but, since the 1990s, was reshaped by real estate marketing and became a showcase of globalization after being discovered by real estate developers who seized on the low cost of lands and favorable zoning to transform it into the place with the most new real estate enterprises of the city of São Paulo. Currently, the power of real estate capital expanded the region to sell luxury apartments, through propaganda and marketing (Gohn, 2010; Alves et al., 2021).

The Parque Cidade Jardim Condominium is highlighted as a case in point for this transformation. Composed of the highest standard residential buildings in neoclassical style, the condominium is placed on top of a luxury shopping center that gathers stores of the main international designer brands and haute cuisine restaurants, next to commercial offices, making the “Parque Cidade Jardim Compound”. Offering 253 square-meter apartments for 5 million Reais and 753 square-meter penthouses valued at over 17 million Reais — as indicated by Campolim (2022) — the residents have direct access to a complex infrastructure covering leisure, services, and even education, with no need to exit the perimeter of the compound. The architecture and functional proposal reinforce the tendency to self-segregate, promoting a “full” life within an elitist bubble, which requires no interaction with the diversity of the city (D’Andrea, 2008; Paloni, 2012; Schutzer et al., 2022; Campolim, 2022).

This model of corporate multicomound, such as the Parque Cidade Jardim, not only redefines urban space but also makes it elitist, creating invisible barriers that keep privileged people apart from the rest of the population. By providing comfort, safety, and isolation, these structures mask the urban chaos and intensify inequality, transforming public areas into inaccessible spaces.

The Jardim Panorama Favela is inserted into a scenario of striking contrasts. Despite being located in one of the most valued regions of

the city of São Paulo, surrounded by major throughfares, such as the Pinheiros expressway, and by high-end enterprises, such as the luxurious Parque Cidade Jardim Condominium, the residents of this favela face the lack of public policies and the institutional neglect that have historically affected most vulnerable classes. The area explicitly portrays how luxury and exclusion coexist side by side, mirroring deep urban inequalities (Figure 2) (D’Andrea, 2008; Paloni, 2012).

Along with poverty and precarious housing conditions, residential segregation is one of the biggest problems in Brazilian and Latin American cities. Even though the city of São Paulo did not have any demographic or economic significance until the mid-19th century, along with the expansion of coffee crops at the end of that century and the industrialization of the first 20th-century decades, São Paulo has progressively become the most important city in the country. This process made it a center of attraction for migrant populations, since industrialization and urbanization have created job opportunities for migrants, especially in the construction, transportation, and industry sectors (Fracalanza et al., 2013; Feitosa et al., 2021).

The formation of the Jardim Panorama *Favela* is a mirror of this process, working as a point of destination and permanence of migrant attracted by opportunities in the construction sector. With Morumbi’s expansion, characterized by great works and high-end infrastructure, the *favela* closeness became an advantage for these workers, who sought opportunities in the local labor market (D’Andrea, 2008; Paloni, 2012). D’Andrea (2008) affirms that this context shows the interdependence between the urbanization of rich neighborhoods in the Southwest Quarter of São Paulo and the emergence of *favelas*, considering that, while high-end neighborhoods demand workforce for their construction, *favelas* meet the need for accessible housing for the workers. Therefore, these informal areas become an essential part of the city’s economic and urban rationale, reinforcing structural socio-spatial inequalities.



Figure 2 – Closeness between the Jardim Panorama *favela* and the Parque Cidade Jardim Condominium.

Source: photo by Tuca Vieira, 2016.

However, the same reason that gave rise to the Jardim Panorama *Favela* has been responsible for a progressive elimination of its existence. Due to public and private investments in the Southwest Quarter of São Paulo, there was a constant valuation of the region, allowing for improvements in infrastructure and the subsequent removal of the region's *favelas*, an example of the gentrification process. The elitism of Morumbi — which used to be a popular district — has raised the cost of life, drawing local residents away and deepening socio-spatial inequalities by prioritizing private property instead of public space (D'Andrea, 2008).

According to D'Andrea (2008), the construction of the Parque Cidade Jardim Compound in the Jardim Panorama neighborhood is an emblematic case of gentrification in the region. To make the enterprise viable, the JHSF construction company offered, in 2007, R\$40,000 to residents of the Jardim Panorama *Favela* as compensation for leaving their houses, with the condition that they would be demolished. According to the author, most residents accepted the offer, which led to the disappearance of a significant part of the *favela*. In the Southwest Quarter area of the city, this phenomenon is made concrete in the progressive elimination of informal settlements, reshaping the urban landscape. The few *favelas* that remain in the central and southwest regions appear as remnants of a declining social reality, resisting a context of fast-paced transformation.

van Ham et al. (2021) associate this movement with the concentration of privileged socio-economic groups in high-end zones, which boosts the valuation of the areas close to their exclaves, substituting popular housing with gated condominiums — symbols of social segregation. Similar patterns are observed in global metropolises such as Istanbul, Lima, and Hong Kong, where elites occupy central nucleus, catalyzing real estate speculation and deepening urban inequalities. The expansion of these enterprises not only reshapes the space but shows how power and capital dynamics mold increasingly fragmented cities.

When analyzing the literature by D'Andrea (2008) and Gohn (2010) on the Jardim Panorama *Favela*, written during the construction of the Parque Cidade Jardim Compound (2005–2008), it was speculated that the *favela* would disappear after the conclusion of works and negotiations by the JHSF developer for the expropriation of the residents. However, the scenario was the opposite: even 16 years after the inauguration of the Compound, in 2024, the Jardim Panorama *Favela* still exists.

With the end of work in 2008, Paloni (2012) highlighted that there was no interaction between the *favela* and condominium residents in the years following the construction of the buildings. At the construction company's website, JHSF, there is a "social responsibility" indicator, with the aim of providing vocational courses and consequently job opportunities for the *favela* population. However, the author highlighted that, at that time, no *favela* resident had been effectively hired to work in the enterprise, under allegations that they were not properly qualified. Still, recently, the *favela* underwent a transformation process and started to work as an extension of the Parque Cidade Jardim Compound. This shift happened mainly due to the offering of restaurants with more affordable prices that appeared in the *favela* to meet the demand of employees of the

annexed business towers (Campolim, 2022), besides the use of the *favela* as a workforce source for the condominium. Among the services provided by residents, we highlight concierges, personal shoppers — who shop for the residents of the Parque Cidade Jardim Condominium — and employees for the Avenues school (Paloni, 2012; Campolim, 2022).

Challenges in the Jardim Panorama Favela: Geological Risks and Infrastructure

Since the 1980s, the fast-paced urbanization in Brazil, propelled by industrial capitalism, has led to the coexistence of a formal and an informal city, where a large share of the population, attracted by job opportunities, faces inadequate life conditions due to living in vulnerable areas of the city with no minimum infrastructure, heightened by the lack of basic sanitation, health services, electricity, and unequal distribution of socio-environmental risks (Fracalanza et al., 2013). The quick urban expansion has surpassed the capacity to accommodate the population, resulting in the rise of informal settlements both in peripheral areas and urban centers as a response to the socio-economic exclusion and the lack of affordable housing. This growth happened both through the occupation of new territories and the verticalization and increase of population density on existing areas (Pasternak and D'Ottaviano, 2016; Martins et al., 2021; Zhang, 2024).

The Jardim Panorama *Favela* is a perfect example of this process. Located in a steep land by the west margin of the Pinheiros River, the *favela* has a diverse composition of housing, with brick houses juxtaposed with wooden shacks — built with reused materials — and many alleys within it. This configuration mirrors a common characteristic of many *favela* housings, which are often located in environmentally vulnerable areas, such as rivers, streams of lake margins, or in slopes subject to landslides — a visible characteristic of the Jardim Panorama *Favela* (D'Andrea, 2008; Pasternak and D'Ottaviano, 2016; Campolim, 2022).

Based on the neighborhood's geotechnical map provided by GeoSampa in 2024, the Parque Cidade Jardim Compound and the Jardim Panorama *Favela* are located over saprolite and alluvial soils, derived from crystalline rocks such as gneiss and migmatites, being little susceptible to landslides but to moderate to high erosion risks, besides possible falls of rocky blocks and settlements due to unstable subterranean structures. However, when looking at the region's geological risk (Figure 3), one can see geological risks that are not restricted only to the Jardim Panorama *Favela*, despite it being the most impacted one. According to the GeoSampa platform, about 500 houses are affected by this risk, with its gravity ranging from low to high according to the area in the *favela*.

It is possible to identify similar land characteristics between the Jardim Panorama *Favela* and the Parque Cidade Jardim Condominium. However, the inequality between these areas is seen in the way urban space is administered. While the condominium has planned infrastructure and technology that help reducing soil and landform risks, the *favela* residents remain exposed to these vulnerabilities, a reflection of the lack of investment and care in low-income areas.



Figure 3 – Geological risk at the Jardim Panorama Favela.

Source: adapted by the authors based on GeoSampa (PMSP, 2025).

This targeted logic of urban investment favors high-end areas over the safety and quality of life of marginalized populations, perpetuating inequalities and restricting improvements for vulnerable groups (Bernt and Volkmann, 2023).

Between 1980 and 1985, Jardim Panorama Favela underwent a severe population growth, followed by the arrival of basic services such as water, in 1981, and electricity, in 1982. These achievements were obtained by the mobilization of the Jardim Panorama Favela residents (D'Andrea, 2008; Paloni, 2012). However, the access and maintenance of these services are not secured.

Access to potable and safe water is a fundamental human right and one of the crucial criteria to achieve environmental justice. Currently, around two billion people in the world have no access to this basic right, and this reality affects populations who live in favelas and urban peripheries unproportionally. Within these areas, access to water is deeply connected to social vulnerability, being affected by unplanned urbanization, lack of public investment, and climate change. The matter of access to water shows the social vulnerability of these territories and becomes an alarming sign of the presence of environmental injustice, exposing structural inequalities, in which marginalized communities are more affected by environmental matters (Karasaki et al., 2023; Fracalanza et al., 2024).

In 2017, a year before its opening, Avenues school announced, in an official video, its project of constructing a renovated building at the intersection of Pedro Avancine Avenue and Magalhães de Castro Avenue, close to the soccer field of the Jardim Panorama Favela. However, the favela and the field do not appear in the images and simulations due to video edits that, according to Campolim (2022), tried to “erase” the favela.

Given the negative response, especially considering an institution that regarded itself as committed to social and environmental issues

and as the formator of global citizens, the institution aimed to revert the impact by creating the “Community Engagement” sector. This department started to develop projects in the favela, ranging from integration measures to welfare actions (Campolim, 2022; Avenues: The World School, 2024).

One of these actions was recorded in the headline “Bringing light to Jardim Panorama!” (*Dando luz ao Jardim Panorama!*), published on the *Avenews* newspaper in 2020, highlighting the precarious local public lighting. During visits to the community, school students observed that the lack of lighting increases resident insecurity, especially at night (Avenues: The World School, 2020). GeoSampa data from 2024 reveal that the whole favela counts only with 11 streetlamps — a drastically inferior number to that of neighboring streets.

This difference shows how the lack of infrastructure is not random, but a reflection of deeper socio-spatial inequalities that drive vulnerable communities to a condition of risk and lack of assistance, as indicated by Gerges et al. (2023), when observing that neglected areas often have infrastructure deficits that reproduce and expand social and land inequalities.

Water inequality, sanitation and green areas: the New Pinheiros River Project and its impacts on the Jardim Panorama Favela

Pinheiros River, adjacent to the Jardim Panorama Favela and the Parque Cidade Jardim Compound, is a clear example of the steep urban transformation of the city of São Paulo in the last century. Until the 1990s, 95.2% of its river plain was urbanized, converting flood areas into high-end real estate hubs, propelled by public and private investment. After 1927, with the construction of the Rio Grande reservoir (Billings), added to the reversion of the Pinheiros river flow, in 1939, to produce hydroelectric power and control floods, the Pinheiros river became even more polluted due to the flow of additional pollutants from the Tietê river, contaminated with industrial and domestic wastewaters (Fracalanza, 2002; Luz and Rodrigues, 2020; Alves et al., 2021).

According to Luz and Rodrigues (2020), this intense urbanization of the Pinheiros expressway has worsened environmental unbalance. The luxury enterprises, with multiple underground levels, pump the water table to avoid floods, contributing to geotechnical instability and to the increase in flood risks. In the Morumbi district, the rectification of channels and the construction of draining reservoirs have reduced the natural ability of flood mitigation, directly affecting the residents of the Jardim Panorama Favela, one of the most vulnerable areas due to its closeness to the river (see Figure 1).

This closeness between the Jardim Panorama Favela and the Pinheiros River also contributes directly to a significant deterioration of this population's life conditions due to the socio-environmental problems arising from the river pollution. Categorized as Class 4 — or very polluted — by Resolution no. 357/2005 of the National Environment Council, it is important to highlight that this water stream receives

untreated domestic wastewater and industrial residue, resulting in sulfur smell, high turbidity, and lack of water life (Godoy et al., 2020). The stench, intensified by the heat, exposes the *favela* population to sanitary risks, such as the contamination by bowel pathogens and the formation of o polluted aerosols. This reality shows a situation of environmental injustice, in which vulnerable communities, such as the Jardim Panorama *Favela*, are unproportionally affected by the degradation of urban water resources (Barbosa and Valério, 2009; Godoy et al., 2020).

In 2019, São Paulo State Government began the New Pinheiros River Program, aiming to revitalize the Pinheiros river margins through measures that seek to, besides implementing urban infrastructure, make the region the city's postcard. The project aims mainly to depollute the Pinheiros river through a sanitation service, benefiting over 3 million people, by connecting 500,000 households to the sanitation network (Alves et al., 2021; Schutzer et al., 2022). However, Alves et al. (2021) affirmed that part of the houses in the program's coverage are irregular, thus they will not fully benefit, receiving only basic infrastructure. Therefore, socially and environmentally vulnerable households, such as the Jardim Panorama *Favela* ones, will keep on living with the sanitation pollution, as highlighted by Campolim (2022), which runs in the open air in the *favela*.

In addition, the program counts with the construction of leisure equipment and a linear park, the Bruno Covas Park. In 2022, the park was opened as an alternative for regional revitalization, flowing the while west margin of the Pinheiros river with bike paths, playgrounds and leisure areas. Despite being the biggest linear park of São Paulo, its use by the Jardim Panorama community is minimal. According to a study by the Laboratório Rio Pinheiros (2023), accessibility is a significant challenge to pedestrians, since the Pinheiros expressway is uncrossable. The only safe accesses to it are through the Cidade Jardim and Laguna bridges, with a 6.2 km distance, demanding a one-hour-and-a-half walk. This difficulty makes the residents use only an institutional space of the prefecture, with exercise equipment and a community vegetable garden kept by the residents themselves (Campolim, 2022).

In times of climate change, cities expand quickly green and blue infrastructure, concerning green areas and water masses constructed or revitalized to produce improvements in the cities' environmental quality and to mitigate the many effects of climate change over urban space, such as floods and the rise in temperature levels (Baumgartner, 2021). However, the way these infrastructures are implemented can reproduce existing inequalities, especially when they prioritize real estate value over equal access.

The exclusion of the Jardim Panorama *Favela* population from accessing the park is in contrast to the equity and sustainability discourse that supports the project. According to Bressane et al. (2024), green areas play a multifunctional role in urban environments, improving air quality, mitigating heat islands, fomenting biodiversity, and providing spaces for recreation and social interactions. In quickly urbanized regions such as São Paulo, equal access is crucial to ensure that all people

can benefit from these spaces. Nonetheless, its distribution mirrors socio-economic gaps, reinforcing environmental injustice patterns, as the efforts to improve green spaces can lead to gentrification, unproportionally favoring higher-end groups and increasing the social inclusion of socially vulnerable residents.

In São Paulo, the association between nature and quality of life has been used as a real estate valuation strategy, especially in high-end districts of the Southwest Quarter, such as Morumbi. Construction companies emphasize quality of life by including broad green areas — deemed rare in the urban environment — in their enterprises, marketing them to raise prices and highlight the closeness to public green areas. This commercialization of a lifestyle in harmony with nature has been reflected ever since the names of the enterprises, which become symbols of status (Paloni, 2012; Baumgartner, 2021).

The Parque Cidade Jardim enterprise is an example of this strategy, presenting itself as a symbol of exclusiveness to the São Paulo elite by providing housing integrated to a compound with luxury shopping, services, entertainment, and broad green areas planned to provide metropolitan quality of life. At the construction company's website, sustainability is used to add value to the project, highlighting the concept of internal garden, rainwater reuse, and natural ventilation and light. The Cidade Jardim Shopping Center, part of the multicompound, incorporates afforested areas inspired by Central Park, with 55,000 square meters of Rainforest vegetation. Despite the discourse of integration to nature, the project turns sustainability into profitable commodity, showing the capitalist appropriation of nature (Paloni, 2012; Savassa, 2014).

Despite involving green infrastructure, the Bruno Covas Park project integrates the capitalist rationale of space production, being appropriated by the real estate market and higher-end populations, leading to unequal access to nature. This inequality is a reflection of the pattern seen in the New Pinheiros River Program, in which environmental solutions vary according to the territory: privileged areas receive leisure, cultural, and sanitation equipment, while areas inhabited by socio-economic vulnerable populations receive only basic infrastructure, reinforcing socio-spatial exclusion and restricting these populations' access to the benefits of environmental revitalization (Alves et al., 2021; Baumgartner, 2021).

Therefore, the New Pinheiros River Program integrates a rationale that goes beyond depolluting the river. It is a valuation strategy for the surrounding areas, guided by very specific interests as one more sustainable enterprise for the city of São Paulo (Alves et al., 2021; Schutzer et al., 2022). In contemporary capitalism, this phenomenon repeats itself in the Southwest Quarter of São Paulo, where public and private investment directed to "sustainable development", as indicated by Schutzer et al. (2022), have increases urban standards at the expense of removing *favelas* and of social exclusion. "Sustainable development" and "urban improvement" policies can, paradoxically, intensify socio-economic disparities, making higher-end neighborhood inaccessible to lower-income populations, who are displaced to peripheral areas

with less infrastructure. This shows how the sustainable discourse can be used to benefit the economic and political interests of urban elites, reinforcing social exclusion and wealth concentration (Chang, 2024).

Conclusion

This work aimed to investigate environmental injustice and inequality at the Jardim Panorama neighborhood, analyzing its formation to the present day, exploring the concepts that contributed to the discrepant social context in the studied area. The study shows the deep socio-environmental inequality between the Jardim Panorama *Favela* and the Parque Cidade Jardim condominium, both located in Jardim Panorama. It highlights the geographical closeness in contrast to the quality of life between the residents of these two areas. Considering that it is a relatively small selection that exposes the vast inequality in São Paulo and Brazil, the issue involving Jardim Panorama shows how inequality and environmental injustice affect the more vulnerable population living in the area.

Through a bibliographic material analysis, it was identified that socio-environmental inequality is worsened by gentrification, in which the valuation of urban spaces favors the São Paulo elite and drives low-income residents away, intensifying socio-spatial segregation and highlighting the overlap of private property over the public space rationale. Moreover, environmental injustice is clearly manifested: while residents of the luxury condominium enjoy high-quality infrastructure, the *favela* residents face precarious infrastructure problems, such as: lack of water, proper public lighting, basic sanitation, quality education, and regularization of their own houses. This scenario is not restricted to the studied area but represents a regular pattern of the Brazilian context, in which populations inhabiting vulnerable areas live side by side

with high-end residents, which indicates the structural reproduction of socio-environmental inequality in the country. Therefore, it shows that these are not merely urban development issues, but mirror an unequal administration of the urban space that perpetuates social exclusion and inequity in the access of public service infrastructure.

In sum, this article indicates the importance of approaching socio-environmental inequality considering environmental justice. The decrease in inequality in the *favelas* is an issue demanding effective actions taken by public policies. By using directed programs, it is possible to reduce inequalities, promote inclusion, and grant more power to socio-environmentally vulnerable populations, contributing to a fairer and more equal society. Thus, showing that political interventions can mitigate these inequalities.

As paths for further research, we suggest deepening the analysis on the impacts of climate change on areas characterized by socio-environmental inequalities and inequity in access to goods and service infrastructure. In this case, it is essential to develop comparative studies among the urbanization models of *favelas* in different urban contexts, assessing their impact on health, environment, and social cohesion. Besides, studies aimed at the effectiveness of communitarian practices of resistance, local administration, and implementation of socio-environmental infrastructure are significant and reinforce the scientific and social importance of this study field as they refer to structural processes in the Brazilian urbanization pattern. Therefore, it is crucial to differentiate the causes and consequences of these inequalities, which show that they are not only local outcomes but expressions of broader structural processes of the Brazilian urbanization pattern. In this sense, the studied case can be seen as symbolic of a nationwide dynamic, which reinforces the scientific and social significance of the study.

Authors' Contributions

Godinho, A.C.: conceptualization; data curation; investigation; methodology; visualization; writing — original draft; writing — review and editing; **Oshiro, A.T.A.:** conceptualization; data curation; methodology; visualization; writing — original draft; writing — review and editing; **Pinto, M.E.O.:** conceptualization; data curation; investigation; visualization; writing — original draft; writing — review and editing; **Ramos, B.S.L.:** conceptualization; data curation; investigation; visualization; writing — original draft; writing — review and editing; **dos Santos, G.C.:** conceptualization; data curation; investigation; visualization; writing — original draft; writing — review and editing; **Costa, C.F.O.:** conceptualization; data curation; investigation; visualization; writing — original draft; writing — review and editing; **Rodrigues, E.A.:** conceptualization; data curation; investigation; visualization; writing — original draft; **Fracalanza, A.P.:** project administration; supervision; writing — review and editing.

References

- Acsehrad, H.; Almeida, A.W.; Bermann, C.; Brandão, C.A.; Carneiro, E.; Leroy, J.P.; Lisboa, M.; Meirelles, J.; Mello, C.; Milanez, B.; Novoa, L.F.; O'Dwyer, E.C.; Rigotto, R.; Sant'Ana Júnior, H.A.; Vainer, C.B.; Zhou, A., 2012. Desigualdade ambiental e acumulação por espoliação: O que está em jogo na questão ambiental?, e-cadernos CES, (17). <https://doi.org/10.4000/eces.1138>.
- Alves, E.M.; da Paz, M.G.A.; Fracalanza, A.P., 2021. Green Gentrification and Environmental Injustice: A Discussion Based on the New Pinheiros River Program, São Paulo, Brazil. *Frontiers in Sustainable Cities*, v. 3, 683660. <https://doi.org/10.3389/frsc.2021.683660>.
- Barbosa, A.C.; Valério, C., 2009. Formação de espumas e gás sulfídrico (H₂S) no rio Tietê, município de Pirapora do Bom Jesus, e sua relação com o sistema de tratamento das águas do rio Pinheiros. II Seminário de Recursos Hídricos da Bacia Hidrográfica do Paraíba do Sul: Recuperação de Áreas Degradadas, Serviços Ambientais e Sustentabilidade, Anais, Taubaté, Brasil, 09-11 dezembro 2009, IPABHi, 199-206. <https://doi.org/10.4136/serhidro.26>.

- Baumgartner, W.H., 2021. La gentrificación verde y el derecho a la naturaleza en la ciudad. Apropiación de la naturaleza en la producción capitalista del espacio urbano. *Revista Ciudades, Estados y Política*, v. 8 (2), 17-32. <https://doi.org/10.15446/cep.v8n2.91581>.
- Bernt, M.; Volkmann, A., 2023. Residential Segregation. *Encyclopedia*, v. 3 (4), 1401-1408. <https://doi.org/10.3390/encyclopedia3040100>.
- Bressane, A.; Loureiro, A.I.S.; Negri, R.G., 2024. Environmental racism in the accessibility of urban green space: A case study of a metropolitan area in an emerging economy. *Urban Science*, v. 8 (4), 224. <https://doi.org/10.3390/urbansci8040224>.
- Campolim, J.B., 2017. O Jardim Panorama na problemática do direito à cidade. Undergraduate Thesis, Faculdade de Filosofia, Letras e Ciências Humanas, Universidade de São Paulo, São Paulo. Retrieved 2024-03-25, from https://bdta.abcd.usp.br/directbitstream/1471f462-5dd4-4e63-8fe3-6d996bba6762/2017_JoachimBuhnerCampolim.pdf.
- Campolim, J. B., 2022. A produção capitalista do espaço nas brechas da formalidade: a favela do Jd. Panorama. Master's Dissertation, Faculdade de Filosofia, Letras e Ciências Humanas, University of São Paulo, São Paulo. doi:10.11606/D.8.2022.tde-01022023-182933. Retrieved 2024-05-25, from www.teses.usp.br.
- Chang, C., 2024. Urban Green-Space: Environmental Justice & Green Gentrification. *Applied and Computational Engineering*, v. 61, 193-199. <http://dx.doi.org/10.54254/2755-2721/61/20240954>.
- Cole, H.V.S.; Mehdipanah, R.; Gullón, P.; Triguero-Mas, M., 2021. Breaking Down and Building Up: Gentrification, Its drivers, and Urban Health Inequality. *Current Environmental Health Reports*, v. 8, 157-166. <https://doi.org/10.1007/s40572-021-00309-5>.
- D'Andrea, T.P., 2008. Nas tramas da segregação. O real panorama da pólis. Master's Dissertation, Faculdade de Filosofia, Letras e Ciências Humanas, University of São Paulo, São Paulo. doi:10.11606/D.8.2008.tde-13102009-114940. Retrieved 2024-05-25, from www.teses.usp.br.
- Faber, D.; Levy, B.; Schlegel, C., 2021. Not all people are polluted equally in capitalist society: An eco-socialist commentary on liberal environmental justice theory. *Capitalism Nature Socialism*, v. 32 (4), 1-16. <https://doi.org/10.1080/10455752.2021.2009640>.
- Feitosa, F.; Barros, J.; Marques, E.; Giannotti, M., 2021. Measuring Changes in Residential Segregation in São Paulo in the 2000s. In: van Ham, M., Tammamaru, T., Ubarevičienė, R., Janssen, H. (Eds.), *Urban Socio-Economic Segregation and Income Inequality. The Urban Book Series*. Springer, Cham, pp. 507-523. https://doi.org/10.1007/978-3-030-64569-4_26.
- Fracalanza, A.P., 2002. Conflitos na Apropriação da Água na Região Metropolitana de São Paulo. Doctoral Thesis, Faculdade de Ciência e Tecnologia, Universidade Estadual Paulista, São Paulo. Retrieved 2025-09-16, from https://www.oasisbr.ibict.br/vufind/Record/BRCRIS_f3c780e674360625e367d111e0e0ff69.
- Fracalanza, A.P.; Jacob, A.M.; Eça, R.F., 2013. Justiça ambiental e práticas de governança da água: (re) introduzindo questões de igualdade na agenda. *Ambiente & Sociedade*, v. 16, 19-38. <https://doi.org/10.1590/S1414-753X2013000100003>.
- Fracalanza, A.P.; da Paz, M.G.A.; Alves, E.M.; Ioris, A.A.R., 2024. Water and sanitation: privatization of the services and environmental injustice. *Frontiers in Sustainable Cities*, v. 6, 1400042. <https://doi.org/10.3389/frsc.2024.1400042>.
- Gerges, F.; Assaad, R.H.; Nassif, H.; Bou-Zeid, E.; Boufadel, M.C., 2023. A perspective on quantifying resilience: Combining community and infrastructure capitals. *Science of The Total Environment*, v. 859 (1), 10. <https://doi.org/10.1016/j.scitotenv.2022.160187>.
- Godoy, R.G.; Marcondes, M.A.; Pessôa, R.; Nascimento, A.; Victor, J. R.; Da Silva Duarte, A.J.; Clissa, P.B.; Sanabani, S.S., 2020. Bacterial community composition and potential pathogens along the Pinheiros River in the southeast of Brazil. *Scientific reports*, v. 10 (1), 9331. <https://doi.org/10.1038/s41598-020-66386-y>.
- Gohn, M.G., 2010. Morumbi: o contraditório bairro-região de São Paulo. *Caderno CRH*, v. 23, 267-281. <https://doi.org/10.1590/S0103-49792010000200005>.
- Karasaki, S.; Goddard, J.J.; Cohen, A.; Ray, I., 2023. Environmental justice and drinking water: A critical review of primary data studies. *Wiley Interdisciplinary Reviews: Water*, v. 10 (5), e1653. <https://doi.org/10.1002/wat2.1653>.
- Laboratório Rio Pinheiros, 2023. Acessos, Conexão e Receptividade – Relatório dos Acessos ao Parque Linear Bruno Covas Novo Rio Pinheiros – 2023. São Paulo: São Paulo (Accessed June 20, 2025) at: <https://drive.google.com/file/d/1zbKQWpkPa2Z2TcXYJzOLb0EITx19Puwf/view>.
- Lane, H.M.; Morello-Frosch, R.; Marshall, J.D.; Apte, J.S., 2022. Historical redlining is associated with present-day air pollution disparities in US cities. *Environmental Science & Technology Letters*, v. 9 (4), 345-350. <https://doi.org/10.1021/acs.estlett.1c01012>.
- Luz, R.A.; Rodrigues, C., 2020. O Processo Histórico de Ocupação e de Ocorrência de Enchentes na Planície Fluvial do Rio Pinheiros de 1930 até os Dias Atuais. *Geousp - Espaço e Tempo* 24 (2), 340-60. <https://doi.org/10.11606/issn.2179-0892.geousp.2020.164499>.
- Martins, M.S.; Kalil, R.M.L.; Dalla Rosa, F., 2021. Community participation in the identification of neighbourhood sustainability indicators in Brazil. *Habitat International*, v. 113, 102370. <https://doi.org/10.1016/j.habitatint.2021.102370>.
- Paloni, C.S., 2012. A reprodução do capital imobiliário, os multicomplexos cooperativos e a elitização do espaço: o exemplo do Parque Cidade Jardim na cidade de São Paulo (Accessed December 25, 2024) at: <https://repositorio.unesp.br/server/api/core/bitstreams/a1ffa985-18c6-491b-b41b-edf136477d81/content>.
- Pasternak, S.; D'Ottaviano, C., 2016. Favelas no Brasil e em São Paulo: avanços nas análises a partir da Leitura Territorial do Censo de 2010. *Cadernos Metrópole*, v. 18, 75-100. <https://doi.org/10.1590/2236-9996.2016-3504>.
- Prefeitura de São Paulo (PMSP), 2025. GEOSAMPA - Mapa digital da cidade de São Paulo. São Paulo: São Paulo (Accessed April 11, 2024) at: http://geosampa.prefeitura.sp.gov.br/PaginasPublicas/_SBC.aspx.
- Savassa, C.F., 2014. São Paulo e as novas configurações do espaço urbano: o Parque Cidade Jardim e seu impacto na marginal Pinheiros (Accessed December 10, 2024) at: <http://hdl.handle.net/11449/110785>.
- Scarlett, R.D.; Subramaniam, M.; McMillan, S.K.; Ingermann, A.T.; Clinton, S.M., 2021. Stormwater on the margins: Influence of race, gender, and education on willingness to participate in stormwater management. *Journal of Environmental Management*, v. 290, 112552. <https://doi.org/10.1016/j.jenvman.2021.112552>.
- Schutzer, J.G.; Dos Santos, F.P.; Lotufo, J.O.; Do Amaral, R.T.S., 2022. Às Margens do Novo Rio Pinheiros: Entre o Discurso Ambiental e a Segregação Urbana. *Cadernos de Estudos Urbanos*, v. 94 (Accessed June 1, 2024) at: https://www.unifesp.br/campus/zonaleste/images/campus_zona_leste/documentos/Artigos/Informes/Caderno%20de%20Estudos%20Urbanos%20-%20Volume%205.pdf.
- Shao, S.; Liu, L.; Tian, Z., 2021. Does the environmental inequality matter? A literature review. *Environmental Geochemistry and Health*, v. 44 (9), 1-24. <https://doi.org/10.1007/s10653-021-00921-2>.

The World School, 2020. Avenews (4th ed.) - Dando Luz ao Jardim Panorama (Accessed June 1, 2024) at: https://open.avenues.org/uploaded/SP_Campus/2019-2020/AVENEWS_4th_edition.pdf.

The World School, 2024. Parada Panorama (Accessed July 29, 2024) at: <https://www.avenues.org/pt/sp/2024/parada-panorama>.

van Ham, M., Tammaru, T., Ubarevičienė, R., Janssen, H., 2021. Rising Inequalities and a Changing Social Geography of Cities. An Introduction to the Global Segregation Book. In: van Ham, M., Tammaru, T., Ubarevičienė,

R., Janssen, H. (Eds.), Urban Socio-Economic Segregation and Income Inequality. The Urban Book Series. Springer, Cham, pp. 03-26. https://doi.org/10.1007/978-3-030-64569-4_1.

Villaça, F., 2011. São Paulo: segregação urbana e desigualdade. Estudos Avançados, v. 25, 37-58. <https://doi.org/10.1590/S0103-40142011000100004>.

Zhang, Y., 2024. Bridging the gap: challenges of urban planning and policies for favelas in Salvador, Brazil. International Journal of Anthropology and Ethnology, v. 8, 19. <https://doi.org/10.1186/s41257-024-00120-8>.