Consuming Citizenship: Prepaid Meters and the Politics of Technology in Mumbai

Nikhil Anand

The Occasional Papers of the School of Social Science are versions of talks given at the School's weekly Thursday Seminar. At these seminars, Members present work-in-progress and then take questions. There is often lively conversation and debate, some of which will be included with the papers. We have chosen papers we thought would be of interest to a broad audience. Our aim is to capture some part of the cross-disciplinary conversations that are the mark of the School's programs. While Members are drawn from specific disciplines of the social sciences—anthropology, economics, sociology and political science— as well as history, philosophy, literature and law, the School encourages new approaches that arise from exposure to different forms of interpretation. The papers in this series differ widely in their topics, methods, and disciplines. Yet they concur in a broadly humanistic attempt to understand how, and under what conditions, the concepts that order experience in different cultures and societies are produced, and how they change.

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Introduction

Over the last five years, water and energy utilities in different cities of the South have been proposing, testing, and installing prepaid meters on customer service lines. Prepaid meters are, in and of themselves, not a new technology. As von Schnitzler (2013) points out, they were used in England in the late nineteenth century. The objective of the prepaid meter at that time, as now, was not only to discipline a set of economically marginalized residents into the habits and ethics of paying for services, it was also to recover sufficient revenues to maintain and extend the infrastructure network. While it is far from certain that either of these objectives have been realized through prepaid meters then or since then, in recent years, water and electricity companies in Zambia, the Philippines, Nigeria, Kenya, Mozambique, and Namibia have followed South Africa in installing prepaid meters on water and electricity infrastructures. Followed, not just temporally (South Africa installed prepaid meters in the late 1980s), but also, often times, through specific technical collaborations between South African companies and host urban utilities.[1] As centers of engineering and technical expertise shift from Europe and the United States to countries like South Africa and China, this paper follows the transnational journeys of prepaid metering technology between water experts working in Johannesburg and in Mumbai.

As a "mediating technology," the prepaid meter influences "the meaning and performance of infrastructure" (Furlong 2011, von Schnitzler 2013), actively figuring the relation between prices, quantities, and urban belonging that people are subject to in the city. Amidst the recent push for transparency, good government, and user fees proposed by advocates of neoliberal government, new water metering and reform projects proliferate in many parts of the world (see Ranganathan forthcoming, Cheng forthcoming). While projects to install different technologies of measurement have each produced their own controversies, here I focus on the difficulties encountered by the proposal to install prepaid water meters in Mumbai for certain populations.

In late 2007, Mumbai's water department introduced the public to *Sujal Mumbai*, a series of water reforms that were intended to upgrade and further modernize the city's aging water system. Among the many innovations being proposed (such as 24/7 continuous water supply, leakage detection systems, and enhanced customer services), the city commissioner proposed that prepaid water meters be installed on new public water standposts for the benefit of recent settlers who, under existing law, are not allowed access to municipal water. Here I focus on the surprising and unexpected politics of the *proposal* to introduce prepaid water meters in Mumbai. Amidst a general opposition to water reforms, activists quickly made a sophisticated critique of the technology drawing on the traveling imaginaries of rights and commodities. Water, they insisted, was a right, and should not become a commodity contingent upon having the means to pay for it. Nevertheless, even as they made this critique, they did not account for the ways in which prepaid meters were unexpectedly popular among certain recent settlers who had no legal claim to city water. Taking account of the surprising popularity of prepaid meters in Mumbai, I wish to give pause to

theorizations of prepaid technologies that identify in their mechanics a withdrawal of state responsibilities and services. In fact, it was precisely because state officials recognized that unrecognized settlers were already consumers paying high prices for water that they proposed the prepaid meter as a technology in the first place. Prepaid water at subsidized rates, city officials reasoned, would be preferable to residents having to pay market rates for their daily supplies.

Accordingly, I argue that the prepaid meter was introduced *not* as technology of government intended to reform the experience and practice of liberal citizenship for the city's settlers. Instead, the prepaid meter was proposed by officials who recognized the *incompleteness* of citizenship rights in the postcolonial city, and was proposed as a means to extend the reach of the biopolitical services of the state. I begin the paper by describing the ways in which proponents of prepaid meters passionately described their promise in late 2007. Next, I attend to the reasons and the means through which rights activists working in the city opposed the installation of prepaid water meters in Mumbai. Finally, I draw attention to the ways in which the political debate about prepaid meters obfuscated the ways in which the materialities of the city's infrastructure continue to present a challenge to the effective working of meters in the city.

In so doing, I argue that neoliberal rationalities of government are heavily dependent upon the political histories and legal conditions of populations that these technologies seek to govern. They also need to negotiate their "infrastructural situation" (cf Tsing's 'Global Situation' (2000))— the ways that new mediating technologies like the meter are also projects of scale–making that need to contend with the materials, histories, and rationalities already embedded and at work in infrastructural systems (Collier 2011, Barry 2011). By attending to the failure of the proposal to install prepaid meters in Mumbai, I suggest that it is not just the technologies of politics that challenged the life of prepaid meters in Mumbai. Prepaid meters were also challenged by the politics of Mumbai's infrastructure.

The Prepaid Solution

Between 2005 and 2008, Mumbai's municipal administration commissioned a consultant (sponsored by the World Bank) to implement water reforms in one ward of the city (pop ~800k). Knowing the potency of water reforms in different parts of the world, consultants and city engineers were urged "not to call this a privatization project," even as they explored contractual arrangements that would introduce a private operator. [2] The consultants–Castalia Advisors– followed World Bank protocols and announced "stakeholder consultations," ostensibly to solicit feedback from the public about the reforms being considered.

Tellingly, at the second stakeholder consultation conducted in June 2007, the consultants flew in experts from Hyderabad, Singapore, and Johannesburg to speak about their experiences with water reforms, and Mumbai's need for them As these experts spent much of the time describing their accomplishments, it became amply clear that this consultation (like many others) was organized more for administrators to persuade wary stakeholders (including water department officials) about the benefits of privatization, than it was about hearing what the public had to say. The NGOs and housing rights activists attending that consultation were not convinced by these presentations. They also protested that they were given neither time to review the proposals being put forth by the consultants, nor an opportunity to speak about them. Accordingly, the city agreed to hold a subsequent meeting in a few months.

This is not to say that the words of international water experts didn't have effects in the city. Hearing the presentation of the administrator of Johannesburg Water, the Assistant Commissioner of the city was very impressed by "the Soweto Model" of prepaid water meters. As one of the consultants later recounted to me, the Commissioner spent some time speaking with the South African administrator after the meeting concluded. If prepaid meters could "work" so well in Soweto, the Commissioner said later, then why could they not work in Mumbai? Might prepaid water be a solution to a different set of problems in the city?

In her wonderful ethnography of global connections, Anna Tsing has attended closely to the travels of charismatic packages of activism between environmental activists in Brazil, Malaysia, India, and Indonesia (Tsing 2005). Following the stories of environmental movements[3] as they circulate globally, are translated and made meaningful for local activists, Tsing has shown how these stories need to lose some of their situated histories to have purchase in different geographies. As such, universalist desires and dreams, Tsing suggests provocatively, are locally configured. The boundary objects of collaboration—forests, water, or nature—that are made meaningful through such translations continue not only to draw people together, but also allow social groups to maintain their different, historically specific agendas (Tsing 2005, Star and Griesemer 1989).

Here, I consider the prepaid meter as a charismatic package of technology and ideology. It is quite literally a boundary (crossing) object that orders and assembles different technopolitical gatherings across scale. As stories and proposals of the prepaid meter circulated in Mumbai, they drew together different alignments of opponents and proponents who frequently discovered common cause by forgetting the situated histories of prepaid water meters and their infrastructures. Thus the administrators of Mumbai's water network formed relations and collaborations with the water manager of Johannesburg, and activists in Mumbai and South Africa began sharing notes about the deleterious effects of prepaid water meters through email and conference meetings

Interestingly, the World Bank's consultants, while supportive of water reforms, were quietly opposed to prepaid meters. They were expensive to install and had been controversial in many parts of the world.[4] As such, the proposal for prepaid meters was made by Mumbai's Assistant Commissioner and not the World Bank consultants. His role in the process (and the World Bank's silence) provides a slightly different route through which stories of neoliberal technologies circulated. In Mumbai, development agencies like the World Bank and IMF had little, if any, role to play (see Goldman 2005). Instead, the prepaid meter was proposed because "local" officials considered it to be an excellent solution to the peculiar problems of water access in the city. As technologies and innovations were shared between the administrators of two large "cities of the south" (see Dawson and Edwards 2004), the manner in which they did so challenged both the authority of the World Bank and also their citizen activists opposing water reforms and prepaid meters in Mumbai.

The Paperless Meter

In a wonderful historical account of metering technologies as they circulated between England and South Africa, Antina von Schnitzler has described how the prepaid meter was proposed as a solution in South Africa to the problems of non-payment of water charges that had its roots in the anti-apartheid rent boycotts of the 1980s (von Schnitzler 2008, 2013). In such a state, von

Schnitzler argues, prepaid meters provided a way for utilities to break the rent boycotts without requiring their intervention in the settlements to disconnect meters in the event of nonpayment.

Crucially, while the Commissioner in Mumbai was excited about prepaid meters, it was neither because of the problems of rent boycotts in Mumbai nor for the meter's promise to better recover revenue. In fact, given their costs of installation and the subsidized cost of water in the city, it was very likely that these meters would drain, not embellish, the healthy finances of the city's water utility. The Commissioner desired prepaid meters for different reasons. He was drawn to them particularly because they provided settlers with water without entangling the city government in water bills of its own making. The Assistant Commissioner desired prepaid water meters because he did not want to issue (postpaid) water bills to otherwise unrecognized settlers in the city.[5]

Over the last three decades, settlers in Mumbai have effectively used state-issued documents—identity cards, food ration cards, public utility bills, and even court issued eviction orders—to establish tenancy rights to the small pieces of land they occupy in the city. Pressured by the rituals of elections, where city leaders depend on the sixty percent of the city's population living in settlements to be elected to office, the city administration has been compelled differentially to include the poor in its biopolitical work, and to extend basic urban services to an ever expanding number of informal residents. Accordingly, all those who can document their tenancy before an arbitrary, shifting, and yet ever more inclusive "cutoff date"—currently 1995—can apply for and access official government water connections by showing state paperwork—water bills or ration cards—that tie their presence in the city to a particular address, in a particular year. Those who have moved to their current homes in the settlements since 1995 are not allowed to apply for and receive municipal water connections at subsidized rates.

The continued presence of post-1995 residents in the city demonstrates that they have been able to access water through other means—either through hidden, illegal connections to the city's water network, or by buying this water from more established neighbors. Yet, both illegal connections and purchasing "retail" water are expensive. Settlers that get water legally from the city pay approximately Rs. 4 per 1000 liters of water. Those buying water from vendors, friends, and neighbors often pay around 2000% more than recognized settlers. Others, who pay plumbers to illegally tap in to the existing city network don't get water bills, but they need to spend approximately Rs. 20,000 (US$400) on plumbing works for connection that the city government has no responsibility to fix or maintain.

In this techno-legal landscape, the Commissioner found prepaid meters particularly exciting not because of the water charges he could recover. It was the promise of a bill-free, claim-free water, and yet subsidized water for the poor that made prepaid meters so interesting.[6] In addition, the Commissioner and other water engineers suggested, it would reduce waste by cultivating in settlers an ethics of valuing water. Paradoxically pointing to the high water charges that unrecognized settlers were already paying, the Commissioner argued that prepaid metering technology would ensure they get more affordable water directly from the state, as "customers" but without any bills; bills that they might later use to make political or tenure claims in the city.

"Just Like in South Africa"- NGO Oppositions to Water Prepayment

If the Municipal Commissioner found the water works of South African cities as suitable sites from which to draw ideas and technologies, he was not alone. NGO activists and neighborhood groups organizing against water reforms in the city drew on stories, experiences, and protest repertoires

from South African activists to protest water reforms in the city. Throughout the course of the water reform project in Mumbai, activists drew on the expertise and experience of transnational advocacy networks based in India, South Africa, the Philippines, and the United States towards understanding some of the effects of water reforms in different cities, including New Delhi, Johannesburg, and Manila. They also frequently consulted academics in city educational institutions, as well as visiting researchers. For instance, as I regularly attended meetings of activists groups, they often asked me to provide some of my findings about water reforms in general, and with prepaid water meters in particular. Drawing on previous background research that I had conducted prior to the start of the project, I described how prepaid meters were also installed in several British cities in the 1990s, before they were outlawed for public health reasons (see Public Citizen, web resource). These accounts, together with those collected from colleagues in Johannesburg and Washington, DC informed activists' organizing activities in Mumbai's settlements. Stories of water privatization and prepaid meters elsewhere formed the grounds for making claims against water privatization with city water administrators.

For instance, in October 2007 soon after the proposal for prepaid meters circulated in the press, the activist group organizing the protests submitted a memorandum to the Municipal Commissioner:

> We, the concerned citizens of Mumbai representing various community groups and NGOs, appreciate and endorse the Municipal Corporation of Greater Mumbai (MCGM) ambition to improve water distribution in the city. We also wish to express our gratitude for inviting our constituents to the 3rd stakeholder meeting scheduled for 13th November 2007, as conveyed to Mr X telephonically on the night of 29th October.
>
> Having said this, we want to express, at the outset, our unconditional rejection of pre-paid water meters to prevent any risk whatsoever to the fundamental right to water for all citizens. The reasons are patently obvious, and in passing we would like to draw an example from the recent pandemic outbreak of cholera in Natal, South Africa.
>
> Further, there has been some media coverage of MCGM's "Sujal Mumbai" initiative, which promises to alleviate some of the city's water supply problems through private participation.
>
> However, only sketchy details have been provided in these reports. A glaring and worrisome omission is any mention of structural reforms in the water department of the MCGM. We fear that outsourcing of water services to the private sector will transform water from a fundamental human right, a common heritage that belongs to all Mumbaikars, into a commodity and sold to only those who can pay for it.

The activist and community groups that sent the letter supported the water department's "ambition" to improve the city's water supply. Nevertheless, they insisted that these improvements not jeopardize the status of water as a "fundamental human right" that belonged to all the city's

residents. Accordingly, they protested the sections of the water reform initiative that proposed outsourcing the water department's operation and maintenance responsibilities to a private operator. For the same reason, they also opposed the Assistant Commissioner's tentative proposal that prepaid meters be installed on water standposts in the city. To substantiate their opposition to prepaid meters, they pointed to outbreaks of cholera in South Africa that had accompanied the installation of these water meters there.

In subsequent meetings, public consultations, and workshops that were held in the city, the activists relentlessly and consistently reiterated their opposition. For instance, at the Third Stakeholder Consultation, Sitaram Shelar argued that the reforms that the city's water department was considering presented "solutions that were worse than the disease." With an impressive public mobilization against the reforms, they made city councilors who formerly supported prepaid water meters very anxious, repeatedly confronting them in one public consultation after the next. Their activities soon drew the attention not only of councilors, but also their volunteers and the police. For instance, after a raucous public consultation on water reforms, six activists were arrested for unlawful assembly after being invited by the water department to participate in the sessions! As an organizer for the Coalition Against Water Privatization in South Africa later wrote in an email to the activists, these tactics of police, too, were familiar to the activists in Johannesburg, who had confronted the police in their neighborhoods. Therefore, where the Assistant Commissioner drew on models and technologies from Johannesburg to extend the biopolitical reach of the state, and include more of its subjects as (paying) citizens, city activists drew on similar traveling allegories of water rights and publicity to oppose the installation of prepaid water meters in the city. The strident protests bore results. Shaken by the boisterous public consultations, in December 2007 the city councilors withdrew their support for prepaid water meters.

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Now, Sena opposes pre-paid water meters

Decision expected on Wednesday after presentation by civic administration

EXPRESS NEWS SERVICE
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AFTER water activists and various NGOs, Shiv Sena has now joined the league in opposing introduction of pre-paid water meters. Terming the BMC's proposal of pre-paid meters as unconstitutional, Sena leaders have said the move is against state government's decision of barring the residents of unauthorised hutments and footpaths after 1995 from getting the stand post connections.

Last week, after the civic Standing Committee differed any decision on the proposal, the administration will make a presentation on 'pre-paid water meters' to the members on Wednesday when a decision is expected to be taken. The proposal will require amending the water charges rules and sewerage and waste removal rules.

Although members had earlier hailed the proposal as 'good idea by the civic administration as it will provide water to post 95 slumdwellers', the Sena is now saying it is only a money earning exercise for BMC. Standing committee chairman, Ravindra Waikar said the move will encourage slum dwellers.

"It means that any one coming to Mumbai can erect a hutment and the BMC will provide them water. This is wrong as we will only encourage mushrooming of slums," he said. Waikar added for implementation of pre-paid water meters a 24-hour water line will have to be set-up while other authorised slum dwellers will get water for only three-four hours. "Beneficiaries of pre-paid water meter will not even have to pay sewerage charges. There are many points like these which needs to be addressed before approving the proposal," he said.

Opposition leader, Rajhans Singh from Congress however maintained that it was a good proposal and will help post-95 slumdwellers get authorised water.

"The Sena should stop opposing the proposal just because migrants from other states will get legal right to get water. If the proposal gets scrapped then we will go to Chief Minister and get it approved," he said

Figure 1. Now, Sena opposes prepaid water meters. *Indian Express,* 18 Dec 2007.

Thus, a few months after it was first proposed to govern the distribution of water to certain unqualified settlers in the city, the proposal to install prepaid meters died a quiet death in a committee of the city council. Yet if the city council opposed prepaid meters, it was not because

they agreed with the rights claims of activists, or that they opposed the project to collect water charges directly from unrecognized settlers. Cynically, leaders of the city council justified its action not by agreeing that water was a human right, or that prepaid meters were unjust, but instead by arguing that those who had moved to Mumbai in the last decade had *no* right to live in the city, and should not get the benefit of *any* state services. In so doing, the city council directed the administration away from a neoliberal technology of water provision, and towards the illiberal techniques through which precarious populations continue to be subjectified and disciplined in the city.

Rights to Water?

While many (recognized) slum dwellers opposed prepaid water meters, not everyone in the settlements, and not all housing rights groups, opposed their installation. Like the city itself, Mumbai's settlements are extremely diverse places, with different groups having different kinds of access to rights and urban services. Throughout the prepaid meter campaign, a powerful housing rights group in the city was quietly supportive of the Commissioner's proposal and pointedly refused to join other activists in the city protesting prepaid water meters. The settlers they represented were among the most precarious in the city. They were occupying urban lands since 1995 and unable to apply for water connections. For these residents, prepaid water meters promised a vital extension of government services to their constituents' homes, and not a withdrawal of their (nonexistent) rights to water.

Similarly, several settlers who had unreliable access to water in the settlements where I worked were also ambivalent about prepaid water. Embedded in everyday histories and politics, they, too, did not use the same rights/commodity distinction that the activists invoked when I spoke with them. For instance, Shaziya *appa,* living in the settlement of Premnagar, was unable to access water with reasonable pressure. Quickly identifying particular water mains that the water department had not repaired for three years to be the cause, Shaziya *appa* had grown tired hearing about the promises of the public system. "For so many years we have been hearing, 'it will come, it will come'! So when my metered connection stopped working, I removed it and threw it away." She had some sympathies for the private electric utility. Making it clear that she wasn't saying that it was a good company, she nevertheless identified the price of electricity to be responsible for its reliability.

> So people get as much as they need, and pay for what they use. Of course, Reliance [the private company] takes advantage of this. But people know. If they use more, their bill will be greater. It is like that for water. We know the government has water. No one is saying there is less water. But it is being wasted. With meters, that fear [of charges] is there. So the government should meter and bill people as per their consumption. That way people will start using less....

Shaziya *appa* here articulates the very sensibility—that calculative rationality—that proponents of prepaid meters seek to encourage. Like the Municipal Commissioner and other proponents of pricing, she sees them as effecting a necessary change in practice that will value water. Nevertheless, unrelated to matters of the meter, she expresses a disdain for the water her public water line was unable to deliver. She discarded the connection. But she seems to continue to desire the exchange

relation that the meter promised: of using little; of not wasting. Her critique is directed not so much at the meter (which she sees as fair), but at the department, whose promises of reliable water have been deferred for too long.

` Therefore while Shaziya *appa* ridiculed some of the Water Department's reforms—its promise to deliver 24/7 water for instance—she was more circumspect about the terms of exchange promised by the new technology. For instance, when I told her about the cost structure proposed for prepaid water: 3 Rupees for 1000 liters, she quickly worked the numbers in her head before announcing: "*Theek hai* (its ok). If we get water *dhang se* properly, then it's good. This 500-liter water drum here, it lasts me two days. Rs. 1.50 every two days is alright." Living in Mumbai, a "city of cash" (Appadurai 2000), she was experienced in the art of converting her interests to numbers. Compared to paying for the water she used, prepaid water seemed like quite a bargain.

Difference and Technology

Recognizing the heavy price that post-1995 settlers had to pay for water, the Commissioner recognized that settlements aren't homogenous places but constituted with, and by, different relationships with neighbors, political leaders, and the law. With the 1995 state law differentiating between those settlers who were eligible to access city water and those who were not, the Commissioner sought to give the existing legal difference technological form by extending prepaid meters to otherwise unqualified settlers. In the several meetings I sat in on with the Water Rights Group, activists were uncertain about how they could both acknowledge this difference, while continuing to demand that water be a right. Trained through rights-based movements for land and housing, many of them (like many of us) could only draw easy contradistinctions between rights and commodities to make their claims (see Bakker 2007).

All the same, councilors were frightened by this vociferous rights-based protest against prepaid meters at the public consultation and quietly withdrew its support for prepaid meters. Today, the proposal for prepaid meters gathers dust on the overworked shelves of the city's water department, awaiting a new political conjuncture for it to emerge as a reliable option through which certain kinds of populations can be made to live. Nevertheless, I want to suggest that even if the proposal for prepaid meters were able to overcome political opposition (from the left and the right) in the city, it would still need to negotiate the challenging material infrastructure upon which it would be installed. I want to suggest that the existing water network produces social and material effects that would challenge the working of the prepaid water meter as an autonomous technology through which populations can be governed.

Proponents of prepaid meters (both in the policy worlds and in the settlements) argue that prepaid meters effect a shift in the rationality of the government of water; from the state allocating water quotas to consumers, who could "decide" when they have (paid for) enough water. Nevertheless, even as consultants and administrators sought to reform the network, there was no indication that the water schedule—a long-standing system of provisioning urban residents with water—would change with the installation of prepaid water meters. Currently, the city's residents and businesses are rationed their daily quota of water by city engineers who draw up a timetable of water supply in the city. Each neighborhood in the city, rich and poor, gets water daily, for a few hours every day. To operationalize these schedules, and move water from one part of the city to another, water works laborers called *chaviwallas* (key men) dart around the city every day turning its approximately 800 subterranean valves on and off according to the schedule.

Living in the same neighborhoods as more recognized citizens, prepaid citizens would be part of the same public that gets water at particular times of day. They would have to wait for water to arrive at the same circumscribed times. That is to say, their water would be governed not just by the rules of the market *but* also by the times of the state. Governed by this limited time, and required to share common connections with others, settlers, even with prepaid meters, would need to effect delicate social negotiations about who gets water, in what order, and for how long. As they would need to rush through the rituals of water time, their access would be mediated by yet another task—of inserting and removing the card—a simple task that anyone familiar with the lives around shared water connections would quickly recognize to be onerous and potentially one of conflict. As such, the infrastructure of prepaid water, overlaid onto the city's scheduled water supply regime, would not enable the production of self-regulating consumers. Instead it promises to exacerbate existing tensions around water provision by inserting yet another morality of rule in the everyday social work of accessing water.

Mumbai's scheduled supply system not only requires delicate social negotiations for settlers. It also makes the material life of water meters difficult. With a valve on a major supply line opened or shut in the city every two minutes, the city's water system is constantly in a state of immeasurable and yet significant flux. As large quantities of water enter a neighborhood during supply hours, pipes that had only air moments before are flooded with water. The pressured mixture of air and water at the start of every daily cycle challenges the accuracy and the working of water meters. On one hand, meters are quickly rendered inaccurate; counting not just water, but also the air that precedes it. Second, the rapidly changing pressure stresses the mechanisms of the meter itself. Engineers would describe this to me as the "hammering effect," a material effect that no meters can withstand day in and day out. It is for this reason that city officials say that between 50% and 80% of the city's meters aren't working. Recognizing the intransigence of their infrastructure, engineers currently continue to supply water to residents even when the meters stop working. Doing so allows residents to get water, on the one hand, and saves engineers the "headache" of fixing constantly failing meters, on the other.

Accordingly, both activists and engineers expressed concern that the city's infrastructure was not suited to the installation of expensive prepaid meters. They were not only significantly more expensive to replace, but would also stop delivering critical supplies of water not if, but *when* they stopped working. In eliminating the personal mediation of city workers, prepaid meters also promised to eliminate the ability of public workers to look the other way (or do something else) when the system didn't work as planned, which was often the case.

Conclusion

In this paper I focus on the ways in which the proposal for prepaid meters—a neoliberal technology ascendant in the worlds of transparency, inclusion, and good government—faced significant difficulty when attached to Mumbai's hydraulic system. In his meticulous and careful rendering of neoliberalism, modernity, and biopolitics at work in Russia's heating systems, Stephen Collier has recently argued that it is not just that proponents of neoliberal reform regularly "recognize the limits of such programming imposed by the material setup of the heating apparatus and the social role it must fulfill" (Collier 2011: 234); they also constantly re-evaluate and adjust neoliberal prescriptions in light of the intransigence of the social and the material actants of everyday life (see

also Bennet 2010). These accommodations, Collier argues, can be understood as forms of problem-making that define neoliberal reasoning; forms of problem-making that were developed *precisely* because the assumptions of functioning markets were not tenable (ibid: 242).

Attending to the proposal for prepaid water meters in Mumbai, and its quick exit from the field of possibility, in this paper I wish to suggest that the technology was not introduced to effect a kind of calculative rationality where other neoliberal strategies (such as unbundling the utility) became untenable. Neither were prepaid meters introduced to solve the problem of a neoliberal government. In Mumbai, they were proposed to solve the problems of differentiated, and always incomplete, liberal government and its various bureaucratic and legal entanglements. As the city Commissioner promised water to unrecognized settlers with even larger subsidies, his proposal points to ways in which the logics of neoliberal governance are not necessarily inconsistent with the practices of social welfare provision in the postcolonial city. The new rationalities of service delivery manifest through this practice were not to withdraw water services or the care of the state for its most precarious subjects, but to deliver them in new ways, here through prepaid meters.

Therefore, the settlers that the Commissioner tried to reach with prepaid water were not, as is commonly assumed in the literature on governmentality, liberal citizens that were accessing water as a right. Without rights to city water, the proposal seemed reasonable to many settlers who already displayed the calculative rationality that meters also seek to effect. For instance, Shaziya *appa* was accustomed to valuing water in fractions of currency that she paid to private entrepreneurs (plumbers and neighbors). Long subject to significant hydraulic uncertainty, prepaid water in this event provided an opportunity to extend the reach of the biopolitical state, to make a new population live through a neoliberal technology of governance. Critically, the meter was introduced in Mumbai not to reform rights-bearing subjects, but to preclude their formation.

It was for this reason that activists in Mumbai found prepaid meters to be so troubling. Having been recognized by the city authorities as substantive citizens through documents like water bills, established settlers and housing rights activists saw in prepaid meters a critical shift in the work of the state, which has long steadily and incrementally recognized the rights of settler populations through such documents. Drawing on this history, they demanded that all residents, even the most precarious settlers, get access to water as recognition of their citizenship. The claim was powerful, and challenged the delicate hydraulic relations between settlers, city councilors, and water engineers that govern life in the settlements.

Nevertheless, few of the actors involved in proposing or opposing Mumbai's prepaid water meters considered the materiality of Mumbai's hydraulic network, whose valves, schedules, and governance regimes have not only continued to defer the promise of citizenship for untold millions, but also regularly make meters inoperable. I want to suggest that, in attending to the changing technologies of politics, we need not only pay closer attention to the differentiated political technologies—liberal and illiberal—by which populations continue to be governed in the postcolonial city. We also need to closely follow the "infrastructural situation" that is effected and sought to be transformed through projects to maintain and extend urban infrastructure. These sticky technologies not only trouble new program designs. They have their own political effects, often haunting state regimes of measurement and distribution in the city.

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ENDNOTES

1. For instance, the installation of prepaid meters by Zambia's electric utility (ZESCO) in 2012, depended on prepaid meters and expertise imported from South Africa (*Times of Zambia*, February 20, 2012).

2. Accordingly, the name of the project constantly changed. It included the word "privatization" at the outset, eventually replacing it with the word "improvement."

3. Chico Mendes gained prominence.

4. Meanwhile, some proponents for water reforms, like the World Bank's consultants, were opponents of prepaid water precisely because of the way in which prepaid water meters are prone to controversy, even though they do little to change structures of administration and management of water infrastructures. The prepaid technology also had other difficulties. They were expensive. Engineers and consultants both told me about how it made little sense to use such expensive meters, given the existing cost structure of water supply in the city.

5. See Hull (2012) for a similar example from Islamabad, where bureaucrats hesitate to generate documents for fear of their being misused.

6. Bills are not just central to settlers, but also the work of city engineers in the ward offices where I did fieldwork. Always overrun by complaints and protests by a heterogeneous public, engineers would identify those deserving of their attentions by verifying whether the resident had paid their water bills. For instance, when I was speaking to a Sub-Engineer one afternoon about a particularly difficult settlement's water difficulties, he defended his inaction. "Check with them... They do not complain because they are not paying bills! When they are not paying bills, they can shout, but they cannot complain," he said tellingly. For engineers in the public water department, "non-payment" was thus a technique of management; a way of excluding those that did not pay their bills from the attentions of the state. This approach troubles contemporary debates about privatization that overlook ways in which the workers in public utilities also legitimate their work through the language of private service provision (Baviskar 2003).