Informal urban sanitation: everyday life, poverty and comparison

Colin McFarlane, Renu Desai and Steve Graham

Colin McFarlane, Department of Geography, Durham University, DH13LE, UK.

Email: colin.mcfarlane@durham.ac.uk

Renu Desai, Centre for Urban Equity, Ahmedabad, India.

Email: desai_renu@yahoo.co.in

Steve Graham, School of Architecture, Planning and Landscape, Newcastle University, UK

Email: Steve.graham@newcastle.ac.uk

Abstract

The global sanitation crisis is rapidly urbanizing, but how is sanitation produced and sustained in informal settlements? While there are data available on aggregate statistics, relatively little is known about how sanitation is created, maintained, threatened, and contested within informal settlements. Drawing on an ethnography of two very different informal settlements in Mumbai, this study identifies key ways in which informal sanitation is produced, rendered vulnerable, and politicized. In particular, four informal urban sanitation processes are examined: *patronage, self-managed processes, solidarity and exclusion,* and *open defecation.* The article also considers the implications for a research agenda around informal urban sanitation, emphasizing in particular the potential of a comparative approach, and examines the possibilities for better sanitation conditions in Mumbai and beyond.

Keywords: *everyday life; informal settlements; Mumbai; sanitation; comparison.*

The global sanitation crisis is urbanizing. At least 23 per cent of the 2.6 billion people lacking adequate sanitation live in urban environments, usually in informal settlements (Black and Fawcett 2008)[i]. These neighborhoods are poor, underserviced, and urbanizing faster than cities more generally (Davis 2003; Neuwirth 2006). There is a small but growing literature on urban informal sanitation, but we lack an understanding of how residents get access to, maintain, experience, and politicize sanitation on a day-to-day basis. In this paper, we examine the everyday constitution of informal sanitation and draw on ethnographic research on two contrasting informal settlements in Mumbai, a city with profound sanitation inequalities.

We focus on four processes that play different roles in the production and maintenance of informal sanitation: *patronage*, *self-managed processes, solidarity and exclusion*, and *open defecation*. While we argue that these different processes are critical to the emergence and maintenance of informal urban sanitation, we do not claim that these are the only processes that matter here. We highlight others, and we are also very aware that there will be hidden processes that we have not examined. A central challenge for this research agenda is to form a relative appreciation of what are intimate, private bodily processes caught up in relations of class, caste, religion, gender, age, and so on.

We focus on the everyday because sanitation is a socially awkward, if not taboo subject, and it takes time to understand how it operates and how people feel about it. Only through a close attention to the ordinary ways in which people materially and discursively interact with sanitation can we hope to understand how it is produced, transformed, and contested. But more than this, attention to the everyday reveals the practices, geographies, rhythms, perceptions, experiences, politics, and power relations that reproduce, disrupt, and remove

informal urban sanitation as they occur within the neighborhood. This is particularly useful given that sanitation is a key dimension of urban poverty and a wide-ranging set of processes – the safe disposal of human waste encompasses issues from infrastructure provision, toilets, solid waste management, and public health facilities, to resources for soap and water, cultures of hygiene, environmental cleaning practices, and the ways in which animals are kept. Moreover, it is profoundly differentiated by relations such as gender, age, ethnicity, religion, income, and ability. A geographical approach to everyday spatial variation is useful for understanding the networked nature of sanitation as a process. A focus on the everyday can help in understanding not just sanitation conditions, but how changes occur and the role of people in those changes over time and space. We are able, then, to understand something of how sanitation processes are experienced and perceived by residents themselves, given that the everyday is both a key domain through which processes are regulated and normalized as well as an arena for negotiation, resistance, and potential for difference (see Rigg 2008; Graham and Thrift 2007).

Our concern is with a particular space and kind of everyday: two contrasting informal settlements in Mumbai. While there is a generally good understanding of aggregate sanitation statistics in Mumbai, we know comparatively less about its quotidian nature (Bapat and Agarwal 2003). This is true of most cities, and not just in the global South (Molotch and Norén 2010). In these two Mumbai neighborhoods, we find an everyday characterized by often highly impoverished and marginalized residents struggling to respond to urban infrastructure inadequacy and demolition. The resources with which this everyday can be produced, or responded to, or reformulated, or politicized, differ considerably not just within and across the two neighborhoods but across cities more generally according to vectors of socioeconomic, political and cultural position. We are interested in how residents in the two

4

neighborhoods differently produce everyday processes of sanitation, and they ways in which they deal with the state and other locally powerful actors that influence these processes. We take the everyday, then, to be a broad category that is both a set of processes with their own geographies and rhythms, and an imperative for researchers. The intra-city comparison is a particularly important approach for understanding everyday sanitation because research, mainly in rural areas to date, has shown that sanitation experiences and responses need to centrally appreciate spatial variation (e.g., Joshi *et* al. 2010; Rheinländer et al. 2010). The crucial role of spatial variation means that a comparative approach is particularly valuable in researching sanitation.

There is a growing recognition among most sanitation practitioners, policy makers, and researchers that solutions to the worsening global sanitation crisis must not repeat the mistakes that top-down interventions made in the past: i.e., building often socially inappropriate infrastructures or insisting on forms of sanitation practice that do not fit with cultural conditions, or using engineering techniques and technologies that benefit wealthier and more powerful groups over others (Nicol, Mehta, and Allouche 2012; Mehta and Movik 2012). We need to know more about the everyday nature of informal urban sanitation both because it is, for a growing number of urban residents, a critical set of life struggles, and because it is an important basis from which intervention should develop.

The article is structured as follows. We start by discussing the ways in which the everyday is understood in sanitation debates. Second, we introduce the project and research sites. We then provide some examples of the nature of day-to-day sanitation experiences in order to put sanitation in context, present the four informal urban sanitation processes that we identified in the research, and consider the relative importance of the processes in the two neighborhoods.

We also consider the more general consequences for developing a research framework on understanding informal urban sanitation, and place particular emphasis on the value of a comparative approach not just between cities, but *within* cities. Finally, we conclude by considering the prospect for better sanitation conditions in Mumbai and beyond.

The everyday and sanitation

Sanitation is both one of the most important and neglected areas of human development. In 1990, 2.5 billion people, out of a global total of 5.3 billion, lacked access to adequate sanitation. By 2008, the proportion had reduced but the total had grown to 2.6 billion from 6.7 billion (Lane 2012). One fifth of the world's population regularly defecates in the open (Mara 2012, 89). The human cost is as staggering and tragic as it is unnecessary: diarrhea, usually the result of food or water contaminated with fecal matter, kills a child every fifteen seconds, and in each decade that passes the number killed exceeds all Second World War fatalities (George 2008, 3; Curtis et al. 2000). In India, 42 children die each hour due to inadequate sanitation (Kar 2012), yet the central Indian state spends only 0.2 per cent of GDP on sanitation and water, and India is second only to China in numbers of people lacking access (728 million people, Water Aid 2007; UN Millennium Project 2005). The Millennium Development Goal to halve the number of people without access to adequate sanitation will not be achieved. It is worth bearing in mind that this goal already began from the position of allowing the other half that do not have adequate sanitation to continue to survive, if they can, without.

The literature examining inadequate sanitation can be organized around six key themes (see Figure 1). The first is the challenge of *raising awareness* about an often-taboo subject (Black and Fawcett 2008; George 2008). The *relative roles* of different actors in sanitation

provision, including the state (Myers 2005), technology (Mara 2012), communities (Mehta and Movik 2012; O'Reilly 2010; Satterthwaite *et al* 2005; Hobson 2000), nongovernmental organisations (Sharma and Bhide, 2005 McFarlane 2008a), the private sector (Castro 2007; Singh 2006; Solo 1999) and donors (Nicol, Mehta and Allouche 2012) represents the second theme. The third inolves the different *experiences and perceptions of sanitation across space* (Bolaane and Ikgopoleng 2011; Cousens *et a*, 1996; Jewitt 2011; Joshi *et al* 2011; Rheinländer *et al* 2010; Truelove 2011), while the fourth includes the causal relations between *human waste, illness and disease* (Curtis *et al* 2000; George 2008). Fifth are the *historical relations between sanitation, the body, and ideologies of private and public* (Kaviraj 1997; Chakrabarty 2002). The *relations between 'dirt', separation, sexuality, and gender* form the sixth theme (Molotch and Norén 2010; Cox *et al* 2011; McFarlane 2008b). This set of debates includes development studies, sociology, postcolonial studies, engineering, public health, and geography. In geography, for example, Yaffa Truelove (2011) has examined the gendered political ecologies of sanitation and water in Delhi's informal settlements, Sarah Jewitt (2011) has considered the relations between space, difference, and human waste, and Kathleen O'Reilly (2010) has argued gender relations must be central to any sanitation analysis and intervention (see also McFarlane 2008a, 2008b, 2012 on urban sanitation politics in Mumbai).

Figure 1 about here: Six themes in sanitation debates (credit: Jonathan Silver)

The everyday emerges as an important context in these debates, not least because sanitation is a process with an obvious everyday rhythm of bodies, infrastructures, and institutional processes of disposal, treatment, and re-use. More specifically, the everyday-sanitation relation appears in three key respects across the four themes highlighted above: as

7

constitutive of the possibility of everyday life; in identifying *key concerns for intervention based on everyday experience and perception*; and in identifying how the everyday experience of sanitation is *sociospatially differentiated.*

These literatures have demonstrated the centrality of sanitation to the everyday. Sanitation infrastructures have allowed modern cities to function healthily through flows and treatment of water and sewage, and sanitation practices have become key determinants of public and private acts and spatialities. Sanitation is critical not just to the question of health but also to the possibility of private/public relations, dignity, education, livelihood, gender, and social vectors such as class and caste – indeed, to the possibility of modern life itself (Joyce 2002; Molotch 2010; Ashenburg 2007; Melosi 2000). In these multiple ways, the wide-ranging domain of sanitation is a critical constitutive part of how the everyday becomes possible.

Second, this literature has drawn out important considerations for intervention based on attention to everyday experience and perception. For example, the number of toilets is often not the most important factor in health improvements (Black and Fawcett 2008). Much also depends on the precise location of toilets, the reliability of toilets, existing patterns of open defecation at home and workplaces, conditions and cultures of hygiene, waste disposal, water quality, and class inequalities that include some and exclude others (Mukherjee 2001). Black and Fawcett also showed in relation to several places – Yongning County in China, or Toamasina in Madagascar, for instance – that keeping human waste in homes or compounds is culturally objectionable, especially if there is a bad odor (which can be reduced by application of, for instance, a pour-flush water seal). Joshi et al. (2011) demonstrated the importance of variation within and between countries, and argued that differences in age, income, gender, health, and ability need to be centrally factored into interventions if they are

to be successful. Rheinländer et al. (2010) similarly argued that diversity is key to successful intervention. They note that perceptions of hygiene and different latrines, and conditions in income, varied in ways that shaped the likelihood of an intervention's success.

Third, elements of this literature have underlined the central importance of social differentiation in the everyday experience of sanitation. For example, writing about Delhi, Truelove (2011, 145) charted inter-connections between bodies, households, places of work and the wider city to understand everyday practices of social differentiation around class and gender. She showed, for example, how providing "legalized" water pipes can exclude poorer women due to the quality and peripheral location of the water (see also Truelove and Mawdsley 2011). This work has also demonstrated how cultural taboos play an important role in shaping the gendered experience of sanitation. In India, the norms against women defecating in open space can produce taunts, harassment, and even violent attack. In Madagascar, transgression of rules for men and women can lead to fines, the maximum of which is to forfeit a cow, while in southern Ethiopia women are often barred from using household toilets (Black and Fawcett 2008: 84-85). In schools, the lack of provision of toilets and/or sanitary facilities has a huge impact on schooling for girls, and there is evidence of exponential increases in attendance following the delivery of toilets, especially those provided with sanitary towels (George 2008: 206).

Taken together, these debates provide a useful appreciation of the different relations between sanitation and the everyday. They show how the everyday is itself produced, in part, through sanitation as a wide-ranging domain connecting body, infrastructure, city, health, education, livelihood, social relations, private/public relations, and modernity. Further, they reveal that researching how sanitation processes do - or do not - operate in everyday life, can derive

important lessons for sanitation interventions, including where to locate toilets or which issues to prioritize. They also demonstrate how sanitation is sociospatially differentiated within a community, neighborhood, or city, and the ways in which articulations of technology, landscape, and politics can lead to different sanitation experiences. While these debates have opened a door on everyday informal urban sanitation, we are still at the threshold of this research agenda. Studies have tended to either focus on particular neighborhoods/villages or have taken a broad global focus on multiple different sites. Detailed comparative work on two informal settlements has been less pursued, yet such work is important for comparing the relative role of factors like connections to the state, religion, legality, land use, and context (there are some important exceptions that deploy comparison to understand sanitation, albeit generally between countries rather than within cities, e.g. Joshi et al. 2011; Mukherjee 2001). In what follows, we seek to develop this area by asking: how is informal sanitation made and maintained on a daily basis, and how does that vary across a city? We being by introducing the project and research sites.

The project

Mumbai is one of the world's iconic megacities. It is home to India's financial district, Bollywood cinema, a powerful Underworld, and a rare if sometimes precarious multiculturalism (Mazumdar 2007; Prakash 2010; Weinstein 2008). Mumbai's informal settlements are forced into just 8 percent of the land. There are few cities in the world where the juxtaposition of toiling poverty and bloated wealth are so starkly materialised and so critically interdependent, from cheap labour to curtailed water geographies and sharp housing divisions. The city is an appropriate choice for this study given its vast inequalities in sanitation.

Sewer lines connect only 62 percent of the city, and the area serviced varies tremendously from 98 percent in the historically wealthy southern wards (such as Wards B, C, and D in the historic tip of the island) to 37 percent in the generally poorer northeast (such as M/E) (HDR, 2009). In the city's informal neighborhoods, 47 percent have access to toilet facilities (compared to 83 percent for the city as a whole), but many of these are dysfunctional or only occasionally usable, frequently lacking water, sewer, and electricity connections, and are often very unclean and poorly maintained (HDR, 2009). Only 14 per cent of toilet blocks – one or two-story public toilets separated into female and male areas, built by the state, municipality, or private sector - in informal neighborhoods have access to water (*ibid*). The ratio of toilet seats to people varies across the city from 58:1 to 273:1 in the poorest neighborhoods (*ibid*). Just 18.5 percent of residents in these neighborhoods have access to individual water connections and 49 percent rely on sometimes vigorously contested water standpipes, while the quantity and quality of water is often unreliable and more expensive than in middle class neighborhoods (HDR 2009; Zérah 2008).

The governance of sanitation in informal neighborhoods in Mumbai is defined by a demand-based rather than supply-based approach. One example is the controversial Slum Sanitation Programme in the city (McFarlane, 2008; Sharma and Bhide, 2005). The program began in the mid-1990s through state funding and World Bank loans, and explicitly required partnerships between the state, nongovernmental organizations (NGOs), and community based organizations (CBOs). The idea was that communities would assemble themselves into groups and petition the state for a toilet block. The state would then work with an appropriate NGO and the CBO to design and build a block in consultation with the wider community. The CBO would then go on to take responsibility for maintaining the block, using funds raised through local charges (either monthly or daily). The program has had considerable

success in many parts of the city, but there have also been significant problems, including the rushed nature of construction leading to sub-standard blocks that often become defunct after a while, a pricing out of the poorest members of the community due to user charges, and the tendency for already well-organized communities to apply for blocks while other neighborhoods remain under-serviced (*ibid*).

While there are data available – albeit often patchy and out of date - on aggregate sanitation statistics in Mumbai, there is comparatively less understanding of the everyday processes of sanitation (e.g. Bapat and Agarwal 2003; Burra et al. 2003). This research focused on two informal settlements in Mumbai: Rafinagar (split into Parts I and II, the latter is more recent at about 20 years old) in the east of the city, and Khotwadi, a very different neighborhood in the west. Figure 2 shows a map of Mumbai with the two neighborhoods. Both are located outside of the historic colonial core of the southern Island city, where much of the key political, economic, and cultural sites remain. However, as the city has increasingly urbanized northwards over time the areas around the case study sites have seen sharp increases in real estate prices and have become increasingly unaffordable to the poor. While Rafinagar remains largely adrift from Mumbai's frenetic real estate market, even if parts of Govandi immediately to the south are not, Khotwadi is very close to the expensive and popular neighborhood of Bandra. Some informal neighborhoods in and near Bandra have been demolished as a result of creeping real estate prices. Khotwadi, for now, is protected, partly because it is a thriving old neighborhood, partly because it enjoys strong political links with the dominant political party – the Shiv Sena – and partly because it remains just outside of the heat of real estate buzz.

Khotwadi (Figure 3), with a population of approximately 2000 households, has 24 toilet blocks and a total of 180 seats, whereas Rafinagar (Figure 4), with approximately 4000 households, has 6 toilet blocks with a total of 76 seats. Rafinagar, then, has twice the population and half the number of toilet seats. Moreover, these are unevenly distributed. Rafinagar Part 2 has only one toilet block that was provided by the Maharashtra Housing and Area Development Authority (MHADA) in 2011, although there are also often temporary hanging latrines in use – precarious self-built structures usually built over open drains or watercourses. While the majority of residents in Khotwadi have a degree of secure water access through unmetered municipal standposts, metered group connections and wells, the majority of Rafinagar's residents face profound difficulties and are forced to incur high expenditures for water and/or time and effort in collecting water.

Figure 2: Mumbai, showing Khotwadi and Rafinagar

The condition of solid waste management in the two settlements is also uneven. Rafinagar in particular, partly due to its "illegality" and partly due to its marginal status as a predominantly Muslim settlement, suffers from highly infrequent instances of municipal cleaning of drains and collection and disposal of garbage. The neighborhood, given its illegality, also suffers from frequent demolition and infrastructure removal by the 'bulldozer state' (Anand and Rademacher 2011: 1766). A key moment here was the cutting of water pipes in Rafinagar during the BrihanMumbai Municipal Corporation (BMC) water raids in the winter of 2009-10. The BMC used a city wide "water shortage" to justify a violent clampdown on illegal water connections (Graham, Desai, and McFarlane 2013). In Rafinagar, this culminated in the systematic cutting, in full public view, of a great deal of the neighborhood's water infrastructure.

The health toll of inadequate sanitation and water has been far higher in Rafinagar than in Khotwadi. In 2010, at least twenty children under the age of five in Rafinagar Part II died from the combination of malnutrition and poor sanitation (Menon 2012). The malnourishment of many children means they are more likely to die from entirely preventable sanitation related illness and disease than in Khotwadi. There is a severe lack of health services in the neighborhood to diagnose and treat problems, although there are a fair number of bogus doctors (Mili 2011). The Mumbai Human Development Report points out that this northeast region of the city has Mumbai's highest infant mortality rate (HDI 2009). Twenty-six percent of children in Mumbai are underweight, and families often lack ration cards for subsidized food or kerosene (Meenon 2012). Many of the women and children in Rafinagar Part II make a living from the city garbage ground that juts up against the neighborhood. The combination of poor sanitation, the presence of the garbage ground, and malnutrition has created a high number of respiratory disorders, skin and gastro-intestinal infections, frequent fevers, and, in some cases, tuberculosis and hypertension (Mili 2011), as well as occasional localized outbreaks of typhoid, hepatitis, and cholera.

The comparative focus was adopted in order to ensure that the research captured something of the diversity of sanitation conditions and the extent of its inadequacy in Mumbai. We chose these neighborhoods because of differences in key variables: legality, religion, politics, income, and areas of the city (the relatively wealthy west against the relatively poor east). We conducted pilot research identifying possible case studies to compare and worked through a long list before and in the early stage of the research. While we settled on these two neighborhoods, given that 60 percent of Mumbai's residents live in some form of informal settlement, there are likely to have been a high number of possible useful comparisons.

Figure 3: Khotwadi. Brick-and-concrete (pukka) housing surrounding a well

Figure 4: Rafinagar Part 2. Sackcloth (*kutcha*) housing and absence of basic services

We aimed to compare not sanitation *conditions*, but sanitation *processes*, i.e. we sought to understand how sanitation was produced, maintained, changed, and contested over time. Our ethnography consisted of 4.5 months in both neighborhoods, as well as interviews with key policy officials, civil society groups and activists before, during and after the ethnography. Research involved both observation and repeated interviews, although there are important limits methodologically here. It is, clearly, not possible or ethical to observe a lot of what takes place in people's homes, and there are many issues that people would rather not talk about. We found, for example, that women – and most of the interviews were with women, given that they bear the majority of labor and hardship of sanitation inadequacies (Bapat and Agarwal 2003) – were often more comfortable talking about water access and quality than about bodily sanitation experiences, sometimes due to embarrassment and sometimes because water was seen as more important than sanitation. (Research indicates that while water and sanitation should not be seen as separate, adequate toilets and waste disposal are more important for health outcomes than water provision - e.g., Curtis et al., 2000.) The interview transcripts have relatively little to say about certain crucial sanitation experiences, including menstruation, coping with diarrhea, or the practice of women waiting until cover of darkness, which can cause bladder and urinary tract infections as well as psychological distress (George 2008: 197).

Our own positionalities are important here. The vast majority of the fieldwork was conducted by Renu, who as an Indian woman was on the one hand able to develop conversations around sensitive themes with other Indian women in ways that both Colin and Steve could never achieve as white British men. On the other hand, the familiarity of an Indian woman can create its own tensions and silences, and people are sometimes more prepared to share information about sanitation processes or neighborhood changes or political contexts with someone who is more obviously an outsider. Equally, policy officials can sometimes appear be more open to talking to foreign academics than to academics perceived as local. There is, then, no straightforward argument to be made that certain positionalities are necessarily more suited than others to conducting informal urban sanitation research.

Informal sanitation processes

This part of the article highlights four informal urban processes that play important roles in reproducing everyday sanitation: patronage, solidarity and exclusion, self-managed processes, and open defecation. We then consider the implications of our findings for a research agenda around informal urban sanitation. Before doing so, however, we provide some examples of how sanitation is experienced during the course of a day for different residents in the two neighborhoods. The point here is not to somehow provide an exhaustive sense of sanitation processes, but to provide an indication of the multifaceted nature of sanitation and its relation to other daily rhythms. This is important in order to appreciate the contexts through which the four key strategies that we go on to discuss occur.

Sanitation and everyday life

Sameera is 16 years old and lives in Rafinagar Part 1. She is the second oldest sibling in a large Muslim family, and lives with her mother, father, five sisters, and brother. Her day

starts at 8 am. She prepares tea, washes her face, and helps with breakfast for the family before tidying the sleeping mattresses away. Then she washes the utensils at the threshold of their house, in the same area that the family's clothes are washed in front of the narrow open drain that runs through the center of their lane. She described how this works: "We don't wash clothes daily. They pile up because of the water [shortage]" – at the time, the municipality was cutting "illegal" connections. "Utensils have to be washed daily – we can't pile them up. But clothes pile up, into big bundles some times. Then when water comes, or if it doesn't come then we buy the cans [from the relatively expensive cycle-wallas] and wash them". The rest of the morning is taken up with cooking tiffin lunches for her siblings at school and work, and in the afternoon she helps to prepare dinner. Other than the odd break to watch television, Sameera is busy with the demanding chores of a large family in a small home and rarely leaves the lane other than to use the toilet or to make a visit to nearby relatives. "I never speak much with anybody", she says, "I am always at home".

She uses the toilet later in the afternoon, around 3pm, because she doesn't have time in the morning. The family pays Rs. 10 per month towards maintenance of the toilet, but cleaning is intermittent. There is no water in the toilet, so she takes a bucket of the yellow water – water from one of the taps that she wouldn't want to drink - with her. Sameera felt life would be easier if there was a bathroom in her house, but she didn't want to have one in her home – "it will smell in the house". She added that she has an aunt in nearby Lotus Colony with a larger house and a toilet, but the arrangement works well there because there is a wall separating the toilet and living space, so "there is no smell". Like many residents, they have a *mori* [washing and bathing area] in their house which they clean every day, a space sometimes used as a toilet by children.

For Sameera, a key difficulty was that neighbors wouldn't work together to ensure that the open drains in the lane remained cleaned: "No one lends a hand...We just push the garbage to the side so that the water can flow...This is how illnesses spread…mosquitoes breed in dirt (*gandagi*)". Her younger sister adds: "We use *Good Night* [a mosquito repellent] sometimes", especially during the monsoon when there are more mosquitoes. "More people fall ill in the rainy season…Mosquitoes bite, malaria, and other diseases also". She was referring in particular to the large stormwater drain (*khaadi*) that people, including Sameera and her family, throw garbage into. Sameera added that conditions in nearby lanes close to the drain are worse: "There is a wide gutter there. Nobody cleans the garbage there and it remains dirty most of the time".

Farida also lives in Rafinagar Part 1. Her husband lost his auto rickshaw to the bank, and now rents one, and she can no longer depend on his earnings: "Some days he will give Rs. 100, sometimes Rs. 80, sometimes Rs. 180, sometimes he won't give anything… I have to pay the light bills, send the children to school… I have to run the full house". In an effort to preserve water and save money, Farida scolds her children if they wet the bed – which results in additional washing - and wakes up her youngest at 1am to go the toilet: "Otherwise she will wet the bed and it will stink…the bedding became a bit dirty but because of the water problems I don't wash it. I have a habit of keeping cleanliness but I am not able to do that because of the water situation".

Farida and her family cannot use the latrine in the house because the water shortage means she can't clean it. Instead, Farida uses the "Rs. 1 toilet" on the main road, a private block. The block is not kept clean and the groundwater it uses is yellow, but it is still cleaner than the municipal and other private blocks in the nearby market area. Before the private toilet that

she uses was built three years ago, she would use a nearer municipal toilet by the mosque. She had to carry a bucket on the way and said the trip past the mosque was uncomfortable – "it is embarrassing to go to the toilet carrying a pot" - so now prefers the private toilet, even though she added that she found it embarrassing to walk to or queue for the toilet in view of people. "Earlier I did not go to the toilet on the road, now I even go there and queue. Earlier I used to feel embarrassed, I felt ashamed, I felt hesitant. Now I just go".

For Nainatoo, who lives in Rafinagar Part 2, the changing water condition has had a significant impact on daily sanitation processes. Now, either her husband will take a rickshaw or bicycle to get a few gallons of water from nearby neighborhoods, or she will go on foot and carry water back in *handas* on her head (because she cannot carry the heavy water on and off of rickshaws). She sieves the water through a clean cloth, and after two days uses any additional water not for drinking but for cleaning alone. Sometimes water-tankers provide water. There is also bore well water available, the water from which she considered to be unclean. She buys water from the bicycle vendors, which is expensive.

For most residents in Khotwadi, in contrast, the water shortage had no tangible effect because of the links the neighborhood has with the dominant political party, the Shiv Sena. Govind lives in Khotwadi and runs a small company that rents cars to tourists. He lives with his wife, parents, and infant daughter. He had few complaints about sanitation other than those he directed at the garment workers in the local factories, many of them women migrant workers from other parts of India. A group of local people, including Govind, had decided to stop allowing the women and children to use the local water taps because of perceptions that they were being wasteful: "How these garment workers use the toilets, they only know! ... And you know how women are, they are short-tempered anyway...There are toilet seats for the

children also. But they don't keep it clean. They won't pour water. That is not proper...So we have decided that this decision to close down the taps is the perfect decision".

The women are not allowed to use water from the public pipes because they are not seen to use it "properly", and instead are made to pay Rs. 2 for the to use the water drum. Others in Khotwadi complained about the garment workers. Taslima, for example, described their use of the toilets in equally derogatory ways: "So many of these [women] garment workers, it is beyond imagination. They don't give money for water [to caretakers at toilet blocks], they just urinate and leave. So it is very dirty and we have to pour water and then use it… Because urine smells". Razia, who was born in Khotwadi, said that "these [migrant workers] have come up in the last 5-6 years. And because of that the toilets get really dirty". She added that "the urinals [have stopped] draining properly as men [migrant workers] dump garbage and waste in the toilets. If they come and clean it daily then the urine wouldn't seep outside. Men throw alcohol bottles in the urinal as well".

But Razia did point to problems beyond her perception of migrants. The condition of the toilets varies through the year, she added: "No one came to clean the toilets in the summer. If you ever see these toilets you won't even be able to enter them they are so dirty". She continued: "It is futile repairing them. [If you put] your foot on the tile it will break". Razia's daughter added that a lack of security sometimes leads to harassment from men: "They don't even have latches for the toilet doors. Now-a-days even men sneak into the toilet. If someone is new then they don't know; both the entrances for the men's and women's toilets are the same and so the men walk into the women's side." Razia argued that the deterioration was the result of people being suspicious of those, including herself, who were collecting money for maintenance costs: "This happened like 2-3 years back. There is a Marathi woman staying

opposite to us, we used to collect money. But whenever we went to collect this contribution people would say that you are using this money for buying alcohol. Just for Rs. 10 a month, toilets used to remain clean, we had put locks, had given keys to everyone. Even then these locks got broken. We had got chains put by welding. The toilets remained cleaner then". The municipality worker who is supposed to clean the toilet daily only comes every week or so, and "he doesn't clean the toilets properly". Local Shiv Sena party officials told Razia to "scold" the cleaner and tell him to come every day, but, she said, "it doesn't look good to keep scolding them every morning, does it?" There are other toilets nearby that are even less well maintained, she added: "We usually don't go there, but when these toilets get extremely dirty and are choked then we might go there some time…in the night time".

These snapshots of daily life in Rafinagar Parts 1 and 2 and in Khotwadi illustrate the need to see sanitation as a node in a variety of social relations. In particular, sanitation is linked in important ways to water provisions and politics, the rhythms and labor of domestic work, the nature of provision by the state and other actors, income and capacity to pay, perceptions of other residents and those seen to be outsiders, and gender relations. Moreover, sanitation does not stand still. For instance, as water provisions change over time, calculations on how much water to use for washing clothes and utensils, or whether to wake infants in the middle of the night to go to the toilet, become more important. Conditions change over the course of days and nights, and over the year - for some people the monsoon and the summer can have significant impacts on the experiences they have. This temporal variation is accompanied by important spatial variation – between toilets (e.g., municipal versus private) and across neighborhoods (e.g., houses located near open drains versus those located a little further away). Broad differences emerge between the neighborhoods: a politics around garment workers is important in Khotwadi, but the perceived need to residents to work together (e.g.,

to clean drains or toilets) in the absence of state provision is more important in Rafinagar, as is the impact of the water cuts. The comments also hint at the importance of open defecation in Rafinagar, which is less of an issue in Khotwadi (more below). We turn now to four key processes that constitute everyday sanitation, and begin in Khotwadi with a strategy for securing sanitation on a daily basis: the politics of patronage.

Sanitation through patronage

In Mumbai, patronage is central to the delivery of services. A toilet, for example, might be promised in exchange for votes. It is by no means the only route to the delivery of services - we might also consider how people buy services informally through brokers, or use their ethnic and religious links to develop relations of mutual benefit with local landlords (see Bjorkman, forthcoming) – but it is an important process. Indeed, De Wit and Berner (2009, 930) describe elements of this as "progressive patronage" in that patronage here constitutes at least one outlet through which services are delivered to the very poor. But the potential for patronage to deliver is strikingly different in both neighborhoods.

In Khotwadi, the interactions with the state around sanitation proceeds largely through patronage by the Shiv Sena, a regional ethno-religious Hindu-dominant party that currently runs the municipality and represents the neighborhood. Through the Shiv Sena *shakha* (office), residents have daily access to a 'complaint space'. Using a system of written complaint making, the councilor uses various municipal programs and departments to provide for work needing done, from blocked drains to accumulated waste or dysfunctional toilets. The local Shiv Sena councilor computerized the *shakha* when he was elected – earlier a complaint had to be typed and sent to the relevant municipal department, incurring a Rs.100 fee from the typist employed by the councilor; now the *shakha* offers to type the letter for

free. Going through the Sena *shakha* will generally result in a complaint being dealt with faster than if a resident approaches the relevant municipal department on her or his own. Figure 5 shows a toilet block in Khotwadi decorated with political banners of the party. This is also the only toilet block in Khotwadi with a dedicated sanitation worker from the BMC, whose comings and goings were monitored by the *shakha*.

The councilor has a staff member who explains to residents through which clause a complaint should be made. There are 15 workers and two supervisors for cleaning the local drains, allocated under the *Dattak Vasti Yojana* (Slum Adoption Scheme, SAP), a BMC program which sub-contracts the cleaning and maintenance of sanitation infrastructures to CBOs. The Shiv Sena councilor has appropriated the SAP scheme. He uses the workers to clean the drains of settlements in his constituency and these workers have become folded into the day-to-day maintenance work of sanitation in the area, seemingly on behalf of the residents[ii].

One local man said: "[The shakha] is an office to buy votes", and alleged that the party treats Khotwadi as a series of opportunities to make money though "political adjustment" (siphoning off money from development projects) rather than a neighborhood where people's lives might be improved. Certainly, close links to the party can be beneficial for some. One woman explained that she did not pay anything to the caretaker of one municipal toilet block because of her husband's links to the Shiv Sena councillor, and added that she sometimes used nearby blocks reserved for others because access would not be denied to her due to these political links.

Not every complaint is dealt with. One resident in Tiwari Chawl (a *chawl* here is a collection of homes with shared toilets), for instance, said that he and his neighbors are occasionally so

frustrated waiting for the toilet drain to be cleaned that they contributed their own money to pay the Rs.1500-2000. Some residents found the regularity of having to go to the *shakha* with complaints tiresome, particularly in relation to the cleaning of toilet blocks that require an intensive and consistent labor. Most residents in Tiwari Chawl are garment workers living in rental homes, and it is likely that one reason for the councilor's reticence to attend to the *chawl* is that the garment workers and workshop owners do not constitute his vote-bank since they come from outside the neighborhood. In Samata Chawl, the toilet block was not regularly cleaned and repeated complaints to the *shakha* did not lead to a response, apparently because their relations with the *shakha* were weaker than in other parts of Khotwadi. Residents had found it difficult to pay for a cleaner on their own. One resident referred to this block as *anaath* (orphan), pointing out that the municipal cleaner tends to it only infrequently, that residents themselves were not prepared to improve it, and that the local councilor was non-responsive to requests to maintain the block. Other toilet blocks were referred to as *lawaris* (abandoned), including those where unsuccessful attempts had been made by local residents to raise money for maintenance.

The political role of regularized requests and complaints of residents through the *shakha* is clear: the routinized work of the shakha in the maintenance of infrastructure made it, and the councilor, indispensible, and indeed makes a conceptual distinction between the *shakha* and sanitation untenable. This relation has the aim of maintaining both loyalty through the soft power of infrastructure maintenance, and a political collective in the neighborhood which is exclusive on grounds of voting and personal background. It is a relation dominated on the whole by politically networked men (and see Anand 2011on the use of Shiv Sena offices to gain access to water in Mumbai).

Figure 5: Toilet block mounted with political banners of the Shiv Sena, Khotwadi

In Rafinagar, patronage is a less reliable source for sanitation delivery and maintenance. The Shiv Sena has no electoral presence here given that it is largely a Muslim area. The Congress Party and Samajwadi (Socialist) Party dominate. Residents attempt to pursue claims through political parties and community groups linked to the NGO, *Coro for Literacy*. These are community groups that often attempt to act as mediators with the BMC, bound by local residents rather than ethnically or religiously defined groups. For example, one woman, Salma, used her membership of the local Samajwadi Party to get drains cleaned through the party office. She built up a range of networks over time that increased her capacity to get work done in the neighborhood, including through joining CORO, through which she started her own *mahila mandal* (women's group).

But it was the Samajwadi Party link that has brought impact for Salma. For instance, she developed a good relationship with the president of the Mahila Samajwadi Party, the women's wing. Through this link, Salma attained a position in the Mahila Welfare Society and had managed to get the BMC not just to clean the drains in her neighborhood (in Rafinagar Part 1), but to begin consideration of replacing an existing toilet block with a larger two-story block. This too is an instance of political patronage, but of a less predictable kind than that in Khotwadi. Political patronage here is constituted through local leaders who operate as key nodes within networks (see De Wit and Berner, 2009). Over time, influential and connected women like Salma sometimes reduced participation in CORO itself, stating that this work had not been productive. Saiyyada, for example, continued to run her Mahila Mandal but increasingly used it to cultivate relations with local political representatives. The

key point is that the production of sanitation via patronage for most people here is less stable than in Khotwadi, and far more laborious. Patronage in Mumbai depends on party political links produced in part through religious and ethnic connections, and is therefore geographically varied.

Where sanitation is not provided by or maintained by the state, then the most common responses are self-managed. In many parts of the world these processes have long histories that can become controversial over time – for example, in Vietnam, the traditional overhung fishpond latrine used by rural residents has recently been banned due to fears of transmitting parasite infections from fish to humans (Rheinländer et al. 2010). There is enormous spatial variation in self-managed processes through differences in custom, income and location (especially rural versus urban) (Black and Fawcett 2008). Of the two case studies, self-managed processes are far more important in Rafinagar than in Khotwadi due to the relative lack of provision by the state.

Self-managed processes

A key process in the production and maintenance of sanitation is self-built latrines and the maintenance of drainage. In Rafinagar Part-2, at the edge of the large stormwater drain (*nallah*) that runs on the west side of the settlement, residents have built makeshift toilets out of cloth, timber, jute and iron sheets bought, found or salvaged from waste (Figure 6). Each toilet is used by the 15-25 households living in each lane. There is a rhythm to this infrastructure through the year. During the monsoon, using the nearby city Deonar garbage ground for open defecation requires wading knee-deep through mud and waste (on wastewater, see Karpouzoglou and Zimmer 2012). While people do struggle to make these trips on a daily basis, in such conditions it becomes important to build a toilet closer by.

26

Some have been constructed through residents paying and/or contributing labor, others by people paid by residents. In these lanes, each family typically contributes between Rs.100-200 towards construction (a total of Rs.3000-5000). These hanging latrines are often located in areas where people are highly vulnerable to illness and disease (Black and Fawcett 2008; UN Habitat 2003; Satterthwaite et al. 2005).

Figure 6: Makeshift toilets built in Rafinagar Part-2 over the large stormwater drain (*nallah*). Source: Renu Desai.

Regular incremental improvements are required. For example, when they are damaged by the high and low tides in the large stormwater drain which not only washes away the waste but also gradually rots, damages, and washes away the structure or parts of it, residents once again contribute their money and/or time and/or labor to repairing or reconstructing the toilet. On the whole, men contribute construction labor and women contribute maintenance labor, although in other lanes residents contributed money and employed (male) laborers to build the toilet. In some cases the toilet is rebuilt once per year, displacing the routine of incremental improvements through a more focused period of construction. In other cases, demolitions of "illegal" homes in Rafinagar Part 2 by the BMC bulldozers have loosened the earth that keep these structures stable. This has sometimes destroyed not only people's houses but also the toilets built over the nearby stormwater drain. State demolition does not have a predictable rhythm: some parts of Rafinagar Part-2 had been subjected to demolitions as recently as a year ago, while other parts had not been demolished for several years now. Residents in the lanes in these latter areas no longer felt an acute threat of demolition and had built more stable and lasting toilet structures (see Figure 7), sometimes building two cubicles adjacent to each other so that men and women of the lane could have their own toilet. As the

toilet on Figure 7 shows, sometimes the residents who pay for these better built latrines have locks fitted on them. The investments that residents made in the makeshift toilets are linked not only to the resources they have but also to the sense of impending demolition they feel. People's investment in incremental improvements is partly a function of being able to anticipate a relatively secure future for the infrastructure.

Figure 7: Stabilizing latrines

These toilets are not understood simply as infrastructures. For women in particular, they provide some measure of privacy, dignity, and safety. In one of the lanes, where a makeshift toilet had been constructed for use mainly by women, one woman said: "Where will women go in the day? In the dark women sometimes go [to the garbage ground nearby the settlement]. But a young girl cannot go [to the garbage ground] even in the dark." But the toilets are vulnerable, and residents often attach anxiety and fear to them. Nasreen complained: "What cleanliness can be kept [at the makeshift toilet]? We use it out of helplessness… If there is high tide then it is not fit to use. The water rises and covers the planks." Another woman added: "There is a world of difference between this and a *pukka* [brick-built] toilet. This one remains a bit open, there is a fear of children falling, there is fear that it will get washed away in the high tide, there is a fear that it will break." When the makeshift toilets rot and get washed away in the high tides, women often resort to open defecation or they use a private toilet in Rafinagar Part 1 for Rs.1-2, until the improvised block is rebuilt.

There are more mundane, but also important, examples of self-managed sanitation processes. For example, residents in Rafinagar Part-1 have developed improvised processes for

maintaining drainage infrastructures. Some residents add grates along the drain in order to demarcate responsibility amongst households for keeping sections of the drain clean (Figure 8). While residents sometimes collaborate by using several grates to distribute the responsibility of tending to different drain sections, grates are also used by residents to protect their own homes (sometimes displacing waste toward other homes). Sameera said:

"People should come to clean the gutters. Unsanitary conditions are not nice to see. The residents here don't pick anything up. And there are fights. No one pays any attention to the gutters. They let it be. We face difficulties because near the [water] drum, there is a grate (*jaali*) so [waste] accumulates there… The one who lives on the other side has put it so that the waste doesn't go to their side. But it creates difficulties for us because the waste accumulates near our house".

Figure 8: Residents' improvisations to the open drains, Rafinagar.

Given that grates can be both features of collaboration and a source of tension, the capacities of these materials emerge not in their pre-given properties but through people's attempts to secure local conditions and relations on a daily basis. The daily life of sanitation in Khotwadi is generally more secure and predictable, mainly as a result of the political party relations detailed above. There are also a wider range of toilet configurations, including more lock-and-key arrangements on toilet blocks used by some residents, where a small group of residents have keys to a locked toilet and pay for its maintenance and exclude poorer residents and workers from outside the settlement (some from other informal settlements, some from outside Mumbai).

Solidarity or exclusion?

If patronage is unreliable and self-managed processes do not provide necessary cover, then sustaining or improving sanitation conditions requires alternative mechanisms. Protest is one such example, especially in the context of Rafinagar, where sanitation provisions are less stable and the potential to influence the state is more limited. For instance, at a privately run toilet block in Rafinagar Part-1, the caretaker doubled the price from Rs.1 to Rs.2. A group of residents began to protest, as Mumtaz related:

"The public created a scene. They went and sat down [to defecate] anywhere, in the *maidan* [open ground], the garden, on the road, near the clinic…So that he [the toilet block caretaker] will also not be able to sit there, he will also get the stink, no? Tomorrow he can even say it is Rs.3. Should we drink water from his hands?... Meaning if he keeps increasing the money, should the public keep giving?...He made it Rs.1".

Mumtaz positions smell, not organizational pressure, as key to this political act. This was a rare form of protest (we did not hear of others) in which an urban collective temporarily constitutes a political moment that dramatizes the limited options available to the poor, forced here to use their own bodies as political agents in their own neighborhoods. But it points to a wider set of small contestations whereby residents try to maintain conditions or nudge them in a different direction. These are temporary conflicts that resonate with accounts of lower key contentious politics, where urban public spaces become particularly important for pursuing and registering grievances (e.g., Bayat 2010). They are part of a longer repertoire of "small rebelliousness" around sanitation in the city, where improvised defilement itself becomes a political outlet that depends on the power of smell, irritation, and proximity (Kaviraj 1997, 110). They are forms of politics that bear resemblance to what Partha

Chatterjee influentially called "political society" - an "irreducibly political" (2004, 60) domain that is "ill-defined and contingently activated" where people make claims through "temporary, contextual and unstable arrangements arrived at through direct political negotiations" (2008, 57).

The difference here is that Chatterjee ties political society to organizations that embark on "direct political negotiations" over time, where organizations are a kind of connective tissue, "the means to make effective claims on governmentality" (2008, 58, 61). This includes the capacities of, for instance, community groups to constitute themselves as demographic categories of state governmentality – including households, laborers, landless people, and people below-the-poverty-line, all official state categories – despite the fact the land the group inhabits is illegal land that cannot be recognized by the state as legitimate. Temporary, small acts of protest such as that described above that do not coalesce into community organizations or longer-term struggles appear not to qualify for how Chatterjee renders political society. As Anand (2011, 546) argues in relation to water politics in Mumbai's informal settlements, not all residents are able to "constitute themselves as a deserving political society". They often depend instead on what Bayat (1997) calls the 'quiet encroachment of the ordinary' (and see Nigam 2008). Chatterjee (2008, 61) is, of course, aware that political society has its limit points: "In every region of India, there exist marginal groups of people who are unable to gain access to the mechanisms of political society... that do not even have the strategic leverage of electoral mobilization".

This form of protest represents a politics of the last resort. In both Rafinagar and Khotwadi, we find instances of solidarity and exclusion, albeit it is far less likely that this kind of protest would become necessary in Khotwadi. In Khotwadi, more common than residents acting in

solidarity to maintain sanitation conditions was residents seeking to regulate sanitation conditions by excluding other groups: the exclusion, for example, of migrant workers from toilet blocks.

Khotwadi is well known in Mumbai for clothing factories. There is a common perception in the neighborhood that the toilets are harder to keep clean due to the increasing number of garment workers in the area. A moral economy of cleanliness was often leveled at the garment workers. One man commented: "This is a municipality toilet but we have made it private so that it doesn't get dirty. Many laborers come and put cloth inside and make it dirty." Another woman – a caretaker of the same block - added: "Diseases spread from the toilets. Jaundice, diarrhea, and many others. Those in the [garment] workshops also put cloth into it. That is why we say no to the workshops." The garment workers themselves often complained of abuse from residents.

One woman said that residents would shout at her, "you come here to work and you make it filthy before you leave." She narrated the story of one woman who had slapped a garment worker, a young girl around 18 years old. The girl had come out of one of the cubicles and the women had just entered the block. When the woman went into the cubicle she saw it was dirty and, thinking that the girl was responsible, walked out and slapped her. The girl left her employment soon after. Just as the temporary body protest in Rafinagar served to maintain the status quo, the ongoing and repeated blame and exclusion of migrant workers is important in the informal regulation of sanitation in Khotwadi and works to reinforce the dominant social order.

Exclusion, of course, is a defining feature of sanitation poverty: exclusion through local identity politics, exclusion from state provisions, and exclusion via state demolition. But exclusion and sanitation is most starkly portrayed in the process of open defecation. This is our final informal urban sanitation process, and here we ask how people cope in contexts where patronage, self-managed toilets, and protests appear not to offer any kind of solution. Given the general socio-economic differences and lack of sanitation facilities, this process is more common in Rafinagar than Khotwadi.

Sanitation without toilets

Rafinagar Part 2 has only one state-provided toilet. This came through a Congress party representative at the Maharashtra state level in 2010 following the campaigning of the CORO Mahila Mandals in particular. The hanging latrines do not serve everyone, and the nearest toilet blocks in Part 1 are a walk away (Figure 9). As a result, people have established a gendered geography of open defecation with an important temporal dimension. As Naina said of toilets in Rafinagar Part 1, "if the line is long, if it is urgent, if there is no time, then [one can] immediately go there" - add the time of the distance to the toilet block in Rafinagar Part 1, plus long queues, especially early in the morning, plus the urgency with which people may have to go.

The geography of open defecation is at once spatial and temporal, and generally structured in this way: children will use the lane outside houses or the roadside, an often dangerous space that sometimes leads to injury and even death due to reversing municipal garbage trucks on the main road, men will use the *kabrastan* (graveyard) or *maidan* (open ground) nearby the neighborhood, and women – sometimes with children and often in groups – will go further afield and use the garbage ground. Men too sometimes use the garbage ground, although they

33

tend to use the lower edges that run along the large open stormwater drain, while women climb the garbage heap that stretches a few stories high (it is one of the largest municipal garbage grounds in India). For Baviskar (2011), writing about open defecation around the Yamuna river, Delhi, this kind of agreed-upon geography is an informally demarcated urban commons. However, the BMC has decided to close the city garbage ground and the result has been a significant rupture in the choreography of this routine. This closure is partly a result of the site reaching capacity and partly of the campaigning activity of nearby and predominantly middle-class residents about air and ground pollution. The closure, then, is not the result of the kind of commodified real estate vision driving the displacement on the Yamuna – Rafinagar, for now, lies beyond the orbit of real estate commodification.

Figure 9: Toilets in Rafinagar Part 1 and 2

The company paid to level and close the garbage ground has its construction workers on the site for most of the day. Nasreen described the disruption that accompanies the potential of being visible:

"The vehicles start to run at 6-7 a.m. They run the entire day. Till seven in the evening. Even at night sometimes… The road [on which the vehicles run] is high. Everything can be seen from above if someone is sitting below… First the [garbage] trucks used to come time to time. Ever since it has become private there is more harassment. No matter where you look there is a vehicle".

In these situations, women effectively shift the space-times of everyday sanitation: they often wait long into the night to use open space or toilets when the queues are lighter, resulting in a

range of health problems and anxieties. Here, actions by the BMC have drastically altered the rhythm of sanitation, disrupted its collective organization, and created new hazards for collectives, especially some of the poorest women and children in Rafinagar Part 2. More than disruption, there have been reports of women being abused. Nasreen said: "Our sons and husbands understand that our mothers and sisters go [to the garbage ground]. But [men] come from outside and harass us…They [drink] alcohol; they do *charas*, *ganja*, *solution…* Many rapes have happened. Some parents don't bring it out in the open to protect their honor; they are scared." With the option of open defecation significantly reduced, a range of coping practices become even more important than usual, including women and girls drinking less to avoid having to go, or waiting for longer periods of time, or having added health difficulties during menstruation, or being forced to use indoor household bathing areas as toilets. These geographies of open defecation are themselves vulnerable and risky social sanitation infrastructures, and echo findings on other cities (Truelove 2011, 148; see also Baviskar 2011). In addition, the various forms of abandonment, violence and exclusion that constitute the geographies of sanitation reflect a set of shifts in urban India that value some bodies and spaces over others (Gidwani and Reddy 2011).

A research framework for informal urban sanitation

The uncertain processes of sanitation are predicated on a series of changing conditions and catalysts, from demolition, land erosion, and changing land use, to reciprocal relations between residents, changing tariffs of toilets, and the links between identity politics and political parties. But the role of these processes is starkly distinct in both neighborhoods. While patronage is critical in Khotwadi, its unreliable nature in the more marginalized and predominantly Muslim Rafinagar means that self-managed processes and open defecation are central. Comparison need not take place between far-flung parts of the world to produce

meaningful data about sanitation experience: as we have seen, even within one city significant differences can be identified. The contrasting conditions in Rafinagar and Khotwadi reflect not just different urban histories, social composition, and state-based or legal (dis)connections, but two quite different Mumbais, with distinct forms of sanitation production, experience, and politics.

The comparison between Rafinagar and Khotwadi revealed key differences. If comparative urban research has conventionally sought out or evaluated similarities between places (McFarlane and Robinson 2012), our comparative data reveal stark differences in how sanitation is produced on a day-to-day basis. We cannot understand sanitation effectively without researching the spatial and social diversities through which is it is produced, and nor can interventions hope to succeed if they do not respond first and foremost to those diversities, as others have argued in difference contexts (Black and Fawcett 2008; Joshi, et al. 2011; Rheinländer et al. 2010).

A key starting point for developing a research agenda around informal urban sanitation is, then, the *comparative study of everyday sanitation*. Given the critical role of spatial variation to the experience of and responses to inadequate sanitation, this comparative approach is crucial. Geographers are particularly well placed to conduct this research both because of their attentiveness to spatial difference and because sanitation is a network process that connects a wide variety of processes within and beyond neighborhoods. The relation between "comparison" and "everyday" is vital here: comparison provides an appreciation of variation in the nature of and responses to sanitation; the everyday provides nuanced insight into how sanitation, which rarely stands still, changes over time, and to how it is experienced and

perceived. Such a comparative approach to the everyday in turn prompts various questions of different actors, which we've provided a summary example of in Table 1. The questions and concerns here relate to the role of the state, the prospects for resistance and alternatives, the nature of collaboration, and the vulnerability of existing informal sanitation processes – but of course these issues are likely to change in different comparative projects.

Table 1: Comparing sanitation processes (KW: Khotwadi; RN: Rafinagar)

We could not have made the case for the four strategies we discussed above without conducting comparative work. A focus on Khotwadi alone would have foregrounded patronage and political parties, while a focus on Rafinagar alone would have emphasised self-managed processes. It is not that elements of these processes do not exist in the other neighborhood – they do – but that the key features of how sanitation is produced and contested on a day-to-day basis is significantly different in both sites. This allows us to present a broader canvas of sanitation poverty than one case alone would have done, and it has demonstrated the importance of a geographical approach that foregrounds social and spatial variation. The purpose of comparison here is explicitly to seek out apples and oranges as an analytical tool, to use difference as a route to a more plural understanding of a key dimension of urban poverty and marginalization.

Better sanitation?

As the world – and sanitation with it - becomes increasingly urbanized, and as the rate of urbanization continues to take place faster through informal settlements than cities more generally, it is crucial that researchers develop a better understanding of the everyday geographies of urban sanitation. The differences between different informal settlements –

even within the same city –necessitate quite different kinds of understanding and intervention. But it is clear, nonetheless, that long-term and universal provisions are required. These entail both substantial investment in infrastructure and maintenance work and a radical shift towards providing sanitation and water as a right regardless of status. Adequate resources also need to be available for sufficient quantities of soap and water, which has a key impact on health (Curtis et al. 2000), and hygiene awareness, which is often uneven within and between countries (Rheinländer et al. 2010). At the same time, successful approaches are likely to be of a different order than simply reverting to calls for cities in the image of the modernist projects of the past. Flexible and localized interventions are and will continue to be key, and researchers and practitioners need to be open to the potential of different ways of delivering solutions in different places (Black and Fawcett 2008; Joshi et al. 2011; Simone forthcoming). At stake here is not just a better set of sanitation conditions, but a more livable and vibrant urban commons where resources are distributed more equitably, harmful wastes are removed from local environments, and people stand more chance of being able to pursue education, work, and life within their communities.

In Mumbai, sanitation has usually been marginalized in favor of a focus on water, whether in research, activism or policy. Too often the call in the media and amongst the growing middle classes is for urban poverty is to be sanitized, not for urban neighborhoods to be provided with sanitation. Public debate in the city is focused less on providing sanitation infrastructures and more on higher-end infrastructure, especially Information Communication Technologies, private transport, and air conditioned bubbles for residential, commercial and tourist enclaves (Roy and Ong 2011; Gidwani and Reddy 2011). But there are growing demands for sanitation rights in the city. One recent example is the "Right to Pee" movement, a collection over 30 groups in Mumbai campaigning for more public toilets and, especially,

for free use of toilets for women and for provisions for menstruation. The movement has found that women have to pay more to use public toilets, and evidence of widespread corruption by those who run blocks. In 2012, the movement pressured the BMC into constructing 500 public toilets across the city. But "illegal" and post-2000 slums do not get water or sanitation facilities, and this is one of the issues that any sanitation movement needs to tackle head on.

Away from social movements, much current sanitation practice is debating the potential of the increasingly popular Community-Led Total Sanitation Movement (CLTS). CLTS involves participatory mapping of neighborhoods in order to understand current practices of open defecation and sanitation more broadly, and then organizing communities into self-help groups to build and maintain toilets. A key strength of CLTS is precisely its concern with building sanitation solutions directly from everyday experience (see Mehta and Movik 2012; Kar 2012). It also focuses in particular on women and girls. The approach is often based around a small group of local women who act as community facilitators, although that fact alone, as Mehta and Movik (2012, 10) argue, does not mean that local gender relations have been made more equal. CLTS for instance "does not explicitly mention menstrual hygiene or separate bathing places for women", and has "failed to address gender inequalities explicitly enough" (*ibid*). So while this is a promising area that focuses on the everyday, there are important questions about connecting CLTS to gender and to other inequalities, especially those that arise from state demolition or declarations of illegal neighborhoods.

While we have not had the space to develop a wider argument here about poverty, it is hopefully clear that focusing on everyday sanitation also offers useful insight on the experiences of poverty and marginality more generally. Sanitation necessarily connects a

variety of contexts, from toilets and drains to state (dis)investments, land politics, the work of
cultural stereotypes of certain groups of the poor, and the variegated experiences of shame,
exploitation, alienation and struggle that so often characterise poverty. The urban poor, of
course, cannot be defined by poverty alone, and the experience of poverty is itself highly
diverse as the comparison between Khotwadi and Rafinagar suggest. The utility of
comparison here is to highlight the potential of a geographical approach to reveal the
differentiation of poverty, and the focus on the everyday reveals the multi-faceted and
changing nature of those experiences through time.

References

Anand N (2011): 'PRESSURE: The PoliTechnics of Water Supply in Mumbai'. *Cultural Anthropology*. 26 (4): 542-564.

Anderson, W. (2006) *Colonial Pathologies: American Tropical Medicine, Race, and Hygiene in the Philippines,* Duke University Press: Durham NC

Bapat M. and Agarwal I. (2003) 'Our needs, our priorities; women and men from the slums in Mumbai and Pune talk about their needs for water and sanitation'. *Environment and Urbanization.* 15:2, 71-86.

Bayat, A. (1997) 'Un-Civil society: The Politics of the Informal People'. *Third World Quarterly.* 18:53–72.

Baviskar, A. (2011) 'What the eye does not see: the Yamuna in the imagination of Delhi'. *Economic and Political Weekly*, XLVI: 50, 45-53.

Black, M. and Fawcett, B. (2008) *The Last Taboo: Opening the Door on the Global Sanitation Crisis.* Earthscan: London.

Burra S., Patel S. and Kerr T. (2003) 'Community-designed, built and managed toilet blocks in Indian cities'. *Environment and Urbanization*, 15: 2, 11-32.

Chakrabarty D. (2002) *Habitations of Modernity: Essays in the Wake of the Subaltern Studies.* University of Chicago Press: Chicago

Chaplin, S. (1999) 'Cities, sewers and poverty: India's politics of sanitation'. *Environment and Urbanization* 11, 145-58

Castro, J.E. (2007) 'Poverty and citizenship: Sociological Perspectives on Water Services and Public-Private Participation'. *Geoforum* 38:5, 756-771.

Chatterjee P. (2004) *The Politics of the Governed: Reflections on Popular Politics in Most of the World.* Permanent Black: Delhi

Chatterjee, P. (2008) 'Democracy and Economic Transformation in India'. *Economic and Political Weekly*, April 19th, 53-62.

Coelho K (2006): 'Tapping In: Leaky Sovereignties and Engineered (Dis)Order in an Urban Water System'. In: '*Sarai Reader 06: Turbulence*'. Sarai. Delhi.

Curtis, V., S. Cairncross, and R. Yonli. (2000) 'Domestic hygiene and diarrhoea - pinpointing the problem'. *Tropical Medicine and International Health* 5 (1):22-32.

Davis M. (2006) *Planet of Slums*. Verso: New York

Desai, R., McFarlane, C. and Graham, S. (forthcoming) 'The politics of open defecation: informality, the body and infrastructure in Mumbai'. *Antipode*.

Gandy, M. (2008) 'Landscapes of Disaster: Water, Modernity, and Urban Fragmentation in Mumbai'. *Environment and Planning A*, 40: 108-130.

Ghertner, A. (2008) 'Analysis of new legal discourse behind Delhi's slum demolitions'. *Economic and Political Weekly*, 43, 20: 57-66.

Gidwani, V. and Reddy, R.N. (2011) 'The afterlives of 'waste': notes from India for a minor history of capitalist surplus'. *Antipode*, 43:4, 1625-1658.

Graham, S. Desai, R. and McFarlane, C. (2013) 'Water wars in Mumbai'. *Public Culture* 25, 115-141.

Hobson J. (2000) 'Sustainable sanitation: experiences in Pune with a municipal-NGO-community partnership'. *Environment and Urbanization*. 12:2, 53-62.

Hosagrahar, J. (2006) *Indigenous Modernities: Negotiating Architecture and Urbanism.* Routledge: London.

HDR (2009) *Mumbai Human Development Report, 2009.* New Delhi: Oxford University Press.

Jewitt, S. (2011) 'Geographies of shit: spatial and temporal variations in attitudes towards human waste'. *Progress in Human Geography*, 35:5, 608-626.

Joshi, D., B. Fawcett, and F. Mannan (2011) 'Health, hygiene and appropriate sanitation: Experiences and perceptions of the urban poor'. *Environment and Urbanization* 23 (1):91-111.

Kar, K. (2012) 'Why not basics for all? Scopes and challenges for Community-Led Total Sanitation'. *IDS Bulletin*, 43:2, 93-96.

Karpouzoglou, T. and Zimmer, A. (2012) 'Closing the gap between 'expert' and 'lay' knowledge in the governance of wastewater: lessons and reflections from New Delhi'. *IDS Bulletin*, 43:2, 59-68

Kaviraj, S. (1997) 'Filth and the public sphere: concepts and practices about space in Calcutta'. *Public Culture*, 10:1, 83-113.

Lane, J. (2012) 'Barriers and Opportunities for Sanitation and Water for All, as Envisaged by the New Delhi Statement'. *IDS Bulletin*, 43:2, 86-92.

Mara, D. (2012) 'Sanitation: what's the real problem?'. *IDS Bulletin*, 43:2, 86-92.

Mazumdar R (2007) *Bombay Cinema: An Archive of the City*. University of Minnesota Press: Minneapolis.

Menon, M. (2012) 'Maharashtra faces growing urban malnutrition'. The Hundu, April 22nd, http://www.thehindu.com/news/national/article3342953.ece (last accessed July 2012).

Mili, D. (2011) 'Migration and healthcare: access to healthcare services by migrants settled in Shivaji Nagar Slum of Mumbai, India'. The Health, 2:3, 82-85. http://www.thehealthj.com/september_2011/migration_and_healthcare_access_to_healthcare _services_by_migrants_settled_in_Shivaji_Nagar_slum_of_Mumbai_India.pdf (last accessed June 2012).

McFarlane, C. (2008a) 'Sanitation in Mumbai's informal settlements: state, 'slum' and infrastructure'. *Environment and Planning A*, 40:1, 88–107

McFarlane, C. (2008b) 'Governing the contaminated city: sanitation in colonial and postcolonial Bombay'. *International Journal of Urban and Regional Research*, 32: 415-435.

McFarlane, C. (2012) 'From sanitation inequality to malevolent urbanism: the normalization of suffering in Mumbai'. *Geoforum*, 43:6, 1287-1290.

Mehta, L. and Movik, M. (2012) *Shit Matters: the Potential of Community-Led Total Sanitation.* Practical Action.

Melosi, M. (2000) *The Sanitary City: Urban Infrastructure in Urban America from Colonial Times to the Present*. John Hopkins University: Baltimore.

Molotch, H. and Norén, L. (2010) *Toilets: Public Restrooms and the Politics of Sharing*. New York: New York University.

Mukherjee, N. (2001) *Achieving sustained sanitation for the poor: policy and strategy lessons from participatory assessments in Cambodia, Indonesia and Vietnam*. Water and Sanitation Program: East Asia. http://docs.watsan.net/Downloaded_Files/PDF/Mukherjee-2001-Achieving.pdf (last accessed September 2012).

Nicol, A., Mehta, L, and Allouche, J. (2012) ''Some for all rather than more for some?' Contested pathways and politics since the 1990 New Delhi statement'. *IDS Bulletin*, 43:2, 1-9.

Neuwirth, R. (2006) *Shadow Cities: A Billion Squatters, A New Urban World*. Routledge: New York.

O'Reilly, K., (2010) 'Combining sanitation and women's participation in water supply: an example from Rajasthan'. *Development in Practice* 20 (1), 45–56.

Prakash, G. (2010) *Mumbai Fables*. Princeton University Press: Princeton.

Rheinländer, T., Samuelsen, H., Dalsgaard, A., Konradsen, F. (2010) 'Hygiene and sanitation among ethnic minorities in Northern Vietnam: Does government promotion match community priorities?' *Social Science and Medicine*. 71: 994-1001

Rigg, J. (2008) *An Everyday Geography of the Global South*. Routledge: London.

Robinson, J. (2006). *Ordinary cities: between modernity and development*. Routledge: London.

Satterthwaite D., McGranahan G., and Mitlin D. (2005) *Community-driven development for water and sanitation in urban areas: its contribution to meeting the Millennium Development Goals.* Water Supply and Sanitation Collaborative Council (WSSCC): Geneva.

Sharma R.N., and Bhide A (2005) 'World Bank Funded Slum Sanitation Programme in Mumbai: Participatory Approach and Lessons Learnt'. *Economic and Political Weekly*, April 23rd, 1784-1789.

Singh, A. K. (2006) *Privatization of Water Supply: A Study of Processes of Privatization of Water Suppply in K (East) Ward, Mumbai.* Vikas Adhyayan Kendra: Mumbai

Solo, T.M. (1999) 'Small-scale entrepreneurs in the urban water and sanitation market'. *Environment and Urbanization*, 11, 1, 117-132

Truelove J (2011): '(Re-)Conceptualising Water Inequality in Delhi, India through a Feminist Political Ecology Framework'. *Geoforum*. 42: 143-152

Truelove, Y., Mawdsley, E., (2011) 'Class and criminality: discourses of water and citizenship in clean, green Delhi'. In: Clark-Deces, I. (Ed.), *A Companion to the Anthropology of India.* Wiley-Blackwell, Malden, pp. 407–425.

UN Habitat (2003) *Water and Sanitation in the World's Cities: Local Action for Global Goals.* Earthscan: London.

UN Millennium Project (2005) *Health, Dignity and Development: What will it Take? The Report of the Millennium Taskforce on Water and Sanitation.* Earthscan: London.

Water Aid (2007) *The State of the World's Toilets, 2007.* Water Aid, available at www.**wateraid**.org/documents/the_**state**_of_the_**worlds_toilets_2007**_1.pdf- (May, 2008).

Weinstein, L. (2008) 'Mumbai's development Mafias: Globalization, Organized Crime and Land Development'. *International Journal of Urban and Regional Research*, 32:1, 22-39.

Worldwatch Institute (2007) *State of the World: Our Urban Future.* Earthscan: London.

Zerah, M., (2000) *Water: Unreliable Supply in Delhi.* Manohar, Delhi.

---

[i] The number is likely to be higher, but data on urban informal populations is unreliable and often deliberately not gathered by states who would rather not formally acknowledge their presence

[ii] Commenting on the informal dominance of councillors over the SAP based on research on the scheme in different Indian cities, De Wit (2010, 775) argues: "It [the SAP] fails in a general way to achieve its objective of cleaner slums plus increased mobilisation for awareness and self-help. In fact, it would be cheaper and more honest (not raising expectations as regards awareness and empowerment) to simply employ more municipal sweepers to enter the SAP slums to bring together the solid waste at collection points".