

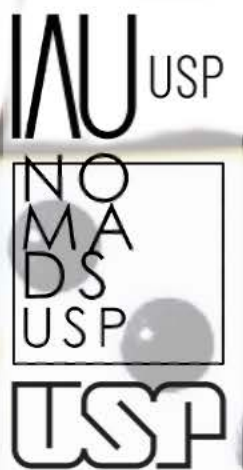
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MULTILATERAL
DIALOGUES
PRAXIS
INTERLOCUTIONS
CONFRONTATIONS

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MULTILATERAL DIALOGUES: PRAXIS, INTERLOCUTIONS, AND CONFRONTATIONS
DIÁLOGOS MULTILATERAIS: PRÁXIS, INTERLOCUÇÕES E CONFRONTAÇÕES
DIÁLOGOS MULTILATERALES: PRAXIS, INTERLOCUCIONES Y CONFRONTACIONES

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Abstract

The intensification of extreme weather events in Brazil poses growing challenges to housing policy (HP), revealing structural contradictions in the State's actions. This study questions the role of public authorities in producing and perpetuating the exposure of Social Housing (SH) developments and territories to disasters. Despite the relevance of the topic, the analysis of Brazilian HP still lacks comprehensive investigations into the relationship between the location of these projects and socio-environmental vulnerability, remaining restricted to specific case studies. Thus, this article investigates, at the local, regional, and national levels, the relationship between state production of SH and exposure to disasters, with an emphasis on floods. By combining a literature review and a systematic survey of news reports, twenty-seven cases of SH associated with disasters were identified. The findings indicate that HP does not eliminate risks, but redistributes them, transferring the social and environmental costs of housing to the population. By highlighting the state-produced risk and the perpetuation of socio-spatial injustice, the study reveals the contradictions, conflicting conceptions, and divergent interests that shape public policies and the ways the city is produced. It demonstrates that, rather than correcting historical inequalities, housing policy reproduces them, consolidating exclusionary urban models.

Keywords: Public policies, Housing programs, Affordable housing, Climate adaptation, Social justice.

1 Introduction

The city is the result of complex and conflictual processes in which technical and political decisions intertwine structural inequalities and reinforce exclusionary urban models. A paradigmatic example of this process is the designation of areas for the implementation of social housing initiatives (SHI), which exposes the contradictions of Brazilian housing policy. Often, the choice falls on environmentally fragile land, in conflict with environmental preservation policies, revealing tensions between social, economic, and territorial interests. This scenario raises questions about the role of the state in the production of disasters, linking to reflections on the social construction of risk, which offers crucial analytical tools for understanding such processes. In this sense, Maria Auxiliadora Ramos Vargas (2006) points out that problematizing the social construction of the notions of environment and risk is a way of opposing their naturalization.

Susan Cutter (2024) emphasizes that there are no purely natural disasters, as complex interactions among natural systems, the built environment, and social systems amplify existing risks and create new ones. Social risk theory offers analytical tools by recognizing that risk is culturally and socially constructed (Beck, 1992) and that state action can expose vulnerable communities to socio-environmental threats. This perspective appears in the study of dams, roads, railways, and mining areas, showing that exposure to risks is not a new phenomenon. Henri Acselrad (2002, p. 52) argues for the need for intersectional approaches to environmental risk and points to the “link between environmental degradation and social injustice,” which is particularly striking in the Brazilian case.

Kátia Canil and co-authors (2020) emphasize that understanding disasters—whether associated with physical-natural processes or not—must consider, in addition to conditions of vulnerability, the social, economic, and political processes that shape the generation of risks, among which disputes over access to urban land for popular housing stand out. Despite this, little is discussed about risk exposure in the construction of new social housing (SH) developments. However, “risk conditions” are recurring justifications for forcibly removing communities and social groups from their territories of origin. Maria Auxiliadora Ramos Vargas (2006) reveals that, in the field of SH, the notion of risk emerges from the articulation of technical perspectives and popular knowledge. While technical statements tend to be guided by institutionally accepted standards of normality—often blaming vulnerable groups—the daily experience of these groups is marked by multiple layers of precariousness, which reconfigure perceptions of risk. Thus, certain technical risks are marginalized in the face of so many other urgent issues.

Several authors associate the production of SH with the dispersion of urban growth, the lack of infrastructure, and the provision of precarious urban services (Honda et al., 2015; Pequeno & Rosa, 2016). Studies on the urban insertion of these housing units

also point to their recurrent implementation in environmentally unsuitable areas, without coordination with environmental, social, and urban policies (Menzori & Falcowski, 2016; Sousa & Braga, 2020). Ana Carolina Carvalho Figueiredo and co-authors (2021, p. 166, translated by the author) observe that “(...) it is common for (SH) to be implemented in peripheral areas, lacking basic infrastructure and close to risky locations.” This finding shows that the production of SH, whether by the state or by private initiative, is relegated to urban areas of little interest to the real estate market, often characterized by conditions adverse to urbanization. These characteristics make these areas more prone to extreme weather events, for example.

The State's deliberate choice of environmentally fragile and vulnerable areas, and/or areas prone to disasters, for the implementation of SH creates one form of risk and exacerbates others. However, although Latin American literature has advanced critical analysis of housing policies, there are still few studies that thoroughly investigate the relationship between the location of these developments and exposure to socio-environmental disasters. Reviews such as that by Sara McTarnaghan and co-authors (2016) highlight the disproportionate vulnerability of low-income housing to climate change, but remain at the level of general diagnosis, without examining how specific developments—especially those resulting from public policies—interact with vulnerable territories. Raquel Naves Blumenschein and colleagues (2015) propose criteria for assessing the urban and environmental quality of the *Minha Casa Minha Vida Program* (PMCMV) developments, including consideration of flood-prone areas. However, the work remains in the field of methodological propositions, lacking empirical application.

Some studies identify cases of SH in flood-prone areas, near Permanent Preservation Areas (*Áreas de Preservação Permanente* – APPs), on hilltops, and on steep slopes (Rufino, 2015). However, even when physical variables such as topography, proximity to water bodies, and elevation are considered, there is a lack of critical articulation between these factors and the actual occurrence of disasters (Honda et al., 2015; Pequeno & Rosa, 2016). Furthermore, despite identifying weaknesses in the implementation of these projects, the analysis remains limited to specific case studies and does not extrapolate to the national context (Schumann et al., 2021). Thus, there is a critical gap in current studies: although efforts are made to assess the quality of the urban integration of SH and their compliance with environmental legislation, there is little discussion of the concrete effects of these locations in contexts marked by recurring disasters. This absence compromises the analytical capacity of housing research and hinders the development of effective, adaptive policies in response to climate change.

Given this context, the present study investigates the relationship between state-led social housing production in Brazil and vulnerability to socio-environmental disasters, with a focus on flooding. Specifically, it aims to: (i) map existing academic research on the relationship between disasters and housing policies, articulating multiple scales (local, regional, and national); (ii) identify concrete cases of SH affected by floods through the analysis of news reports; (iii) examine the extent to which SH policies incorporate—or neglect—environmental and climatic criteria in defining the location of developments; and (iv) discuss, in light of empirical data and the literature, the need to review the criteria for implementing social housing, considering the intensification of extreme events and territorial inequalities in Brazil.

2 Methods

The critical-analytical methodology adopted combines a qualitative approach and documentary research, structured around two complementary components: a literature review and a systematic survey of news reports. The review, conducted using different databases and sources, sought to map scientific production on the relationship between socio-environmental disasters and housing policies aimed at SH. Given the scarcity of academic studies that directly address the relationship between floods and state-owned developments, a complementary search was conducted in digital media to identify actual cases of SH affected by flooding, flash floods, and inundation. The focus on hydrological events is justified by the recurrence of such phenomena in the Brazilian urban context and by the concentration of developments in environmentally fragile areas, such as floodplains, riverbanks, and areas subject to overflowing urban canals and streams. By privileging this focus, the study highlights how location decisions contribute to the production and reproduction of risk in territories marked by inequality and exclusion, emphasizing that, although geological risks—such as landslides—receive greater institutional attention due to their immediate lethality, the daily impacts of hydrological events remain underestimated. The flowchart in Figure 1 summarizes the methodological strategy.

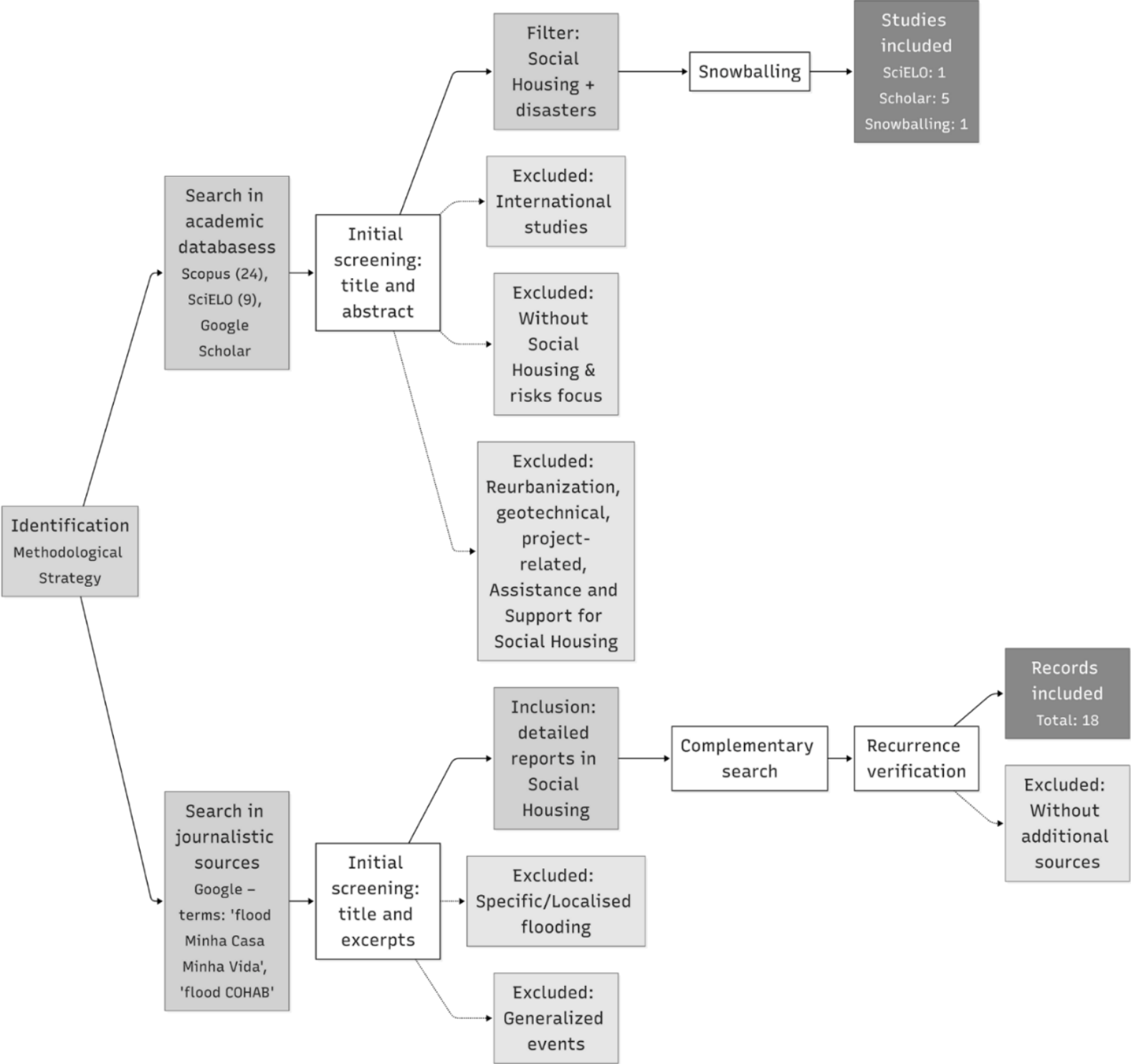


Fig. 1: Flowchart of the procedures for searching, screening, and filtering the analyzed material, including the final selection of investigated cases. Source: Authors (2025).

2.1 Search in academic databases

The search was conducted between December 2024 and January 2025 in the Scopus and SciELO databases. The search string was developed from recurring terms in the paper abstracts, aiming to identify studies that simultaneously addressed SH and disaster risk. Boolean operators (AND, OR) were used to broaden the scope and precision of the search, along with terminological variations and synonyms. The search included expressions related to housing policies and programs, social interest developments, and affordable housing, as well as terms associated with environmental vulnerability, exposure to disaster

risk, and events such as flash floods, inundation of floodplains, and pluvial flooding. For the Scopus database, the terms were translated into English, maintaining the focus on national studies. Google Scholar was used as a complementary source, using the same keywords and covering the period from 1979 to 2025. The time frame is justified by the enactment of the Federal Law No. 6,766/1979 (Brasil, 1979), a fundamental regulatory milestone that established guidelines for urban land subdivision in Brazil, directly influencing housing production and the organization of urban settlements. The search in the Google Scholar database returned a large number of publications (more than 12,000 results).

After reading the titles, abstracts, and context of the use of keywords—especially in searches conducted on Google Scholar—studies were excluded from the sample that: (i) did not explicitly address SHI; (ii) dealt exclusively with land regularization, urbanization of precarious settlements, or removal and resettlement processes; (iii) did not consider the territorial insertion of SHI in risk areas or their relationship with disasters; (iv) had a strictly geotechnical focus; (v) were produced in international contexts, without dialogue with the Brazilian reality; (vi) addressed project proposals or public competitions; (vii) focused exclusively on Technical Assistance for Social Housing (TASH) actions aimed at self-construction in informal occupations or settlements; and (viii) were limited to the analysis of specific housing reforms or isolated housing improvements, without considering urban insertion or associated environmental risks.

In general, most of the works identified addressed socio-environmental issues in areas of informal occupation, highlighting the tension between housing demand and environmental preservation. As a result, only seven publications were considered relevant, with the high exclusion rate justified by the low adherence of the results obtained in the search. The snowballing technique, based on the analysis of the bibliographic references of the previously selected studies, allowed the identification of relevant studies not captured by the initial strategies. The papers were submitted for validation by all members of the research team to ensure rigor and consistency in the inclusion of studies.

2.2 Search in journalistic sources

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To explore socio-spatial dynamics and vulnerability processes that are less covered in the mainstream literature, journalistic sources were consulted. The searches were conducted in January 2025 using Google, employing two main strategies: (i) a broad search using the terms “Minha Casa Minha Vida enchente (*flood*)”—resulting in eight occurrences, of which only two met the selection criteria; (ii) broad search using the terms “enchente COHAB”, aiming to identify cases of SHI promoted by State and Municipal Housing Companies affected by flooding. The focus on housing developments carried out by COHABs and PMCMV is justified by their central role in public social housing policies in Brazil over recent decades, representing different moments of state action in the provision of affordable housing. While COHABs were mainly active between the 1960s and 1990s, playing a leading role in the execution of large peripheral SHI, the PMCMV, launched in 2007, marks the resumption of large-scale investments, with strong private-sector participation and an emphasis on standardized housing production. Both models reveal patterns of urbanization that are relevant to the investigation and provide a structural diagnosis at the national level.

The term *enchente* (often translated as flash flood or a generalized flood event in Brazilian Portuguese) was prioritized in searches, although *inundação* (inundation of floodplains, the technically more appropriate term in the Brazilian context) is technically more appropriate, because *enchente* is widely used in everyday vocabulary, in the media, and in institutional documents (Brasil, 1998), which increases the scope of data retrieval. Cases of pluvial flooding (or *alagamentos*), defined as the accumulation of water due to failures in urban drainage (Brasil, 1998), were only considered when they specifically indicated structural weaknesses or high vulnerability within the Social Housing developments. The news reports were selected based on the titles and excerpts highlighted in the searches. The criteria adopted include the presence of information on the impacts of flooding on SHI; the existence of complementary records (additional reports, technical documents, institutional databases); and the recurrence or indication of the risk's permanence. Reports with superficial accounts were supplemented with new searches for the terms “enchente” (*flood*) and “risco” (*risk*) associated with the housing complex's name to deepen the context. Videos from social networks were used solely to identify the complexes and were not considered primary sources. The complementary searches were conducted in parallel with manuscript writing and continued until August 2025.

The following were excluded: (i) reports on expropriations and/or new developments; (ii) cases of isolated pluvial flooding events (i.e., ponding due to localized drainage failure) of low severity; (iii) news about assistance actions for SHI residents who did not directly experience the risk; (iv) cases of widespread extreme events that did not reveal a specific vulnerability of SHI. The validation of journalistic sources considered the credibility and traceability of the information, prioritizing consolidated national, regional, or local media outlets, as well as institutional portals linked to city halls and official agencies. The reports were verified for publication date, internal consistency of information, and correspondence between the reported event and the territorial context of the housing development mentioned. Whenever possible, multiple sources on the same case were cross-referenced to reduce biases arising from isolated records or misleading narratives. Even so, the recurrence of events was not adopted as an exclusive selection criterion, since, in the context of the climate emergency, risk situations tend to intensify.

Some records were retained despite information gaps, as the authors reached consensus on their qualitative contribution to the debate. This decision is based on the understanding that the scarcity of records does not necessarily imply the absence of the problem, but may reflect limitations in media coverage or gaps in available records, especially in peripheral areas. This strategy allowed us to quantify cases and identify less visible but equally relevant patterns regarding SHI exposure to flood risks. It is worth noting that some examples occurred in neighborhoods called COHAB, but which seem to include later spontaneous settlements. In these cases, the distinction was explicitly pointed out in the description to avoid confusion between formal developments and adjacent occupations. However, this information was retained because it highlights weaknesses in the urban integration of the complexes, since spontaneous growth in their surroundings is a predictable dynamic associated with the absence of integrated planning and a shortage of housing supply. All journalistic records consulted are available as supplementary material (Salvador, 2025).

For the synthesis, the cases identified in academic production and those recorded by the media were integrated, allowing the construction of a comprehensive overview that articulates different scales—local, regional, and national—and combines scientific and empirical perspectives. A summary chart compiled all identified situations, correlating them with the originating housing programs and the associated risk typologies. For the latter, the Brazilian Classification and Coding of Disasters was used as a reference for categorizing the risks reported in the evidence collected (Castro, 1998; Brasil, 2025). Finally, it should be noted that, both in journalistic reports and in academic works, terminological inaccuracies are common in the designation of hydrological events, particularly in the lack of precise distinction between flash-floods (*enchentes*), inundation of floodplains (*inundações*), and pluvial flooding resulting from drainage failure (*alagamentos*). The same occurs with geological risks, where the subtype landslide is sometimes used generically to describe any event related to mass movements. In light of this, it is acknowledged that small inconsistencies in the classification of disaster risks may arise from ambiguities in the sources consulted.

3 Results

3.1 Academic works

The bibliographic search revealed a significant body of work on socio-environmental vulnerabilities related to the location and designated areas for the implementation of social housing initiatives (SHI). However, studies that explicitly address coexistence with disaster risks—especially floods—remain scarce and sporadic. The analysis of the selected articles allowed for their classification into five categories: a) critical review of the MCMV housing program; b) discussions on the urban placement of housing developments; c) case studies of SHI or special zones of social interest (*Zonas Especiais de Interesse Social – ZEIS*) related to disaster risk; d) post-occupancy evaluation of SHI architectural and urban projects; e) local housing programs. The predominance of case studies in the sample analyzed highlights the recurrence of patterns in which SH is located in peripheral areas, where it is exposed to risks. This spatial configuration, far from being random, is systematic and transversal to the different regional contexts examined. Table 1 summarizes the primary data from the analyzed papers.

Authors	Category	Description	Source
Costa (2019)	Case studies	Undergraduate Thesis that presents the insertion of Special Zones of Social Interest (ZEIS) in areas of geological risk resulting from mining activities in Ouro Preto, MG.	Google Scholar
Figueiredo et al. (2021)	Urban placement	A case in Santo André, São Paulo, involving an area designated for the implementation of social housing. The authors acknowledge the area's propensity for flooding. After the study, it was identified that the project was not carried out.	Google Scholar
Schumann et al. (2021)	Urban placement	Highlights the location of <i>Minha Casa, Minha Vida</i> (MCMV) housing developments in areas of geological risk or environmentally significant areas in Porto Alegre, Rio Grande do Sul.	Google Scholar
Martins (2014)	Case studies	Analyzes the impact of the 1966 flood on the occupation of Cidade de Deus, Rio de Janeiro, focusing on the development of the housing complex and its subsequent irregular occupation.	Google Scholar
Siqueira & Malagodi (2013)	Housing program	The <i>Morar Feliz</i> program in Campos dos Goytacazes, Rio de Janeiro, resettled families displaced by flooding of the Ururaí River into filled-in Permanent Preservation Areas (APPs), thereby generating new risks and causing structural pathologies in the housing units, including wall cracking.	Google Scholar
Schäfer & Gomide (2014)	Evaluation	Post-Occupancy Evaluation of the <i>Moradias União Ferroviária</i> housing project in Curitiba, Paraná. The study assesses flood risk and the effectiveness of levees in mitigating it. Residents still report flooding episodes.	Scielo
Santo Amore et al. (2015)	Critical review	An evaluation of the MCMV program across six Brazilian states identifies instances of peripheral siting, occupation of flood-prone areas, proximity to APPs, and the placement of projects on steep slopes and hilltops. Particularly prominent cases are observed in Fortaleza (Ceará), the Metropolitan Region of Pará, and the Metropolitan Region of Rio de Janeiro.	

Table 1: Systematization of selected academic works. Source: Authors (2025).

The data show that scientific production on disaster vulnerability in SHI presents substantial regional inequality. While the Southeast accounts for the highest proportion of recorded cases (5), regions such as the South (2), Northeast (1), North (1), and Central-West (0) are underrepresented in the literature, despite having experienced relevant disaster events. Papers by Marcela Rebello Martins (2014), and by Eduardo Francisco Schäfer and Fernanda Paes de Barros Gomide (2014) examine contexts of informal urban development that have been subject to state intervention, including the production of social housing. The works of Antenora Maria da Mata Siqueira and Marco Antônio Sampaio Malagodi (2013), as well as those of Caio Santo Amore and colleagues (2015), relate housing programs to conditions unfavorable or unsuitable for urbanization.

In the volume organized by Santo Amore and colleagues (2015), three studies address the implementation of SHI of the PMCMV in environmentally sensitive areas: José Júlio Ferreira Lima and colleagues (2015) identify insertions in areas close to water sources in the southern part of Ananindeua (Metropolitan Region of Pará, northern region of the country), while Renato Pequeno and Sara Vieira Rosa (2015) analyze situations in the city of Fortaleza (northeastern region) in which SH interfere with water flow, interrupting streams and natural drainage lines. In the Metropolitan Region (*Região Metropolitana* – RM) of Rio de Janeiro (southeastern region), technical staff from Caixa Econômica Federal acknowledge that many developments in Income Bracket 1 of the PMCMV were built in areas at risk of flooding (Cardoso et al., 2015). More recent studies problematize the designation of areas vulnerable to geological and hydrological risks for the implementation of SH developments, revealing a growing trend in the literature to identify the State's role in producing risk conditions within SH (Costa, 2019; Figueiredo et al., 2021; Schumann et al., 2021).

3.2 Reported cases

The selection process for reported cases resulted in seventeen cities and eighteen cases that met the established criteria, of which only two were within the scope of the PMCMV. The search revealed that a significant portion of news reports on PMCMV developments addressed disasters linked to poor construction quality in the social housing units. This indicates that, when

analyzing disasters resulting from the urban insertion of SH, SH produced by COHAB is more vulnerable than PMCMV. The reports show the recurrence of events across different regions of Brazil, spanning the period from 2000 to 2025. In addition, the cases are distributed across all regions of Brazil: North (2), Northeast (5), Central-West (3), Southeast (2), and South (6). The data in Tables 2 and 3 suggest structural problems, deficiencies in urban drainage systems, and disasters arising from the SH's location.

Region	State	City	Description
North	Acre	Cruzeiro do Sul	Flooding of the Juruá River associated with the annual flood cycle of large Amazonian rivers affected 12 neighborhoods, including COHAB, in 2024. In 2025, the river impacted 25 communities, with no confirmed evidence that the COHAB area was affected. This case illustrates the occupation of areas that are vulnerable to fluvial dynamics.
	Pará	Belém	The COHAB neighborhood in Icoaraci faces pluvial flooding and ponding resulting from deficiencies in the urban drainage system. This recurring problem for more than two decades (2003–2025) highlights persistent shortcomings in maintenance and public investment. Reports indicate relatively lower severity, such that the situation does not constitute a large-scale housing disaster.
Northeast	Ceará	Itapipoca	Three flood events were recorded on the same street—Pedro Moreira Braga Street, in the COHAB neighborhood—within a single year, with water levels reaching up to 1 m inside dwellings. This pattern suggests the occurrence of rapid surface runoff and flash flooding, driven by intense rainfall and inadequate stormwater conveyance. The situation is further exacerbated by proximity to urban streams, which frequently overflow.
	Pernambuco	Recife	In 2022, COHAB was among the neighborhoods affected by flooding and ponding. In 2024, the Lagoa Encantada area within COHAB was impacted, and of the 50 recorded fatalities, 25 occurred in the neighborhood due to slope failures and flooding. Although designated as a single neighborhood, the area encompasses an extensive territory that appears to include informal settlements. Low elevation and intense urbanization contribute to the city's long-standing vulnerability.
	Pernambuco	Palmares	COHAB I was developed in a low-lying area near the Una River. In 2012, flooding was identified as exacerbating public health problems, notably increased dengue incidence. In 2017, an extreme event affected the entire state—from the Zona da Mata to the Agreste—again impacting the residents.
	Pernambuco	Jaboatão dos Guararapes	The removal of residents from the former COHAB Muribeca, due to collapse risk in an area with a history of localized flooding, resulted in displacement toward more vulnerable areas. The 2022 event caused 24 fatalities citywide, seven of which occurred in the Muribeca neighborhood. New housing developments, such as Nova Muribeca and Marcos Freire (possibly linked to the <i>Minha Casa, Minha Vida</i> , MCMV, program), also experienced flooding in 2024. From 2020 onward, landfilling in Permanent Preservation Areas (APPs) and the diversion of a water channel by private companies intensified flooding in a neighborhood that had already been affected six times since 2004.
	Maranhão	São Luís	Seasonal flooding has occurred for more than 14 years in the COHAB neighborhood, aggravated by infrastructure inadequate for the rainy season. In 2016, the disaster event was accompanied by strong winds and thunderstorms, causing damage to homes.

Table 2: Systematization of selected reported cases for the North and Northeast regions. Source: Authors (2025).

Region	State	City	Description
Central-West	Mato Grosso	Cáceres	The COHAB Velha neighborhood has experienced recurrent river flooding for more than 20 years and exhibits a high level of flood susceptibility. Financed by the National Housing Bank (BNH) in 1971, it has documented flood events since 2007. Engineering works on the Sangradouro Stream—intended to improve the environmental conditions of Cáceres Bay—are identified as an aggravating factor, as the drainage gallery system is unable to accommodate river discharge during flood events.
	Mato Grosso	Cuiabá	The COHAB São Gonçalo neighborhood has experienced recurrent river flooding and inadequate sanitation for decades. Overflow of the Machado Stream affects roadways and primarily impacts informal dwellings located in close proximity to the river, while open sewage (documented since at least 2019) continues to cause public health problems. Despite interventions implemented in 2014 and 2022 that mitigated impacts, flood risk persists.
	Mato Grosso do Sul	Porto Murtinho	In 2017, the COHAB area experienced a major flood, with water entering homes and reaching levels close to window height. The impacts were exacerbated by a channel unable to accommodate stormwater discharge. In addition, the area’s flat topography, low conveyance capacity, and minimal slope—the lowest within the urban perimeter—contribute to flood severity. The area was affected by three flood events (2017, 2018, and 2021), with the first being the most severe. Families living in informal settlements were the most affected; however, in 2024 they were provided with new housing units.
Southeast	Rio de Janeiro	Duque de Caxias	The Santa Helena and Santa Lúcia housing complexes (MCMV), built in Parque Paulista to rehouse victims of the 2012 floods, were flooded in 2013 when the Saracuruna and Capivari rivers overflowed, affecting 389 housing units. Caixa Econômica Federal stated that the developments were not located in risk areas; however, residents dispute this claim, arguing that the complexes were built in low-lying areas prone to recurring flooding.
	Rio de Janeiro	Maricá	The Carlos Marighella Housing Complex is affected by flooding originating in the Vigário River basin. Built around 2015 in the Itaipuaçu district under the MCMV program, it experienced a severe flood event in 2016, followed by additional flood episodes in 2018 and 2023. The surrounding area exhibits high susceptibility to recurring flooding.
South	Santa Catarina	Rio do Sul	The COHAB Bela Aliança is located within an environmental preservation area and a zone of high river-flood-risk. In 2023, floodwaters exceeded roof level in several dwellings. Over nearly 50 years, more than 45 flood events have been recorded. Residents have adapted their homes and report fatigue resulting from prolonged exposure to risk.
	Santa Catarina	Joinville 2 cases	The COHAB Aventureiro neighborhood presents a history of pluvial flooding and ponding associated with structurally deficient drainage infrastructure, despite reports in 2021 indicating an absence of recent events. In the same city, the Monsenhor Scarzello Housing Complex, located in the Petrópolis neighborhood, is situated in a high river-flood-risk area, with documented occurrences since 1992. Official documents, flood-susceptibility maps, and judicial rulings confirm its location within a critical sector of the Cachoeira River Basin.
	Rio Grande do Sul	São Leopoldo	The COHAB Feitoria neighborhood experiences recurrent pluvial flooding and ponding; in 2024, a new episode was recorded along Albino Timm Avenue. Accounts from residents on Feitoria Avenue (adjacent to COHAB) indicate a pattern of flooding over the past four years, leading to improvised measures such as the construction of small flood barriers. Official inspections confirm the persistence of critical points, and the problem remains despite localized mitigation works.
	Rio Grande do Sul	Sapucaia do Sul	The COHAB neighborhood comprises COHAB Blocos (multi-family housing) and COHAB Casas (houses) and is located in close proximity to the José Joaquim stream. The area has documented records of flooding in at least three distinct years (2011, 2017, and 2024). In 2017, ground-floor apartments and commercial establishments were directly affected, with floodwaters entering the buildings. In 2025, the dredging of the stream was carried out in the area.
	Rio Grande do Sul	Camaquã	A severe flooding event occurred in 2024, with recurrent episodes documented since at least 2021, particularly affecting public roadways within the COHAB area. Streets such as Breno Veiga Vielitz Street are identified as critical points in reports from 2021 and 2022. The Camaquã River, which crosses the city, has a history of major flood events, the most severe recorded in 1996.

Table 3: Systematization of selected reported cases for the Southeast and South regions. Source: Authors (2025).

3.3 Summary of academic works and reported cases

Figure 2 presents a summary of the cases identified, organized by source (academic or journalistic), the housing programs involved, and the disaster risks reported. These risks range from geological processes (such as landslides) to hydrological and meteorological events, as well as biological risks (such as dengue epidemics) and technological risks (such as cracks in

buildings). Additionally, the regional distribution of cases shows the highest concentration in the South (8 cases), followed by the Southeast (7), Northeast (6), Central-West (3), and North (3). Among the twenty-seven cases identified, nine (33%) originated from academic works. In contrast, eighteen (67%) were obtained from news and journalistic reports, highlighting the relevance of journalistic sources in documenting events that are often absent or underexplored in the literature. The predominance of journalistic records indicates the need to expand and decentralize academic research to include less-considered regions. The recurrence of events and the wide territorial coverage—from Cruzeiro do Sul (Acre, northern region of the country) to São Leopoldo (Rio Grande do Sul, southern region of the country)—reveal that disasters associated with SH are not isolated, but structural. The pattern of negligence in land selection, combined with the failure to update guidelines in the face of intensifying climate change, represents a persistent failure by the State to guarantee decent and safe housing. Thus, the criteria for selecting areas for SH development remain opaque or are loosened in response to real estate interests.

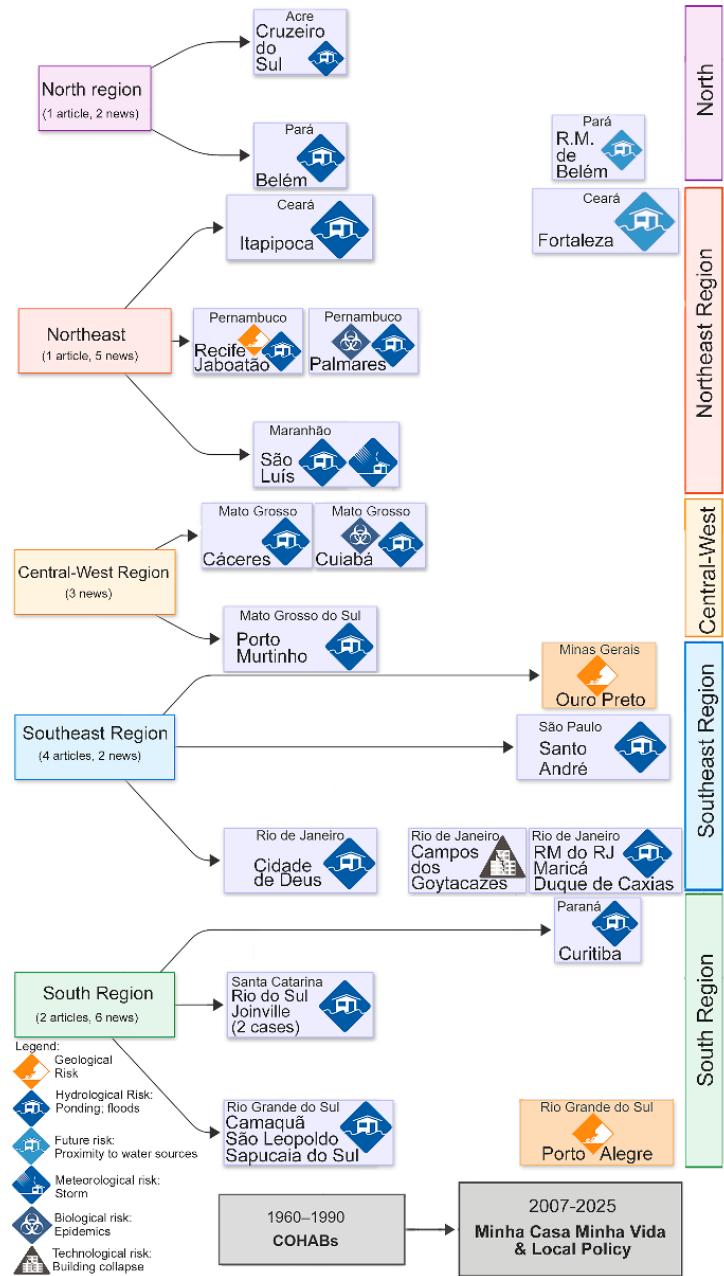


Fig. 2: Summary chart: Regional distribution of cases by source, housing program, and registered risk. Source: Authors (2025).

Figure 2 shows the implementation of SHI in territories with previously known environmental vulnerabilities, highlighting the reproduction of historical patterns of socio-spatial exclusion. Such developments are often located in disaster-prone areas, with records in different regions of the country (Fig. 2). There are also developments located in areas of geological risk, such as in

the Northeast (Recife), Southeast (Ouro Preto), and South (Porto Alegre), and cases involving the occupation of Permanent Preservation Areas (APPs), such as Rio do Sul (South) and Campos dos Goytacazes (Southeast). The latter was targeted by the *Morar Feliz* program, which, according to Antenora Maria da Mata Siqueira and Marco Antônio Sampaio Malagodi (2013), resettled families removed from flood-risk areas into previously filled APPs. The authors note that the choice of these areas sought to reduce land costs and favor infrastructure projects, such as duplicating a highway and enhancing the city's entrance. The emergence of new vulnerabilities—such as structural cracking—reveals a transfer of risk rather than its elimination. The authors highlight the political use of risk mapping to legitimize urban interventions that favor economic interests and shift the burden of socio-environmental impacts onto the most vulnerable social strata.

In the North and Northeast, the situation is aggravated by more intense extreme events and a historical lack of infrastructure. Cases such as that of Jaboatão dos Guararapes (Pernambuco, in northeastern Brazil) show that SH are not only implemented in areas susceptible to flooding, but, once affected, become the target of removal and replacement policies that often relocate populations to new risk areas—an emblematic example of “assisted removal” without the guarantee of effectively better housing conditions (Queiroz, 2024). In Fortaleza (Ceará, in northeastern Brazil), Renato Pequeno and Sara Vieira Rosa (2015) identify that the implementation of SH developments interfered with watercourses and natural drainage lines, and occurred in close proximity to lagoons, highlighting the installation of housing complexes in areas with preexisting environmental vulnerabilities. Similar patterns are observed in the Belém metropolitan region (Pará, in northern Brazil) and in Ouro Preto (Mato Grosso, in southeastern Brazil), where insufficient social rental assistance led families to occupy APPs or remain in areas of geological risk (Lima et al., 2015; Costa, 2019).

Developments in previously vulnerable areas create new risks as the occupation process intensifies. In this context, the spatial configuration of SH developments exacerbates the problem, since many neighborhoods designated as COHAB encompass large areas with informal settlements that emerged near the formal SH complexes. Therefore, projects often disregard the pre-existing dynamics of the territory and the limitations of the physical environment in the face of future urban expansion, favoring disorderly occupation of the surrounding area and increasing socio-environmental risks.

In the North and Central-West, the cases observed are linked to negligence regarding the region's natural dynamics, such as flooding of Amazonian rivers and overloading of urban drainage systems. In Cruzeiro do Sul (Acre, in northern Brazil), prior knowledge of river seasonality did not prevent the implementation of SH in vulnerable areas. In Cáceres (Mato Grosso, in the central-west of Brazil), COHAB Velha has suffered from events for over 20 years and is among the twenty five neighborhoods in the city with high susceptibility to flooding (Santos et al., 2017). In Cuiabá (Mato Grosso) and Porto Murtinho (Mato Grosso do Sul, in the central-west of Brazil), proximity to bodies of water and poor infrastructure aggravate the impacts of rainfall, with inadequate response from public authorities. Even so, it is worth questioning whether the low recurrence of records in these regions is due to climatic particularities, the effectiveness of preventive actions, or simply limited media coverage and academic production on the subject.

In Palmares (Pernambuco) and Cuiabá (Mato Grosso), recurring floods and poor sanitation infrastructure increase biological risks, as evidenced by studies on the incidence of dengue fever in Palmares (Silva & Nóbrega, 2012). The state of Pernambuco, in northern Brazil, also recorded two municipalities with fatalities in SH areas linked to COHAB neighborhoods. In Jaboatão dos Guararapes (Pernambuco), records indicate that other housing complexes, possibly including SH, were affected by flash floods, suggesting a broader territorial scope of vulnerability. This data reinforces the multi-risk dimension of inadequate SH implementation: hazards often interact, cascade, or occur together, intensifying their impacts.

In the Southeast, experiences such as those in Santo André (São Paulo), Ouro Preto (Mato Grosso), Campos dos Goytacazes (Rio de Janeiro), and Maricá (Rio de Janeiro) reveal that the environmental vulnerability of these areas was widely known and, in some cases, documented even before the implementation of the projects—including situations of ZEIS. This practice highlights an institutional logic that not only tolerates but also sometimes legitimizes and institutionalizes the exposure of low-income populations to predictable threats. Rio de Janeiro presents an emblematic example of this dynamic. Created in 1965 to resettle residents displaced by flash floods in the 1960s, the Cidade de Deus (Rio de Janeiro) complex constitutes a historical case of the persistence and reproduction of socio-environmental vulnerabilities. In just a few years, the complex itself became a risk

territory, marked by recurrent flooding and insufficient urban infrastructure, revealing that the housing policy did not eliminate precariousness, but only transferred it to another space (Martins, 2014).

In Santo André (São Paulo), Ana Carolina Carvalho Figueiredo and colleagues (2021) analyze a housing project that was planned for an area with a history of recurrent flooding. Although not executed, the simple targeting of a housing project to an area known to be susceptible to flooding shows that weaknesses in housing policy continue today. This pattern is also observed in Ouro Preto (Mato Grosso), where ZEIS overlaps with areas of geological risk. The allocation of such zones to the production of SH or Popular Market Housing (*Habitação de Mercado Popular* – HMP) reveals the reproductive nature of vulnerability through legal instruments and housing policies that ultimately legitimize permanence in risk territories (Costa, 2019). Such evidence highlights the continued practice of implementing SH in environmentally fragile areas, even in the face of recurring disasters experienced in the country throughout the 21st century.

In the South, this rationale is repeated even with different geographical characteristics. In Joinville (Santa Catarina), Rio do Sul (Santa Catarina), and Camaquã (Rio Grande do Sul), the well-known vulnerability did not prevent the implementation of SH developments. In Curitiba (PR), the SH in the Audi-União sector was implemented in a high-risk flood zone along the Iguaçu River. The urbanization and resettlement of seven irregular villages since 2000, despite extensive flood control works, failed to eliminate underlying drainage issues and recurrent pluvial flooding problems (Schäfer & Gomide, 2014). These factors cast doubt on the appropriateness of the development's location, particularly in the context of climate change. In Santa Catarina, the recurrence of events in complexes such as COHAB Bela Aliança, in Rio do Sul, and Monsenhor Scarzello Housing Complex, in Joinville, shows that, even in places that have been occupied for decades, the risks persist or intensify following recent extreme events. In COHAB Bela Aliança (Figure 3), studies reveal the adaptation of houses to coexist with disasters (Salvador et al., 2024a; Salvador et al., 2024b). A similar situation occurs in Jaboatão dos Guararapes (Pernambuco), where new houses built by former forcibly evicted residents from the Muribeca COHAB are designed as protective measures, featuring elevated structures and reinforced slabs (Queiroz, 2024). Palliative solutions are also observed in the COHAB Feitoria, in São Leopoldo (RS), such as the construction of small retaining walls to hold back floodwaters.

The cases analyzed reveal a systematic recurrence in the selection of areas unsuitable for SHI implementation. Even in contexts where, to date, events have predominantly affected public roads, the history of recurrence and the location of the projects highlight the potential for worsening conditions—as illustrated by the examples of Itapipoca (Ceará) and Camaquã (Rio Grande do Sul). The intensification of extreme events associated with climate change increases the likelihood that future episodes will significantly amplify socio-environmental damage, directly affecting SH residents. Although designed to mitigate risks, the housing policies analyzed demonstrate that, in practice, they reproduce and redistribute vulnerabilities. As Siqueira and Malagodi (2013) argue, these developments do not eliminate the risk; instead, they transfer it to new forms and locations, meaning that the solution to an emergency issue ultimately creates the conditions for the risk to be perpetuated at an amplified scale.



Fig. 3: Flooding in the COHAB Bela Aliança housing complex, Rio do Sul (SC). Source: Ciro Salla (2022). <https://www.facebook.com/watch/?v=1176644339755711>

4 Discussion

The research sought to analyze how state housing production is associated with exposure to flood risk, and to identify how housing policies consider (or neglect) environmental risks when choosing the location of developments. The research mapped academic production on disasters and housing policies, identifying gaps in the debate. The lack of academic studies on the topic prompted a search for journalistic reports to identify concrete cases of flooding in Social Housing Initiatives (SHI), including developments produced by COHABs and PMCMV.

The analysis revealed records of hydrological events—including river flooding, flash-flooding, floodplain inundation, and pluvial flooding—along with landslides and other geological risks, affecting social housing areas over almost six decades (1966–2025). This highlights the trivialization of risk and the persistence of flaws in urban planning. A higher incidence of disasters was observed in SHI produced by the COHABs, possibly associated with implementation processes conducted when environmental guidelines were still incipient, with a lack of systematized technical studies and weak mapping of areas susceptible to flooding. Such practices led to the construction of housing in inappropriate areas, contrary to legal provisions such as Article 3 of Federal Law No. 6,766/1979 (Brasil, 1979), which prohibits subdividing land in areas subject to flooding without adequate preventive measures. However, exceptions justified by the need to make SH developments viable often result in the implementation of SH in vulnerable areas, which creates a contradiction in State action between guaranteeing the constitutional right to housing and preventing disaster risks.

The recurrent institutional and media characterization of events as “atypical” contributes directly to the naturalization of risk, shifting the focus away from structural vulnerabilities and territorial inequality processes. This narrative hinders the construction of a consistent debate and the adoption of effective long-term planning, especially given the undeniable intensification of climate change and climatic emergencies currently underway. As a result, reactive logic prevails, in which emergency actions—such as disaster relief services (e.g., post-flood cleanup)—are prioritized over structural interventions. Cases of prolonged permanence in risk areas—such as Cáceres (Mato Grosso, in the central-west of Brazil), exposed for more than two decades, and COHAB

Bela Aliança (Santa Catarina, in southern Brazil), which has been dealing with disasters for almost half a century—reveal state negligence and acceptance of the problem.

The reproduction of denialist statements and perspectives keeps floods framed as isolated and unpredictable phenomena, thereby favoring negligence of continuous preventive measures. This palliative approach prevents the structural causes from being adequately addressed, keeping them invisible in academic debate and the media, and thereby favoring the recurrence of disasters. Tacit acceptance of the recurrence of these events can lead both the population and institutions to minimize perceptions of the severity and urgency of effective solutions, reinforcing disbelief in public management's ability to solve the problem (Vargas, 2006). Therefore, the naturalization of risk not only limits preventive action but also consolidates insufficient responses, perpetuating vulnerability and aggravating its impacts. The persistence of the problem for more than half a century reinforces the urgency of adaptive policies and a review of land-use models, especially in the current context of a climate emergency.

This situation dialogues with Acseirad's (2002) critique of the disproportionate impact of environmental degradation on socially excluded groups, linking the concept of environmental racism to the production of popular housing in the country. The lack of coordination between housing, urban, environmental, and development policies (Santo Amore, 2015) deepens socio-spatial injustice, perpetuating the permanence of vulnerable groups in territories unsuitable for housing. Given this scenario, a profound review of the locational criteria that guide public housing production is imperative. This includes the systematic implementation of prior susceptibility analyses—at the scale of the area designated for the SH—considering different types of processes, such as floods, erosion, landslides, settlement/differential subsidence (*recalques*), collapses, extreme temperature variations, intense winds, and coastal erosion, all associated with the ongoing transformations in the climate dynamic. At the same time, strengthening regulatory frameworks and committing to integrated territorial governance could help address the structural inequalities that shape the production of urban space. Without such changes, SHI will paradoxically continue to be both promises of citizenship and mechanisms for producing precariousness and reproducing inequalities.

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5 Final considerations

The study confirms the existence of a structural pattern in Brazilian housing policy: the implementation of housing projects in areas prone to disasters. We conclude that Brazilian housing policy, far from acting exclusively as an instrument of social justice and the combating of inequalities, has, in many cases, functioned as a vector for the redistribution of risks, revealing divergent interests that result in conflicts and deepen conditions of vulnerability and exclusion. By prioritizing economic feasibility criteria in land selection, housing programs shift the social and environmental costs of housing onto low-income households. At the local level, the findings reinforce that the flaw begins with the location decision, in which land availability overrides previously known environmental risk (e.g., Maricá, Joinville, and Rio do Sul). On a regional and metropolitan scale, the prevailing market logic in land acquisition, characterized by the search for low-cost land, invariably directs SH developments to environmentally fragile and peripheral areas (e.g., Fortaleza, in northeastern Brazil; Rio de Janeiro Metropolitan Region (RM), in southeastern Brazil; and Belém, in northern Brazil). On a national scale, the extension of cases from Acre, in northern Brazil, to Rio Grande do Sul, in southern Brazil, demonstrates a structural pattern that cuts across Brazilian housing policy, regardless of region or program, evidencing an institutionalized redistribution of risk. Therefore, the current social housing production model perpetuates risk by lacking effective mechanisms for correction or critical review. The cases analyzed exemplify the concept of state production of risk, which highlights the active role of public authorities in exposing vulnerable populations to socio-environmental threats—either through omission or through actions that create or intensify such risks.

In these contexts, the state not only relocates vulnerable groups to precarious areas but also institutionalizes their permanence through formal policies, legitimizing inadequate occupations under the discourse of housing inclusion. In many cases, state interventions generate new risks, such as poorly compacted landfills that cause cracks (e.g., Campos dos Goytacazes, Rio de Janeiro), the absence of efficient drainage systems that cause pluvial flooding (e.g., Belém; Curitiba, in southern Brazil; Joinville, in southern Brazil), or insufficient social rental policies that keep families in risk zones (e.g., Ouro Preto, in southeastern Brazil; Belém Metropolitan Region, in northern Brazil).

This situation reflects a historical pattern of institutional negligence, in which risk is produced, distributed, and maintained by the state apparatus itself, highlighting the limits of a housing policy dissociated from urban and environmental planning. Vague criteria in the definition of risk areas favor opportunistic practices, leading to the disregard of environmental parameters and the creation of new vulnerabilities, in violation of constitutional principles. Furthermore, hazards tend to be interconnected, triggering cascading effects that amplify their impacts, which reinforces the need for a multi-risk understanding. Thus, the recurrence and normalization of these disasters necessitate reformulating the location criteria and infrastructure requirements in SHI, which, although designed to ensure the right to housing, often perpetuate—or deepen—historical vulnerabilities.

Despite the temporal and geographical diversity of the cases identified, the methodological choice to prioritize journalistic sources related to projects produced by COHABs and PMCMV, justified by the centrality of these programs in social housing policies, imposes a recognized limitation on the sample. Projects developed by state and municipal programs with their own nomenclatures may have been excluded from the search. Therefore, future research should develop strategies to expand the scope and cover additional state and municipal housing programs to offer a more complete overview of state risk production in Brazil. Furthermore, we acknowledge that reliance on journalistic records imposes inherent limitations—such as unequal regional coverage, the lack of detailed technical data, and a tendency to report on events with greater impact or visibility. Thus, even though the survey conducted is comprehensive, the sample should be understood as an approximation of situations in which SHI were affected by hydrological disasters, serving as a starting point for more in-depth future analyses.

The gaps in academic production reinforce the importance of new investigations, primarily through more complete and reliable information. Future studies may include the implementation period of the projects, their alignment with the current legal framework for opening land subdivisions, and their compliance with environmental and disaster-prevention regulations. In addition, new research may adopt interdisciplinary approaches, integrating climatology, urban geography, and public management to examine environmental, territorial, and institutional variables. In the field of architecture and urban planning, additional studies may focus on developing plans and projects—such as Neighborhood Plans (*Planos de Bairro*)—that can support mitigation and adaptation strategies, aiming to reduce environmental (and other) impacts in older SH that are structurally more vulnerable to climate emergencies.

This study contributes to the field of social housing and socio-environmental justice by demonstrating how Brazilian housing policy, when prioritizing economic criteria over environmental and urban safety, reproduces and institutionalizes risks in vulnerable territories. By combining a survey of reported cases with a literature review, the research identifies structural patterns in the insertion of SHI in disaster-prone areas, demonstrating that such developments, rather than reducing inequalities, frequently perpetuate them. Based on an unprecedented overview of the recurrence and persistence of these risks over decades, gaps in locational criteria and integrated urban planning policies are highlighted. Thus, the study directly contributes to reflection and action by illuminating the conflicts inherent in the conception and execution of housing programs in Brazil, thereby problematizing the ambiguities and contradictions of state action. With this, space is opened for future research to delve deeper into situations of socio-environmental conflict and develop concrete propositions aimed at building a more just, integrated, and effective housing policy.

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