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Negotiating a Failing City

An Ethnographic Account of Flood Adaptation in Mumbai

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Abstract

Mumbai is one of the cities most vulnerable to the effects of flooding, heightened by the effects of climate change. In Mumbai, flooding occurs during the monsoon and is exacerbated by high construction density, inadequate drainage systems, and a substantial socio-economically vulnerable population. Through ethnographic fieldwork in a flood-prone neighborhood in Mumbai — Kalina — this paper asks: How do residents of these neighborhoods cope with repeated flooding based on their access to resources, perception of risk and other factors? Using the lens of environmental inequality and differential vulnerability, it follows families from various socio-economic backgrounds in Mumbai as they negotiate flooding during two monsoons. Additionally, it employs oral histories of the monsoon of 2005, when the city broke a 100-year record, receiving 946 mm of rain in 36 hours. This paper also examines the role of real estate developers and how residents' decisions occur against the backdrop of declining state intervention. It suggests that durable inequities based on class and caste mediate responses to flooding. Further, given the context of a shrinking welfare state, real estate developers replace the state as significant actors who have the power to redress the grievances and problems of citizens subjected to chronic flooding.

Keywords

Bio

Kalyani Monteiro Jayasankar is a PhD candidate in the Department of Sociology at Princeton University. Her research interests lie broadly in cities and climate change.

Introduction

Coastal cities have historically been major nodes in the world economy, serving as ports, sites of production and administration, through which labor, capital, and infrastructure flow (Boschken 2013; Dawson 2017). It is well established that the effects of climate change are far-reaching and impact countries across the globe in diverse ways. In the following decades, climate change will irrevocably alter the lives of communities in coastal cities, unleashing flooding, heat waves, vector-borne diseases, storm surges, and other extreme weather events (IPCC 2014).

Environmental sociologists note that communities of color, immigrant, low-income, indigenous communities, and communities in the global south unequally bear the costs and risks of climate change, while also contributing the least to carbon emissions (Harlan et al. 2015). In the study of environmental inequality, adaptive capacity, the "ability of a system to adapt to climate change stimuli," is an important consideration (IPCC 2014:904). The adaptive capacity of cities differs based on their national context, infrastructure, governance, and available resources, rendering them variously able to cope with the effects of climate change. Given these factors, there are also important cleavages between cities both between and within the global north and south. In particular, cities in the global south are faced with a unique set of challenges as they are often densely populated, with large informal settlements that lack proper provision of services. While previous work has noted the existence of environmental inequality, little is known about the contours it takes at the level of the neighborhood with respect to climate change. Further, there is a paucity of research on climate change-affected neighborhoods that examines the decision process and outcomes for individual households.

Mumbai, the city that this study deals with, is one of the cities most vulnerable to the effects of flooding, heightened by a large social-economically vulnerable population. In a study by the Organisation for Economic Co-operation and Development (OECD) that ranks coastal cities around the world in terms of populations exposed to climate change-induced flooding, Mumbai ranks on the top (Nicholls et al. 2008).[1] The Intergovernmental Panel on Climate Change (IPCC) (conservatively) estimates a more than three feet rise in sea levels by the end of the century; roughly 19 percent of Mumbai is below three feet (Paskal 2010). Within cities in the global south like Mumbai, adaptive capacities vary greatly based on existing and intersecting durable inequalities on the basis of class, gender, caste, and others. Within the space of the city, as Logan and Molotch note, various groups are "unequally able to protect their environmental interests" through tools such as zoning (1987:158). Further, decisions around adaptation also involve considerations over "who received infrastructural improvements for adaptation; whether allocations of adaptation burdens are distributed proportionally; and how pre-existing social vulnerabilities potentially exacerbate climate impacts" (Carmin et al. 2015:177). The market-oriented governance that the Indian state has adopted in the post-liberalization period has privileged an exclusive vision of the nation that has little room for the welfare needs of laboring poor, both rural and urban (Goldman 2011).

This paper is an ethnographic study of a flood-prone neighborhood in Mumbai— Kalina. Through participant observation and in-depth interviews in Kalina, it asks: How do residents of flood-prone neighborhoods make decisions about adaptation and cope with repeated flooding

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[1] These cities in order are: Mumbai, Guangzhou, Shanghai, Miami, Ho Chi Minh City, Kolkata, New York, Osaka-Kobe, Alexandria, Tokyo, Tianjin, Bangkok, Dhaka, and Hai Phong.

based on their access to resources, perception of risk and other factors? Using the lens of environmental inequality and differential vulnerability, this study follows families from various socio-economic backgrounds in Mumbai as they negotiate flooding during two monsoons. Additionally, it employs oral histories of the monsoon of 2005, when on 26 July the city of Mumbai broke a 100-year record, receiving 946 mm of rain over the span of 36 hours. Specifically, I examine the role of private real estate developers and disaster capitalism (Klein 2007) in adaptation decisions and the ways in which these decisions occur against the backdrop of declining state intervention. My research suggests that durable inequities based on class and caste that characterize populations in Mumbai mediate the effects of and responses to flooding. In particular, this paper finds that developers play an important role in adaptation and serve as proxy-state actors, due to the unchecked power given to them by the law. In the absence of adequate state regulation or intervention, these developers become powerful influences in the lives of residents.

Theoretical Background

Climate Change and Decision-Making

The IPCC, in its 2014 report, recognizes the limitations of the view that "better science will lead to better decisions" (2014:198). It draws on a range of disciplines in the social sciences to inform its study of decision-making at various levels. The climate change literature on decision-making often uses rational-choice models to make sense of how various actors make decisions (e.g. Moser and Ekstrom 2016), despite a large body of the work about decision-making in sociology that attempts to challenge neoclassical models of rational choice. As Logan and Molotch (1987) note, "free, autonomous action predicted by market theories fails to acknowledge people's bonds to place, entrepreneurs' collusion, and the regulatory function" (1987:41). Sociologists have critiqued rational choice theory on many grounds — individuals do not only act in their own interest, they do not always choose what is considered optimal, and their preferences are not fixed (Bruch and Feinberg 2017).

Studies have examined the role of a range of factors in climate change decision-making. Firstly, and possibly the most studied determinant of climate change decision-making and adaptive capacity has been access to resources and information such as Adger (2003) who notes that an individual's adaptive capacity "is a function of their access to resources" (2003:29). Secondly, work in psychology and the behavioral sciences on climate change, emphasizes the role of cognition in decision-making. Grothmann and Patt (2005) highlight two determinants of decision-making: risk perception and perceived ability/efficacy. Kunreuther (1996), in the context of insurance in the aftermath of Hurricane Andrew, highlights how people living in environmentally hazardous areas underestimate the probability of disaster and as a result are ill-prepared to deal with its impacts. In the sociological literature, Wuthnow (2010) traces discourse and public concern about climate change, noting that in the absence of a large event (such as 9/11 or Hiroshima), it is more challenging to emphasize the urgency of acting soon. Finally, Adger et al. (2011) emphasize the importance of place and culture in determining adaptation decisions, noting that they have traditionally been undervalued. The authors emphasize the loss of place and culture that climate change often entails; thus while "migration is an adaptation [...] the disruptive impacts on economies, social order, cultural identity, knowledge, and traditions belie successful transitions" (2011:349).

One of the challenges of studying climate change and decision-making is that there is often a disjuncture between *what people say* and *what they do* (Jerolmack and Khan 2014). While this might seem contradictory, behavioral research has demonstrated that when faced with many options, individuals often choose the default option, the decision outcome in which "the chooser decides not to decide" (Bruch and Feinberg 2017:215). In the context of this study, the default option is staying in place without any type of adaptation. Why does the default option appear more attractive or safer? In this context, the state and other institutions play an important role in providing a safety net to individuals who choose the default option, lessening the costs of inaction. As Cinner et al. (2015) note, the adaptive capacity of households is in part a function of the geographical unit they are embedded in. Through a "kind of social contract," city governments also "play a central role in keeping people safe and in helping them recover economically in the event of catastrophe" (Elliott 2017:416). However these decisions around adaptation are not apolitical but involve important considerations over the allocation of resources and the ways in which the costs and risks of climate change are distributed within a population (Carmin et al 2015). Further, social institutions are important because decisions about climate change are often collective decisions (e.g.- Koslov 2016; Murphy et al. 2017). In the following section, I explore literature around the role of the state (or absence of it) within a regime of market-oriented governance, focusing on cities in the global south.

Market-Oriented Governance, Real Estate, and Disasters

Neoliberalism has been loosely defined as the receding economic role of the state and the growing influence of the private market (Centeno and Cohen 2012). Scholarship on neoliberalism and market-oriented governance in cities in the developed world has noted the ways in which it has variously involved the expansion of the penal state (Wacquant 2009), gentrification (Hackworth 2012), and the privatization of public services (Brenner and Theodore 2002). The growth of urban renewal mega-projects as important features of market-oriented governance has also been previously highlighted.[2] In the global south, these projects often take the form of public-private partnerships (Miraftab 2004). Projects to redevelop informal settlements and other areas (such as former sites of manufacturing and production) provide private developers with "highly profitable spaces […] that have not been economically fully exploited" (Kuyucu and Ünsal 2010:1482). Further, the market logic of these projects often results in adverse socio-economic consequences for the already marginalized, while privileging the interests of real estate developers (Goldman 2011; Shatkin 2011).

Logan and Molotch (1987) in their seminal work discuss the emergence of structural speculators as place entrepreneurs, who "seek to alter the conditions that structure the market" in their own favor (1987:30). Place entrepreneurs are often supported by a growth machine consisting of various state and non-state actors. In the developing world, in particular, the declining role of traditional state bureaucracy has led to the formation of parastatal bodies "carving out new terrains and configuring technologies of power through legislative fiats under the 'rubric' of eminent domain for public good" (Goldman 2011:556). In addition to parastatal agencies, real estate developers have emerged as important actors in the space of the city with strong lobbies and links to the state (Kuyucu and Ünsal 2010; Searle 2014). While previous research has explored these links, little work has addressed the varying roles that real estate developers play in the everyday lives of residents, in the absence of state support and intervention.

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[2] Weber 2002; Brenner and Theodore 2002; Kuyucu and Ünsal 2010.

For Klein (2007), disaster capitalism, "the orchestrated raids on the public sphere in the wake of catastrophic events, combined with the treatment of disasters as exciting market opportunities," is an essential part of the neoliberal state (2007:6). The case of disaster recovery in regimes of decreasing state intervention is another avenue of research that has received much attention.[3] In the context of post-Katrina New Orleans, Adams (2013) describes a "second-order disaster" of "stalled and prolonged recovery" in which important recovery functions were subcontracted to private companies (2013:1). Similarly, Gotham (2008), in addressing Katrina and 9/11, discusses how market-oriented recovery efforts, "remove public accountability and oversight from the decision-making and implementation process and thereby create highly inequitable effects," preventing long-term recovery (2008:1056). In the context of the Mumbai floods, McFarlane (2010) notes the ways in which moments of crisis highlight inequality in three ways: first, through differential state responses in different areas, second, because disasters worsen existing inequalities, and third, because for the urban poor, these crises have become quotidian.

Having discussed the role of the state and developers, I turn, in the next section, to discuss the case of the redevelopment of informal settlements in Mumbai.

The Redevelopment of Informal Settlements

The colonial administration dealt with the issues of slums by instituting stringent laws and setting up bodies such as the Bombay Improvement Trust (BIT), with the intention of sanitizing the city and pushing 'unwanted' elements to the margins. While the post-colonial administration of Bombay also instituted stringent laws such as the Slum Clearance Plan passed in 1956, it was not as successful as the colonial administration. This primarily had to do with the introduction of universal adult franchise post Independence in 1947. In the past, the representatives of the Municipal Corporation were the propertied elite of the city. With adult franchise, more inclusive policies were introduced that recognized the rights of residents of informal settlements. Moreover, as the city expanded northwards, areas where several marginalized groups lived began to be included within the city limits, changing the composition of the electoral population (Bhide 2014; Anand and Rademacher 2011).

The Slum Clearance Plan (1956) is the first and last post-colonial legislation that followed the colonial project of slum eradication. The government soon realized that slum clearance was ineffective, and sought to amend its existing policies. The efforts of housing rights movements and the influence of funding agencies like the World Bank that favored improvements projects over clearance, furthered the impetus for the development of alternative policies. As a result, the state government passed the Slum Areas (Improvement, Clearance and Redevelopment) Act in 1971, providing mechanisms for slum improvement (Anand and Rademacher 2011). Five years later, in 1976 the first slum census was carried out and identity passes were issued to residents from some settlements, providing them with security of tenure and making them eligible for many public services such as water, electricity, solid waste management, and garbage collection (ibid).

In December 1995, the Government of Maharashtra amended the Maharashtra Slum Areas Act to create the Slum Rehabilitation Authority (SRA) in charge of overseeing the redevelopment of informal settlements in the city through the Slum Rehabilitation Scheme. The Slum Rehabilitation Authority itself is a parastatal agency with no statutory powers or popular

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[3] Adams 2013; Gotham 2008; Gotham 2010; Peck 2006; Tierney 2015.

mandate, part of a group of several such agencies set up by the state government to foster market friendly policies that circumvent red tapism and due democratic process (Goldman 2011). Through the Slum Rehabilitation Scheme (SRS) a minimum of 70 percent of residents within a cluster have to consent to redevelopment. Together these residents must form a co-operative housing society and appoint a private developer to oversee the redevelopment of their neighborhood. The developer, in turn, is responsible for the construction and covers all construction costs. During the interim construction period, the developer is also responsible for the temporary relocation of residents. The residents themselves bear no costs of construction. For the developer to also profit from this, the state government allows them to build additional units to be sold on the open market. Additionally, to ensure that there are no obstacles to the scheme, any members who do not agree to participate can be legally evicted from the site.

Methods and Study Site

Study Site

Mumbai, India's most populous city, houses 12.4 million people spanning 233 square miles (Census 2011). The history of Mumbai as a port city previously inserted into a colonial system of extractive trade and later, as a leading center of manufacture, which attracted migrants from across India, and today as a densely packed global city with a significant tertiary sector is an important consideration in understanding why it is flood-prone.

In Mumbai, the effects of climate change are exacerbated by overpopulation and land reclamation that limit the run-off of storm water (Patankar et al. 2010). The city, originally a set of seven islands, was transformed into a single landmass beginning in 1784 by the British through haphazard and unplanned land reclamation, that involved diverting the path of traditional waterways and changing the shape of the coastline (Deshmane 2013). The impact of high construction density, and inadequate drainage systems make the city chronically flood-prone during the monsoon season, spanning four months from June to October (De Sherbin et al. 2007). These conditions are coupled with other socioeconomic concerns such as high population density, the existence of large informal settlements (where 42 percent of the city's population live according to Census 2011) and housing stock that cannot withstand extreme weather conditions (De Sherbin et al. 2007). Further, over time the monsoons have greater variability with more days with very heavy rain (Ranger et al. 2011; Singh et al. 2014).

In Mumbai, there is a push to develop wetlands and other environmentally vulnerable areas. In spite of strict zoning regulations, real estate elites are able to get past the law, endangering ecological bulwarks against flooding, such as mangroves, because of poor implementation (Chatterjee 2017). The real estate lobby is also able to leverage its relationship with political elites to create artificial shortages that keep housing out of the reach of the majority of the population. There is a paradox of huge unsold inventories of housing stock, combined with artificially high prices and with several projects on hold (Chadha 2012). In any case, most of this housing is inaccessible to working class citizens. This tends to push a large section of the city's population into informal housing, wherever open land is available and accessible, sometimes in ecologically fragile areas, such as along rivers.

Kalina in Mumbai is home to the domestic airport (formerly a British RAF base in the 1940s),

many middle-class housing colonies, informal settlements, and small villages. The flow of the Mithi River, which runs through it, has been diverted and constricted to accommodate the construction of the airport runaways and more recently, an upmarket business district. All this construction has resulted in the suburb being notoriously flood- prone during the monsoon. The Municipal Corporation has recently begun to implement its BRIMSTOWAD plan to overhaul the city's drainage system. Much of this work will occur in Kalina, which has been identified as a neighborhood that floods every monsoon.

Methods

In Mumbai, my fieldwork in Kalina involved participant observation and interviews with 45 households over ten months. My subject position was important to my access in Mumbai. Having grown up in the city, I was able to leverage personal connections, through the church and other networks, especially with neighborhood elites, who might identify more closely with my class position. My privilege in Mumbai, as someone belonging to an upper class and caste background, and as someone who was studying in the US were key in facilitating my access and the ways in which people interacted with me. Moreover, the past research work that I have done in informal settlements in Mumbai, both for my BA dissertation, as well as subsequently, as a research assistant on an international comparative study on structural inequality, helped me develop contacts, networks as well as a preliminary understanding of the changing relationship of informal settlements with the state and real estate interests within the city.

I was also able to establish close ties with a local non-profit organization, where I worked over a period of ten months, and through whom I met most of my key informants who connected me with other respondents. My fluency in the local languages, Hindi and Marathi, enhanced my ability to establish rapport with my subjects. In Mumbai, residents were very interested in my comparative research, asking to see photos of king tide flooding in Miami, amazed that these kinds of things happened not only in their own city but in the global north as well.

I interacted with households from a range of different socioeconomic backgrounds in order to understand how they variously cope with the same hazards based on their access to resources and other factors. Here I examine five different cases — (i) Lalita and her family and neighbors living in Phule Nagar, a primarily Dalit informal settlement, (ii) Elizabeth, a middle-class resident of Nestor Compound, (iii) Peter, a resident of Kalina who is temporarily living in his mother's house, displaced from his apartment in a lower middle class housing colony, (iv) Lily and her family who formerly lived in a large bungalow but now live in an expensive apartment complex, and v) Leela who lives in Manipada, a low-lying informal settlement.

In the study of decision-making, ethnography is a valuable tool because it provides an opportunity to collect "*process data*," capturing how individuals or groups arrive at particular decisions or choices (Bruch and Feinberg 2017:209). In the absence of such knowledge, studying these decisions through surveys and other quantitative instruments cannot adequately capture these micro-level processes of adaptation, negotiation and meaning making.

Findings

On 26 July 2005, the city of Mumbai broke a 100-year record when it received 946 mm of rain over the span of 36 hours. Heavy rain, combined with an unusually high tide, caused the Mithi River[4] to overflow, submerging neighborhoods along its banks. Official estimates claim that over 1100 individuals died on that day.[5] Kalina was one of the areas worst affected as it borders the river and is also low-lying.

The Floods and their Aftermath

Lalita, in her early 50s, lives on the second floor of a 100 square foot one-room house with her husband, and two adult children in Phule Nagar, a primarily Dalit informal settlement in Kalina. Every year, the monsoons cause flooding in the narrow lanes outside her home. Lalita trudges through ankle or knee-deep water regularly, hitching her *saree* up to her knees when she goes to work at the local *Anganwadi*, or day care center.

The daily flooding that Lalita and her neighbors experience does not compare to the flooding that devastated their neighborhood in 2005, with storm surges as high as nine feet in some areas. On 26 July 2005, when the rain began to pour down that afternoon, quickly submerging the first floor in the matter of hours, residents gathered whatever belongings they could in pieces of cloth, placing these bundles for safekeeping on high shelves. If they had an additional story above them, they sought shelter there or with their neighbors or else in a nearby apartment building. The narrow two feet wide lanes between each row of individual houses flooded quickly and the houses themselves made with a mix of asbestos sheets, cement, and in some older homes, metal beams, were quickly submerged up until the second story. Many residents were stranded for two days without electricity or running water until the water subsided. After the flood abated, residents of Phule Nagar did not immediately receive any aid from the state. Finally, after three days when the local Member of Legislative Assembly (MLA) visited the area, the residents were agitated. A group of young men threw stones at the representative and got into a physical altercation with his security.

A few months after the floods, *dalals[6]* of real estate developers swarmed to Kalina, scoping out informal settlements and damaged, low-lying buildings for redevelopment. In some areas such as in Phule Nagar, residents reported that representatives would attempt to scare them of catastrophic impending flooding. "They would come and tell us, if you don't redevelop, your homes will be washed away again", Lalita said.

Real estate developers also approached existing lower middle and middle-class buildings and attempted to convince residents to redevelop (Malhotra 2013). Elizabeth is a former vice principal at a local school and at the time, secretary of her apartment committee in Nestor Compound. She is in her 60s and came to Kalina as a young girl in 1967 to live with her family. In 2005, she lived in a ground floor apartment, with her husband and two children. During the

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[4] Mithi is a river that flows northwest to the Arabian Sea. Indiscriminate dumping of construction debris, effluents and other city's waste has reduced this once flourishing river into a narrow sewerage drain, causing flooding especially during high tides in the monsoons. The situation has been exacerbated by the rapid construction activity in the Bandra Kurla Complex, a newly developed business district, which has resulted in the narrowing of the river's mouth.

[5] This does not however include those who contracted diseases and died as a result. One study reports a dengue and leptospirosis outbreak after the floods (Zaki and Shanbag 2010).

[6] Brokers or middlemen.

floods, the water reached 8 feet inside her home, just short of wetting the wall-mounted altar with its ceramic figurines and crucifix.

For Elizabeth, the experience "felt like a nightmare". Less than a month later, the *dalals* descended: "They came like flocks of geese in search of buildings, each promising lots of different facilities like larger flats – 25 percent more area, 40 percent more area", she said. In total, Elizabeth reports that ten different developers with redevelopment proposals approached her housing society. Finally, they negotiated an agreement with one developer, in which they asked for a corpus of two hundred thousand rupees towards their new housing society and a bank guarantee. Of the sixteen buildings in Nestor Compound where Elizabeth lives, nine have undergone redevelopment as a result of flooding.

Redevelopment

The builder promised Lalita and her neighbors a building in two years. The process began in 2010 but was stalled as a result of the death of one of the developers. In the monsoon of 2017, when on 30 August the city flooded again — the worst floods since 2005 — the building had still not been completed though many homes had been demolished to make way for the new eight story buildings.

In the monsoon of 2018, Lalita introduced me to the manager of the building project, Praveen. He was sitting on a plastic chair in the middle of the construction site when she shouted across: "Hey you, come here", to which he came running over. While there were certainly differences of class between them, Lalita did not shy away when talking to him and their relationship bordered on the familial. He offered to show us the apartments that he had developed for Lalita and her family, measuring 250 square feet with a living room, bedroom, kitchen, and two small balconies to dry clothes. Afterwards, Praveen wanted to show us the sale building as well. In the compound of the sale building, which adjoins the redevelopment building, he pointed out the clubhouse and other amenities not present in the redevelopment buildings. While walking up the stairs, we noticed independent Indian-styled bathrooms on each floor, identical to the ones that Lalita and her neighbors would have in their new homes. Lalita asked Praveen: "Why are there bathrooms outside the flats on each floor?" Praveen responded, "It's for the service staff, the maids and other people that will work here." Unstated by Praveen but evident to Lalita was that these separate bathrooms were meant for people like her.

Praveen then proceeded to show us the two model flats, which incidentally he had bought for himself and furnished. They were five times the size of Lalita's new home with Western-style bathrooms and smooth marble floors; she was entranced. The interaction between Lalita and Praveen is important because it underscores the radically different strata of people that these housing projects bring together. It also reveals the kinds of practices that underlie these housing societies, with separate restrooms for service staff, that relate to norms of caste and class.

In early July 2018, the monsoon brought heavy rains to Mumbai. Social media was abuzz with rumors of a cyclone that would devastate the city. In Phule Nagar, with all the construction, and the cementing of open areas, the gutters overflowed resulting in the flooding of the ground floors of several homes. In the middle of the night rather than call the Municipal Corporation, Lalita and her neighbors called Praveen, who swiftly dispatched some workers to clean the stormwater drains and pump the water out. While this is the responsibility of the Municipal

Corporation, in the past, when the drains have needed cleaning, members from the community collectively did it themselves. Part of this interaction signals how in the absence of state provision of goods and services, citizens rely on private actors and brokers.

As a result of repeated flooding over the years, many residents lost their property and other important documents. Further, many did not have adequate proof to demonstrate their ownership of their homes. In these circumstances, it is often at the discretion of the developer to decide whether someone will be given a home. When I asked Praveen about this, he said that they were helping residents who did not have papers and directing them on how to get their documents in order. "Without our help, it would take them a long time but with our help their problems will be sorted out soon," he said. I also asked Praveen about the residents reaching out to him instead of the Municipal Corporation. He responded: "They know that I am there for them, so they don't need to take any tension about this."[7]

These interactions demonstrate the ways in which real estate developers begin to function as state proxies in the absence of state intervention. For Lalita and her neighbors, the real estate developer served as a provider of public services and as an authority deciding legitimate status of housing claims. Further a few residents declined speaking to me because they were afraid not of the state or Municipal Corporation but of the real estate developer. Particularly, discussing issues of flooding became contentious because while the developer was helping them solve the issue, part of the reason they were in the situation was because of the delays in work as well as the concretization of the neighboring areas. While these relationships and interactions are often friendly and familial, they underscore the asymmetry of power and the ways in which residents are dependent on private actors and their emissaries.

Going to Court

Peter is a 60-year old resident of Kalina who works in a tech company nearby. When I met Peter he was living in his mother's house in Kalina along with his family. The ceiling of the home displayed significant water damage with the plaster discolored and flaking. A plastic sheet had been taped to the ceiling in order to prevent the leaks from damaging Peter's mother's piano below.

Peter was living in his mother's house because he had been evicted from his own by a real estate developer. After the 2005 floods, Peter's apartment complex was badly affected and the ground floor residents pushed for redevelopment. As he puts it, "After the floods the builders started eyeing all the properties and we became easy meat." His apartment complex with its lower middle class population was approached by one of the biggest developers in Mumbai, who according to Peter is "notorious for cheating people." The developer originally promised 380 square feet homes but in the final plan the residents were given 325 square feet homes. "We were showed a nice layout and all. Bullshit. All carrots. Finally he made one long building and the rest of it was all kept for the saleable part" Peter said.

Peter refused to accept the developer's plans and attempted to organize some of the other residents. He continued to live there as the three-story buildings around him were demolished. Peter even took the developer to court over the issue. He mock acts out to me how the judges self-importantly walk in, how they are announced, and how the whole system can be 'managed.'

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[7] An Indianism meaning: not having to worry.

"You go to the High Court [and] every second case is this builder versus BMC versus MHADA, this society versus that society, this thing, that thing. It's all cheating cases. When we were there, the Court said [you have] 70 percent [agreement] so get out." Since the developer had managed to orchestrate the support of 70 percent of the residents, their dissent was overturned and Peter was evicted from his home.

Later additional problems arose with the development — such as an underground parking structure that was not in the official plans. Peter and his neighbors found out about this by filing a Right to Information application. The work on the building is thus stalled, with the rehabilitated building complete but the saleable portion of the building not started. Many residents of the saleable portion of the building are irate about this. Peter said: "The builder goes and changes the plan. It's all in the clauses, and no one ever reads the clauses. [It might say]: 'I do not need to come back to you to get the plan approved. I can amend it on my own.' So he changes the plan […] Finally when it's built, there are some illegalities and you won't get an occupation certificate." The developer is required to pay Peter rent until the building is ready to be occupied. However, since the developer stopped paying rent in 2017, Peter will soon be forced to occupy an apartment in the new building that has not be cleared for occupation. "I am without an OC [occupation certificate]. But I am in a soup. He's stopped my rent, I am virtually on the street […] The court is not taking a hard stance against these people. The courts are also being managed," he said.

Since paying rent to temporarily displaced residents is one of the largest expenses of developers, many stop paying rent after some time. For instance, both Elizabeth and Lalita's neighbors reported that the developer did not pay them the last eleven months of rent, even though this is something that developers are legally required to do.

Family Disagreements

During the floods of 2005, Lily and her family lived in a large single bungalow. She and her four siblings all grew up in the one-story bungalow that she lived in with her husband, mother, aunt, and two children. When it began to rain torrentially, within the span of a few hours, water flooded the family's garden, inching its way up the steps and finally into the house. As the house began to flood, Lily wondered what she should save. The first thing she thought of were home appliances, including the television and computer; the washing machine and fridge were too heavy to move. Most of all she worried about her elderly mother and aunt, both of whom were in their 80s. She instructed them to lie in bed, since this was above the water level and told them not to move. In the house, knee-deep muddy water mixed with sewage was overflowing from the toilets and the drains. After the flood, Lily's mother Theresa developed a fear of the monsoons. Every time it would rain and water would start filling in the garden, she would call Lily at work and tell her that the water was rising and to come home. Lily and her husband Ricardo decided that the only way to assuage her fears was to have their ancestral bungalow redeveloped. It took three years to convince the rest of Lily's siblings who as stakeholders had to legally agree to this.

Lily and her siblings had many disagreements about the redevelopment of their home, particularly about how the property should be divided and who should get how much. They managed to appoint a developer but the project stalled for years with the siblings refusing to sign the necessary paperwork. The plan was to build a multi-storied building; each sibling could

choose between receiving an apartment or an equivalent sum of money. The redevelopment led to the exhumation of long-standing tensions between the siblings about the inheritance, particularly about their mother's share. The builder, also Catholic, like the family,[8] served as an important adjudicator. He directed Lily to seek legal advice and when conflicts arose between the siblings during the process, such as who should get which apartment, he stepped in to decide. In the monsoon of 2018, two years after they had moved into their new home, Lily said of him: "Honestly, he became like family to us." On 30 August 2017, when Mumbai flooded, Lily and her family were safely in their second floor home. The only damage that occurred was to one of their neighbors' cars, which was stuck on the lower level of a car lift. They have thus successfully managed to adapt to flooding.

Lily and her family's experience demonstrates how for many upper and upper middle class residents also, developers begin to take over the role of the state, adjudicating conflicts between them. A comparison between the case studies discussed in this paper demonstrates how class mediates the relationship to the state, and in extension, private developers. For the rich, the state works to safeguard their property and the relationship is a somewhat contractual relationship. For the poor, the dependence on the state is far greater, given that they require access to public amenities, such as water and sanitation, and public services, such as health care and interventions to mitigate the effects of flooding.

Stuck in Place

For many, redevelopment remains a distant dream, for a few different reasons — problems with title papers, lack of community consensus, or problems with the real estate developer (for instance stalling). In the event of these circumstances, residents invest their own money into developing their homes.

Leela, in her early 30s, lives in Manipada, a flood-prone informal settlement and *chawl* in Kalina. Leela makes jewelry and works from her one-room home that she lives in with her parents. In 2005, floodwaters submerged the first story of their house. She left with her family, including her mother who is partially paralyzed as a result of a stroke, to a nearby building. Her extended family was to receive apartments in this building but had not received their occupation certificate as yet. In spite of this, they broke the locks on the doors and took possession. Leela's settlement too is slated for redevelopment, however there have been problems with achieving consensus in the community and they have cycled through multiple developers.

Flooding is a common occurrence during the monsoon. Leela has to stay awake on nights when it rains, watching the water level outside, hoping that it does not begin coming through the floor or cross the high, black *kadappa* stone barrier on the threshold of her door-step. Sometimes she wakes up in the night, bed sheets and mattress soaked through. If she goes out for work and it rains for an hour, she has to rush back to make sure that her mother is cared for if the home as flooded. Leela tells me that the "normal water level" is up to shin deep. When it floods, her extended family who live in the nearby apartment complex help Leela and her family move their things and give them a place to stay. On 30 August 2017, the water came into her home again, flooding it with thigh-deep water. After this, Leela decided that she would not wait for redevelopment but instead would invest her own money into raising the height of her home and possibly build a second story. In the first month of the monsoon of 2018, water flooded her

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[8] This was an important consideration for them.

home five times, only strengthening her resolve to go through with her plan. "This year I decided, the situation is so dire and I am tired to death, even if we didn't have enough money we would raise the height of the house," she said.

Leela faced some pushback from her father: "For my father it's like this, you throw so much money at this problem and anyway they're going to come, tear down our homes and construct a building here. He thinks, 'Why should we waste 2 lakhs[9] on this? You might get married or we should save for our old age.' But now we cannot live like this anymore. Mop the water up, dry everything, sleep, and repeat. That's what the situation has come to," she said.

Leela described her situation as being "out of options." While she had earlier pegged her hopes on redevelopment, for her it did not seem like something that would happen in the next five years. Further, she could not sell her house and move as it came under the *pagdi* system, meaning that she was a long-term tenant who for all intensive purposes owned the house. However, if she sold her home, she would have to give a sizeable percentage to the landlord and she would not be able to afford a home anywhere else with the money from the sale. Redevelopment would double the value of the property and the developer would have to give the landlord their share. In these cases, the developer has to negotiate with both parties.

After looking around her settlement, Leela found a second story room for her family for four months. The construction work commenced in August and concluded a few weeks later. Leela's family did not have the money to build a second story but settled on redoing the floor and raising the height of their home by a foot. Leela went every day to supervise the work, choosing the tile and wall color. When it was done, Leela said that she felt relieved: "The water is going to come regardless. But at least when the elevation is higher inside, it will probably come a little less and will be easier to bend down and scoop it out," she said.

For Leela and for many others like her, these adaptation efforts are temporary and do not greatly ameliorate living conditions. However, in spite of this and no specific framing of climate change, they believe that the situation is getting worse and that they must do whatever little they can to safeguard their property. Leela's case demonstrates that in the absence of state support, the issue of flooding becomes an individual problem that residents must deal with on their own, even if that means going into debt or exhausting their meager savings.

Conclusion

This paper provides an ethnographic account of decision-making around flooding and climate change in a city in the global south. As the effects of climate change become an inescapable reality for ever-growing populations of the world, often coupled with varying responses and interpretations, ranging from denial to catastrophism,[10] it becomes increasingly important to understand the complex ways in which people and their governments respond to this phenomenon. Climate change cannot be regarded merely as an objective, natural phenomenon triggered by human activity – its discursive construction, socio-cultural interpretations and responses become crucial in understanding its mediations.

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[9] A lakh is a hundred thousand rupees.
[10] Norgaard 2011; Greschke and Tischler 2015; Wuthnow 2010.

My fieldwork in Kalina-Mumbai demonstrates the operation of disaster capitalism, where real estate builders play on the insecurities of flood-affected residents in order to persuade them to agree to undergo redevelopment. In a city in which land is in extremely short supply, redevelopment becomes a viable alternative for builders to make a sizeable profit, for the redevelopment rules permit them to sell at market prices the additional homes generated after rehousing or compensating the existing residents. While the relationships between developers and residents often border on the familial, this does not mean that they are necessarily equitable. Builders and their representatives often function as paternalistic agents, involved in relations of both patronage and oppression.

Here too, class and access to resources play a role in the leverage power of residents vis-à-vis the builders. As Peter's case demonstrates, the other players, such as the state and the legal system, are unwilling or unable to adjudicate in the interests of residents, which results in their often getting short-changed or cheated by the real estate lobby. The affected citizens do lobby with their elected representatives and the municipal authorities, and also try to leverage their voting rights in order to extract a modicum of relief and basic services from the state. However, increasingly, given the context of a shrinking welfare state in the neoliberal dispensation, real estate developers and parastatal agencies replace the state as significant actors who have the power to redress the grievances and problems of citizens subjected to chronic flooding.

In Mumbai, the state has a piece-meal approach to disaster management, sending out few emergency response teams to help residents and in the aftermath offering aid, though this does not reach many who are affected. Flood insurance coverage is also quite low with most policies insuring motor vehicles (Surabhi 2018). By and large residents rely on family, friends, neighbors, and sometimes complete strangers during times of need. During the course of my fieldwork, I heard countless stories about the ways in which people relied on each other's kindness, whether it was the resident of Kalina who housed forty people in his home for two days or others who jumped into floodwaters to save their neighbors from drowning. In the absence of any kind of safety net and facing repeated threat to life and property, residents in Mumbai decide to take the matter of flooding into their own hands, as Leela's case demonstrates, or alternatively agree to redevelop their homes in collaboration with private developers, as is the case of Lalita and others

In the case of this study, for Lily and family, the redevelopment process and adaptation process is complete. They do not face further threats from flooding. Meanwhile, thirteen years after catastrophic flooding in the neighborhood, for Peter, Lalita, and Leela, flooding and the redevelopment process continue to be a major disturbance, in spite of adaptation efforts. Thus more attention should be paid to the outcome of adaptation decisions and the degree to which these measures insulate people against future incidents. Another important aspect of decision-making that remains understudied is the ways in which collective decision-making occurs either within a family or a community. Decision-making is often assumed to be an individual activity; however, as this study demonstrates, many times adaptation decisions require the consensus of several individuals, each with their own set of beliefs, practices, and resources.

Bibliography

Adams, Vincanne. 2013. *Markets of Sorrow, Labors of Faith: New Orleans in the Wake of Katrina*. Durham, NC: Duke University Press.

Adger, W. Neil. 2003. "Social Capital, Collective Action, and Adaptation to Climate Change." *Economic Geography* 79 no. 4: 387-404.

Adger, W. Neil, Jon Barnett, F. S. Chapin III, and Heidi Ellemor. 2011. "This Must be the Place: Underrepresentation of Identity and Meaning in Climate Change Decision-Making." *Global Environmental Politics* 11, no.2:1-25.

Anand, Nikhil, and Anne Rademacher. 2011. "Housing in the urban age: Inequality and aspiration in Mumbai." *Antipode* 43, no. 5:1748-1772.

Bhide, Amita. 2014. *The City Produced: Urban Development, Violence and Spatial Justice in Mumbai.* Mumbai, India: Tata Institute of Social Sciences.

Boschken, Herman L. 2013. "Global Cities are Coastal Cities Too: Paradox in Sustainability" *Urban Studies* 50, no. 9: 1760-1778.

Brenner, Neil, and Nik Theodore. 2002. "Cities and the Geographies of "Actually Existing Neoliberalism." *Antipode* 34, no. 3:349-379.

Bruch, Elizabeth and Fred Feinberg. 2017. "Decision-Making Processes in Social Contexts." *Annual Review of Sociology* 43:207–227.

Carmin, JoAnn, Kathleen Tierney, Eric Chu, Lori M. Hunter, J. Timmons Roberts, and Linda Shi. 2015. In *Climate Change and Society: Sociological Perspectives*, edited by Riley E. Dunlap and Robert J. Brulle, 164-198. New York, NY: Oxford University Press.

Centeno, Miguel A., and Joseph N. Cohen. 2012. "The Arc of Neoliberalism." *Annual Review of Sociology* 38:317-340.

Chadha, Sunainaa. 2012. "Mumbai Realty: How the Builder-Politicians Nexus Cheats Us." *Firstpost*. December 20, 2012. Accessed November 2, 2018. https://www.firstpost.com/politics/mumbai-realty-how-the-builder-politician-nexus-cheats-us-369681.html.

Chatterjee, Badri. 2017. "74 Cases of Mangrove Destruction on Mumbai's Private Land in 4 Months." *Hindustan Times,* June 27, 2017. Accessed November 2, 2018. https://www.hindustantimes.com/mumbai-news/74-cases-of-mangrove-destruction-on-mumbai-s-private-land-in-4-months/story-YuXeRx5cTczXM0PPkkz3jN.html.

Cinner, Joshua E, W. Neil Adger, Edward H. Allison, Michele L. Barnes, Katrina Brown, Philippa J. Cohen, Stefan Gelcich, Christina C. Hicks, Terry P. Hughes, Jacqueline Lau, Nadine A Marshall and Tiffany H. Morrison. 2018. "Building Adaptive Capacity to Climate Change in Tropical Coastal Communities." *Nature Climate Change* 8: 117-123.

Crowder, Kyle and Liam Downey. 2010. "Interneighborhood Migration, Race, and Environmental Hazards: Modeling Microlevel Processes of Environmental Inequality." *American Journal of Sociology* 115, no. 4: 1110-49.

Dawson, Ashley. 2017. *Extreme Cities: The Peril and Promise of Urban Life in the Age of Climate Change.* New York, NY: Verso.

De Sherbin, Alex, Andrew Schiller, and Alex Pulsipher. 2007. "The Vulnerability of Global Cities to Climate Hazards." *Environment and Urbanization 19,* no.1: 39-64.

Deshmane, Akshay. 2013. "Haphazard Land Reclamation fueled Mumbai's Maximum Dreams." *Down to Earth,* April 1, 2013. Accessed November 2, 2018. https://www.downtoearth.org.in/news/haphazard-land-reclamation-fuelled-mumbais-maximum--dreams-40745.

Goldman, Michael. 2011. "Speculative Urbanism and the Making of the Next World City." *International Journal of Urban and Regional Research* 35, no. 3:555-581.

Gotham, Kevin Fox. 2008. "From 9/11 to 8/29: Post-disaster recovery and rebuilding in New York and New Orleans." *Social Forces* 87, no. 2:1039-1062.

Gotham, Kevin Fox. 2010. "Disaster, Inc.: Privatization and Post-Katrina Rebuilding in New Orleans." *Perspectives on Politics* 10, no. 3:633-646.

Greschke, Heike, and Julia Tischler. 2015. "Introduction: Grounding Global Climate Change." In *Grounding Global Climate Change*, edited by Heike Greschke and Julia Tischler, 1-18. New York, NY: Springer.

Grothmann, Torsten, and Anthony Patt. 2005. "Adaptive Capacity and Human Cognition: The Process of Individual Adaptation to Climate Change." *Global Environmental Change* 15, no. 3: 199-213.

Harlan, Sharon L, David N. Pellow, J. Timmons Roberts, Shannon Elizabeth Bell, William G. Holt and Joane Nagel. 2015. "Climate Justice and Inequality: Insights from Sociology." In *Climate Change and Society: Sociological Perspectives*, edited by Riley E. Dunlap and Robert J. Brulle, 127-163. New York, NY: Oxford University Press.

Intergovernmental Panel on Climate Change. 2014. *Climate Change 2014: Impacts, Adaptation and Vulnerability*. Cambridge, UK: Cambridge University Press.

Jerolmack, Colin and Shamus Khan. 2014. "Talk is Cheap: Ethnography and the Attitudinal Fallacy." *Sociological Methods and Research* 43, no. 2: 178-209.

Klein, Naomi. 2007. *The Shock Doctrine: The Rise of Disaster Capitalism*. New York, NY: Macmillan.

Kunreuther, Howard. 1996. "Mitigating Disaster Losses Through Insurance." *Journal of Risk and Uncertainty* 12, no. 3: 171-187.

Kuyucu, Tuna, and Özlem Ünsal. 2010. "'Urban Transformation' as State-Led Property Transfer: An Analysis of Two Cases of Urban Renewal in Istanbul." *Urban Studies* 47, no. 7: 1479-1499.

Koslov, Liz. 2014. "The Case for Retreat." *Public Culture* 28, no. 2: 359-387.

Logan, John R. and Harvey Molotch. 1987. *Urban Fortunes: The Political Economy of Place*. Berkeley, CA: University of California Press.

Malhotra, Sarika. 2013. "Rising from the Rubble." *Business Today*, March 17, 2013. Accessed November 2, 2018. https://www.businesstoday.in/magazine/cover-story/real-estate-redevelopment-of-properties/story/192583.html.

McFarlane, Colin. 2010. "Infrastructure, Interruption, and Inequality: Urban Life in the Global South." In *Disrupted Cities: When Infrastructure Fails,* edited by Stephen Graham, 131-144. New York, NY: Routledge.

Miraftab, Faranak. 2004. "Public-Private Partnerships: The Trojan Horse of Neoliberal Development?" *Journal of Planning Education and Research* 24, no. 1: 89-101.

Moser, Susanne and Julia A. Ekstrom. 2010. "A Framework to Diagnose Barriers to Climate Change Adaptation." *Proceedings of the National Academy of Sciences*, 107(51): 22026-22031.

Murphy, Daniel J, Laurie Yung, Carina Wyborn, and Daniel R. Williams. 2017. "Rethinking Climate Change Adaptation and Place through a Situated Pathways Framework: A Case Study from the Big Hole Valley, USA." *Landscape and Urban Planning* 167: 441-450.

Nicholls, Robert J., Susan Hanson, Celine Herweijer, Nicola Patmore, Stéphane Hallegatte, Jan Corfee-Morlot, Jean Château, and Robert Muir-Wood. 2008. "Ranking Port Cities with High Exposure and Vulnerability to Climate Extremes: Exposure Estimates." *OECD Working Paper 1*.

Norgaard, Kari Marie. 2011. *Living in Denial: Climate Change, Emotions, and Everyday Life*. Boston, MA: MIT Press.

Office of the Registrar General and Census Commissioner. 2011. *Census 2011*. New Delhi, India: Office of the Registrar General and Census Commissioner.

Paskal, Cleo. 2010. *Global Warring: How Environmental, Economic, and Political Crises Will Redraw the World Map*. New York, NY: Palgrave Macmillan.

Patankar, Archana, Anand Patwardhan, Janki Andharia, and Vikas Lakhani. 2010. "Mumbai City Report." Paper presented at *International Workshop on Climate Change Vulnerability Assessment and Urban Development Planning for Asian Coastal Cities*, August, Bangkok, Thailand.

Peck, Jamie. 2006. "Liberating the City: Between New York and New Orleans." *Urban Geography*, 27(8):681-713.

Phillips, J. 2003. "Determinants of forecast use among communal farmers in Zimbabwe." In *Coping with Climate Variability: The Use of Seasonal Climate Forecasts in Southern Afric*a, edited by Karen O'Brien and Coleen Vogel, 110-128. Aldershot, UK: Ashgate.

Ranger, Nicola, Stéphane Hallegatte, Sumana Bhattacharya, Murthy Bachu, Satya Priya, K. Dhore, Farhat Rafique, P. Mathur, Nicolas Naville, Fanny Henriet, Celine Herweijer, Sanjib Pohit, and Jan Corfee-Morlot. 2011. "An Assessment of the Potential Impact of Climate Change on Flood Risk in Mumbai." *Climatic Change* 104, no. 1: 139-167.

Searle, Llerena Guiu. 2014. "Conflict and Commensuration: Contested Market Making in I ndia's Private Real Estate Development Sector." *International Journal of Urban and Regional Research* 38, no. 1: 60-78.

Shatkin, Gavin. 2011. "Planning Privatopolis: Representation and Contestation in the Development of Urban Integrated Mega-Projects." In *Worlding Cities: Asian Experiments and the Art of Being Global*, edited by Aihwa Ong and Ananya Roy, 77-97. Hoboken NJ: Wiley Blackwell.

Singh, Deepti, Michael Tsiang, Bala Rajaratnam, and Noah S. Diffenbaugh. 2014. "Observed Changes in Extreme Wet and Dry Spells During the South Asian Summer Monsoon Season." *Nature Climate Change* 4:456-461.

Surabhi. 2018. "Insurers Not Expecting Flood of Claims in Mumbai." *The Hindu BusinessLine*, July 13, 2018. Accessed November 2, 2018. https://www.thehindubusinessline.com/news/insurers-not-expecting-a-flood-of-claims-in-mumbai/article24413814.ece.

Tierney, Kathleen. 2015. "Resilience and the Neoliberal Project: Discourses, Critiques, Practices–and Katrina." *American Behavioral Scientist* 59, no. 10:1327-1342.

Wacquant, Loïc. 2009. *Punishing the Poor: The Neoliberal Government of Social Insecurity*. Durham, NC: Duke University Press.

Weber, Rachel. 2002. "Extracting Value from the City: Neoliberalism and Urban Redevelopment." *Antipode* 34, no. 3: 519-540.

Wuthnow, Robert J. 2010. *Be Very Afraid: The Cultural Response to Terror, Pandemics, Environmental Devastation, Nuclear Annihilation, and Other Threats.* New York, NY: Oxford University Press.

Zaki, S. A., and P. Shanbag. 2010. "Clinical Manifestations of Dengue and Leptospirosis in Children in Mumbai: An Observational Study." *Infection* 38, no. 4:285-291.