
Water Wars in Mumbai

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Beyond the Pale

The *Mumbai Mirror*, January 8, 2010. A photograph shows a line of proud Mumbai police officers standing behind row upon row of what appear at first sight to be rusted machine guns (see fig. 1). But this is not one of the arms caches regularly unearthed to demonstrate the force's effectiveness against the myriad terrorist networks that regularly target urban sites in contemporary India. Rather, the objects are water booster pumps, confiscated in a new campaign of dawn raids targeting "water theft" by slum dwellers in the Shivaji Nagar and Govandi districts (see fig. 2 map below).

"Stealing Water to Earn a Few Bucks?" the headline reads. "Pay a Hefty Price!" (Sathe 2010). The article details how the raids are being backed up by new legal moves to criminalize certain uses of water. Hundreds of people, arrested for installing and using the pumps, are to be prosecuted under draconian and nonbailable laws such as the Prevention of Damages to Public Property Act. All this activity is portrayed unproblematically as a heroic response to the threat that



Figure 1 Mumbai police stand proudly by piles of water booster pumps removed from informal settlements in the Shivaji Nagar and Govandi districts of the city the previous night. *Mumbai Mirror*, January 8, 2010

Note on Methods: The essay reports on a nine-month period of ethnographic fieldwork conducted in contrasting informal settlements in Mumbai and focuses in particular on Rafinagar, a predominantly Muslim settlement, in northeastern Mumbai. In-depth ethnographic research was conducted in the two case studies; four months were spent at each of the two sites. Key methods involved observation, interviews, and focus groups. Observation involved spending time in the streets of the case studies, talking with groups and residents, and observing water and sanitation practices (e.g., cleaning of drains, delivery of water for public toilet blocks). Interviews were particularly important; most were informal and unstructured, including ad hoc conversation with residents and workers.

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1. On bourgeois environmentalism, see Baviskar 2002.

water theft in slums poses to the wider, formal, legitimate, and law-abiding city. “Pilferages, if not controlled,” writes the author, “could exhaust the potable water reserves before the next monsoon” (Sathe 2010).

Such statements tap into a mainstream discourse according to which recent poor monsoons have led to a major “water crisis” in Mumbai, necessitating radical, emergency measures to address widespread “water theft” or “water pilferage”—especially by the urban poor. What such discourses occlude, however, are the ways that current systems of urban water provision work to systematically dehydrate and profit from urban slum communities, while water wastage by the affluent and their preferred urban facilities goes unchecked.

On a rapidly urbanizing and increasingly thirsty planet, contemporary Mumbai is one possible harbinger of a stark global future. The majority of humans, already, are urbanites; some estimate that 75 percent will be by 2050. The inevitable result is that water, like everything else, is being urbanized: larger and larger swathes of the earth’s “natural” hydrological systems are being exploited to sustain burgeoning metropolitan areas (see Swyngedouw 2004; Kaika 2005). This transformation challenges the easy separation of nature and city that is a legacy of modernist thinking, because the earth’s water is increasingly metabolized through the pipes, channels, and sewers of urban areas (and, of course, through the bodies of the people who live in them).

With urban residents largely unable to provide for their own water needs, access to technological systems providing water of adequate quality and quantity is now arguably the most basic element of the right to a decent urban life. This is especially so for the world’s billion or more slum dwellers, who are usually denied access to formal water supplies because their claims to space are deemed illegitimate or illegal. For such communities, the challenge of even very basic hydration, sanitation, or washing often involves the negotiation of complex circuits of predation, corruption, and patronage, arrangements that seek to fully exploit both the nature of urban water as the ultimate, inelastic, life-giving commodity and the distance of such communities from adequate formal water infrastructures.

Crucially, slums and slum dwellers are demonized and criminalized in many megacities of the global South. Indeed, they are often portrayed as not actually being of “the city” at all. Another *Mumbai Mirror* article, for example, published three days later (Virat Singh 2010), recounts the systematic destruction of a network of “illegal” pipes improvised by slum dwellers in the Dahisar district, twelve miles northwest of Shivaji Nagar and Govandi. Here a punitive act of state violence against one of the poorest and most vulnerable communities in Mumbai,

undertaken after protracted lobbying by nearby affluent communities, is sanitized as a heroic act of water conservation, “saving water” for “the city.”

In this case, “the city” signifies, crucially, not the whole of Mumbai but the formal city of apartment blocks, malls, corporate towers, technology centers, and leisure parks organized to meet the needs of elites, middle classes, foreign investors, and tourists. All else—the majority of the population living in self-built slums on a mere twentieth of the city’s land—is here discursively cast out from the modern rights, entitlements, and promises of city life. The urban poor are instead represented as a parasitic threat requiring increasingly violent response and draconian control. Given the very essential nature of urban water, Giorgio Agamben’s (1998) notion of “bare life”—human existence reduced to a biological process, which can be extinguished through sovereign power with impunity—has rarely seemed so apposite.

In the following essay we draw on an in-depth ethnographic field study into the water and sanitation practices within informal settlements in Mumbai to excavate the complex politics of water in the city. We demonstrate in particular how the contemporary situation in Mumbai reveals the costs of marginalizing the majority urban poor in global megacities: in public health, death rates, and communicable and waterborne diseases; in the burden of waiting for and carrying water (especially for women and children); in the burden of incurring high water expenses; in water extortion against the poor by predatory rackets; and in the problems of systematic dehydration. Beyond this, we also show how these costs are often obfuscated in dominant discourses of the urban water crisis emanating from governing elites, security and police forces, and mainstream media. In Mumbai, as we shall see, these discourses often tend to demonize informal settlements and their residents as the ultimate *cause* of the wider water crisis afflicting the city. They portray informal settlements as spaces that must be reclaimed and reconstructed in the production of Mumbai as a new “global city” to rival Shanghai.

For example, the influential and controversial 2003 report titled *Vision Mumbai: Transforming Mumbai into a World-Class City*, commissioned by the elite citizens’ group Bombay First from the management consultant firm McKinsey and Company (and subsequently taken up by the Maharashtra State Government), argues that Mumbai needs to transform its infrastructure and governance to become a “world-class city.” It draws on examples from Shanghai, Singapore, New York, and London and emphasizes high-impact projects based on public-private partnerships, largely ignoring informal settlements and sanitation. When slums do feature in the report, they are as sites of proliferation that mark Mum-

bai's "slippage" down the rankings of "top" Asian cities and as spaces that must be cleared because they do not fit with the image of the world-class city. The report argues that "the percentage of the population living in slums must fall to 10–20 percent" (Maharashtra State Government 2003: 20) and says very little about the causes of slum formation beyond housing prices being too high. It does suggest building more low-income housing, creating "special housing zones" for three hundred thousand people, reforming existing schemes such as the controversial market-led Slum Rehabilitation Authority (SRA) scheme by increasing contributions from slum residents to the cost of construction, ensuring that housing prices should be no more than three to four times the annual household income, and insisting that no post-1995 slums should be allowed (i.e., they should be demolished). Not only are these interventions nowhere near significant enough, but they also insist on slums remaining spaces outside the project of "worlding" Asian cities to meet global aspirations of market competitiveness and aesthetics (Roy and Ong 2011). The political agendas surrounding the promotion of a "new Shanghai" continue to reverberate in the city, not just those of politico-corporate Mumbai but of public nongovernmental organizations (NGOs) like Citispace and mainstream journalists. For example, one *Times of India* journalist celebrated Shanghai over Mumbai for its expensive hotels and shopping malls that beat "even Singapore," for its "new overpasses, metro rail links, a dream subway system" and for the fact that the "unruliness visible on Indian streets is almost absent" (Joseph 2005).

Finally, dominant discourses surrounding Mumbai's contemporary water crisis tend to simplistically equate the city's poor citizens with the interests of a powerful and shadowy "water mafia" in Mumbai. This term, which is very vaguely and loosely deployed by elites and mainstream media outlets, refers to a set of loose alliances used to exploit water scarcity among Mumbai's population. It involves corrupt municipal officials, police officers, private water tanker companies, and middlemen (some of whom are better-off residents of informal settlements). This complex set of arrangements, practices, and rackets extracts profits from Mumbai's water shortages by organizing, for high levels of kickbacks and payment, both legal and illegal water connections as well as private water tanker deliveries.

By failing to reveal how such corrupt water practices negatively affect Mumbai's poor, the "water mafia" discourse further compounds the vulnerabilities of informal city dwellers to them, especially in the context of increasingly extreme water scarcity. In the process, the exploitative power relations linking the police, the Brihanmumbai Municipal Corporation (BMC), the city's municipal government, politicians, private water tanker companies, influential middlemen, and resi-

dents of informal settlements are rendered all but invisible. Our analytic strategy is thus to deliberately juxtapose elite, discursive invocations of “water crises” in Mumbai with ethnographic research exposing some of the lived materialities surrounding access to water among Mumbai’s most marginalized inhabitants. We adopt such an approach to illustrate some of the jarring collisions that characterize both the research process and the nature of hydropolitics in Mumbai.

Parched City

In 2008 some 19.5 million people were squeezed into the 438 square kilometers of Mumbai’s tiny island-peninsula and its immediate hinterland (see fig. 2). The city was thus the fifth most populous in the world, its population having quadrupled in a mere four decades.

Overwhelmingly dominating this growth has been Mumbai’s burgeoning population of people living in informal settlements. Indeed, one estimate suggests that, whereas in 1861 only 12 percent of Mumbai’s population could be classified as “poor,” by 1991 this figure had risen to 51 percent (Harada, Shikura, and Kumar Karn 2003: 3576). (Such definitions are contested, however, and are complicated by the fact that Mumbai’s extremely high real estate prices force many lower-middle-class people to live in informal settlements.)

Mumbai has a fragmented and polarized metropolitan landscape (see Appadurai 2000; Gandy 2008). The World Bank estimates that 54 percent of Mumbai’s population—9 million people—are now concentrated into the city’s archipelago of dense informal settlements, or *zopadpatti*, as they are often called in Mumbai, forced to occupy just 5 percent of the city’s land (see fig. 2) (World Bank 2009). Such places have among the highest population densities on earth: the biggest and most famous—Dharavi—squeezes over a million people into just one square mile. Mumbai’s slum dwellers are the city’s most vulnerable population: they are the prime victims of environmental pollution and a whole spectrum of water-borne and other diseases and suffer from inadequate housing conditions, infrastructure services, and waste disposal routes.

Within thirty years, moreover, most projections are that Mumbai’s extraordinary rate of continued growth will lead it to become the world’s second largest city (after Tokyo), with over 26 million people. The majority of this new population is expected to squeeze into informal settlements.

Mumbai’s polarized social landscape is reflected in a labyrinthine politics of water provision in a city that, despite having copious monsoon rains, has never been able to provide decent, piped water for all. A complex colonial planning

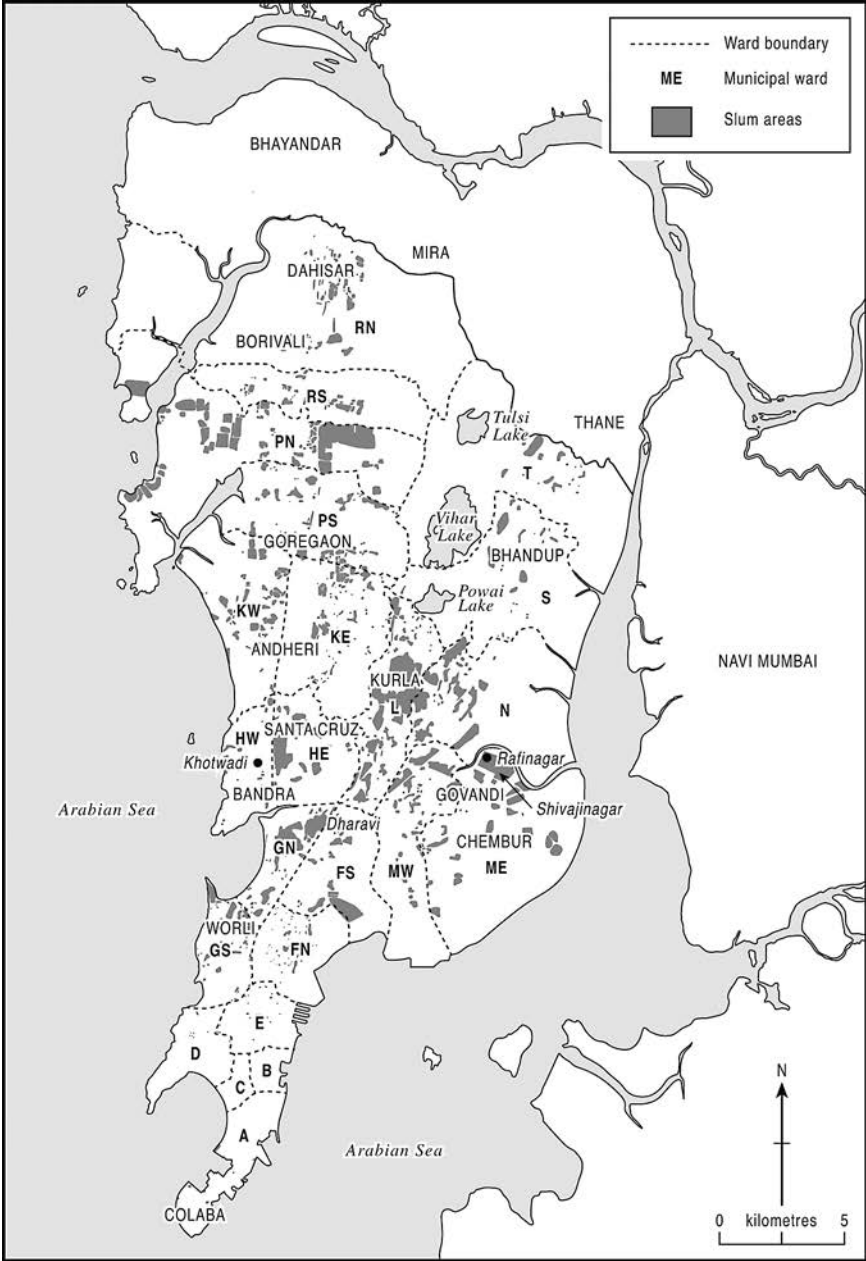


Figure 2 The city of Mumbai, 2011, showing municipal wards and the main *zopadpatti*, or “slum” areas, mentioned in the text. Prepared by Chris Orten in the Cartographic Unit at Durham University

legacy of half-built improvements underlies a shaky and partial piped system. With its crumbling, century-old network of fragile pipes, Mumbai's water system is already at crisis point. Ongoing efforts to build new reservoirs north of the city have faced delays and funding shortages and have so far failed to increase supply to match Mumbai's burgeoning population. Such a situation has been compounded by a series of weak monsoons as well as by continuously high levels of water leakage and regular pipe ruptures. All this means that while Mumbai, with a *notional* per capita water availability of 180 liters, is theoretically endowed with more water per person than London, which has 150 liters, it fails even to offer all of its most affluent citizens twenty-four-hour piped water services (Bjorkman, n.d.).

Mumbai currently receives about 2,500 MLD (million liters per day) of water from the jungles, lakes, and mountains in the north of the Maharashtra state, within which Mumbai falls. This has been estimated to represent only 65 percent of demand (Jadhav 2005). In 2009 this deficit led the BMC to limit the hours of water supply to all users in the city.

Mumbai's water crisis means that even many wealthy residences are now supplied with piped water for only two or three hours a day. About 20 percent of all the city's piped water escapes into the ground through leaks. Another 20 percent or so is tapped illegally by water tanker providers, the construction industry, or informal and formal settlements. Periodic ruptures in the mains add to the sense of a pivotal urban resource being wasted before reaching its rightful users. Complete bans and rationed quotas are regularly introduced during relatively dry monsoon seasons.

The presence of the *zopadpatti* neighborhoods dominate Mumbai's water politics. Many such places have, for generations, been denied adequate linkages to formal, piped water supplies and are thus the most vulnerable to the current water crisis. The BMC offers inhabitants of these informal settlements water connections with a daily notional amount of 45 liters per person per day, a third of what is allocated to a resident living in formal residential areas (135 liters per person per day). But even this amount is often unavailable. Informal settlements rely on unmetered municipal water taps, metered municipal group connections, wells, boreholes, tanks, tankers, filtration systems, and improvised pipes, though additional efforts are made to seek water of adequate quality and quantity. Meanwhile, a complex world of organized crime, which overlaps with the world of municipal officials, makes large profits from illegal piped supplies and water tanker deliveries, focusing especially on the poorest slums. Their practices also delay efforts to extend adequate formal piped water supplies to slum communities.

Recent proposals to plan and improve Mumbai haven't even attempted to universalize decent water for the city. Rather, they tend to disguise the problem. Strategies like *Vision Mumbai* seek, instead, to superficially "clean up" or "rebrand" Mumbai, improving quality of life and services for affluent and middle-class citizens yet doing little or nothing for the impoverished communities in dire need. The result is an increasingly authoritarian stance toward Mumbai's slum dwellers, including mass demolitions (particularly intensive in the winter of 2004–5), declarations that newer slums will not receive any water service, and efforts to remove the poor from public spaces.

The growth of revanchist urban politics in Mumbai relates closely to the broader construction of a xenophobic, nativist, Marathi-centered, regional political party—the Shiv Sena—which has dominated both municipal and state government from the mid-1990s (see Appadurai 2000; Hansen 2001). As Matthew Gandy (2008: 122) points out, the embourgeoisement of public policy has also been fed by an increasingly moralistic discourse among Mumbai's media and public institutions. This shift tends to demonize the poor migrants from elsewhere in India as imposters within Mumbai and to legitimize authoritarian and punitive policies against them. It therefore tends to weaken already feeble concepts of civil society, citizenship, and human rights within the city. The Shiv Sena has long argued that immigrants in informal settlements are the main reason for Maharashtra being unemployed and has consistently invoked the figures of the migrant and the Muslim as a source of crime and social disorder. The Sena's grip over the municipal corporation since the mid-1990s has entrenched this politics and closely linked the Sena to the election of councilors across the city. As a political movement, the municipal success of the Sena has been part of a wider marginalization and disproportionate targeting of Muslim groups in the city, evidenced not just in the pogroms of the early 1990s (see Appadurai 2000; Hansen 2001; Varma 2004) (which helped the Sena's rise to power in the city and state) but in the ongoing demolition of or infrastructure denial and removal to Muslim informal settlements, for example, in Rafinagar (a neighborhood we discuss in detail below) and surrounding areas in northeast Mumbai.

In the context of water, this politics of denial, violence, and disconnection has also been made possible because of perceptions that the municipal water shortages faced by many of Mumbai's middle-class residents are caused by slum dwellers. Moreover, the waterborne diseases that increasingly afflict slum dwellers—Surat plague, malaria—tend not to directly endanger middle-class residents, who can access a range of clean water alternatives far more easily. As a result, rather than the emergence of a broad-based campaign for citizenship and human rights for all

urban residents in the context of water, there has been a further fragmentation of civil society in Mumbai. Not only are there competing claims on the city's water resources, but the embourgeoisement of public policy has supported the view that affluent groups' claims on the city's water are more legitimate than those of the urban poor.¹ Organizations of middle-class residents in Mumbai (such as the New Link Road Residents Forum, detailed below) increasingly mobilize to protect and further their interests at the expense of the urban poor, while organizations working for the rights of the poor find it ever more challenging to make themselves heard and realize systemic change in the city's water policies.

Mumbai's water crisis means that water protests increasingly convulse the city; water scarcity increasingly dominates political mobilization and debate; and new legal sanctions are mobilized against transgressions to cope with the new sense of emergency. In addition, water engineers are regularly attacked and regularly complain that they get no protection from the police. Political parties often mobilize their loyal mobs in demonstrations against water engineering departments and officials; local groups have beaten up neighbors accused of locking collective taps, parading them around streets with their hair shorn in humiliation. "The city's water crisis," warned the *Mumbai Mirror* in December 2009 at the height of a particularly acute shortage, "seems to be turning Mumbaikars into monsters" (Sadhvani 2009).

This politics of water scarcity and systematic denial of water to the poor is quickly translating into a militarized struggle to control and protect Mumbai's water supplies. Thus the status quo of effective hydrological apartheid, forged through lesser water entitlements for the informal settlements' residents and predation on them, is sustained rather than undermined or overturned.

A campaign is being waged to blame the city's water crisis on the *zopadpatti* dwellers, and to criminalize their efforts to gain even minimal access to water, as a justification to "take back" or "reclaim" the city's water for elite and middle-class "tax payers" and real estate interests. Such a campaign works to obscure the origins of the current water crisis and deny the stratification of supply that starves the majority of the urban poor of water.

In making this argument, we are not suggesting that this eviscerated hydropolitics is itself new. Mumbai's water and sanitation infrastructures have always been deeply fragmented and politicized. While colonial investments made clear their biopolitical choice as to which neighborhoods were metabolized through water and sanitation and which were not, nationalist discourses emphasized an egalitar-

2. For an excellent discussion of these processes connected to the city's disparate but crucial film

ian focus that envisaged a modern urbanite in need of civic transformation (see Dossal 1991; Gandy 2008; McFarlane 2008a). The Nehruvian view of the city as an important site for the expression and negotiation of modernity was in practice always heavily prescribed both by the inequities of India's capitalist urbanization that consistently drove surpluses away from infrastructure investment for the poor and by the piecemeal will of India's political elites. The city has never, for example, come close to providing full and adequate sanitation coverage. The colonial legacies of disinvestment in the extension of sewer coverage to poorer areas structure the possibilities of contemporary sanitation intervention, where public toilets are provided to informal settlements off the sewer grid and at nowhere near sufficient number for most neighborhoods.

A 2001 survey, for example, found that 63 percent of those living in informal settlements depended on often defunct public toilet blocks, and a variation in ratios of people to toilet seats of 273 to 1 in Wards F/S and S to 56 to 1 in Ward A, often resulting in lines lasting two hours or more and an untold range of small and serious health complaints (see MW-YUVA 2001; McFarlane 2008b). Ward A is located in the historic southern core, which is relatively well provided for in infrastructure, while Wards F/S and S are located further north in historically underserved areas. There is a complex story to be told about the changing logics and imaginaries that have shaped this deeply unequal metabolic geography, and although it exceeds the scope of this essay, it is important to be clear that the present moment is a particular intensification of unequal water politics for certain neighborhoods (often "unauthorized," often predominantly Muslim) over others.

What is new, however, is the intensification of a bourgeois urbanism that is both revanchist in its aims—seeking to seize urban space from the poor, often to realize property prices—and splintering in its form, as elites increasingly shift to infrastructure-rich gated tower blocks and as political imaginations all but abandon more progressive urban projects in favor of investments for the wealthy.

Indian cities increasingly reflect the logic of what Amita Baviskar (2002) calls "bourgeois environmentalism"—disparate efforts to remove informal settlements, street hawkers, and (often Muslim) immigrants from spaces across the Indian city, efforts that depend partly on notions of urban contamination and beautification and on the often violent removal of the poor (see also Chatterjee 2004). As Baviskar argues in relation to Delhi, a lack of public toilets means that any open space with sufficient shelter becomes a potential place to defecate. She uses the example of the public park. To the expanding middle classes, the park embodies a sense of "gracious urban living" (Baviskar 2002), a place devoted to leisure and recreation; to the poor, it may be the only environment where defecation with

relative safety and dignity is possible. Baviskar uses this conflict to point to the increasingly powerful presence of bourgeois environmentalism as an ideology shaping urban landscapes in India, a notion that combines political, economic, social, and ecological dimensions. Bourgeois environmentalism discriminates between “good” and “bad” natures, such as between the park and the “unsanitary slum,” and privileges commodified socionatures, and if it is a discourse with a long history, it is nonetheless intensifying. It is clear that there is now a growing impetus to “cleanse” the streets of India’s major cities, whether through violence or through regulation, and to focus infrastructure resource on high-end residential and industrial secessionary network enclaves that disproportionately benefit the wealthy and include roads, overpasses, air-conditioned malls, and telecommunications and media infrastructures.²

Water Wars

As with the *Mumbai Mirror* articles cited above, the official discourse surrounding Mumbai’s water crisis offers a simple tale of a malign and burgeoning informal population that through its criminal theft of water is threatening the order, security, and public health of the formal city of legitimate, tax-paying citizens. An affidavit filed by the BMC in July 2009 in the context of a Public Interest Litigation hearing in the Mumbai High Court states that the number of encroachments on the water mains in Mumbai has grown from 6,687 in 1995 to 15,780 in 2009 (H. Vyas 2009). In response, the court saw these “encroachments” as a “health and security hazard” that can “puncture the entire system”—what the court terms “the real lifeline of the city” (H. Vyas 2009).

A powerful revanchist logic is at play here: if only “we”—that is, middle-class and elite consumers and corporate investors—could reclaim the city’s hydrological, and urban, commons from the mass of illegitimate slum dwellers, then Mumbai might attain civil order, a high quality of life for elites and the middle classes, and its aspiration, as solidified in 2003 with Bombay First’s commissioning of the *Vision Mumbai* strategies for the city, to emerge as a truly “world-class” or “global” city to compete with the likes of Singapore and Shanghai. The powerful corporate coalition Bombay First has since 2003 lobbied hard for the wholesale privatization of Mumbai’s water industry, part of what Gandy (2008: 125) calls its “neo-Haussmannite” agenda of forcibly reengineering Mumbai through slum clearances into its vision of a “global” city.

culture, see Mazumdar 2007.

3. This process links to the ways that particular civic groups have become part of a broader

These policies powerfully reinforce the message that slum dwellers are not actually of Mumbai, that their presence acts as a pathology and an obstacle to the legitimate aspirations of the city's elites. Thus no political effort is made to address the root causes. Crucially, for example, no adequate alternative, public, or formal water supplies are made available for the communities whose water supplies are destroyed in the raids. Hence acute water shortages and the extreme reliance of already vulnerable communities on water rackets are further accentuated.

Powerful residents' groups representing affluent areas have been especially vocal about the need to destroy the "illegal" taps and end the complicity of local municipal and water officials in the so-called water mafia operations that construct them at huge profit. The New Link Road Residents Forum, for example, which represents affluent communities in an area of Mumbai's northwestern suburbs (see fig. 2), mentions these efforts to provide basic hydration in the same breath as what it terms "terror threats to Mumbai's water network" (New Link Road Residents Forum 2010).³ Criticizing a huge slum by the name of Ganpat Patil Nagar that has been built recently on the New Link Road, the group has filed many legal complaints about thefts of the mains' water that previously flowed unencumbered to their communities. The group has been "consistently filing complaints of alleged water theft by the slumlords and unsocial elements who indulge in puncturing the MCGM [Municipal Corporation of Greater Mumbai, also known as BMC] lines laid under the link road." The result of the "water theft," it argues, "is being faced by the honest tax paying citizen[s] of Borivali and Dahisar who often face water cuts and shortages and inconsistent supplies."

Fueled by such allegations of ineffectiveness, corruption, or complicity, the BMC joined forces in 2009 with the police to launch draconian raids against slum settlements during which improvised water pumps, tapping into the city's formal water system, have been destroyed (the results have been the startling press coverage discussed at the start of this essay) and supposedly illegal pipes have been disconnected (see fig. 3). Certain slum settlements, portrayed as especially important centers of "water theft," have been the particular focus of these activities. Raids in January 2010 against the Dahisar slums identified by the New Link Road Residents, for example, were portrayed heroically in the *Mumbai Mirror* as being part of a "save water" drive that successfully saved the city four hundred thousand liters of water (Virat Singh 2010). Harish Pandey, secretary of the New Link

architecture of exclusion in Mumbai. See, for example, Jonathan Shapiro Anjaria's (2009) study of the exclusive advanced locality management (ALM) groups and local area citizens groups (LACGs).

4. Through official BMC means, such tankers take at least a week to arrive, cost only Rs 600, and

Road Residents Forum, was “thankful that the BMC has finally taken some action against this water theft.” He argued, however, that “the civic body should look at a permanent solution as slums end up getting water in full pressure, while taps at the taxpayers’ home run dry” (quoted in Virat Singh 2010).

The most notorious slum for municipal raids, however, has been the predominantly Muslim settlement of Shivaji Nagar in Govandi in Mumbai’s M-East ward, the poorest of Mumbai’s twenty-four municipal wards (and a ward that has gradually become a concentration of poverty as people have been resettled here over thirty years of continuous slum clearance in central Mumbai). Here the BMC deems the destruction to be so “successful” as to consider it a model to be followed for Mumbai’s other informal settlements. After one raid in Shivaji Nagar in early December 2009, Senior Police Inspector Dundapa Jodgajari reported that his forces raided and destroyed 156 illegal water pipes that had been connected to the mains illegally. The police also seized ninety-six booster pumps. In the process they “detained around 40 people. Of these, 21 were arrested, as they did not have valid documents to use the pumps. Many of those arrested sold water to the slum dwellers” (Dalvi 2009). Jodgajari, moreover, argued that local residents were relieved that the “menace” of the water mafia was no longer hanging over their community. However, this argument masked the fact that because of the denial of adequate formal water connections in the area by the BMC and the high costs of acquiring even a legal water connection from the BMC, many residents were in fact forced to rely on the corrupt practices of water rackets to obtain water for their daily needs. Thus, although many local residents of Shivaji Nagar got better water pressure in their taps after the municipal raids, many others spiraled into a deepening water crisis because the BMC cracked down on their only source of water while not providing them with alternate adequate water supplies. And yet the Shivaji Nagar experience was deemed to be so successful by Rahul Shewale, standing committee chairman in the BMC, that city officials began to consider implementing similar programs of continuous raids across the whole of Mumbai (Desai 2010a).



Figure 3 Water pipes cut in Rafinagar during the water raids in December 2009. Photograph by Renu Desai

Our research in Rafinagar, a predominantly Muslim informal settlement located at the edge of Shivaji Nagar (see. fig. 2), suggests that water raids by the BMC have been a regular occurrence in some informal settlements. Almost every year, the BMC has cut some “illegal” water pipes supplying water to Rafinagar’s residents. However, in 2009–10, these raids not only were carried out on a larger scale, with more intensity, but also for the first time involved the police. The water wars in Mumbai have thus evolved from routinized practices of BMC crackdowns on “illegal” connections to militarized crackdowns. Initially, basic criminal law pertaining to damage to public property or inhibiting public services was used to prosecute those deemed guilty of setting up illegal water connections. The discourse of “water emergency,” however, soon allowed political leaders to invoke the more draconian Maharashtra Control of Organised Crime Act (MCOCA) against offenders (Suryawanshi 2010). Not only were arrests made under these laws, but militarized crackdowns also translated into the police harassing ordinary citizens on the streets trying now to obtain water from surrounding areas by foot or cycle. There is a sense among NGOs working in Shivaji Nagar, whose population is 70 percent Muslim and increasingly comprises North Indian migrants (both Hindu and Muslim), that the water raids in the area reflect the religious and ethnic biases of Mumbai’s municipal officials and the police (Joshi 2010). The vehement anti-Muslim and anti-North Indian politics of the Shiv Sena, which has penetrated the work cultures of the municipal government and the police, thus also shapes how the broader revanchist politics against Mumbai’s poor unfolds on the ground.

Beyond the use of draconian laws, further efforts to securitize Mumbai’s water system are emerging. The BMC has drawn up plans to physically demolish and erase informal settlements located alongside the city’s water mains (Suryawanshi 2009). Even if residents are relocated under the city’s controversial slum demolition and resettlement program—launched by the Hindu nativist Shiv Sena party when it was in power in the state of Maharashtra in the mid-1990s and now implemented under the Congress Party, currently in power—it is likely that many will be excluded since only residents able to prove pre-1995 residency in the city are eligible for resettlement under the program.

Ambitious, although still unimplemented, plans were also announced in late 2009 to place protective walls around every major exposed water main in the city, supported by a complex network of closed-circuit television (CCTV) cameras and security guards. As one BMC official revealed:

We will float a tender for construction of a protective wall. At some places where this is difficult, we will put up a barbed wire. We have even planned to deploy security guards to keep a vigil and protect the pipelines, as we

have received terrorist threats stating that the pipelines could be blown up. Besides, there is the peril of someone poisoning the city's water supply through the pipelines. We will take all possible measures in due time to prevent a disaster. (Suryawanshi 2009)

The CCTV system, costing Rs 2.3 million (about US\$50,000), was out for bid in April 2010 (S. Vyas 2010).

Hydrological Apartheid

Crucially, at no point does Mumbai's water revanchism allow for the provision of adequate alternative sources of formal, public, or "legal" water supplies to the majority of the city's population living in slums. What such discourses and actions mask is the inevitability of mass water theft among *zopadpatti* dwellers in Mumbai in a context where political elites have long worked to use the systematic dehydration of such places as a deliberate strategy to discourage the formation, or force abandonment, of slums. Since 1996, the Maharashtra State Government—first under the Hindu nativist Shiv Sena and then under the Congress Party—has deliberately linked the right to water to the geography of land tenure in Mumbai. Slums deemed to have been formed after January 1, 1995, are considered unrecognized and have, consequently, been totally denied rights to access formal water mains.

Official, recognized slum dwellers are entitled to water connections on producing a "photo-pass" (government-issued identity card), one's name on the voters' list, or a ration card with the requisite pre-1995 date. However, these entitlements consist of metered group connections, shared between five and fifteen households, and are supposed to provide 45 liters per person per day (as opposed to 135 liters per person per day in residences in the formal city). Moreover, these connections don't always materialize, and when they do, they don't always provide adequate water. The 1.2 million or more people living in post-1995 settlements (Tatke 2010), meanwhile, remain unrecognized and consequently live under the permanent threat of the bulldozer and bereft of legal entitlements to water and other basic services.

Of course this ruling has done nothing to inhibit the continued growth and formation of slums, as India's population burgeons and ever more migrants in search of a better life move to Mumbai from impoverished areas and violent rural states. Indeed, in the absence of affordable housing in the formal city, many slums are brought into being through corrupt public officials working in liaison with elements of organized crime, the "slumlords," and the "vote-bank" politics whereby

politicians seek to gain the votes of the city's majority slum dwellers in exchange for electoral promises.

In such a context, the demands among slum dwellers for even minimal hydration have provided the motivation for the growth of the water racketeering sustained by the so-called water mafia. Both pipeline connections and tanker supplies are accelerated and made possible through large payments organized through middlemen, in liaison with municipal officials, police officers, and politicians. In Rafinagar, our research found that obtaining a legal water connection from the BMC usually involves having to resort to a middleman and residents paying Rs 20,000–60,000 (and increasingly more) to organize a legal water connection from the public mains. Not all residents, therefore, can afford to get a legal connection and are forced to be dependent on those who can incur such costs. The middleman, who is sometimes a plumber, organizes the installation of the water pipe, giving a cut to municipal officials and even to the police and local politicians. Even after this, there is no guarantee of how long water will be available from the pipe. Nonetheless, having incurred these high expenses, these “tap-owner” residents then sell water at high prices to others in their neighborhood, to recover their investment, pay the BMC's water bill, and make some cash for themselves. Our research in Rafinagar revealed that many residents paid Rs 5–20 for a thirty-five-liter jerrican of water, or between thirty and two hundred times more than the official municipal water tariff for slums. Others paid for water based on the number of minutes they filled water from the tap owner's connection.

Along with such formal connections there are also “illegal” connections organized by middlemen for some residents, and they similarly sell water at prices that rise and fall with the seasons and the extremities of the water crises. Geographies of legal and illegal water provision thus become extremely blurred and materially entangled. During the raids in Rafinagar, for example, many legal connections were also cut by the BMC. Meanwhile, the raids created a deeper water crisis for those who had been forced to depend on these legal/illegal connections for water, and they increasingly had to pay more money to obtain water from inside Rafinagar. An increasing number of residents also had to go to neighboring areas on foot or cycle to obtain cheaper water.

Mumbai's predatory water rackets have also grown through the involvement of municipal officials. An undercover investigation by the *Mumbai Mirror* in April 2010, for example, showed how Rs 6,500 delivered to hydraulic department and municipal-ward officials, ostensibly to film a “rain scene” in a Bollywood movie, was able to bring instant water tanker deliveries, filled illegally from the public water system by one of the ten thousand or so private water tankers in

Mumbai.⁴ The newspaper's investigations revealed a classic racket forcing slum dwellers—and, indeed, more affluent communities that often resort to private tankers as well—to pay extremely high prices to the illicit tanker companies for water—prices that rise and fall with the levels of supply and the depth of the city's water crisis. These arrangements are organized by geographic neighborhood, with kickbacks distributed to key political, municipal, and hydraulic department officials to keep everyone happy.

In such a context it is no surprise that city officials attempting to crack down on the water rackets surrounding pipeline or tanker provision have struggled to cope with the complex vested interests involved. And by destroying pipes built illegally in slum settlements, BMC officials were, of course, further adding to levels of demand for highly profitable tanker supplies.

On a broader scale, and to compound the geographies of hydrological apartheid across Mumbai, the BMC has presided over the construction of a whole archipelago of massive water-hungry architectural edifices. These are geared toward Mumbai's powerful middle class and social and political elites and endlessly invoked as evidence that Mumbai is "going global." Most obvious here has been the complicity of the BMC in licensing the proliferation of private swimming pools within Mumbai's burgeoning array of upscale gated communities and apartment complexes (Varun Singh 2010). But large-scale water theme parks are also being built across the city's suburbs. As ordinary Mumbaikars reeled under the 10 percent supply cuts during the 2003 water crisis, Charubala Annuncio observed that, at the same time, the periphery of Mumbai was being ringed by complexes of water parks, theme parks, leisure parks, elite high-rise complexes, clubs, and bungalows, with swimming pools rented out for Bollywood film shootings. "Just the two dozen existing water parks in Mumbai and adjoining areas like Thane and Raigad use over 50 billion liters of water every day. Of this, Esselworld's Water Kingdom, which is spread over 24 acres, gets over 7 billion litres" (Annuncio 2003). Indeed, the water used by these water parks is twice the water supply to the whole of Mumbai.

India's burgeoning bottled-water industry only adds to the city's deepening hydrological apartheid. As elsewhere, in Mumbai those who can afford it increasingly buy bottled water to try and insulate themselves from the perceived health risks of piped municipal water, often found to be contaminated. Such strategies reflect a broader tendency among more affluent Mumbaikars to attempt to secede

are part of the BMC's overstretched fleet of only twenty-four water tankers (Raina 2009).

5. For a broader discussion of such mobilizations, see Appadurai 2001.

Public Culture

from the public city through various complexes including gated communities, new raised highways, and private malls and the “capsular” mobilities afforded by private cars.

The Indian market for bottled water, valued at Rs 10 billion in 2010, is growing at an astonishing 40 percent per annum (Gits4u.com 2010). The industry, which tripled in size between 1999 and 2004, is one of India’s fastest growing. Over two hundred brands jostle for the market, their utopian advertising looming large above the city’s streets (see fig. 4). For those able to buy in, the latest “premium” bottled brands offer the fantasy of pure, “natural” escapism amid the dense urbanization of Mumbai. “I was born in the Shivalik range of the Himalayas,” proclaims the label on the Tata corporation’s “Himalayan” bottled water, “in a place most of you visit only in an Atlas. In a time that wasn’t measured by cuckoos that sprang out of clocks. In a silence that was sometimes punctuated by howling winds and gushing streams. In a world that had nothing to do with yours.” This mythologized “journey” of Mumbai’s premium, elite bottled water, a Tata Group (2008) press release argues, “seeks to make the consumer one with its source—the Hima-

Figure 4 A Bisleri bottled water advertisement looms large over Mumbai, north of the Fort district. Photograph by Colin McFarlane



layas—with its inherent and pristine goodness that sets it apart from ordinary water.” The tagline seems especially startling given the wider context of Mumbai’s water wars: “Hydration with wellness.”

The larger, corporate bottling plants, which are owned by companies such as Parle Bisleri, Nestle, Coca-Cola, PepsiCo, Manikchand, and Britannia and are given water at favorably low prices, are based on the urban fringes. Simpreet Singh of the National Alliance of People’s Movements points out that even during water cutoffs and no-water days for the rest of Mumbai, the BMC continued to supply over eight hundred thousand liters of potable water a day to bottling plants—for mineral water and soft drinks—geared toward the city’s middle classes and elites (Tatke 2010). Indeed, despite the city’s deepening water crisis, and the extreme scarcities suffered by its informal settlements, the BMC supplied almost 300 million liters of water to seventeen bottling plants in thirteen months between January 2009 and February 10, 2010 (Shukla 2010). The largest of these, Duke and Sons, owned by PepsiCo, used almost 80 million liters in the same period.

The middle classes and elites tackle the water crisis by a combination of groundwater from their bore wells, calling in private water tankers, and, more recently, installing rainwater harvesting and gray-water recycling systems, thus seceding from the public city when required.

“Can Shanghai Be Made on the Graves of the Poor?”

Mumbai’s water raids have further accentuated the public health, economic, and social impacts of systematic dehydration among already vulnerable communities. Paradoxically, the reliance of such communities on extremely expensive water provision organized through water rackets and, ironically, further “illegal” piped supplies delivered through BMC corruption has also been deepened still further.

The limited evidence available already paints a bleak picture of the health and social impacts of systematic water shortages among Mumbai’s slum dwellers. Before the raids, for example, a study of 1,070 households in four slums in the year 2000 led by Hideki Harada of Nagaoka University of Technology and published in India’s prestigious *Economic and Political Weekly* (Harada, Shikura, and Kumar Karn 2003) showed that where one water tap was provided for between thirteen and thirty households, it was woefully inadequate in terms of both quantity and quality. The median per capita daily water consumption per person in the four slums was found to be as low as 26, 27, 33, and 25 liters per day. Not surprisingly, slum dwellers ranked access to water and toilet facilities as the most important issues they faced. Among slum dwellers living with such extreme water scarcity,

the annual diarrhea, typhoid, and malaria cases were estimated to be 614, 68, and 126 per thousand people, respectively. The study found that “all types of water-borne disease are occurring with great severity” in all of the four poor communities studied. Dr. Ravindra Rathod (2010) of the Niramaya Health Foundation in Rafinagar recounted to us some of the chronic health effects from systematic dehydration that he has to treat daily among his patients. Diarrhea, dysentery, scabies, and typhoid are all extremely common. As desperation takes hold, many people dig their own wells, accessing limited supplies of extremely contaminated groundwater in the process. Tests by the World Health Organization have found cholera, hepatitis, and, most disturbing of all, polio viruses in water samples from such wells (Sayed and Desai 2009). Nazia Sayed and Geeta Desai (2009) point out that, to date, the Indian state has spent Rs 26 billion trying to eradicate polio, only to again expose residents to its virus because of the BMC’s aggressive water raids policy. Sangeeta Yadav, a Mankhurd resident, discussed with the journalists a newly dug well in her house. “How do they expect us to survive without water?” she asked. “We have no option but to drink this dirty water. We will die if we don’t drink water, and we will die if we drink this water. Whatever has to happen, will happen” (quoted in Sayed and Desai 2009). Iqbal Shaikh, a social worker lobbying for more municipal pipelines in the area, stressed that “the residents all know the water is contaminated but are helpless. For days we don’t get water in the area and if we complain the BMC people demand a huge amount of money for a pipeline. That’s the reason why people opt for such illegal measures” (quoted in Sayed and Desai 2009).

Following the destruction of pipes serving Rafinagar in November 2009, our research demonstrated how the community was pushed more deeply into a water crisis. Two weeks after the raids, the BMC did install two temporary water storage tanks just outside Rafinagar. However, beyond the burden of long hours of waiting in line, even this completely inadequate supply was next to useless for most residents since the arrival of the BMC water tankers to fill the tanks was extremely sporadic. In addition, many physical struggles occurred as residents fought over the inadequate water supplies, especially when the tankers finally arrived (see fig. 5). “Either beat up each other for water or die [without water] yourself,” a Rafinagar woman remarked to us caustically (Rafinagar Resident A 2010). “Those whose mouths have strength [to speak up and shout],” recounted another, “those whose bodies are strong, those who can curse, they are the ones who can fill [water from the tanks]” (Rafinagar Resident B 2010). Even after a group of residents improvised a system for regulating the lines at the water tanks, various exclusions continued.

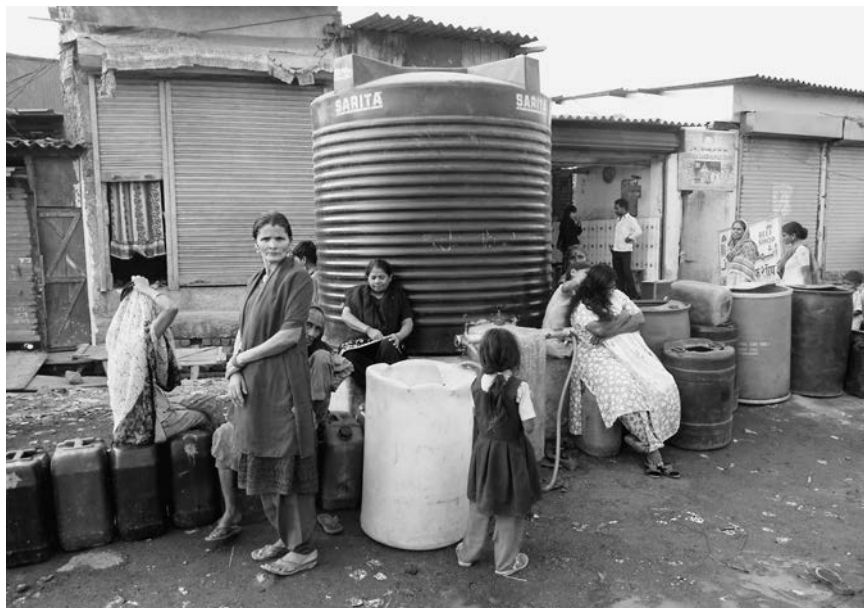


Figure 5 Rafinagar residents waiting for the BMC water tanker to come and fill one of the temporary water storage tanks. Photograph by Renu Desai

The extreme water scarcity in Rafinagar meant that, for the first time, private water tankers, organized through corruption and offering extremely expensive water to those who could afford it, began to be regularly called in. Many of the private water tankers also obtained water from bore wells, pointing to profits being made through excessive and often unregulated groundwater extraction.

Water prices within Rafinagar increased after the raids. While water delivered through a legal connection is charged at Rs 2.25 for one thousand liters, Rafinagar residents, the poorest of Mumbai's poor, were increasingly paying up to one hundred to two hundred times that price (Rs 10–20 for one jerrican of thirty-five to forty liters). Some of our interviewees thus ended up spending over Rs 600 per month on minimal water supplies, out of a total monthly income of Rs 3,000–4,000. Most of our interviewees were unable to bathe on a daily basis, even in the unbearably hot summer months, leading to skin infections. Water was available for lower rates only if it was “brown” or “yellow” in color.

After the raids, our interviews showed that more of Rafinagar's residents than before were forced to rely on sources of water outside the settlement, accessing these by time-consuming and exhausting one- to five-kilometer journeys by foot

or cycle. Many women and young girls, in particular, went by foot with water pots to search for water beyond the settlement, while many men and boys went by cycle with jerricans. Children often had to forgo schooling or paid work, or take on multiple burdens, because of the imperative of accessing water.

These itinerant water carriers, in turn, then became subjected to state violence and harassment. The BMC and police started to confiscate cycles and jerricans and even resorted to puncturing jerricans. An additional problem was that the threats of arrest against those caught “illegally” selling water meant that water carriers found it harder and harder to gain supplies even beyond the community’s boundaries. For instance, as one male resident from Rafinagar (who often used to fill jerricans with water from outside the settlement even before the water raids) told us: “People in Shivaji Nagar aren’t giving water. They say that if we give you water then the police will catch us” (Rafinagar Resident C 2010).

The systematic state harassment, and the active denial of an essential source of urban life, led to deep feelings of outrage and alienation among Rafinagar and Govandi inhabitants. “I sold my jewelry to acquire this connection and now police have seized the motor. How can we live without water?” one Govandi woman who has a family of six pleaded to Sayed (2009) of the *Mumbai Mirror*. Many complained that they weren’t even aware that their connections, organized after all with BMC complicity, were technically illegal. Others were incensed that raids destroyed pipes that were legally supplied and for which they had been paying bills. Another group of residents actually backed the raids because the resulting increases in pressure farther down the pipes meant that their supplies were improved.

Govind, a seventeen-year-old boy, visibly upset as he recounted his experience, discussed with us how, as a Rafinagar resident, he was violently assaulted by residents in neighboring Gautamnagar: “Once when I was coming back from there, some five to six men from there stopped me on my cycle and forcefully took the cans and upset all the water. They told me that if you people from Rafinagar come here to fill water, then Gautamnagar’s connections will also be cut, so don’t come here again.”

Mumbai’s slum dwellers are painfully aware of how their demonization has served the purposes of the city’s political and economic elites. They are also not slow to see links between the wider political aspirations of reengineering Mumbai into a “global city” or a “new Shanghai” and the increasingly orchestrated state violence against them and their needs.

Salma, one of our Rafinagar interviewees, in discussing the ongoing threats of demolition against the settlement as well as the water raids, puts it bluntly: “The

government is not listening to us,” she says, “because it wants to make [Mumbai into] Shanghai. . . . We don’t oppose Shanghai. But [the government] comes and crushes us and goes away, like [one might crush] ants. . . . We would also like that Shanghai is made. We might not see it but at least our children will. Our children’s dreams will be fulfilled.” But, Salma argues, if Mumbai’s government and ruling elites “try to make Shanghai at the cost of the dreams and aspirations of the poor then this Shanghai will not be successful. . . . Can Shanghai be made on the graves of the poor? If there is a funeral opposite me and I play music, can I really enjoy it?” (Rafinagar Resident A 2010).

Water protests by the urban poor in Mumbai have often targeted political parties whose vote-bank politics traditionally surrounds the politics of water provision for Mumbai’s poor. Through these, election cycles tend to coincide with promises to address questions of water provision to slums. After the municipal water raids in and around Rafinagar, too, residents mobilized to approach their political leaders, reminding them of their election promises to bring adequate piped water to Rafinagar. However, instead, inadequate temporary arrangements were made, and the realization of these promises was continually delayed. This situation reveals an increasingly predatory vote-bank politics in which politicians, on the one hand, come to power based on their electoral promises to the urban poor and, on the other, are often involved in perpetuating for their own financial and political benefit the dependency of the urban poor on exploitative or predatory water rackets.

The Right to Urban Water

In Mumbai, water “infrastructure” encompasses much more than pipes, aquifers, rivers, bore wells, and taps. It also involves, crucially, complex social and political arrangements and the very people of the city (see Simone 2004: 407–8). The fragmented nature of civil society has paved the way for water revanchism: an attempt by the middle classes to “claim back” the city’s hydrological commons from the poor through a discourse that casts themselves as tax-paying citizens who are denied their legitimate right to municipal water because it is diverted through vote-bank politics and corruption to “encroaching” slum dwellers who have no legitimate right to the city’s resources. This discourse erases the experiences of the urban poor of the hydrological apartheid, as it does their right to urban water. This discourse further dovetails with attempts by powerful elites to “claim back” the city from the poor majority under the spurious justification of competing with mythological cities elsewhere (Shanghai, Singapore, and others). As a result, civil

society organizations that view the city's water crisis through the experiences of the urban poor and argue for policies that would recognize their right to water face profound challenges.⁵

Mumbai's water wars reveal in stark detail what emerges when slum dwellers are cast out from the rights of a modern urban existence in the world's burgeoning megacities. Much less familiar than the now frequent attempts by terrorist groups and state militaries to interrupt the sociotechnologies of flow and metabolism in contemporary cities, as a means to distribute shock and violence (see Rao 2007), Mumbai's water raids reveal that revanchist politics extend to the systematic destruction of the means of hydration. Excavating them shows how the complete denial of the status of water as a public good to be organized and distributed collectively to benefit all urban residents opens the door to the hydrological apartheid that surrounds the hypercommodification of the ultimate inelastic good. Finally, our story demonstrates that apparently benign aspirations to "clean up" megacities of the global South, to allow them to be reengineered into "global" metropolises imitating some shining and mythical exemplar (so often Shanghai but, increasingly, Dubai) can camouflage extreme campaigns of violence, erasure, intimidation, and plunder by political and economic elites against the vulnerable and poor.

The water wars' results—dehydration, death, disease, and desperation—demonstrate the urgent need to challenge the politics of water at its foundation. For only by building a politics of water rights, addressing the legitimate needs of Mumbai's poor for clean, adequate water, will the city and state authorities ever hope to eradicate the symptoms of poverty and social fragmentation that their regressive and violent mobilizations are ostensibly designed to address. We are encouraged by the range of activist groups and organizations that attempt to draw attention to Mumbai's deeply unequal urban metabolism, but we have yet to see a broader movement in the city coalesce around water and sanitation that continually calls into question and offers robust alternatives to the nature of the city's development strategies.

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