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MULTI-RISK AT THE URBAN PERIPHERY: DIVERGENCES AND NEW INTERSECTIONS IN POLICIES ON HOUSING AND DISASTER

MULTIRRISCO NA PERIFERIA URBANA: DIVERGÊNCIAS E NOVAS INTERSECÇÕES NAS POLÍTICAS DE HABITAÇÃO E DE DESASTRES

Robert Coates[1]

Abstract

This article examines the complex relationship between urbanization, disaster risk, and housing policies, particularly within the context of precarious urban environments in Brazil. It posits that urban spaces are not neutral territories; rather, they are shaped by social and political power dynamics that influence perceptions of both the urban 'other' and the natural 'other'. The analysis highlights how disasters, such as flooding and landslides, are often framed as external phenomena, rather than as consequences of socio-political decisions, especially in marginalized areas. The findings emphasize the necessity for a holistic approach that integrates ecological considerations into housing policies and acknowledges the lived experiences of residents in vulnerable locations, ultimately aiming for a more equitable urban development.

Keywords: Urbanization; Disaster Risk; Housing Policies; Social Vulnerability.

Resumo:

Este artigo trata da relação complexa entre urbanização, risco de desastres e políticas habitacionais, particularmente no contexto dos ambientes urbanos precários do Brasil. Argumenta-se que os espaços urbanos não são territórios neutros, mas são moldados por dinâmicas de poder sociais e políticas que influenciam as percepções tanto do 'outro' urbano quanto do 'outro' natural. A análise destaca como desastres, a exemplo de inundações e deslizamentos de terra, são frequentemente enquadrados como fenômenos externos, em vez de consequências de decisões sociopolíticas, especialmente em áreas marginalizadas. Os achados ressaltam a necessidade de uma abordagem holística que integre considerações ecológicas nas políticas habitacionais e reconheça as experiências vividas dos residentes em locais vulneráveis, visando, em última instância, um desenvolvimento urbano mais equitativo.

Palavras-chave: Urbanização; Risco de Desastres; Políticas Habitacionais; Vulnerabilidade.

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The concerns of urban expansion, urban governance, political power, and social vulnerability intersect to pose critical questions when we consider multi-risks and hazards, particularly in expanding urban areas in the global South. My aim in this short essay is to

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problematise the ways in which policies on housing and disaster risk are becoming increasingly connected within urban governance processes. I draw especially on the Brazilian case but the meaning goes beyond that, to extend insights on the impact of this policy intersection on socio-environmental vulnerability, with a view to the possibility of more positive outcomes.

The essay starts by considering the multi-risk theme alongside a theoretical interest in urban political ecology. I will explain what these terms mean to me and how they relate to urbanisation, 'urban nature', hazards, and at-risk areas. Then I will discuss intersections and divergences of disaster risk reduction policies with those on housing, especially in Brazil. I subsequently move on to a case study on the highland region (*região serrana*) of Rio de Janeiro state, a site of repeated disaster for more than a century, but particularly in the last 40 years, which remains emblematic for urban disaster and is in some ways a 'testing space' for policies that are duplicated across Brazil. By discussing housing and disaster in Rio de Janeiro, I will particularly refer to processes of hazard (often termed risk) mapping and the issue of social rent (*aluguel social*), which I argue have in a sense merged to become the focus of policies dealing with embedded urban disaster in Brazil.[2] I am interested, then, in the way that disaster risk reduction (DRR) influences housing policy, but also how housing policy, emerging from a different background or angle, now influences policies on disaster. These links are important to study as they arguably portray the direction of travel for policies on urban disaster in many locations for the years to come.

I should note at the outset my interest in and study of Brazil since 2007. After working as a travel journalist in Brazil, I undertook PhD research in Nova Friburgo, Teresópolis and Petrópolis between 2012 and 2014. The 2011 landslide and flood disaster in those cities is arguably the most serious disaster Brazil has experienced[3], and the period enabled me to connect closely with the reality of urban expansion, disaster risk, and vulnerabilisation, as well as policies and practices aimed at ameliorating such vulnerabilities. The large scale disaster in 2011 was preceded and followed by many other (smaller scale) landslide and flood events that cumulatively present an enormous and widespread problem with major human impacts: for example, in 2010 there were very serious landslides in Rio de

[2] I am also indebted to Tjalf van Minnen at Wageningen University for the development of this argument.

[3] By human fatalities, at least, +/- 1000 across the region. Tragedies in 1966 and 1967 around Angra dos Reis may approximate those numbers in aggregate but statistics are unreliable. The 2024 floods in Rio Grande do Sul, the mining disasters in Minas Gerais in 2015 and 2019 (as well as a number of droughts in Brazil's Northeast) were all monumental in environmental and social devastation, and though 'immediate' human fatalities were significantly less, we can't discount larger proximate human impacts/fatalities across wider spatial and temporal frames.

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Janeiro (city); in 2007 in Nova Friburgo, 1988 in Petrópolis (killing scores of people), and repeated again most recently, with fatal landslides in 2022 that killed hundreds in Petrópolis.

My qualitative research is made up of observational work and interviews, not only of residents but also experts in government policies on risk, including engineers, as well as local and regional politicians and those at broader scales that impact on local cases, such as in Brasília and at the World Bank, that often finance containment projects and other responses. I am interested in differences in the way that problems are framed; how experts describe such issues that impact most seriously in the urban periphery; how residents comprehend these issues and describe the process of their land occupation; the differences and conflicts that exist between social groups over these issues. During many guided walks in hillside *comunidades* (the "*morros*"), that may be considered *favela* or *loteamento* (subdivision), with varying degrees of formality or legal right to land, both resident and expert interviewees have shown me where landslides happen, informed me of their perspectives on *why* they happen, and where they think more might occur. Residents describe their lives and the risks they face every day – not just those designated "environmental" – but those related to everyday life such as employment, health, and transport. Such day-to-day risks frequently represent the main focus and threat, with environmental risks logically displaced to the "unlikely" category in peoples' minds and worldviews (c.f. Coates, 2019, 2021, 2022; Maricato, 2003, Santos et al., 2021; Valencio, 2014).

There is an intersection here with writings on the (urban) political ecology of vulnerability (Hardoy; Pandiella, 2009; Nygren, 2016; Oliver-Smith, 2004; Wisner et al., 2004). Certainly there is an issue with hazard; an issue with environment; but these are also fundamentally issues with urban social and spatial change and with *differential* exposure to such hazardous phenomena. These tragedies are never democratic: they affect, through both immediate and longer-term impacts, social groups in different ways, leaving those marginalised or underprivileged, those struggling to put food on the table and build a livelihood, income, and home, with vastly greater exposure (Hoffman;Oliver-Smith, 1999). In this context, where disaster is generated socio-spatially *in the first instance* rather than by rainfall or climate (as many experts would have us believe), we must think analytically about power, vulnerability, and socio-spatial change as constitutive of the *urbanising* world in which we live and that has been created via specific developmental design over 200 years of industrialisation (Hewitt, 1983; Marchezini, 2018). Neil Brenner, following Lefebvre, refers to this as 'planetary' urbanisation, a phenomenon changing *all* planetary space in service of an

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urban world, over an incredibly narrow timeframe. But in fact, it is only 60, 70, 80 years since *rapid* urbanisation really began, as numerous (nation) states, often formerly colonised areas, were led to seek economic catch-up with western Europe and North America – a developmental promise (at best) only partially delivered, and at great ecological and social cost. Considering this, what *exactly* are the risks we are now trying to reduce? Are these flood risks; earthquake risks; or are they the risks that urbanisation itself has produced and that continue to be created (Swyngedouw, 2015)? A focus on multi-risk and multi-hazard sometimes appears to miss the point. Can we not step back and ask the question: what does the process of addressing risks defined as in a nature *out there* do to the risks *in here*; those that remain unaddressed, hidden from scientific sight?

In Brazil, *urbanização* (urbanisation) is often spoken of as a process of informal areas becoming formal. I flag this just to clarify the terms: I do not mean urbanisation in that sense, even though the debate is relevant; I mean urbanisation as a process that agglomerates people, the built environment, as well as capital investment, in ongoing metropolitan expansion (Kaika 2005). This is a process where people may begin identifying as 'urban' (for good reason), but also one that changes nature, that lays itself out across nature, that mobilises nature differently than in an identifiably 'rural' existence. The field of political ecology helps us to unpack conflicts in the way societies and economies think about, imagine, or conceptualise nature, and why we respond to hazards and disasters – identified as 'natural' and therefore as somehow outside modern society – in the way that we do. The urban is frequently imagined in governance terms as separate to nature, above or beyond nature, superior to nature, and thus a collection of social and economic assets that must be secured *against* nature. In such governance terms, informality is then viewed as somehow *pre-urban*, waiting for modern interventions to lift itself 'out' of nature (Gandy, 2005; Oliver-Smith, 2004). In objective reality, outside of these most social of discourses, the urban *is* nature; just a nature mobilised or created differently; but one absolutely capable of changing nature's flows (of water, earth, sand, concrete, people, goods, resources). It is one equally capable of creating degraded nature, of an urbanisation process *itself* turned hazardous; of natural hazards created from 'within' rather than from without; inside rather than outside; a social nature. If you deforest hillsides and hilltops and actively encourage people to settle there for industrial urban expansion, geological erosion processes speed up and intensify, and are in effect then produced by social and political decisions (Coates, 2018; Nehren et al., 2013). The

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lack of services and safeguards against hazard and trauma, as well as the lack of income, experienced by the urban poor, ensure that the intensity of disaster increases.

When we consider urbanisation from this lens, it cannot be separated from the modernising dream about how the future of societies could and should look. The urban was supposed to deliver sophistication, consumption and better health, a process that simultaneously strove to leave behind nature, to step out of nature into a controlled environment in which we can dictate what rivers are supposed to do; in which our infrastructures can mitigate floods here and limit landslides there, via a heavy engineering representing the dream of urban control (Gandy, 2005). Economic models pointed to a desirable state of high production-consumption where a cheap labor force would be available to drive forward progress and growth. Now, those at the 'cheaper' end of society were blamed for their supposedly 'irrational' land occupation when suffering the unbearable consequences of (so-called) hazards of "nature". In Brazil, rural to urban migration was actively encouraged, from Vargas and through the military dictatorship, via the technological and industrial revolutions instigated in rural and urban areas. To question this process is not to idealise rural poverty or hardship, but to probe the processes and imaginations that underpinned these visions of the future and to question what their reality has really brought forth. UN Habitat (2022) refers to the urbanisation *of* poverty, to highlight that the urban dream for many if not for the majority approximated more a nightmare than a dream. We saw the creation of a large global middle class but also the creation of rampant urban inequality alongside widespread environmental degradation. Urban sprawl continues like a machine: of building, of real estate investment, of unsustainable consumption and unsustainable waste, of unsustainable biodiversity loss, of constantly inadequate or corrupted planning, of concentrated disaster vulnerability and differential political and economic power. You add to this cocktail heavy rain – an increasingly erratic climate – and disaster is the logical consequence.

Turning to the Brazilian reality, the power dimensions of urban spatial and ecological change are illustrated very clearly. In the 19th century the influence of *higenização* ("hygienisation"), especially in Rio de Janeiro, drove forward the urban dream in Brazil (Barbosa; Coates, 2021). Influential political figures from the turn of the 20th Century like Pereira Passos introduced planning and practices aimed at reaching urban modernity, to step 'out of nature', step out of rural poverty, to try to produce the modern city. This was the idea of a city that could be 'hygienic', that could be rationally understood, that could order its

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human population and its economy without the supposed disorder, disease, and 'nature' of the urban poor, most of whom had migrated to coastal urban centres after slave emancipation, to flee social conditions in the plantations. Passos' policies for the first time built a state role in violent removals (*remoçoes*) that were justified on the pretext of social order or public health. So, when Mauricio Abreu (1992) pointed to 'the dance of the favelas', he really pointed to a cyclical failure in urban policy in Brazil: residents that were removed often resettle elsewhere in further 'favelisation'. Unable to pay utility bills, finance repayments or rents in formal areas, and given work opportunities elsewhere, people would in effect create (or be encouraged to create) further 'informal' areas elsewhere. Removal by the state would follow again; a dance of more favelisation somewhere else; a process characterising *urbanisation as a whole*. In Rio de Janeiro people evicted from the South Zone over many decades – increasingly now due to purported 'environmental risk' rather than hygiene, per se – recreated informal neighborhoods in other parts of the city (Barbosa; Coates, 2021).

The principal point here is that the urban is not a neutral territory of objective forms of occupation and behaviour. Rather, the urban is produced through processes of social and political power and ideas about social and natural 'others' against which urban modernity could mirror its achievements (Swyngedouw; Kaika, 2014). The hazards generated by such powerful forms of urban expansion were now to be blamed on the rain; a discursive nature placed outside the city. The *constitutive outside* of urban governance - focused on observing, monitoring, controlling natures deemed to be outside of the city yet generated within it, and thus *constituting* it – now result in centres of 'smart' monitoring and technological control.

We note today ecological change through loss of permeability, loss of green space, through risk creation. When there is a flood or a landslide, we lean toward experts to introduce an infrastructural solution, a flood channel or a containment wall to deal with the problem, to enable urban order *as it stands* to continue unabated (Millington, 2021). This is a reaction to hazard that lasts until the next flood or landslide, and then another reaction follows. But of course, such ecological change is also political change, formed through the powerful process of urbanization, spatial segregation, densification in dangerous areas, demarcations of informality, and lack of basic facilities and services in the urban periphery. So environmental (multi-)risks are always faced in the context of other risks produced through the political ecologies of housing precarity, insecure livelihoods, unequal citizenship, and economic inequality. Eighty percent of deadly landslides are in lower income countries at the urban periphery (Froude & Petley, 2018). But the problem is this: the link between knowing

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where dangerous places are and of having better policies on housing for more equitable urban development, is not automatic. Mapping exposure to hazard does not mean the problem is solved. We must always look at the motivations and processes of mediating institutions and how people living in such spaces themselves understand their realities, plans and reactions. How do they negotiate removal? How do they negotiate the areas in which they live?

Housing policy is critical to Disaster Risk Reduction (DRR) in urbanizing environments, so much so that UNDRR (then UNISDR) considered it in the Hyogo Framework for Action in 2005, and then increased this connection in the Sendai framework after 2015. The key message was that states should commit to *both* DRR and constitutional rights to appropriate housing. People should have access to appropriate housing in order to reduce disaster risks. In effect this began a merger of two hitherto distinct policy domains, indicative of rising political, economic, and civilisational stakes due to climate change and unfettered urbanisation. Hitherto, the DRR literature had little to say on housing policy, given its conventional focus on natural hazards over social vulnerability. Conversely, in the literature on housing policy, there was little consideration of DRR, with policy considered separate to nature and climate and moreover linked to improvements in health and socio-economic development indicators. Its literature focused on sociopolitical realities rather than environmental realities. Few authors on housing policy discuss impacts on disaster vulnerability even though we know that expanding urban areas are increasing the frequency of hazards. Literature focussed on the "greening" of housing is more heavily linked to the climate mitigation field than to adaptation or risk reduction. Its leaning is toward ecological modernisation; to enable a continuation of economic development through the greening of *existing* urban areas.

When you think about housing in Brazil, especially in dangerous locations close to waterways or on steep slopes, *loteamento*[4] (housing subdivisions), and *comunidades* or *favelas* have been tolerated for many years – despite their frequent illegality according to existing land use laws – precisely because they were inevitable or necessary in the housing crisis produced by urban growth. This is a contradiction in the social imaginary of urbanisation, in which on one hand such areas remain illegal and are considered a problem, and yet on the other hand, in the desire for rapid industrialisation, you need a cheap labor force. Areas labelled as informal are not always planned, but they are most often tolerated.

[4] A property subdivided to accommodate more homes and families, which often overloads the space.

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Loteamentos and comunidades have then represented a *solution* to the state's willful inability to fulfill the right to adequate housing – even if those same governmental authorities would rarely admit it. Certainly, those at the urban periphery have acted themselves to gain rights to land, housing and services, leading to the enshrinement of Constitutional laws and statutes that protect urban informality, even if, again, these rights are not (always) acknowledged by governmental regimes or the security apparatus (Caldeira; Holston, 2005).

What we now see in Brazil, then, is an increasing use of DRR policies that aim to address housing issues, like hazard mapping (often termed risk mapping) and risk assessments of those living in hazardous situations. Conversely, we now also see housing policies that are used to address DRR. *Minha Casa Minha Vida* - aiming to impact on the national urban housing crisis - has now been used for many years to address the issue of disaster risk. Importantly *aluguel social* (social rent) now accompanies it as a housing policy mechanism not invented to deal with disaster but now used for that purpose, to address the issue of poorer people living in vulnerable locations. The policy, designed to formalise those living in *favelas* by bringing them into formal land rent markets, has for some years now been used to address the removal of those living in dangerous locations without them resettling in another dangerous location elsewhere, by offering the ability to pay rent in the formal housing market and thus enable housing rights - yet also by strengthening the existing urban rent market.

The issue here, analytically, is that both risk maps and *aluguel social* focus on the constitutive (natural) outside of the city in order to reproduce its growth. This is a logic of urbanisation as a process in which DRR policies try to act on nature but fail to recognise the socio-political realities of the spaces in which they are mobilised - the realities of people living in these places - while conversely housing policy has acted on sociopolitical realities (poverty, 'hygienisation') but failed to recognize the ecology or nature of the spaces in which they are mobilised. Instead, nature is internalised into an ecological modernisation approach, where DRR via housing policy strengthens land market opportunities.

Returning now to housing and disaster in Rio de Janeiro's *região serrana* (highland region), we can consider the state responses to repeat tragedy. Studying history books and discussing regional history with residents, we can identify how flood and landslide risk were far from new phenomena (Coates, 2018). There were 1,000 deaths in the *região serrana* in 2011 alongside around 30,000 people made homeless. About half of the casualties were in Nova Friburgo, about 500 deaths in a city of 170,000 people, a very high number of fatalities in a small city. There were an estimated R$4.8 billion in damages. But damage is of course

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not spread equally. In Teresópolis, from 3400 affected households 65% were low income (Freitas et al., 2012), while in the region as a whole, 7602 houses designated within 'popular' (broadly, lower-income) neighbourhoods were destroyed, with 5634 houses damaged, while in wealthier districts 310 houses destroyed and 987 houses damaged (Toro et al., 2011). In 2013 and 2014, there were more landslides, and in fact every year landslides occur. The most significant landslide event since that time was in February 2022, with 220 deaths in Petrópolis in 149 landslides, many close to the city center. In fact, most of those deaths were in a small number of landslides accounting for about 200 deaths. In *Morro da Oficina* district, one landslide destroyed 80 houses and killed 90 people. A previously protected area (APP), settlement on the Morro da Oficina has been tolerated or actively encouraged because it represented a housing solution to the question of rural to urban migration and labour requirements in a city keen to extend its industrialisation within an urbanising country.

Landslides are of course a geological phenomenon linked to erosion, but if we look back in history, after the coffee period, the 19th century and early 20th century, from the 1930s onwards the plateaus and flanks of hills in the Atlantic Forest were increasingly deforested for cattle pasture, leading to increased erosion, landslide and flood. This process of urbanisation points then to an *ecological* process not just in the built urban area but around it, illustrating the city's dependence on the natural flows informing it from outside its boundaries. Changing land occupation and use on steep slopes has also then contributed to the destabilisation of slopes, both by the construction of unstable housing but moreover by the lack of appropriate drainage and sanitation infrastructure, which—aside from the intersecting risk of contracting diseases leaves degraded hillside soil in a frequent state of wastewater saturation and prone to collapse under (heavy) rainfall. Despite assertions from many alleged experts, as well as city residents, that landslides are entirely natural, they fail to understand the political-ecological processes that generate them. Looking at satellite imagery from Nova Friburgo and Petrópolis alike, you can identify deforested plateaus where rainwater easily infiltrates soil and mass cover on overloaded flanks. Developers have then taken advantage of absent land governance and pressure for cheap housing and quick profits to clear hazardous land and subdivide it to sell for self-build homes (Coates; Nygren, 2020).

In Nova Friburgo and indeed in Petrópolis you not only have the subdivision of the land and then construction, but also the creation of an economy of *confecções* through the 1990s, with people working in the self-employed textile industry in their own homes. While less relevant to the 2022 disaster in Petrópolis, with the last two decades seeing a shift to

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cheaper textile labour and production in China, this significantly informed the 2011 disaster in the region as well as earlier landslide tragedies. Where home-based livelihoods are located in dangerous places, socio-environmental vulnerability is composite: the disaster informed not only by losing a home but also by losing assets and equipment, even if you can find another place to live.

Municipalities had legalized these *loteamento* developments in order to collect local government tax, to promote the local economy, and to enhance the vote base of specific political administrations. In effect, such disasters are constituted through a combination of the physical, socioeconomic and political environment in which people find themselves. This, in sum, *is* the urbanisation process, building political and economic power through a vision of space in which nature is 'there for the taking'; a resource to be appropriated and controlled as the constitutive outside.

In conversation with a Nova Friburgo developer who created scores of *loteamentos* in the city - many of which collapsed in landslides in 2011, causing hundreds of deaths – he said he had served the poor well:

> "before I developed these locations it was just hillside, there was nothing there at all… The 2011 tragedy was caused by the unprecedented rains, the natural disaster.... A city that doesn't grow becomes a cemetery. I presented the land I prepared the land; the mayor said he put my name on the local school [...]".

This illustrates strongly the constitutive outside: an attitude that revelas a discourse of "there was nothing there"; that urban growth was about providing urban opportunity for the poor, and then that a "natural disaster" caused by nature *outside* (the rain) should be the focal point for action on risk. A local resident noted:

> "It's a serious management problem when the municipality turns a blind eye when people build, but then makes sure it collects the tax. The one thing ends up influencing the other. But also, big commercial industries have built nearby, and the workers don't want to live far away....."

If there is one lesson that should have been learned from the 2011 tragedy it would be to not approve new *loteamentos* in dangerous areas. Yet this same resident took me to a previous hillside reforestation project that had in 2018 been approved for a new *loteamento*.

And then there is the question of removal, of those that live in an area demarcated on hazard maps to be in an at-risk area. These become a timeless question in urban DRR/M, because the idea that such people shouldn't live in risk areas keeps coming back, so people are removed and a new risk area is created somewhere else in the urbanisation process.

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Repeat *ad finitum*. So in 2013, when 800 homes from along the Bengalas River in Nova Friburgo were to be removed on the basis of hazard mapping, the RJ state environment agency instigated a meeting between river engineers and residents, in which the two sets of actors spoke a different language: the experts focused on river flow, projections for how it would look under X quantity of rainfall; while residents responded with:

> "uh, but when we get plenty of rain I go upstairs when the downstairs floods. I live here, my job is near here; you should speak to the mayor, he came and danced on my veranda for my vote 20 years ago, and it cost me X amount to legalise my house in the municipality back then".

Certainly, residents are often unaware of the extent of intersecting risks, even if they are aware of the histories of land occupation and the contradictions of local politicians' discourse. Water-born disease may accompany flood risk, and housing stability is often ultimately undermined. But such a lens of 'objective risk' represents a different lens to the observation that poorer neighbourhoods are consistently displaced and reproduced as the ecological basis of urban areas is more widely compromised. Frequently, two different frames of risk and hazard appear to be in operation: one of residents referring to a sociopolitical reality of life *in* the city and the other, of engineers, appealing to the reality of nature 'out there'. These perspectives do not meet so easily and point to the need for much greater participation and dialogue. Another resident told me "The house has been marked for demolition for almost two years… I told them that [it] didn't even flood in 2011. But they said that because the house nearby was damaged [...] that this is a risk area".

Turning to Petrópolis in 2022, we can see how hazard ('risk') mapping is undertaken as a disaster *response* mechanism rather than for disaster prevention. In fact, such mapping processes had been undertaken in Petrópolis in 1988 after landslides, in 2003 after landslides, in 2017 after landslides, and then again in 2022, following further landslides. The 2017 maps which were comprehensive, undertaken by a consultancy from São Paulo, and pointed to 15,000 at-risk homes, including the Morro da Oficina. This was just five years before the disaster, with nothing done as a result. Morro da Oficina was labelled a risk area, it was mapped, everybody knew exactly the risks, but five years later the hillside collapses and what is the response? Another hazard map. The February 2022 maps of at-risk housing included many damaged by landslide, but also others at the fringes of the site that had not suffered a landslide but rather lay next to where it had occurred.

The maps classify hazardous areas based on slope inclination, on soil composition, on amount of vegetation, as well as variables such as distance from a road to evacuate, and

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others. They *are* comprehensive and relatively trustworthy, designed to qualify and quantify variables in order to inform policymakers whose decisions should not conflict with the principle of the right to housing *(moradia adequada*), but in practice, as such maps are not acted on *before* landslides, they are not used as a preventative mechanism but rather within the response domain. Why? Ultimately because such *comunidades* represent an easy housing solution for a population that authorities find easy to exclude from consideration. There is little incentive to displace people or prevent new construction outside of the moment of disaster because there is little other safe space, a high public expense of removal, and the need for a significant labour force in the centre of the city. When you add the fact that removals lose votes, or shift them elsewhere, putting together these reasons disables action on the right to housing. *Minha Casa Minha Vida*[5] did not have a great presence in Petrópolis, with limited constructions far insufficient for needs, and due to topography, no further safe space was available for building.

This is ultimately indicative of urbanisation in such places. Informal neighborhood safety is largely neglected, but when tragedies *do* occur state agencies respond with the need to save lives. In the long course of time saving lives is basically ignored, the right to housing not acted upon because the city itself is *constituted* by such inaction. Then you have a disaster (allegedly) coming from *outside*, and the state responds with the need to save lives despite the lives having already been lost. Failing to deliver removal, in political terms, contradicts the right to housing which in turn means accepting *comunidades*, which in turn contradicts the idea of disaster risk reduction within the UN framework.

Social rent (*aluguel social*) is the process of providing a subsidy for people removed from areas that have already been mapped as at-risk. In Petrópolis, 3,000 families qualified for social rent by September 2022. It undoubtedly *did* help some residents that lost homes to find a safer place to live, and helped *some* whose homes were condemned. While the elderly and those with health problems were prioritised, there were significant issues with it. Interviewees point to a large fight to be approved: they needed to evidence a low income and that they were a homeowner before the disaster because the state can't authorise housing payments to those without legal ownership of property. This was exceptionally difficult or impossible for residents with homes destroyed, and often with very limited formal education. Other interviewees discussed how they were unable to find an apartment even when they qualified for social rent. The result is that if you were presented with the *possibility* of having

[5] A national housing policy, one of the main ones in Brazil.

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social rent and your house was still standing, you were evicted from your location. Given that Petrópolis has a housing crisis, this was less than optimal as people had little alternative to go anywhere else. Some people wanted to move states, to Minas Gerais, but then the state subsidy didn't apply to them outside Rio de Janeiro. Most people did not want to leave Petropolis, having lived there all their life, with connections, community, jobs, and children in school. Some homeowner landlords did not accept children or accept pets, and some of them flatly did not trust the municipality to pay, thus casting social renters at a lower class than others.

This represents a housing policy applied as a DRR measure. For one respondent, many who did not need social rent received it (based on their documentation, ownership, or connections), and those that did need it subsequently were not able to receive it. People that had decent houses were often forced out and disadvantaged. The result was that many people returned to Morro da Oficina and other affected areas in the spring of 2022, unable to join the social rent scheme or because they needed to stay close to jobs and schools. Beyond that, abandoned, condemned houses are frequently occupied by people otherwise homeless and drawn to the area as an opportunity for housing/land occupation. In affected, condemned, neighbourhoods, people live without essential services, with a low priority for restoring electricity and water, and without street lights. Such policies ultimately reproduce the urban periphery in highly hazardous places, with fewer resources and poorer conditions. The Nova Friburgo case, a few years earlier, had been similar:

> "there were more landslides in 2015, and people were evicted, but went back to live there as they couldn't afford to rent elsewhere: they were simply left to re-inhabit a landslide site with one or two houses still standing in the middle. [...] Without money there is no way out. Some were offered an apartment far away in a place that became a centre for drug dealing. Criminal factions had been put together, causing new conflict, so people returned".

To wrap up, these are sociopolitical realities that illustrate life in the urban periphery in a period of extensive urbanisation for economic development, at the same time as that very process of urban growth has created a crisis of environmental degradation on multiple fronts (soil, climate, biodiversity, hazard). A multi-hazard and multi-risk focus, then, should find a way to talk about environment and society *together*, instead of repeating what is now a tired focus on a nature "out there", a focus on flood, heat, landslide, etc. that talks only of rainfall intensity probability or river flow metrics, or physical processes on the flanks of hills or the margins of rivers. We instead need to consider histories of development and inequality that

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form the basis of the way states consider vulnerabilities, hazards, and risks, a process that needs to draw on wider perspectives beyond scientific experts, to discover how people imagine the city and frame their lives and experiences in locations that may be labelled as hazardous by others. A focus on the *constitutive inside* would understand urban society as at once environmental, such that the impacts of political/policy decisions are understood for their environmental implications and the risks of unfettered urban economic development and expansion are not immediately passed on to those least capable of coping with them.

As some literature is now convincingly asserting, most of the landslide and health risks in the urban periphery could be mitigated by the same relatively simple drainage infrastructure works, with little need to remove inhabitants (Nogueira; Souza, 2020; Nogueira; de Paiva. 2018). This demonstrates the significant point that the turn to displacement nominally due to environmental risk is precisely a *myth* that serves a political aim over a humanitarian one (Souza, 2015)—that of uneven economic development. If DRR needs to better consider the sociopolitical realities underpinning disasters and hazards, then its contradiction with housing policy ultimately also exists because the logic of urbanisation – or the dominant "urban imaginary" - still attempts to exclude nature. Housing policy has occupied urban governance considerations for decades, but its impacts on/in nature were never really considered, simply because nature represented the urban's constitutive outside. Pursuing the right to housing as a deeper form of citizenship, to have meaning 'in nature', must then somehow internalise drivers of unequal and hazardous urbanisation that enable the cycle of recurring disaster to persist. The internalisation of disaster risk (and urban natures more broadly) within housing policy—such as by authorising the extension of sanitation infrastructure over displacement—*should* result in a more effective socio-environmental awareness in political processes. But such policy solutions must be more than only asserted scientifically, to become politically *acceptable* solutions within broader frames of urban discourse, long focussed on the exclusion or manipulation of 'pre-urban' or dehumanised others. This requires public education and active efforts to change social conversations and discourse.

Understanding the physical processes of hazards and disasters is of course important as it occupies a space to influence urban governance, particularly when contextualized within histories of urban development. The multi-risk focus, understood in wider dimension, represents the key opportunity for a more inclusive risk governance to learn about and understand sociopolitical realities, moving beyond the dedication of all its capital resources to

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securing urbanisation against an ‘outside enemy’, that cannot be beaten as it is constantly reinforced from the *inside*. Taking sociopolitical realities seriously in ecological discussion tries to work through the problem of the constitutive outside, to theoretically and practically transform the way society thinks about nature and the city. As academics at the forefront of urban DRR and climate adaptation, our responsibility is to understand an integrated urban life within nature.

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