THE ENGINEER AND THE PLUMBER: Mediating Mumbai’s Conflicting Infrastructural Imaginaries

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Abstract
Two decades ago, the rules governing the provision of piped municipal water supply in Mumbai became linked to the policy frameworks governing eligibility for a property titling scheme. This article outlines the ideological basis and practical implications of the shift, as well as the contradictions of the new regulatory regime. The article demonstrates how these contradictions have been mediated by the material and practical knowledge, embodied expertise, local authority and wide-ranging socio-political work of two sets of actors: municipal water engineers and a cast of characters known locally as ‘plumbers’. The social, political and hydraulic imaginaries animating the work of ‘plumbing’ are bound up with a temporal and spatial imaginary distinctly at odds with the network-flow conception of hydraulic engineering within which the work of water supply planning and distribution in Mumbai is conceptualized, materialized and institutionalized. The hydraulic and legal contradictions of these clashing infrastructural idioms—of flow and event—have rendered the regulatory framework highly unstable. These contradictions eventually erupted in Mumbai’s waterscape, leaving the city’s water infrastructures suspended in a highly politicized state of limbo between dueling infrastructural imaginaries.

Introduction
Between 2008 and 2014, Mumbai’s water department replaced and upgraded the entire below-ground network of distribution mains and household water connections in the municipal colony of Shivajinagar-Bainganwadi.1 Home to over half a million people on the marshlands of Mumbai’s largest garbage dump, Shivajinagar-Bainganwadi is described by municipal engineers as an embodiment of the challenges that they face in supplying water to the city: low water pressure in distribution mains, dried-up consumer taps, broken or absent meters, contamination by disease-causing pathogens, as well as all manner of undocumented and haphazard hydraulic intervention—such as the constant upstream ‘transferring’ of dried-up consumer connections to larger-diameter distribution mains, the widespread use of pressure-enhancing suction pumps to extract water from individual sputtering taps, and the replacing of municipal fittings on distribution pipes with nonstandard (and disallowed) fixtures in order to extract water from the network outside of official supply timings.2 Low pressures and dry taps have fueled a large secondary market for water in and around Shivajinagar-Bainganwadi, and entrepreneurial types whose residences are located at higher-pressure spots on the grid have arranged for additional taps in order to meet demand from thirsty throngs of jerrycan-toting neighbors.

The network upgrading project in Shivajinagar-Bainganwadi sought to first wipe the slate clean by plumbing the neighborhood afresh with a brand-new network of pipes, and then to enhance area water pressures through two additional initiatives. First, when in 2014 the long-awaited completion of a supply augmentation scheme increased Mumbai’s bulk water availability by at least 7%, daily supply to the M-East Ward’s local service reservoir was boosted dramatically—by 20%.3 As per the most

1 This article draws on ethnographic research in Mumbai conducted by the author between 2008 and 2015. All interviews were conducted in either Hindi or English and translations are the author’s own.
2 Mumbai’s water distribution network is not configured to provide continuous pressure but rather works as a ‘sump and pump’ system (Björkman, 2015).
3 Figures were provided directly to the author by water department engineers.
recent census figures (and subtracting out the 20% of locally available water used for industrial and commercial purposes), daily water availability in the M-East Ward (at the time of writing) stood at a respectable 90 liters per capita.\(^4\) There is, in other words, no shortage of available water for domestic use in Mumbai’s M-East Ward. Secondly, the commissioning in 2009 of an enormous suction tank and pumping station immediately adjacent to Shivajinagar-Bainganwadi sought to boost pressures in the neighborhood’s water distribution mains. By the spring of 2014, the local M-East Ward water engineers had completed the final phase of the Shivajinagar-Bainganwadi upgrade—the herculean task of transferring 6,558 individual consumer connections from the old defunct grid to the new distribution network. All that remained was turning off the flow of water into the old pipes by closing a series of valves, thereby diverting all locally available water into the fresh blue medium-density polythene (MDP) tubes.

Yet when the happy day for closing the valves and decommissioning the old network of steel pipes at last arrived in May 2014, the sub-engineer who had been tasked with the valve operations met with a not-so-happy crowd. Rallying behind one of the area’s elected municipal councilors, what one engineer described as ‘hundreds’ of angry neighborhood residents gathered around the sub-engineer and his work crew, demanding that they reopen the valves to allow water to flow back into the defunct distribution network. When the sub-engineer phoned his superior, the ward-level assistant engineer (AE), he received firm instructions to proceed with the valve manipulations as instructed. The young politician at the head of the crowd then approached a nearby police outpost, appealing to the inspector to intervene in what was quickly threatening to become, as another engineer put it, ‘a law and order problem’. The police inspector phoned up the ward-level AE with a request that he cancel his order to his sub-engineer to close the valve feeding the old distribution network. The AE stood his ground: ‘Our job is to provide water’, the engineer recalled telling the inspector, while ‘law and order is your domain’. The police inspector then phoned the AE’s superior, the ward-level assistant commissioner (also known as the ward officer), beseeching the commissioner to intervene before things got out of hand. The commissioner caved, instructing the besieged sub-engineer to disregard his immediate superior’s orders and to re-open the valve in question, thereby allowing water to flow back into the defunct network. The sub-engineer did as he was instructed, and then reluctantly phoned up his boss, the AE, to relay the unhappy news.\(^5\)

The May 2014 incident was only one among numerous attempts (both prior and subsequent) to decommission the old distribution network (as a whole or in part) in Shivajinagar-Bainganwadi. The sticking point has been that while the municipal corporation transferred the 6,558 metered water connections—free of cost—from the old network to the new grid, ward engineers estimate that there were an equal number of undocumented connections still connected to the old distribution network. The thousands of undocumented connections represent tremendous financial investment by many thousands of area residents—investments in brokerage fees, expensive long-distance steel piping, labor costs and pressure-enhancing suction pumps. However, because they are undocumented, these countless connections are ineligible for transfer to the new network. In the event of the old distribution pipes being decommissioned, these expensive, temperamental taps would dry up completely.

But why are so many taps unmetered? The slew of unmetered water connections in Shivajinagar-Bainganwadi must be understood in the context of a dramatic shift in

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\(^4\) The 2011 census enumerated the residential population of M-East Ward at 1.2 million.

\(^5\) My description of this incident is based on a triangulation of multiple accounts: from the AE himself; the sub-engineer (together with a junior engineer) who had been present that day; two executive engineers who had been involved in the design and planning of the network upgrade; the elected councilor who had intervened to insist that the valves be reopened; area residents whose water taps were affected by the valve operations; and finally the AMC, who recalled his bafflement upon hearing about the whole affair afterwards.
the rules governing the provision of piped municipal water supply in Mumbai that took place two decades ago, whereby water supply to ‘slums’—earlier treated as a matter of network planning and hydraulic engineering—was made contingent upon eligibility for a property titling scheme—what I shall call ‘hypothetical property right’. In what follows, I trace the ideological basis and practical implications of this profound policy shift linking water access to hypothetical property right, and outline the material, legal and political contradictions produced by this new water regulatory regime. Empirical accounts then demonstrate how these contradictions have been mediated in Shivajinagar-Bainganwadi by the material and practical knowledge, embodied expertise, local authority and wide-ranging socio-political work of two sets of actors: the municipal corporation’s water engineers on the one hand and on the other a cast of characters known locally as ‘plumbers’. The article demonstrates how the social, political and hydraulic imaginaries animating the work of ‘plumbing’ are bound up with a temporal and spatial imaginary distinctly at odds with the network-flow conception of hydraulic engineering within which the work of water supply planning and distribution in Mumbai is conceptualized, materialized and institutionalized. In Shivajinagar-Bainganwadi, the hydraulic and legal contradictions of these clashing infrastructural idioms—of flow and event—have been managed and mitigated by the relationships between engineers and plumbers. However, the property-right-based water regulatory regime is highly unstable, and relations between engineers and plumbers are thus increasingly fraught. The instability eventually erupted in Mumbai’s waterscape, leaving the city’s water infrastructures (their planning and operations) suspended in a highly politicized state of limbo between dueling infrastructural imaginaries.

**Citizenship unbundled: network planning to individual property right**

The linking of access to municipal water supply—previously governed by territorial logics of network planning, hydraulic engineering and municipal finance—to an individualizing mechanism of property right must be considered in light of broader trends towards what scholars have characterized as a ‘hollowing out’ of social rights in conjunction with global-level institutional and economic reconfigurations since the 1980s (Jessop, 2004). These described shifts have called into question the meaning and content of citizenship itself, reconfiguring the ways in which claims of citizenship are articulated, instantiated and made practicable in local contexts. Social theorists of late modernity have disaggregated the various components of citizenship that canonical theorizations (see Marshall, 1950; Arendt and Canovan, [1958] 1998; Brubaker, 1998) have identified as convergent: political participation, juridical status and social membership. Whereas a convergence model counterposes citizenship with a condition of statelessness (Arendt and Canovan, [1958] 1998), scholars have shown how contemporary regimes of citizenship right are ‘flexible’ (Ong, 2006: 500)—even sometimes delinked from territorial boundaries altogether. The normative implications of this unbundling pull in both directions: on the one hand, making social goods contingent on market criteria (such as the ability to pay) can enable formerly excluded persons (expatriates, guest workers, tourists) to claim ‘citizenship-like entitlements’ (ibid.: 501); on the other hand, with access to resources, spaces and social services previously accorded—at least in theory—on the basis of national citizenship made conditional on market-based criteria and bourgeois consumer aesthetics (von Schnitzler, 2008; Ghertner, 2015), this same flexibility is described to produce a ‘democratic deficit’ (Habermas, 1999: 49). Meanwhile, across the globe, the triumph of a liberal notion of property right has criminalized the neighborhoods and livelihoods of the urban poor whose homes and businesses are accused of encroaching on public space (with the public reimagined as a global class of consumer citizens) and of corrupting market efficiency. Citizenship has, of course, always been differentiated in myriad ways the world over, but perhaps distinctively so in postcolonial contexts (Mamdani, 1996;
Chatterjee, 2006), and especially in cities (Holston, 2009). Mumbai’s exclusionary hydrologies might be characterized as a material manifestation of the deep and long-standing contradiction—famously noted by Ambedkar at the time of Indian independence—in the coexistence of universal political rights and highly differentiated social rights. Scholars of modern India have chronicled the myriad ways in which the paradoxes and inequities of postcolonial democracy have been managed, mitigated, mobilized and otherwise mediated—hierarchically arranged in patronage relations (Piliavsky, 2014), organized and channeled by party systems (Yadav, 1999; Corbridge and Harriss, 2000), pacified with welfare schemes (de Wit, 1997; Chatterjee, 2008; Thachil, 2014), subjugated with physical or structural violence (Hansen, 2001; Gupta, 2012), governed and governmentalized with technologies to appease and discipline subject populations (Chatterjee, 2008; Gupta, 2012), or negotiated and bargained through ‘instrumental’ uses of the political rights of franchise (Chatterjee, 2006: 40–41)—and have debated the extent to which these myriad forms of political mediation exhibit both continuity and departure from longstanding patterns and relations of socio-economic, structural and ritual authority.

At the heart of these discussions about postcolonial citizenship is the figure of the intermediary who bridges institutional, legal or informational gaps (Reddy and Haragopal, 1985; Witsoe, 2012), and whose existence reveals the ‘blurred boundaries’ (Gupta, 1995) between societies and states (Fuller and Béné, 2001). In the Indian context, scholarly debates have been concerned with whether political mediation either reproduces or destabilizes established structures of authority: on the one hand, mediation is characterized as a holdover from feudal times, when local leaders are said to have ‘constitute[d] a link between the sovereign and the people’ (Reddy and Haragopal, 1985: 1151). In Srinivas’ influential formulation, vertical relations of patronage between the political party and individual voters are described as pyramid-like in structure, with party leadership channeling state resources downwards to voters through intermediary figures such as higher-caste landowners or money lenders with whom the poorer and lower-caste masses are described to have longstanding ties based on social, ritual and economic obligation (Srinivas, 1960). On the other hand, more recent formulations have emphasized how contemporary forms of political brokerage do not only (or necessarily) shore up older patterns of authority, but can work to challenge these structures too (Hansen, 2001; Jeffrey, 2010). Even when challenging traditional structures of authority, however, political mediation is described with deep ambivalence, as a morally fraught (and frequently violent) sphere of activity bound up with criminality and political-administrative distortion—what Witsoe (2012: 52) characterizes as the “democratization” of corruption. Whether brokers are sign and substance of democracy or of its inverse (however conceived) thus remains an open question that is hotly debated.

Back in Mumbai, the dismantling and unmaking (both materially and metaphorically) of municipal engineers’ knowledge and authority over the water distribution network by brokered interventions gesture towards these normative questions about political mediation: on the one hand (and in a Foucauldian sense), socio-material practices of water brokerage might be construed to pose a challenge to ideological and material structures of domination residing in established hierarchies of ‘valued knowledge’ (Wayland, 2003: 484). The disassembling of the distribution network and the destabilizing of formal engineering expertise have thus been characterized as a kind of resistance to the (presumed) totalizing project of state-led capitalist modernity, and to the ‘despotism’ of what Wittfogel famously called the ‘hydraulic state’ (Wittfogel, 1956; Wayland, 2003: 484).

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6 The figure of the ‘intermediary’ (Reddy and Haragopal, 1985; Jha et al., 2007) is also variously referred to as a ‘broker’ (Jeffrey, 2000; Véron et al., 2003), ‘fixer’ (Reddy and Haragopal, 1985), ‘dalal’ (Parry, 2000; Witsoe, 2012) and ‘middleman’ (Oldenburg, 1987).

7 This ambivalence towards political mediation contrasts sharply with celebratory accounts of what are characterized as more direct—that is, unmediated—forms of ‘insurgent’ political claims making, material appropriation or ‘occupation’ (see e.g. Benjamin, 2008; Holston, 2009), which are theorized as democratizing ‘alternatives’ to relational forms of ‘client patronage’ (Holston, 2009: 248).
To the extent that hydraulic knowledge is held to underpin power over water, the proliferation of brokers might appear to suggest a challenge to centralized control. But on the other hand, knowledge is not the only factor exerting power over water; as only one particular dimension of power, knowledge—and its role in channeling water flow and access—must be considered in its material-political context. As the next section demonstrates, Shivajinagar-Bainganwadi’s ‘plumber raj’ (rule by plumbers) has—by the reckoning even of plumbers themselves—wreaked hydraulic havoc on the neighborhood’s material infrastructures, sapping the life out of the very pipes and taps that brokers’ interventions themselves enable. Empirical attention to the origins and trajectory of the conflicts between engineers and plumbers in Shivajinagar-Bainganwadi thus reveals not an age-old structural conflict between power and resistance played out over the pipes, but rather a spiraling and highly unstable contradiction borne of a quite recent and peculiar shift in Mumbai’s water governance regime, which tied water access to eligibility for a property titling scheme. It is to this shift that the next section turns.

**Hydraulic engineering to ‘eligible citizenship’**

Making sense of the profound ideological and hydraulic implications of the policy shift linking water access to hypothetical property right requires that we first attend to what came before. Until the 1990s, Mumbai’s water department did not really concern itself with the complexities of land tenure arrangements, with property titling, or with conformity (or lack thereof) to building codes and regulations of the various constructions in which city residents lived, bathed, washed clothes or otherwise used water. As one senior retired municipal engineer explained, because the 1888 Bombay Municipal Corporation Act (BMC Act, 1888) treats water as ‘moveable property’, the municipal corporation has the right to provide water to whomever agrees to pay for it. Sometime in the 1960s, the engineer recalled, the water department decided that the Municipal Corporation Act gave the water department the right to provide water even to residents of ‘unauthorized structures’. Before the 1990s, moreover, the BMC’s Water Charges rules made no mention of water supply to ‘slums’, presumably since—prior to 1991—the ‘slum’ idea was wrapped up with a host of central and state government initiatives defining the category in the first place, largely in order to provide civic amenities to underserved urban areas. Thus, for instance, when an unplanned neighborhood at the southeastern edge of Shivajinagar-Bainganwadi—an area known as Kamla Raman Nagar—was officially ‘declared’ a slum in the 1980s, the water department was empowered to redress the infrastructural deficiencies of the neighborhood: department engineers and long-time residents recall the planning and laying of a new water distribution main through the neighborhood, to which a combination of public standpipes and individual metered taps were then connected, using both state and municipal budget allocations. Before the 1990s, in other words, the infrastructural challenges posed by unplanned neighborhoods such as Kamla Raman Nagar were treated by water engineers not as legal problems but rather as hydraulic concerns, planning problems and fiscal matters.

Since the 1990s, policy tools enabling these sorts of planned interventions and investments in infrastructurally disconnected neighborhoods such as Kamla Raman Nagar were obviated by a new market-oriented policy paradigm of slum redevelopment, which envisioned not infrastructural investment and upgrading, but instead wholesale demolition and reconstruction of popular neighborhoods. In March 1991 the government of Maharashtra launched a new set of Development Control Rules, granting

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8. Anand’s suggestion that the ‘ignorance’ of Mumbai’s water engineers ‘produces leaks in the structures of control of the public system’ (Anand, 2015: 323) picks up this sort of reasoning.

9. While the Bombay Municipal Corporation Act of 1888 does not use the precise term ‘moveable property’ in relation to water, the engineer’s characterization is accurate: as far as billing for water is concerned, the BMC Act spells out the various ways in which the hydraulic engineer is empowered to recover costs from the various categories of water user (BMC Act of 1888, Chapter III, Section 61).
private-sector developers of tenement-style slum redevelopment housing incentive development rights as a kind of housing cross-subsidy: by compensating builders of slum rehabilitation tenements with development rights, it was imagined, the urban poor could be rehoused at little or no cost to the state government. The basic idea behind the 1995 Slum Rehabilitation Scheme (an amped-up, more market-reliant version of the nonstarter 1991 Slum Redevelopment Scheme) was to exclusively use market resources to demolish all of the city’s slums and to rehouse eligible residents in mid-rise tenement buildings—now as title-holding property owners.

The slum redevelopment idea that evolved in Mumbai was part of a broader, global-level policy paradigm shift whereby allocation and distribution of urban resources (land, water, housing) as well as urban conflicts of all sorts have been sought to be resolved by market mechanisms and management techniques. Ideas and ideals of urbanism stemming from organicist metaphors of circulation, flow and networked infrastructures have increasingly been obviated by a belief in the power of markets to invite and impel state actors (as managers) and city residents (as consumers) into spontaneous and efficient administration and use of urban resources. The tenets of this new ideal can be seen in the seminal formulation of neoclassical economist Friedrich von Hayek ([1949] 1996): Hayek theorized human behavior as responsive to ‘price signals’, resolving that the sole responsibility of states is to secure the minimal legal framework necessary for markets to function—that is, to shore up contract law and protect property right so that price signals are accurate and enforceable (and indeed enforced). In the urban housing sector, development economist Hernando de Soto famously extended this logic in a highly influential envisioning of how property titling for the urban poor might unleash market magic (transforming ‘defective’ resources into ‘assets’—see de Soto, 2000: 5), thereby facilitating optimal resource allocations. Of course, a theory about how market mechanism works is not the same thing as concrete policies that cite these ideas as their justification and motivation. The necessary divide between efficient-market ideas and the various policies and practices animated by these ideas also means that there is no necessary correspondence between the two as far as ends are concerned. Indeed, the policy framework for slum redevelopment that emerged in 1990s Mumbai was a very particular instance of market mechanisms being enlisted to adjudicate the city’s specific problems of urban governance as having to do with land acquisition and social housing finance.

Political leaders in Mumbai sought to legitimize this highly peculiar policy framework (which anti-migrant detractors denounced as ‘rewarding squatters’ and encouraging migration) through a two-part strategy: first by excluding from Slum Rehabilitation Scheme eligibility any household that could not provide documentary proof of residence in a structure as of a 1 January 1995 cutoff date, and secondly, through a government circular passed in 1996 on the heels of the new Slum Rehabilitation Scheme that disallowed even the provision of civic amenities (say, municipal water) to areas and people whose structures (and whose residence in those structures) could not be proven to meet the cutoff date of eligibility for some hypothetical slum rehabilitation scheme. Water access in popular neighborhoods thus became conditional upon hypothetical property right.

Vagaries of eligibility

The legal-institutional linking of municipal water access to hypothetical property right has had disastrous hydraulic implications, criminalizing water infrastructures in Mumbai’s low-income neighborhoods and drawing city residents and water engineers into a legally wooly and hydraulically dystopic terrain of infrastructural practice—involving duplicate documents, unauthorized suction pumps and all manner of...
undocumented and disallowed hydraulic intervention. To make sense of what has happened it is useful to explore what eligibility for municipal water in Mumbai entails in practice. When approaching the water department offices to request some hydraulic work (for instance, to apply for a new water connection or to report a dried-up tap) the requesting party is asked to provide a few different kinds of documentary ‘proof’. First, the applicant must demonstrate current official residence at the address in question—evidenced by official documents such as ration cards, utility bills or birth certificates; secondly, if the application comes from an address that is considered or treated for policy purposes as a ‘slum’, then the head of the household must also prove residence in the city of Mumbai that precedes the cutoff date—evidenced by having his or her name included in a pre-cutoff-date electoral list. In this context, applicants from neighborhoods treated for policy purposes as ‘slums’ who are either renting their homes or who have more recently purchased their houses in Mumbai’s extremely liquid popular housing market will generally not have the requisite combination of documents that would enable them to apply directly for municipal water connections or to receive water at the regular (and highly subsidized) rate for domestic use.

As most of the built space in Shivajinagar-Bainganwadi and the surrounding areas actually preexists the cutoff date, it seems that the cutoff-date regime ought not to pose any particular obstacle to water access. However, residents who wish to either apply for new connections or for having their existing connections transferred to higher-pressure points upstream on the distribution network—two common practices in an area of the city where rapid and dramatic population increases have stressed locally available water resources—must produce documentary evidence that they meet the hypothetical property right requirements. Thus, residents not only of newer areas but also of older neighborhoods have had little choice but to either use spurious documents in arranging for water work to be done, or else to opt for undocumented connections. Households who cannot afford new connections (documented or undocumented) are in turn compelled either to make arrangements with owners of a nearby tap and to prepay monthly for a set number of minutes of daily use, or else to walk or bike with pots or jugs for extremely costly, piece-wise purchases from taps located at higher-pressure points on the grid.

Moreover, tying water access to hypothetical property right effectively precluded the planning and extension of distribution network to the city’s myriad fast-growing neighborhoods—neighborhoods that have a variety of tenure arrangements but which the new slum redevelopment paradigm effectively occludes fitting with new below-ground water mains. The resulting number of households forced to rely on piece-wise purchases at retail markets for daily water requirements is staggering. To meet this mounting demand on existing taps, water retailers have arranged for larger-diameter connections. These larger fittings, needless to say, are disallowed by the Municipal Water Rules for domestic use and so are by-and-large undocumented. Undocumented connections in Shivajinagar-Bainganwadi thus come in at least three varieties: connections for retail use, upstream-transferred connections belonging to structures located in older areas where distribution mains have dried up, and long-distance connections from areas having no below-ground distribution network. It is these sorts of connection that would still be joined to the defunct distribution network in Shivajinagar-Bainganwadi, since they are ineligible for transfer to the new grid. It is the owners of these kinds of connections—together with the countless households that depend on these connections for their daily water needs—who comprised the crowds that blocked departmental efforts to decommission the defunct distribution network in Shivajinagar-Bainganwadi.

**Plumbers: ‘perfectly sound and water-tight’**

Undocumented water connections in Shivajinagar-Bainganwadi are facilitated by a legion of brokers—a cast of characters popularly known as ‘plumbers’—whose everyday infrastructural work plays a central role in mediating access to water, not only
for the urban poor but for city elites as well. The official role of the ‘licensed plumber’ in Mumbai’s water infrastructures was institutionalized nearly a century ago in the city’s Water Charges Bye-Laws (MCGM, n.d.), framed under Section 461 (A and B) of the BMC Act of 1888 and approved on 8 May 1924. Governing ‘all matters and things connected with the supply and use of water’ the Bye-Laws enlist the licensed plumber in facilitating applications for domestic water supply as well as in laying consumer pipes and fittings that connect the public distribution network with the private residence.

The institutionalization of plumbing in the 1888 BMC Act relates to the broader ‘transnational municipal moment’ (Saunier and Ewen, cited in Anjaria, 2016: 22) of nineteenth-century colonial history, when new ideas of ‘public’ and ‘private’ were articulated through novel forms of urban spatial regulation: ‘intimate, embodied activities’ (Valentine, cited in Anjaria, 2016: 21) like eating, bathing or urinating—activities that had previously been common in streets and open grounds of both colonial and European cities—were increasingly relegated to the ‘private’, domestic space of the house and home; for the ‘private person’, Walter Benjamin noted, the ‘drawing room is a box in the world theatre’ (Benjamin, 1978: 154). Meanwhile, open and unbuilt urban space—reimagined as ‘public’—increasingly became envisioned through biological-metabolic metaphors as the province of ‘flows, movements and circulation’ (Joyce, cited in Anjaria, 2016: 66; see also Gandy, 2004; Picon, 2018, this issue).

Facilitating the efficient and unimpeded passage of people (workers and shoppers), resources (commodities and capital) and materials (especially water in its various forms) thus emerged as one of the most urgent concerns in both metropolitan and colonial city governance (Gandy, 2008). Indeed, while Benjamin focused on the ‘phantasmagorias’ (1978: 154) of the ‘living space’ as the source and site of consumer capitalist desire, others located the fount of modernity instead in the water closet. In his influential 1898 essay on ‘plumbing’, for instance, Viennese architect Adolf Loos describes the individualism and autonomy that indoor plumbing (‘faucets, sinks, water closets, and washstands’) was held to both create and represent: ‘The Englishman’, Loos writes, ‘has no fear of getting dirty ... [He] does everything himself’. Where the Englishman’s individual autonomy lay in the fact of indoor plumbing (‘Every English washbowl, with its faucet and casting, is a sign of English progress’), the comparative ‘backward[ness]’ of the Germans was held to be the result of ‘too little water for bathing and for the home’. Loos thus enjoined his Viennese readers that ‘increasing water usage is one of the most pressing tasks of culture ... For only that nation that approaches the English in water usage can keep pace with them economically; only that nation that exceeds the English in water usage is chosen to overtake them in world dominance’ (Loos, [1898] 1997: 17–18). In this context, Loos insisted, the plumber is no less than ‘the first artisan of the state’ (ibid.: 18).

By drawing our attention away from the front of the house (leaving Benjamin in his drawing room) and towards the back-door and subterranean (inter-)faces of the domestic sphere where the ‘first artisan of the state’ plies his trade, Loos’s treatise on plumbing calls attention to the illusory character of the modern public–private divide, and to the ways in which maintaining this boundary illusion hinges paradoxically on its material porosity—on the invisibilized interconnections enabling flows across this fictive boundary that the work of plumbing entails. As Lefebvre notes, while ‘a defining characteristic of (private) property ... is a closed frontier’, this frontier is ‘permeated from every direction by streams of energy which run in and out of it by every imaginable route: water, gas, electricity, telephone lines, radio and television signals, and so on’ (Lefebvre, 1991).
1991: 93, 175–176; emphasis added). Given the central role of spatially articulated ideals of privacy and publicity in this ‘transnational municipal moment’, combined with the fictiveness of the property boundary, Loos is perhaps not overstating his case when he suggests that ‘without the plumber, there would have been no nineteenth century’ (Loos, [1898] 1997: 15).

For its part, nineteenth-century Mumbai institutionalized ‘the licensed plumber’ in the BMC Act of 1888, enlisting the services of Loos’s first artisan of state to enable water from the newly created distribution network to flow unimpeded across and beyond the fictional ‘frontier’ of the private property line—that is, where the jurisdictional boundaries of the municipal engineers halt rather abruptly (and from a hydraulic perspective, arbitrarily)—and into the private space of the home. The MCGM’s Water Charges Bye-Laws specify:

> Before commencing the laying, alteration or extension of any consumer’s pipe or otherwise, on applying to the corporation to provide a supply of water to any premises, intending consumers shall fill, upsign and deliver to the head office of the Water Department of the Corporation in the form prescribed in Schedule ‘A’ attached to these bye-laws (MCGM, n.d.).

The plumber’s role in Mumbai’s water infrastructures is outlined (then as now) in Schedule ‘A’, where the ‘intending consumer’ is required to name the licensed plumber who has been ‘instructed ... to carry out plumbering (sic) work’. The standardized, state-sanctioned knowledge and expertise of the licensed plumber is thus conscripted in ensuring that (private) consumer connections to the (public) distribution network are ‘perfectly sound and water-tight’ (MCGM, n.d.: 1–2). The work of the plumber, in other words, takes place at the precise point (material and legal-institutional) where water infrastructures encounter Lefebvre’s ‘closed’ yet ‘always permeable’ boundary of private property. This point of intersection is therefore highly unstable: while materiality of the water distribution system means that the technical configurations of privately owned pipes and fittings have wider-scale, indeed systemic hydraulic implications, the private consumer’s pipes and fittings are nonetheless ‘not the property of the Corporation’ (MCGM, n.d.: 2)—meaning that work on them falls outside the jurisdiction of municipal staff. The regulatory framework delimiting public and private ownership of pipes and fittings, in other words, does not map neatly onto any concomitant boundary acting on the water flowing through these fittings; water has little concern for rituals and formalities of ownership. With public-sector staff neither responsible for nor permitted to work directly on privately owned water fittings, compliance of private pipes and fittings with the norms and standards of hydraulic engineering is regulated through the procedures of plumber licensing—the work of plumbing bridging the boundary between the public and the private bits of the city’s water infrastructures to ensure a ‘perfectly sound and water-tight’ distribution network through which water might flow.

In accordance with the Water Charge Bye-Laws, a 2009 public notice posted on the door outside the M-East Ward office requests the name and signature not only of the applicant but also of the appointed plumber, along with a photocopy of the plumber’s official license. Yet the 2009 public notice includes an additional, somewhat curious requirement that is nowhere evident in the Water Charge Bye-Laws: an ‘authority letter to assistant for carrying out the work on [the plumber’s] behalf’. This is because the overwhelming majority of practicing ‘plumbers’ in M-East Ward are not actually licensed plumbers at all; rather, they are brokers who work as ‘assistants’ to one or

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13 While the Water Charges Bye-Laws are periodically revised, engineers insist that this provision would have been found in the original version, likely to have been published when the city’s first waterworks were commissioned in the mid-nineteenth century.
another license-bearing plumber. Indeed, in contemporary Mumbai (at the time of research), the process of applying for a new connection (or connection transfer) and having pipes laid deviates in subtle but important ways from that prescribed by the Water Charge Bye-Laws. In practice, the process goes something like this: when, for example, an upmarket new residential tower needs additional water for the ubiquitous extra few floors (on which flats have already been sold but for which no occupation certificate exists), or when a water connection is required by a masjid (mosque), a wedding hall or a youth center on public land, or when a group of new homeowners or renting tenants in a popular neighborhood decides to pool resources and invest in a new water tap—in all such cases where official water policy is either hazy or contradictory (if not outright hostile), such a group will approach a broker to arrange for the necessary work to be done. Brokers who specialize in water work—whether licensed in their own name or working under an ‘authority letter’ of someone carrying a license—are referred to (by the public, by water department engineers, as well as by one another) as ‘plumbers’.

The plumber presents an application file to an engineer (either at the ward level or at the head office, depending on the size of the new connection involved), accompanied by the requisite documents. The need to verify these documents is obviated by the plumber; if the documents are later concluded to be fake (‘duplicates’) then it is the plumber who is answerable to the owner of a water connection that might come under official scrutiny and might then be targeted for disconnection. The plumber—whose business prospects hinge on continued demonstration of a capacity to produce dependable water connections (that is, pressurized water taps that do not get cut off during periodic municipal raids) will in turn attempt to leverage his networks of relationships with elected officials and bureaucrats—figures whose authority the plumber’s work is itself instrumental in producing—to secure the integrity of the tap. Indeed, plumbers not only wield invaluable information about local hydraulic configurations, but individual plumbers’ reputations as effective brokers of water access render them indispensable advice givers, opinion makers and even kingmakers at election time (Björkman, 2014; 2015). Politicians, both elected and aspiring, therefore have very good reasons to enlist their own socio-political networks in shoring up the integrity of their preferred plumbers’ work—much of which takes place in the popular neighborhoods where the majority of Mumbai’s voters reside.

The more opaque and illegible the terrain of everyday infrastructural practice has become, the more the work of plumbing has become entangled in dense webs of socio-political connection and interdependence with which water access in Bombay/Mumbai—particularly in its working-class neighborhoods—has long been intertwined (Dossal, 1991; Gandy, 2008). Indeed, while local political leaders have always played an important role in facilitating infrastructural access—and in managing the contradictions of colonial and postcolonial urban governance more generally—what begs explanation in contemporary Mumbai is the peculiar way in which the ‘licensed plumber’—our ‘first artisan of state’, whose domain of expertise earlier attended more narrowly to the hydraulic contradictions wrought by the fiction of property right—has been stretched by the institutional reconfigurations of Mumbai’s new hypothetical property right regime into this broader terrain of political mediation. We have seen how relations with elected officials (at the city, state and even central levels of government) are now necessary to insulate plumbers’ work from the risk of sanction—for, say, systematically (and necessarily) stretching the water rules, for submitting files accompanied by fabricated or duplicate documents, for transforming a single, sanctioned connection into two or three or more unmetered taps, or for any and all manner of disallowed physical

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14 At the time of research, the assistant engineer of the M-East Ward reported the number of licensed plumbers at exactly three; the number of assistants, by comparison, ranged upwards of twenty.
interventions into the distribution network. At the same time, the hydraulic efficacy of plumbers is revealed to be indispensable to politicians themselves, whose reputations for political potency is vulnerable to the whims of the pipes. The next section will show how insulating work of plumbing is indispensable even to water department engineers, for whom the increasingly fuzzy legal terrain of everyday infrastructural practice in contemporary Mumbai has meant ever-rising vulnerability to politically motivated complaints of impropriety or ‘corruption’.

Engineers: the exigencies of ‘managing well’

‘Good doesn’t mean you’re honest’, philosophized a senior engineer named Gupta, ‘and honest doesn’t mean you’re good’. To ‘manage well’ in the department, he explained, an engineer needs to ‘solve problems and work hard’. Engineers who wish to be able to ‘solve problems’—that is, to be able to produce water where and when it is required—must therefore find ways of keeping flows of information about the distribution system directed through their own offices. Keeping oneself in the knowledge loop requires that, as much as possible, water-related work—even legally ambiguous or questionable work—be directed through one’s own office. The contradictions posed by the hypothetical property right requirement for water are mediated by relationships between plumbers and engineers—relations that are produced and sustained by reciprocal obligations, exchanges and tacit understandings between these two figures. To shore up these mutual commitments, plumbers generally submit applications for water work accompanied by cash gifts—described as ‘speed money’—which incentivize or reward the engineer who processes the file in a timely and efficient manner. One engineer insisted that these gifts should not be seen as payments—that is, as ‘bribes’—but rather as ‘bonuses’ for engineers who are ‘cooperative’. Most engineers are ‘very cooperative’, one property developer explained, because they know that if they do not process some particular work, the approval will likely be obtained in any case by some other avenue. An uncooperative engineer would thus not only lose out on his ‘bonus’, but more crucially would also be left ignorant (and over time increasingly so) of vital information about the distribution system. This kind of hydraulic illiteracy would quickly render an engineer less and less able, as one engineer put it, to ‘manage well’ and ‘solve problems’ down the line.

Engineers have myriad additional ways of producing and updating their knowledge of the distribution system. A junior engineer, Katekar, for instance, explained that there are a few valves [in Shivajinagar-Bainganwadi] that are not supposed to be operated, but I know they are operated sometimes’. When I asked him to describe how he knows this, he replied simply, ‘It’s my area—it’s my job to know’. Over the years he has learned, for instance, that when a certain valve is ‘adjusted’, a cluster of homes in an adjacent area will not get much water. ‘So I go and ask the people on that road, “Did your water come?” Of course they will never say “yes”, but by the extent of their complaining I can interpret what has happened. If they say, “Oh, just a little water came”, then I know that plenty of water came and that the valve has not been tampered with. But if they complain a lot about water shortage, then I know that the valve has been adjusted. I can read their expressions. So then I go out with the chaviwala [valve operator] and he fixes the valves’.

Whether the valves are manipulated by the chaviwalas or by private parties who have figured out how to open and close them is anyone’s guess; Katekar suspects that most operations are probably carried out by the chaviwalas themselves. While Katekar maintained that he had not personally witnessed any unofficial manipulation of the

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15 While the ever-present threat of official sanction means that engineers will naturally insist upon their ‘ignorance’ (Anand, 2015) of unofficial hydraulic interventions (undocumented taps, disallowed fixtures, unofficial valve operations), in practice the ongoing production and maintenance of hydraulic literacy is of utmost importance—the very key to ‘managing well’.

16 The valve operator is another key mediator in Mumbai’s hydraulic landscape; see Björkman (2015) for discussion.
valves, he surmised that such procedures are likely managed the same way unauthorized water connections or connection transfers are managed—transactions with which he has had plenty of direct personal experience: the party needing more water will approach a plumber, and the plumber then negotiates the arrangement with the ward-level engineers, who then simply instruct the valve operator to change this or that valve. Since any ‘special’ adjustments are carried out during routine valve operations (and on instruction of ward engineers), the sorting of ‘official’ from ‘unofficial’ department work becomes a complex affair indeed. Katekar’s readjustment practices might therefore be interpreted not as the righting or undoing of ‘corrupt work’ but rather as part of the adjusting and readjusting that comprises the everyday work of watering the city.

‘Managing well’ requires adept navigation of this perilous terrain of competing and conflicting demands: requests for new connections or connection transfers from residents, housing society secretaries or plumbers; demands from community leaders or elected representatives for increased water supply to this or that neighborhood; pathogens threatening to spread disease; burst mains, broken valves and other accidents or emergencies calling for immediate attention; the mundane, everyday compulsions of repair and maintenance (patching leaks, replacing pipes, tweaking and re-tweaking valves); the constant stream of complaints of dry taps and low pressures; and, of course, the official rules requiring specific constellations of documents from city residents before any water work can be done.

Engineers describe their work, notably, not in terms of systematically ordering, ranking or making decisions about competing demands (rules, rights or ethics) but rather through empirical accounts of the everyday hydraulic ‘tinkering’ (Law and Mol, 2002: 98) involved in ‘managing well’. In recounting to me what happened on that day in May with which this article began, for instance, a senior engineer named Shah explained, ‘see, when we close that valve their water stops. Their connections might be unauthorized but they have no other way to get water. So they protest’. Shah’s words are remarkable for the absence of moralization—or even empathy. He does not defend or justify the residents’ protest in normative terms (residents are not described to have a ‘right’ to water), nor does the engineer condemn residents’ water connections on the grounds that they are unauthorized. Rather, the engineer explains the situation as a practical problem and a hydraulic challenge that he, as an engineer, must find a way to manage. And indeed, when I responded to Shah’s account with a hypothetical query as to what might happen if the engineers simply procured police protection and closed the valve by force, the engineer regarded me blankly, the scenario baffling him in its absurdity: ‘Madam, people don’t live without water. If we close the valve then they’ll just open up the mains somewhere else’. The grievous damage to the distribution mains that this sort of ad-hoc intervention would entail clearly was not a situation that this engineer would characterize as particularly ‘well managed’.

Conflicting infrastructural imaginaries
The everyday work of watering the city that I have described poses risks to both engineers and plumbers, who have been drawn into a strangulating embrace of increasingly fraught infrastructural practice. For engineers, the dangers are both practical (a badly managed intervention can create as many problems as it resolves) and legal (the unclassifiability of so much departmental work means engineers are ever...
vulnerable to complaints of unlawfulness or ‘corruption’). For plumbers, the dangers are simultaneously financial (taps that dry up are described as ‘bad for business’), juridical (plumbers depend on these political connections to insulate their undocumented work from complaints by rivals and competitors) and political-reputational (repute for infrastructural efficaciousness is what instantiates and sustains the translocal socio-political networks on which the continued reliability of a plumber’s infrastructural interventions can then hinge). These dangers are sought to be managed and mitigated through the forging and maintenance of trust relations among engineers and plumbers—associations produced by exchanges of gifts, knowledge, favors and practical understandings. Nonetheless, relations between plumbers and engineers are constantly strained (hence the gifts), simmering just beneath the surface and ever threatening to erupt.

The network replacement and upgrading project in Shivajinagar-Bainganwadi eventually pushed these already fraught relations between engineers and plumbers to breaking point. The practical imperative to leave both the old and the new below-ground networks open meant that notwithstanding augmented bulk water supply to the local service reservoir, the commissioning of a large below-ground storage tank and pumping station, and the much-needed replacing of old, damaged and deep-sunk distribution mains, water pressures in many taps at the time of research were as low as ever (even if the whims of the network have allowed some areas to see renewed abundance). Local plumbers saw their businesses boom: the drying up of taps increased demand for additional connections (since fewer families can meet their daily water requirements from single taps) as well as for the constant transfer of existing connections to higher-pressure points in the network. Relations among engineers and plumbers, as a plumber named Yusuf explained, are under increasing pressure:

These days the engineers know so little about the distribution system, they have no idea how to manage the network; they have absolutely no idea. We make a proposal and they just say ‘ok, ok’ and sign [the form] ... Sure, my business is great, but the situation is bad. For instance, I don’t think that any of the earnings\(^\text{18}\) from our work goes to the reservoir [engineers] anymore—how can the reservoir manage water pressures when they don’t know where it is needed?! ... There are so many [water] connections now but no one can ensure there’s any water in the pipes! It’s really bad—it makes [the plumbers] look bad and then people don’t trust our work. We have gotten a bad name. That’s bad for business.

The ever increasing numbers of ever stronger motorized suction pumps only make matters worse, since, by increasing the velocity at which water flows through the mains, the pumps actually decrease the pressure in the pipes, thereby curtailing the distance into the neighborhood to which water reaches.

Plumbers, community leaders, neighborhood political workers and elected officials have responded to this situation by putting pressure on ward-level engineers and by filing formal complaints with administrative superiors. In 2015, for instance, a senior engineer described to me how an elected municipal councilor had phoned him up to complain about a sub-engineer who had failed to respond to reports of low pressures in area pipes with specific adjustments to particular valves. When the sub-engineer—whose hydraulic jurisdiction also spans adjacent districts whose water pressures would have been adversely affected by the requested valve adjustments—refused to adjust the valves as the councilor requested, the councilor phoned the sub-engineer’s superior,
the AE. The AE recalled, exasperatedly, that ‘when I explained [to the councilor] that adjusting the valves would cause problems in the neighboring areas, he responded that he isn’t concerned with what happens in the neighboring area’. The engineer sighed as he explained that ‘actually [the councilor] was correct, the water mains in his district do have low pressures. When people in his area don’t have water then it’s his job to complain about it to me’. Shrugging helplessly, the AE recalled that, yes, he had eventually tweaked the valves as the elected councilor had requested, all the while doing his best not to compromise pressures in the neighboring areas—at least not too much.

The tensions between engineers and plumbers stem from clashing and irreconcilable infrastructural imaginaries and imperatives, the contradictions of which engineers and plumbers are tasked with mediating. Shivajinagar-Bainganwadi has become a collision site between, on the one hand, a network-flow imaginary that is materially inscribed into the existing distribution system as well as in the Shivajinagar-Bainganwadi network upgrade project and, on the other hand, an infrastructural image comprised of discrete hydraulic occurrences and events—a political chronotope (Bakhtin, 1981) to which the work of plumbing has become increasingly tethered. In the former, the neighborhood’s network-upgrading project—its planning and implementation—is conceived and operationalized within an infrastructural ideal in which, as Picon (this issue, p. 266) explains, ‘territory and then the city progressively appear as sorts of organisms’, and networked infrastructures are cast as means by which the circulation of vital substances (such as water) are achieved. Network flow is bound up with space and time: it envisions the movement of some substance through space (over time) while attending to the present-time work of implementing plans that might enable such flows (through space) at some imagined future time. While it might be tempting to equate the rationality of engineering per se with a network-flow imaginary, this would be a mistake; as the previous section demonstrated, the guiding logic of engineering is not that of network flow, but rather of ‘managing well’—of mediating, that is, the multiple and often irreconcilable imperatives and constraints to which engineers are subject and held accountable. Yet network flow remains a powerful and privileged imaginary to which engineering practice is tethered (particularly more senior water supply planning engineers whose work involves a somewhat less direct interface with the contradictions described above)—not least because the ‘imaginary-practical entity’ (ibid.: 10) of Mumbai’s actually existing water infrastructures is historically and materially inscribed by the network-flow idea.

The network-flow imaginary, however, contrasts in both spatial and temporal ways with an episodic and performative political idiom with which the work of plumbing is inextricably bound up. While network flow envisions an integrated hydraulic infrastructure that facilitates movement and circulation of water through space over time, the political imperative with which plumbing practice is increasingly intertwined is that of the hydraulic event: an episodic idiom that attempts to produce water notwithstanding any network constraints (imagined or real) that might challenge water pressures in any particular place. Indeed, the opacity and volatility of the distribution network is such that when water emerges out of some tap (and not some adjacent other tap) this hydraulic happening is generally explained—by plumbers and by area residents—as a sign of this or that plumber’s material authority, political potency and practical efficacy in the arts of hydraulic mediation. In contrast to network flow, the temporal imaginary of the hydraulic event is distinctly presentist, concerned neither with the longer-term goals and intentions of the Shivajinagar-Bainganwadi network-upgrading project, nor with any possible longer-term material-hydraulic implications of piecemeal plumbing interventions into the new grid.

Yet, just as the rationality of engineering does not map neatly onto network flow, that of plumbing is not reducible to the hydraulic event; to note that plumbers are tethered to an eventist hydro-political imaginary is not to suggest that plumbing
practice is without orientation towards the future. On the contrary, the hydraulic dimension of plumbing is embedded within a broader field of socio-political practice that is both geographically *translocal* (Yusuf blames the capriciousness of area taps on the failure of water engineers to enlist the reservoir staff in producing pressure where and when it is needed) and temporally *aspirational* (Yusuf’s volatile pipes and dried-up taps have future implications: they’re ‘bad for business’). Moreover, when a plumber brokers a connection that then dries up, it is not only his own business prospects that are at stake, but the reputations of the neighborhood leader, party worker or politician who had recommended him as efficacious mediator. Indeed, when the elected councilor described above entreated the AE to make specific adjustments to specific valves, the councilor sought to enhance water pressures at precise locations along distribution mains in his constituency where his closest plumbers ply their trade. The councilor, in other words, sought to shore up the reputations of his affiliated plumbers as politically potent.

The plumber, like the engineer, is a mediator, brokering with greater or lesser degrees of expertise (Björkman and Harris, 2018, this issue) the irreconcilable imperatives to which he is held to account. Plumbers like Yusuf are first and foremost businessmen and often agnostic in their political commitments; plumbers will often maintain relations with any number of neighborhood political leaders and ‘social workers’—even of rival parties—and not infrequently have political aspirations of their own. The partisan affiliations of local leaders are similarly fluid, and associations are constantly being forged, coming undone, made and remade. These dense ecologies of socio-material association are ever in flux, as local political aspirants seek to build reputations, careers and business prospects through speculative and strategic investments of time, energy and resources. Given Shivajinagar-Bainganwadi’s hydraulic challenges, the spectacular and performative work of plumbing is a particularly salient dimension of the neighborhood’s socio-material ecology: an impotent tap suggests a feeble political association, while a pressurized pipe is a physical instantiation of wide-ranging translocal networks of authority and political efficacy. Plumbing practice thus has both material and semiotic dimensions: while the former is spatially and temporally proximate and immediate, the latter is translocal and aspirational.

**Eruption**

In 2013, the subterranean conflicts and contradictions between infrastructural imaginaries of network flow and hydraulic event erupted in a series of tit-for-tat complaints of impropriety (or ‘corruption’) when a municipal sub-engineer named Patil refused a request by a Shivajinagar-Bainganwadi plumber named Sunny—an unlicensed broker working as an ‘assistant’ under the name of a licensed plumber named Gonsalves. With pressures in the distribution network very low, plumbers had begun insisting that new consumer connections and connection transfers be made not to the internal networks of two-inch diameter distribution pipes (as the new distribution network was planned) but instead to the larger, nine-inch-diameter feeder mains along the neighborhood’s main roads—in flagrant violation not only of hydraulic engineering norms and official rules, but more crucially, of the practical imperative of ‘managing well’. Sunny had insisted that Patil process a file for a new water connection (on an expedited basis) to a nine-inch feeder main. Patil explained to me that he had refused Sunny’s demand both because he was swamped with work, but moreover because doing so would simply reproduce on the new distribution network the problems of the old one—and thereby only create more trouble down the line. In retaliation, Sunny leveraged his connections to the party of the local Member of Parliament to make an official complaint against Patil to the additional municipal commissioner (AMC), accusing sub-engineer Patil of providing municipal water connections to unauthorized residents and residences.
Sunny’s corruption complaint against Patil, while somewhat ironic, is symptomatic of a broader political trend in Mumbai, where the opacities and unpredictabilities of Mumbai’s water distribution network—as well as the widespread recognition that infrastructural practices fall far afield of legibility and propriety—have intersected with an emergent and quite lively activist culture calling for increased ‘transparency’ in municipal governance. (Indeed, the technocratic ideal of transparency and accountability in city governance—what Mazzarella, 2006: 499, characterizes as a fantasy of ‘immediation’—might be described as a third infrastructural imaginary at work in Mumbai’s waterscape.) The general unreliability of the pipes, coupled with widespread popular recognition that water department practices fall far afield of propriety, has intersected in Mumbai with a lively civic activism calling for efficient, ‘frictionless’ (ibid.: 484) governance, characterized by legibility, transparency and accountability in public administration.

To shore up his corruption complaint against Patil, Sunny submitted to the AMC nine departmental files, each bearing Patil’s signature, and each accompanied by an identical set of cutoff-date-meeting, residence-proof documents. The AMC responded by asking Sunny how he had come into possession of official government documents and threatening to file a police complaint (First Information Report or FIR) against Sunny for theft of government property. Sunny, unfazed, countered that he had freely been given the files by the water department’s record assistant—a man named Surve who had served in the M-East department for decades. So the inquiry officer asked Surve how Sunny got the nine files. Surve responded that he gave Sunny the files because Sunny had demanded them. As another senior ward engineer explained, ‘so, see, we couldn’t file an FIR against Sunny unless we filed a complaint against Surve, too. And of course we didn’t want to do that, because we knew it wasn’t his fault; he told us that Sunny threatened him with this or that allegation of corruption’. Needless to say, the idea of filing an FIR against Sunny was dropped.

When the AMC, still acting on Sunny’s complaint, asked the ward-level engineers for an explanation of Sunny’s complaint and the damning nine files, the ward-level AE presented what the AMC recalled as ‘over a hundred files’ bearing Sunny’s own name—all accompanied by duplicate documents. The AMC recalled his shock at learning—as he put it—that ‘it’s actually plumbers who prepare the files while the engineers just sign their names’.

The AMC’s initial (and naïve) response to this situation was simply to suspend the license of Gonsalves—the licensed plumber under whose name Sunny was working. But this, of course, did nothing to prevent Sunny from carrying on with his business; Sunny’s reputation as a dependable, knowledgeable and effective water broker meant that he was quickly able to find another licensed plumber under whose name to work. The AE then complained to the ward officer that Sunny was ‘harassing my staff’ and requested that Sunny be banned from the ward office. But the next day, when the guards refused Sunny entry into the ward office, Sunny filed a petition in the Bombay High Court against the ward officer, claiming that his rights were being violated; as a free man and a citizen of India, Sunny claimed he had every right to come and go from a public office as he saw fit. The judge ‘of course’ threw out the petition against the ward officer, the AMC recalled, but there was nothing the judge could do to prevent Sunny from entering the water department offices.

The AMC recounted how he then responded by issuing a new order: that applications for new water connections or transfers must be accompanied by a court-certified affidavit from the licensed plumber asserting that he has not put in any application in the name of the same people before. ‘Well’, as the AMC recalled at that point, ‘everyone started screaming—the councilors, the engineers—everyone. With the Right to Information Act’, he explained, ‘anyone can be framed’. The affidavit requirement was summarily cancelled. It was at this point, said the AMC, that senior water department engineers suggested revising the water rules.
**Shifting sites of mediation**

This article began with a discussion of the ways in which global economic and political reconfigurations of recent decades are challenging canonical understandings of the meaning and content of citizenship, and how the institutionalization of new market mechanisms and individual property rights are imagined to either expand or limit the possibilities of or scope for making citizen-like claims—juridical, political and material. The distinctly *urban* implications of these described global shifts (Brenner, 2000) have lent cities a particular contemporary salience—as both the locus and object of new sorts of claims making. With cities emerging as key sites of contestation, new kinds of political actors and forms of political action have come into focus as well. In this context, popular and scholarly attention has been drawn to the ambivalent figure of the broker—the shadowy but ubiquitous and increasingly indispensable character who bridges institutional gaps, mediates political energies and generally gets things done. Scholars have debated the extent to which the proliferation of brokers signals either institutional failure, official corruption and a recalcitrant politics of patronage, or ought instead to be celebrated as a vehicle and agent of socio-political assertion, authenticity, and subaltern claims making (Piliavsky, 2014). Our story of Mumbai’s engineers and plumbers, however, necessitates attending to a somewhat different set of questions—concerning the shifting terrain of what is being brokered, of how and why particular forms and practices of mediation become either valorized or despised at particular historical junctures, and of how thesevaluations relate to changing institutional, ideational and material contexts.

A generation of scholarship—postcolonial and otherwise—has established the thoroughly mediated character of the modern state form (and of representative democracy as a particular form and institutional configuration of political mediation). In Mumbai it is not the existence of mediation that is new, but rather the *form* and *content* of mediation that has changed. We saw how in pre-liberalization Mumbai (then Bombay), the materiality of the city’s new networked infrastructures was bound up with a professional-organizational structure aimed at reconciling networked infrastructures with a private property regime—that is, at reconciling the imagined boundary between public and private water pipes and fittings. The expertise of engineers and licensed plumbers—their distinct domains of knowledge and practice—were enlisted in mediating the hydraulic contradictions of this fictional boundary by ensuring that privately owned fittings were ‘water-tight’ before municipal water was allowed to flow. The relationship between city residents and city water was thus facilitated by a ‘material-practical’ infrastructural network comprised not only of pipes and valves and flows, but of the rules and procedures, professional norms and network-flow imaginaries of modern engineering (Picon, this issue). With the linking in 1995 of the rules governing water access in Mumbai to those determining eligibility for a theoretical slum rehabilitation scheme the content of ‘plumbing’ changed dramatically—from the bridging of technological and institutional gaps between public–private hydraulic fittings, to reconciling the profound material and political contradictions introduced by the deeply contradictory hypothetical property right regime. The paradoxes of the new water regulatory regime brought conflicting infrastructural imaginaries—of flow and event—to bear on Mumbai’s water infrastructures, the instabilities and paradoxes of which engineers and plumbers have sought to manage through the everyday pragmatics of ‘managing well’. The pathological hydraulic effects of the hypothetical property right regime, however, rendered this domain of practice increasingly unstable. We thus saw how the contradictions between an ideological conception of liberal property right and the materiality of water infrastructures eventually erupted.

By recognizing that the state is always already mediated, the analytical focus shifts away from the figure of the broker *as such*—away, that is, from the question of whether the mediator is to be celebrated or condemned—and instead to the question
of how and why particular practices of mediation become politicized and contested at particular historical junctures (Lindquist, 2015). Attention to the changing content, sites and modalities of mediation, and to when and how various practices of brokerage become politicized and contested, provides a powerful optic into the profound shifts—economic, institutional, ideational and material—with which contemporary urban scholarship is rightly concerned.

Conclusion: still bridging the gaps

In the spring of 2013, a senior water supply planning engineer drafted a letter to the office of the municipal commissioner, detailing the hydraulic pathologies brought about by the cutoff-date regime and proposing to ‘delink legality of structures with water supply and to reconsider the policy of water supply in slum colonies’. The municipal commissioner in turn drafted a letter to the principal secretary of the Urban Development Department, requesting the policy change, pointing out that ‘According to the Section 5.5(A) of the Maharashtra Slum Act, sufficient water supply to slum dwellers should be provided’. In the months (and years) that followed, government officials passed responsibility for the politically controversial reforms back and forth. A senior engineer explained that until his office received a proper government order that clearly delinked water policy from the cutoff date for slum rehabilitation eligibility, water connections would continue to be granted as per the hypothetical property right requirement; anything else would put his staff at risk of harassment and politically motivated complaints of impropriety. The water supply planning engineer smiled gently at my concern, assuring me that ‘it will happen ... but it will take time. It’s a giant wheel of great inertia’, he ruminated, ‘but it will happen eventually’. Meanwhile, water engineers were already moving ahead, making hydraulic plans in anticipation of the ‘eventual’ implementation of the department’s proposed new rules. As of 2015, new water mains had already been commissioned in peripheral areas of Shivajinagar-Bainganwadi, in anticipation of the proposed new rules, which were finally voted on and approved by the standing committee in June 2016. The laying of mains in these areas was, of course, not envisioned in the original plan (and work tender) for the Shivajinagar-Bainganwadi network upgrading project. Rather, the new mains point towards a distinct, parallel domain of mediation acting on Shivajinagar-Bainganwadi’s waterscape, and gestures towards the multiple and somewhat schizophrenic character of urban mediations. With the old rules delegitimized and the new ones still to be approved, plumbers were already busy as ever—mediating the contradictions and bridging the gaps.

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References

19 Media reports on the eventual approval of the proposed rules in June 2016 focused on the role of a High Court ruling on a long-pending public-interest litigation (PIL), in which the existing rules were declared to be in violation of constitutional right-to-life provisions. While discussion of the PIL is beyond the scope of the present discussion (and deserves extended treatment in a separate article), it is worthwhile pointing out two issues here: first, the High Court ruling came after the water supply planning engineers submitted their proposed changes to the AMC; and secondly, the role of the courts in the eventual approval and implementation of the rules remains unclear, as the engineer’s words plainly indicate.

20 A standing committee member explained to me that while all the city’s major political parties were in favor of the proposed changes, the city’s political leaders nonetheless postponed the vote in anticipation of the upcoming Municipal Corporation election in February 2017.


