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In the arena: contesting disaster creation in cities

Wesley Webb Cheek Lecturer in Human Geography, Edge Hill University, United Kingdom, **Ksenia Chmutina** Reader in Sustainable and Resilient Urbanism, Loughborough University, United Kingdom, and **Jason von Meding** Associate Professor, Rinker School of Construction Management, and a founding faculty member of the Florida Institute for Built Environment Resilience, University of Florida, United States

Space is a feature of all disasters, and it is through decisions on how space is developed, used, and reproduced that disasters manifest themselves. Critical urban theory sees urban space—cities—as an arena of contestation expressed through the relationship between people, power, and the built environment. Cities allow for an unpacking of this process of contestation through the interpretation of various temporal, spatial, social, and physical elements that together create complex issues and 'wicked problems'. In these urban spaces in all their complexity, disasters reveal both the worst injustices and inequalities present in a society. By drawing on three well-known cases—Hurricane Katrina in 2010; the Haiti earthquake in 2010; and the Great East Japan Earthquake and Tsunami in 2011—this paper not only explores the opportunities that critical urban theory presents for gaining a deeper understanding of disaster risk creation, but also it encourages disaster scholars to engage with it.

Keywords: cities, built environment, critical urban theory, disaster, disaster risk creation, space

Introduction

Disasters occur in time and space. The dominant temporal framing is that of a sudden 'event', triggered by a hazard. But this can obscure the fact that risk builds up over long periods of time, as systems of oppression make some people more vulnerable than others (Wisner et al., 2004). Approaching disaster studies with only the goal of mitigating future natural hazards hides the inherent contradictions in social relations. If not approached from a critical viewpoint, naturalising the complex social forces at play before, during, and after a disaster can serve not only to justify the existing conditions, but also to reproduce them. Reconstruction and recovery efforts can function as a means by which to recapitulate previously existing conditions (Gotham and Cheek, 2017). At the same time, community-based and participatory approaches can function as legitimation for unequal recovery (Bhatt, 1998; Reid et al., 2009).

This paper builds on the premise that disaster risk is created in and by human society and that the built environment physically defines socially constructed risk (Oliver-Smith, 1986; Wisner et al., 2004; Alcantara-Ayala et al., 2022). Using three well-known cases—Hurricane Katrina in 2010, the Haiti earthquake in 2010, and the Great East Japan

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Earthquake and Tsunami in 2011—to demonstrate this, we show how a theoretical foundation of critical urban theory can greatly strengthen arguments as to why disasters are not natural (O'Keefe, Westgate, and Wisner, 1976; Chmutina and von Meding, 2019) and articulate within critical disaster studies how disaster risk stems from social injustice and manifests physically in the built environment. Our aim is to revisit disaster cases that are very familiar, but use an unfamiliar lens as a way to invite and encourage disaster scholars to engage with critical urban theory as literature that can complement existing efforts in disaster studies. While we are not the first to suggest or attempt this—critical urban theory has been utilised before in this field by sociologists, anthropologists, and geographers—its usage has been confined to silos and is not broadly understood in disaster studies.

We believe that this re-evaluation is necessary because built environment innovations geared towards disaster risk reduction (DRR) that are devoid of power and class critiques will fail—arguably 'by design' (Mileti, 1999)—to stop the creation of new risk through status quo development and redevelopment activities (Cheek and Chmutina, 2022). Disaster mitigation and recovery involve the cooperation of powerful international, national, and local actors. Understanding the context in which these powerful actors operate is essential to analysing past disasters and planning for future ones. The further we work to uproot these systems of power, the more we can see that past disasters are seldom actually over and future disasters have already begun. Critical urban theory helps us to disconnect disasters from being isolated temporal events in confined geographical space. In section two we revisit key disaster concepts and literature that helps us to comprehend how disasters manifest in the built environment. Section three unpacks how critical urban theory can help us to analyse disasters in a different way, and in section four we use well-researched disaster cases to show what this kind of analysis looks like. We finish by discussing the opportunities for disaster scholars to employ a similar theoretical approach to complicate and enhance our understanding of disasters.

Urban space and disasters

Distribution of hazards

As hazards have distinct geographical distributions and different areas of the world are subject to distinct hazards and various frequencies, the interplay between the natural and human-made is dynamic and constantly evolving. Owing to their geological and geographical setting, some areas of the world are more prone to earthquakes, others to seasonal flooding, whereas some regions have active volcanoes, while others experience landslides. Many human settlements are subject to complex interactions between multiple hazards.

Decades of disaster research have been devoted to understanding the distribution of hazards, mainly using highly technical methodologies (see, for example, Smith, 1991; Fookes, Lee, and Griffiths, 2007; Keller and DeVecchio, 2008; Niño, Jaimes, and Reinoso, 2014; Papale, 2015; Aitsi-Selmi, Blanchard, and Murray, 2016; Duarte and Schellart, 2016). This work has been invaluable. Mapping of flood plains, seismic mapping, river-level

forecasting, tsunami early warning systems, and other endeavours have not only saved numerous lives, but also added significantly to our understanding of the world. Through these efforts we can see that there is a great geographic dispersal of hazards, and these hazards often form our sense of place. Our most simple narratives say, for example, that: Hawaii is volcanic; Canada is subject to blizzards; and California is wracked by wildfires, while Florida is pounded by hurricanes. These ideas are true, but they can also be misleading. Hazards are often linked to place, but that link is not inviolable. What does not also extend from this fact is that everywhere that is subject to a particular hazard is similar in significant, corresponding ways, or that all sub-parts of a place are equally affected by a hazard.

The relationship between the built environment and existing hazards can be reflexive. Humans build to cope with the environment and the hazards presented, while hazards disrupt and confound what people have built. The complex interplay between the built environment and existing hazards creates new hazards that might present themselves as 'natural' but have a dynamic human component. This can be seen in the city of New Orleans, United States, which exists in a low-lying area, but has made itself even more vulnerable due to subsidence brought about by development (Adams, 2013; Gotham and Greenberg, 2014; Gotham and Cheek, 2017; Horowitz, 2020). We can also view this interaction in Tokyo, Japan, where landfill has expanded the city and made more areas subject to liquefaction in the case of a seismic event (Tsukamoto et al., 2012).

The relationship between hazards and the built environment is also evident in measures taken to reduce disaster risk. Land that is raised to mitigate damage due to future tsunamis can be vulnerable to landslides. Rivers with complex levee systems to help regulate flooding can cause more intense flooding farther downstream. So, while we can say that hazards do have distinct geographical distributions, we can also see clearly that these distributions are not static—they are also shaped by human activity. This social component is even present when the goal of construction is to prevent or mitigate further disasters.

Understanding disasters as unfolding somewhere in this complex interaction between humans and hazard is not a new idea. Geographer Gilbert White (1945) was expounding on these concepts in the 1940s. Contemporary disaster researchers such as Gotham (2007), Tierney (2014), and Horowitz (2020) have also expanded on this topic. Because of this interplay between hazards and the built environment (a physical manifestation of socially constructed risk), two points become clear: (i) there is a natural distribution of hazards across the globe that is unique to particular areas; and (ii) the hazards are not static and are influenced by the human choice to build.

Vulnerabilities as a frame to differentiate hazards from disasters

It has become an axiom among those who research disasters that there is no such thing as a 'natural disaster' (Ball, 1975; O'Keefe, Westgate, and Wisner, 1976; Hewitt, 1983; Oliver-Smith, 1986; Wisner et al., 2004; Smith, 2006; Kelman et al., 2016; Chmutina and von Meding, 2019). While a hazard might have its origins in natural phenomena, the

disaster itself is created through a hazard's interaction with humans and the places and things that humans have created. For example, we do not centre discussions of the Great East Japan Earthquake and Tsunami on its impact on the Shiretoko World Heritage Site in Hokkaido. Similarly, our understanding of the impact of Hurricane Katrina is not anchored to imagery of flooding in the John Lafitte National Historical Park and Preserve. It is not because these two sites have no value, but rather because they are uninhabited.

An integral part of understanding disasters as social phenomena is the incorporation of the vulnerability paradigm. This brings with it the idea that disasters have discriminatory effects (Cannon, 1994; Wisner et al, 2004), stemming from the issue of unequal burden of risk. While many groups across a geographical area can be subject to the same exposure to a hazard, these groups (and individuals within them) might be subjected to differing levels of vulnerability. This parallels differential vulnerabilities in the built environment. For example, picture a stretch of beachfront. There are many houses facing the sea. Some of these houses are elevated on stilts, while others are built slab on grade. All of these houses are exposed to storm surge but only some of them are vulnerable. When we begin to examine the reasons behind why some houses are built slab on grade and others are erected on stilts, we uncover the role that vulnerability plays in the disproportionate effects of a disaster. It costs more money to build a house on stilts. One's economic status can lead to similar exposure but differing vulnerability. Traditional fishing communities may have their homes on the ground, while houses built for tourists are placed on stilts; again, we can see similar exposure but differing vulnerability.

When unpacking vulnerability, societal inequalities are inevitably implicated. Disaster research is therefore an examination of the broader society, not just natural phenomena (Gaillard, 2018; Wisner, 2020; Lizarralde, 2021; Remes and Horowitz, 2021). In many ways disasters are manifestations of injustice and oppression in society. Class divisions, racial segregation, gender discrimination, homophobia, lack of access for people with disabilities, age, and many other factors can all present themselves as vulnerabilities. None of these issues can be alleviated simply by understanding what hazards are common in a particular area. But understanding how a hazard can interact with these vulnerabilities is crucial to dealing with disasters.

Exploring societal inequalities as vulnerability to hazards exposes the complex interactions between these two factors. For instance, it has been demonstrated that women experience disasters differently. Women died at a higher rate during the Indian Ocean tsunami of 2005, owing to their roles in society and their daily lives. In the immediate post-disaster landscape women often cite inadequate access to feminine hygiene products and a lack of consideration of their personal safety in temporary housing. This means that gender inequality is a vulnerability in disasters (Bradshaw and Fordham, 2013). People who live in poverty have fewer choices about where to live and less ability to construct safe houses. In addition, people who live in poverty often have less of a voice in post-disaster reconstruction and frequently find that the reconstruction process itself recapitulates their situation. This means that poverty is a vulnerability in a disaster; but vulnerability and poverty are not the same (Cannon, Twigg, and Rowell, 2003). People with disabilities have different needs for access that often are not met in construction or

incorporated in building standards. In the case of an evacuation, having a disability can be a major hindrance to one's safety—vulnerability due to a lack of access (Alexander, Gaillard, and Wisner, 2012).

The built environment defines the space in which disasters unfold

The corollary to saying that no disaster is natural is affirming that a requisite component of a disaster is the built environment. A tornado travelling across the land is a spectacle. A tornado tearing through the suburbs is a disaster. A river inundating a flood plain is an event. A river ripping through a low-lying city is a disaster. People and the places they inhabit must interact with powerful natural phenomena for a disaster to occur.

Adding the layer of the built environment to our understanding of disasters raises the complexity of our analysis but it does not have to obfuscate it. Exploring the intricacies of the formation, maintenance, and reproduction of our urban forms works to clarify and specify how we comprehend the effects of disasters in specific localities. The form of the built environment will indicate the origins and determine the impacts of a hazard. But not completely, of course. A fire still burns whether it is on the South African veld or among the Ugandan tombs. The mud left by receding floodwaters smells pretty much the same from Tōhoku (Japan) to New Orleans. What these similarities do not eclipse is the complex intermingling of factors that give rise to the interaction of vulnerabilities and hazards that lead to a disaster. The tensions at play in our urbanising, globalising landscapes insert themselves into the totality of a disaster. Neoliberal 'free-market' policies enable the provision of infrastructure, financial mechanisms, and the making of land available for development, while simultaneously reducing (or ineffectively applying) regulatory controls (Lewis, 1999; Mirowski, 2013; Bosher, 2014; Cheek and Chmutina, 2021). This means that disaster risks are often poorly considered in urban development decisions.

An examination of the built environment can inform us as to what types of questions we should ask about disaster-affected areas: What types of planning regimes were involved in the construction of this area? Who was in charge of the planning process? What were the economic imperatives that drove urban and development building? If there was no planning regime, how did these structures come to be? Who lives there? How did they come to live there? What is their relationship with the power structure? Through these types of questions, we can see the urban milieu as a mass entanglement of different aspects of space bumping against each other, and interacting in a way that produces space as we live in it. The built environment is under the sway of human beings and as we begin to demystify disasters as 'natural' we can look towards their human elements.

These examples demonstrate that while the interaction of hazards with vulnerabilities creates the 'event' we call disaster, the situation is much more complex than that. The inequalities present in a society manufacture vulnerabilities at the same time as human settlements are implicated in the geographic distribution of hazards. This shows that a significant component of disaster is simply how society has developed. If we understand the built environment to be a product of a society, and that society to contain within it inequalities that are reified in the built environment, while at the same time comprehending that disasters are the interaction of hazards with societally produced vulnerabilities,

then we can see clearly that the built environment and disasters are intertwined. The thread holding the built environment and disasters together is their exposure to hazards and interaction with societal inequalities, which becomes clearer when analysed using the lens of critical urban theory. In the following sections, we explain in more detail the core ideas of critical urban theory, before applying them to three well-known disaster events.

The role of critical urban theory in understanding disasters

Critical urban theory understands *the urban* to be a part of the process of globalisation and the city to be a physical reflection of modern capitalism (Castells and Sheridan, 1977; Lefebvre, 2003; Brenner, 2012) and asserts that technocratic and authoritarian planning regimes reaffirm unequal relationships in the built environment (Marcuse, 2012). This is often exactly what we see after a disaster. Critical urban theory also describes how the production and occupation of space is another means by which capitalism sustains itself despite the contradictions inherent in it (Merrifield, 2002). In this section we briefly introduce the core ideas used in critical urban theory and which are important for understanding disaster risk creation.

Capital, power, and class

Critical urban theory recognises that the conflicting interests of power and class create a complicated tangle that cannot be unravelled without examining the underlying structure that drives urban growth (Bottomore, 2002; Purcell, 2002; Brenner, 2012). Understanding this context includes addressing issues of urban space as a strategy for the accumulation of capital (Castells and Sheridan, 1977; Harvey, 1989; Purcell, 2002), regarding cities as the product of neoclassical economic theory that views them as concentrated sites of commodification (Brenner, 2012; Brenner, Marcuse, and Mayer, 2012), revealing the urban environment as a place of contestation (Harvey, 1989; Lefebvre, 1992, 2003), and displaying how cities maintain themselves or change to preserve an economic paradigm (Brenner and Theodore, 2002; Merrifield, 2002).

Critical urban theory concerns itself with issues of power: the power to construct, the power to plan, the power to tear down (Natter, 2008). It emphasises space as an expression of relationships—as a solidification of relationships into material structures (Brenner, Marcuse, and Mayer, 2011). Hence, the dialectic can be understood as a spatial dialectic, the inherent contradictions of the capitalist paradigm bound up in the structures and spaces that it produces. These contradictions are what critical urban theory seeks to examine and understand (Brenner and Schmid, 2015).

The constant change in the urban fabric can be unveiled as an unending reorganisation in the interest of surplus capital generation (Brenner, 2012). The neoliberal paradigm has entrenched legal, governmental, and financial structures that give capitalist firms leeway to appropriate urban space as a commodity (Harvey and Wachsmuth, 2011). Capitalism purges space and the structures that occupy it from concerns of historical connection, equity, or use value and seeks to transform that space into strictly exchange value concerns

(Purcell, 2002). Space is not an object or a thing, but rather a relationship (Lefebvre, 1992; Merrifield, 2002). This relationship is not simply an arrangement of space and structures, but also a relationship between the social structure, class interests, and economic frameworks (Banerjee-Guha, 2010).

Space becomes a platform for the interrelation of social dynamics and presents an order out of what can appear as disorder. As structures exist across time, the built environment is the product of a complex sequence of contradictions and conflicting interests. Because of these complexities, space resists functioning as an ideal; it shakes off aspirations of purity and functions as a launching point and a frame for new action, new contestation. As the built environment is a physical structure and contains within it complicated expressions of ideology, it can work both to promote and reject differing paths of action.

The 'natural' impact of capital in cities

As the city becomes commodified to serve commercial needs, capital is given the prerogative to valorise the space as a place of exchange value (Purcell, 2002; Gotham and Krier, 2008). This fetishised space presents itself as the natural result of benign processes rather than as the expression of economic and political power. In disaster scenarios, impacts are often framed as 'naturally occurring', based on the narrative control of the powerful. This contestation will inevitably lead to crisis as the same system that produces material inequality produces geographic inequalities. This system also engenders geographic alienation, insecurity, and dissatisfaction with one's surroundings (Marcuse, 2012).

Castells and Sheridan (1977, pp. 276–280) described planning as a social movement—but a social movement in mirror image to revolutionary movements; a social movement backed by power. The 'internal coherence' of the capitalist paradigm is shaped by planners and designers, working as a counter-revolutionary movement of the status quo (Castells and Sheridan, 1977, p. 280). The result of this type of social movement is to relocate the crises of capitalism. This is accomplished either by shifting the crisis temporally—as in housing or real-estate bubbles—or geographically and physically, as was the case with the urban renewal policies of the 1960s and 1970s or with the globalisation process of neoliberal capitalism.

Planning efforts become bulwarks against any substantial change to the urban environment. Consequently, we can see a deep-rooted interlinking of the physical environment and the economic/policy paradigm. The limits to what is possible in terms of urban policy and planning, architectural design, and construction illustrate the tight grip that urbanised, global capitalism has on our surroundings.

The right to the city

While neoclassical economics or neoliberal globalisation might try to justify itself by understanding things in the aggregate or following trend lines as measured using quantitative data, critical urban theory insists that this is not understanding a situation in its entirety, or even in its true sense. To this end, Berman (1983) detailed public space as not just the arena of confrontation that it was for Lefebvre (1992) and Debord (2002), but also as a space of contact and exposure, where the gaps created by the crises present in

capitalism would be unavoidable to the citizenry (Merrifield, 2002). This helps to refine our view on the right to the city; if the right to the city is actually inclusive of the people it represents, it will not always be a tidy process: it will involve exposure of the problems and complications of urban space.

Cities, while existing in a local context and with a specific history, are also held in sway to the larger forces that make worldwide trade, financialisation, and development possible (Brenner, 2004). What these forces carry with them is the unevenness and inequalities that are present in a system that is not designed for the benefit of an inclusive citizenry, but rather to maximise profit and to reproduce this system of production. For Brenner (2004), the restructuring and the apparent crises in modern capitalism are not a sign of a weakening system or a failure of it, but a reconsideration and an adjustment of the scales at which these economies function. The significance of the city and the nation have not been lost in the restructuring effort; rather, they have been transformed and rescaled in service to neoliberalism.

Creative destruction

Restructuring and rescaling have become paramount in the contemporary round of urbanisation that has presented itself in the late twentieth and early twenty-first centuries. Uneven development is an innate facet of capitalism; each time uneven development facilitates the efficient production of capital, that unevenness is reproduced or maintained (Harvey, 1989; Smith, 2010). To the extent that the operations of capitalism are modified or the efficiency of a specific site of capitalism no longer benefits the larger neoliberal strategy, geographic areas and structures are subject to change. This change is not arbitrary; it is to bring the site into a spatial arrangement that furthers the efficiency of capitalism. As a physical site or a spatial arrangement must be altered to allow for this change, something is lost in the transformation.

We can see this in the expressed need for free-market solutions to issues ranging from historic preservation to affordable housing, public infrastructure to DRR. Restructuring not only creates more efficient pathways for projects in line with neoliberal ideologies but also muffles alternatives that could act in opposition to these same ideologies. Financing arrangements choose projects that justify themselves through economic growth. Land is evaluated as a commodity in a market. Development is packaged as an economic engine in a competitive environment. The state codifies these ideologies in law and policy. Private industries orient themselves around fulfilling these objectives, thus bringing public funds to private ventures. The resulting outcomes are then evaluated, measured, and justified on the basis of their acceptability to this system (Gotham and Greenberg, 2014). The resulting outcome is a reproduction of the system that created it, only refined. Furthermore, this newer iteration is a reproduction that obscures any alternatives to the ideology continuing to perpetuate itself.

The restructuring process of urbanisation can be better understood as a confluence of the efficiencies of globalisation colliding with the inflexibility of path dependency. It would be easy to comprehend as what the physical presence of urbanisation appeared, since it would be ever present. The only change would be in the level of implementation. The

intricacies of place are a product of local histories, arrangements, culture, and legal and physical structures combined with the demands of global urbanisation. Path dependency enables us to comprehend differentiation within this process while simultaneously understanding the process itself as global (Brenner and Theodore, 2002). The process of creative destruction can obscure itself inside the normal goings on of urban life; the old giving way to the new.

As these changes affect the larger societal structure, they also reflect themselves in spatial arrangements and the built environment. As critical urban theory is aware that each site has its historical particulars and geography brings with it unique topographies—both physical and cultural—it is understood that this dynamic does not express itself uniformly in every setting. However, if we expose the underpinnings of capitalism and detail the struggle of people living within the neoliberal world, we can see the trend lines and the contradictions that illuminate the greater movement towards reproducing space in service to globalised urbanisation.

Keeping capital happy

The current framework of post-disaster reconstruction, both nationally and internationally, operates according to the same policy objectives, legal structures, and free-market principles that define the neoliberal paradigm. Thus, urbanisation as a process is regularly furthered by post-disaster reconstruction. The neoliberal economic framework tips the scales in favour of market-based approaches to reconstruction (Goldberger, 2005; Klein, 2008; Gotham and Greenberg, 2014). Basing rebuilding in the market generates its own imperatives and concerns that influence the process. For many people, the choice between an area with increased exposure to disasters and one that is relatively safe is largely influenced by economic concerns. Land that is safer is often (but not always) land that is more valuable and therefore less available across economic strata. After a disaster the price differences in secure land and hazardous land can create further economic imbalances.

Market-based approaches frequently place an emphasis on speed of construction while deemphasising traditional methods of construction and site selection. They also can create a cycle of debt that leaves affected residents with a lack of choice about how they rebuild post disaster. A market-based approach motivates developers to opt for tearing down structures that could have possibly been repaired for a lower cost. If the funding is coming from outside sources and there is more money to be made from levelling existing damaged structures and then building again from scratch, it is often more profitable to decide to rebuild completely what is possibly reclaimable. When profit is the basis of the reconstruction process, much of the complexity involved in evoking a sense of place and the customary functions of a community can be lost. This is not an ephemeral concern. It has been established by scholars that having a population that is unable or unwilling to return to a damaged environment inhibits the long-term prospects of rebuilding (Jigyasu and Boen, 2005; Dyson, 2006; Lizarralde, Johnson, and Davidson, 2009; Caye, 2011).

The results of this dynamic that places outside experts and international organisations in charge of a rebuilding process can be seen in real-world examples. The confluence of market economics, development goals, and inherent inequalities run together to create

an environment that is capable of producing the structures demanded by post-disaster reconstruction, but do not necessarily yield positive outcomes.

Integration of the ideas of critical urban theory and disaster research as a pathway for a new theoretical exploration

As noted in section two, disaster scholars have been describing the ways in which disasters are socially constructed for more than half a century (Ball, 1975; O'Keefe, Westgate, and Wisner, 1976; Hewitt, 1983; Oliver-Smith, 1986; Kelman et al., 2016; Chmutina and von Meding, 2019). Heavily implied in this is the idea that the urbanised landscape is the product of specific forces, namely political ideologies, power structures, economies, and planning regimes. Fan (2012), Boyer (2014), and Gotham and Greenberg (2014), among others, have made an explicit connection between critical urban theory and disasters. Boyer (2014) locates debates over the right to the city in the reconstruction of New Orleans after Hurricane Katrina; Fan (2012) explores discussions about critical urban theory in issues of shelter in humanitarian practice; and Gotham and Greenberg frame the Katrina and 9/11 disasters as a product of a capitalist economy focused on the finance, insurance, and real-estate sectors. Yet, such framing is still not mainstreamed among many disaster scholars and practitioners, particularly those whose training comes from STEM (science, technology, engineering, and mathematics) and natural science disciplines.

When considering the 'solutions' to disasters, we too often compartmentalise elements and respond to an event by maintaining or reconstructing existing systems through top-down approaches. This fails to take advantage of the possibilities for radical change (Gaillard, 2018; Wisner, 2020). Disasters, when viewed through a technocratic lens, are understood as problems that can be prevented by structural solutions that often involve 'taming' nature. Hence, we tend to focus on the 'tools' that can help us to deal with disasters rather than comprehending and addressing the root causes of risk (Wisner et al., 2004). The former is a pragmatic approach intended to fit the relationship between the nation-state and global capitalism, leaving behind individuals and omitting their daily experiences (Rogers, 2012).

While the built environment is perceived to be a space of and for the built, in reality it is a space of economic relationships, where every element is a commodity—thus building on a flood plain makes sense! (Bosher, 2019)—and is not confined to a particular location (think China's Belt and Road Initiative). It represents a metabolism interacting at different scales (Cloete, 2017). These interactions (or more frequently, a failure in interactions) become prominent when a 'surprising' event, such as a disaster, happens, revealing the complexity of a city. We are prompted to unpack a process of contestation through the interpretation of various temporal, spatial, social, physical, and other elements that together create a disaster. This process of contestation can be better understood by engaging with critical urban theory as it allows us to investigate exactly how the structures, arrangement, and placement of our cities are implicated in how disasters arise, unfold, and are addressed, as demonstrated in the following well-known case studies.

Arrangement of space and dispossession as a tool for disaster risk creation: the case of Haiti

In Haiti, the arrangement of space—through dispossession—has become a tool for disaster risk creation and recreation. Prior to the 2010 earthquake, the country had been mired in desperate poverty and political turmoil rooted in the heritage of a colonial system of slavery and economic exploitation and the continued influence of foreign powers over Haiti's domestic affairs, starting immediately after its independence from France in 1804 (Dubois, 2012; Trouillot, 2015).

Trade liberalisation inundated the Haitian market with farm goods from the US. State-owned industries were frowned upon by international reforms, and privatisation was accorded priority. While it is true that Haiti's public companies often fell victim to the corruption and instability that affected the government as a whole, they had been, in general, productive (Escobar, 1995; Taft-Morales and Ribando, 2007). The rapidly urbanising, poverty-stricken environment that was being actively realigned with International Monetary Fund and World Bank ideologies and strategies set the stage for both the widespread devastation caused by the 2010 earthquake and the difficult recovery that followed.

This disaster happened five years after the adoption of the Hyogo Framework for Action 2005–2015, which called specifically for community involvement, acknowledgement of cultural concerns, and a more bottom-up approach to disaster reconstruction. Yet, given the priority placed on privatisation, a low-wage workforce, and the severe lack of education brought about by crippling public debt, Haiti was in poor shape to be the central actor in its own recovery (Bressen, 2012). Participation was put at the forefront of new disaster frameworks, but it was not at the forefront of international development. This creates a large conflict in which matters of reconstruction cannot hope to unseat the development paradigm into which they emerge (Margesson and Taft-Morales, 2010; Zanotti, 2010; Dumas, 2013). The reconstruction has and is taking place in a state that functions against the best interests of the public and is rather geared towards serving the political, social, and business elite. In 2021, poverty increased to 87.6 per cent, with 30.3 per cent of the population living below the extreme poverty line (The World Bank, 2022); this has been further exacerbated by the COVID-19 pandemic and the 2021 earthquake, with 65 per cent of households experiencing a deterioration in their income as compared to the years before the pandemic (The World Bank, 2022).

We have witnessed in Haiti post-disaster land grabbing, market-oriented reconstruction (or in some cases, an absence thereof), as well as resettlement schemes lacking community agency—all of which further recreate established inequalities and thus vulnerabilities (Bornstein et al., 2013; Lizarralde, 2021). It is difficult to argue that Haiti has not become all the more at risk due to the way that reconstruction has taken place. Critical urban theory allows us to explore localities affected by disasters in a detailed way. By using dialectical reasoning, we can observe the tensions in the political, economic, and social structures present in an area. We can also move across scales: from the international, to the national, to the local. As Gramsci (1971) noted of conventional positivist epistemology, it was mired in the power structures as they existed and hence was insufficient to challenge or question them. A 'many-sided approach' was necessary to delve

into the complex nature of our societies and to question them from a relative distance (Wolff, 1952).

Dialectical reasoning also allows us to balance meaning and its various interpretations against empirical methods. In addition, the approach enables absolute judgement to be suspended in favour of observing a constant tension and transition (Jay, 1996; Bottomore, 2002). To discern this dynamic tension, positivism is, at best, not up to the task, and potentially leads us down a misguided path. To the extent that positivism is simply chronicling the static, empirical present, it is also reaffirming, and thereby re-entrenching the status quo. As this reaffirmation is done via empirical tools and positivist ideas, sociological inquiry can possibly become part of a dominating technocracy.

Technocratic development: the case of Japan

A critically important feature of Japan's developmental state and its transition to neoliberalism is the ways in which government technocrats choose to fuel the economy. When confronted with slowdowns and downturns, the Japanese economy leans heavily on public works projects to stimulate activity. It was these policies, especially during the Bubble Economy (1986–91), that led to the image of Japanese workers building large, immaculate highways to remote mountain hamlets, pouring concrete breakwaters over uninhabited beaches, and erecting cultural centres in sparsely populated rural districts (Kerr, 2001). The utilisation of public works was critical to the neoliberal insistence that growth was good in and of itself, but they were not necessarily directly beneficial to public welfare, leading to some commentary on the perceived absurdity (Kerr, 2001).

A fundamental turning point in the urban development of Japan came in 1995, when 400,000 buildings were damaged and 6,434 lives were lost following an earthquake near Kōbe. The Great Hanshin Earthquake put on full display the vulnerabilities present in the Japanese urban landscape. Those who were most harmed by the disaster were those most harmed by the modern economic paradigm: ethnic minorities, the poor, and the elderly. These groups had largely been living in substandard housing in the heart of the city, which had not been subject to many advancements in disaster mitigation building codes. Most of the newer, more durable construction near wider streets that could be accessed by emergency equipment were built in the outer suburbs (Edgington, 2010).

The earthquake and post-earthquake period brought to the forefront a confrontation in the world of Japanese urban planning: a battle between *toshikeikaku* and *machizukuri*. *Toshikeikaku* represents an older style of top-down, technocratic planning based on the needs, actions, and support of the state, whereas *machizukuri*, in its idealised form, is a bottom-up form of community planning with robust stakeholder input and local action. The latter, however, is severely limited in its actual scope, as the citizenry of Japan has few actual rights to take action against government planning decisions. This has rendered resistance to top-down planning largely symbolic, or at best, a minor fight for a small degree of mitigation of large, top-down plans (Hein, 2002; Bosman, 2007; Funck, 2007; Hashimoto, 2007).

The intrinsic conflict between *toshikeikaku* and *machizukuri* was in part ameliorated by subsuming the community-based initiatives within neoliberal financing schemes

(Sorensen and Funck, 2007). For example, the 2003 fiscal year saw the provision of USD 18 billion in land and housing development tax exemptions (Sorensen, Okata, and Fujii, 2010). The reason given for these exemptions were the transformation—that is, creative destruction—of the land from a non-commodity into something based in the transactional nature of the market. Here neoliberal policy and ideology join together to dismiss land that is idle, stable, or held aside for the public good. The public good is abstracted to mean economic growth—and not just any economic growth, but a particular kind valued within the neoliberal paradigm.

Yet again this type of development carried within it a paradox: the developmental state was light on regulation and heavy on government intervention. When undertaking the transition to a more neoliberal regime, Japan pulled back on government intervention but lacked the types of regulation that ideally would be present to serve to correct the forces of the market. When these powers are delegated to private interests, the public loses representation in the process. If we begin to unravel the facets of our society that construct our built environment, we can view the relationships underlying them. As they are exposed, we can observe how these relationships—often ones of unequal power—are implicated throughout the course of a disaster. Furthermore, this standpoint allows us to view infrastructure, planning, and civil engineering projects as non-neutral structures. Seawalls, levees, emergency shelters, and evacuation areas are not exempt from being a product of the society that conceived of, planned, and produced them.

Settlement patterns, residential segregation, and areas prioritised for DRR measures play a large role in how disasters play out. Neighbourhoods in low-lying areas are subject to increased flooding. Low-lying areas that are deemed important by a society or whose residents can effectively self-advocate can appeal for protections by DRR projects and thus lessen their own vulnerability to a flooding event. Societies with stable governments can tighten their seismic building codes and enforce them stringently. These measures can lessen the impact of an earthquake. However, being able to implement and enforce seismic codes is predicated on a certain level of societal stability and the financial ability to build to code or retrofit.

Disaster risk creation and segregation: the case of Katrina

Hurricane Katrina in New Orleans, Louisiana, provides an excellent window through which to appraise these issues. For a period in the 1800s, New Orleans was the second city in the US. It was vibrant and growing. Some speculated that it might overtake New York City as the preeminent economic engine of the country (Powell, 2013). Founded on a rise of the natural levee along the lower Mississippi River, French colonists utilised a Native American portage route to create a critical port and outpost.

The economy of New Orleans took a downturn in the second half of the twentieth century as the executive class of the oil industry relocated to Houston, Texas. New Orleans as a city was not financially ascendant and neither were the majority of its residents. These financial difficulties were layered on top of waves of racial segregation resulting from White people fleeing the city after the integration of the Orleans Parish school system in 1960 (Horowitz, 2014).

Efforts to turn what had been the Backatown—a low-lying area leading from the natural levee around the French Quarter through the Treme towards Lake Pontchartrain—into valuable real estate led to massive pumping projects. Real estate was created, economic activity was spurred, and the pumping of the swamps in the 1960s resulted in significant subsidence of the land, lowering some areas of the city below the level of the lake. During Hurricane Katrina in 2005, these neighbourhoods were ultimately inundated after failures of the levee system (Gotham, 2013).

The Lower Ninth Ward has always been a working-class community. Until the integration crisis of 1960 and the resulting White flight, it was also a racially diverse one. In the 1950s and 1960s, the Lower Ninth Ward and other surrounding communities objected to the construction of the Mississippi River–Gulf Outlet (MR–GO). Residents understood that as well as acting as a direct line for the newer, larger class of cargo ships to have access to the Gulf of Mexico, it also created a straight, unchecked, passageway for storm surge to flow from the Gulf of Mexico into their neighbourhood. The community lost this battle to powerful shipping, trade, and construction interests and MR-GO was completed in 1968 (Cheek, 2016). During Hurricane Katrina, the storm surge battered the industrial canal levee adjacent to the Lower Ninth Ward. MR–GO funnelled storm surge directly into the neighbourhood. When a barge broke loose of its moorings and rammed into the levee, the Lower Ninth Ward was inundated. Many people were killed in the resulting flood. The waters did not recede in some places for months (Adams, 2013).

The case of New Orleans illustrates how the built environment is a representation of a political regime; the decisions made about the use of space reflect current political agendas and frameworks. For instance, functionalism brought forth a distinctly physically- and materially-oriented planning ideology that forced a reduction in space, replacing it with buildings, roads, and lawns—instead of streets and squares that are natural focal points of gathering. The space under a political system is not neutral; it is a political statement that reinforces a status quo. As with capitalism, space reinforces inequality, which is further exacerbated from a temporal perspective, with a technocratic ruling class controlling the decision-making process that guides how a city is produced and reproduced. This can be seen as a root cause of vulnerability.

Conclusion: an opportunity to address disasters more deeply

Through the three examples explored here, we see—in ways similar to other cases from around the world—that the process of disaster reconstruction is far more complex than mobilising aid money to enable a place to get 'back to normal'. The entire reconstruction paradigm is brought into question when we consider the creation and recreation of risk more deeply. The inequalities produced and enforced by the economic status quo and ideologies of growth and limitlessness translate into the reproduction of risk in and through disaster recovery. With regard to the reconstruction process, this is particularly true in the ways that inequality and injustice are geographically distributed. It is critical, therefore, that the socially constructed nature of disasters and the built environment—

where a hazard becomes a disaster—are considered simultaneously in temporal and spatial perspectives. This is why disaster scholarship has so much to learn from critical urban theory.

Critical urban theory forces us to question the underlying assumptions of our research by posing the question 'for whom?'. For instance, the build back better approach has been considered as a step forward—both rhetorically and substantively—for DRR. However, we realise the depth of the issue when we ask ourselves 'build back better for whom?'. We can use this same framework to question bottom-up, community-based, and participatory frameworks as well. Who is the community? Have we decided this for them? Have they been defined by a power structure that is not within their control? Who gets to participate and to what extent? These are important questions to ask (Titz, Cannon, and Krüger, 2018; Cheek and Chmutina, 2021).

Critical urban theory enables us to form a research agenda that aims to transcend the current structure of society rather than to chronicle it. This involves pointing out how conditions in society came to exist in the form that they did and to outline how these conditions can be confronted (Dahms, 2008a). It also helps us to comprehend why certain issues should be chosen for examination at all, by considering the historical situation that has shaped current conditions (Soja, 1989; Bottomore, 2002; Dahms, 2008a). This is precisely the kind of critique that is needed to understand how and why hazards turn into disasters.

Perhaps most importantly, critical urban theory fundamentally asserts that the object of study is not static, but rather dynamic (Dahms, 2008b). There is a complex of interests and conflicts constantly in motion, reflexive to each other as well as outside factors. Critical urban theory understands that research tools, and indeed researchers themselves, do not circumvent the society in which they are entangled. Consequently, researchers have to address first the circumstances of the societal structures. While this is a priority for some disaster researchers, it is so often neglected in disaster research, which ends up being focused on treating the problem (that is, an impact of a disaster on the built environment) rather that doing anything about the symptoms (that is, the root causes that are temporally and spatially removed). Even when the rhetoric of addressing symptoms is strong, the words do not turn into actions (Chmutina et al., 2021), as is frequently the case in disaster practice.

While traditional empirical positivist research lends itself to the kinds of narratives of progress and solutions that often shore up status quo policy goals, critical urban theory strives to expose sources of inequality and exclusion (Brenner, Marcuse, and Mayer, 2011). Disasters provide a window on this manifestation of inequalities as they bring to the forefront the roles of cultures and customs, places, and political and economic influencers—all renegotiating their authority to re-establish 'the order' that, in general, aims to (re-)attract wealth and consumption (that is, commercially-oriented rules of consumption and norms of conduct) (Rogers, 2012) instead of tackling the social problems by dispersing rather than solving them.

As these inequalities are generally at the heart of the maintenance of capitalism, critical approaches to disaster research can find themselves fighting an uphill battle against

power interests. Nevertheless, critical urban theory prioritises exposing and critiquing unequal and unjust power structures. This has the potential to aid our understanding of the interplay between hazards, people, places, and power, both every day and during a disaster.

The integration of critical urban studies into arguments that disasters are not natural has important implications for disaster research. This amalgamation exposes the issue that disasters are often seen as a problem that does not constantly evolve (because a hazard does not change) but remains 'the same'. It also allows us to appreciate that, when it comes to disasters—and the willingness to take action to reduce risk—there is no right or wrong solution, but there are good and bad solutions. The 'goodness' or 'badness' of a solution is evidenced by its long-term consequences for those bearing vulnerability and frequently lays bare the agenda (good or bad) of the proposer.

Disasters have a certain 'dread factor', and when destruction occurs, the actions and inactions that created risk in the first place are sometimes used as a rationale for the prescribed intervention. Here the narrative has a lot of power in relation to processes of negotiation between different actors. Narratives are critical when we talk about complex ideas like disasters and space. It is easier to accept something more 'universal', that is, nature and our relationship with it: in terms of space, nature is a 'friend' (we can use it to build more houses!) that can turn quickly into a 'foe'—and there is nothing we can do about it. Such simplification of disasters is powerful because of its logic: it recreates the 'reality' that is predominant. It creates a 'tragedy' that we come to accept and tolerate as a part of reality, as it is 'unpreventable' (Sen, 1999). However, when examined through the lens of critical urban theory, such 'reality' can be challenged by emphasising that risk is created in and by society via systemic oppression and the creation of vulnerabilities. These vulnerabilities interact with hazards and the resulting disasters are exacerbated by outmoded patterns of land development, uncoordinated and reactionary planning, and standardised engineering. The inflexible centralised structures of cities as imagined and built by industrialised societies have created unintentional dependencies on centralised systems (water, energy, waste, food, transportation); all under the tenets of efficiency and security.

Ultimately, the disaster studies field is invested in providing research that yields better processes, practices, and tools to reduce risk and enable humans to live well and safely. Given that risk is created in society, approaches that fail to critique oppressive systems are only suited to creating and recreating status quo systems and relationships. Closer engagement with critical urban theory thus enables a novel yet more focused conversation to emerge as we study disasters. By using critical urban theory as a means of analysis in disaster studies, we can further our understanding of chronic and ongoing disasters. By what metrics do we determine that the last disaster is over? How do we best search for the seeds of the next disaster? Are there even solid boundaries between these events? These are complex questions that might ultimately remain unsettled. Despite that fact, they are important questions to ask and will lead to new, innovative, and complex disaster research.

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Data availability statement

Data sharing not applicable to this article as no datasets were generated or analysed during the current study.

Correspondence

Ksenia Chmutina, School of Architecture, Building and Civil Engineering, Loughborough University, Leicestershire LE11 3TU, United Kingdom.
E-mail: k.chmutina@lboro.ac.uk

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