

Intimate Infrastructures: The rubrics of gendered safety and urban violence in India

Introduction

At a participatory workshop designed to invoke discussions on Violence Against Women (VAW) and access to infrastructure among women living in NTL Colony¹, a low-income neighbourhood in Thiruvananthapuram, Kerala we asked what was the biggest challenge in their daily lives. The women unanimously responded: “drainage.” “Drainage” is a rare English word in the women’s Malayalam lexicon, used colloquially to refer to continuing problems of waste and sewage infrastructure in their neighbourhood. This was counter-intuitive since it appeared to be prioritised above regular experiences of domestic violence, widespread substance abuse among men and boys in the community and within households, or harassment in public spaces and lack of mobility in the city. The banalities of dealing with malfunctioning sewage systems – the most basic of urban infrastructures – were seen as the most immediate challenge in the everyday lives of women in NTL Colony. Such issues directly and primarily affect women, as captured in the explanation by one of the working women in the neighbourhood.

“We are the ones facing these problems in the home while men go outside, are away from home for work or enjoy themselves or go drinking.”

¹ Name changed to protect anonymity of research constituents in line with research ethics protocols.



Photo credit: [redacted]. Thiruvananthapuram, Kerala. 2018

In this counterintuitive moment we see first, that challenges of access to physical infrastructures are considered more pressing than commonly accepted forms of Violence Against Women (VAW) ; and second, that everyday infrastructures of sewage, water and so on, and gendered violence are mutually constitutive in low-income settlements. Material infrastructures are inherently connected and constituted by the social infrastructures, power relations and subjectivities of everyday life in NTL colony. While the presence of material infrastructures do not eliminate Violence Against Women (VAW), their absence, such lack of private toilets, can heighten risks of VAW in public spaces (Datta, 2016a; Beebeejaun, 2017). The workshop participants thus highlighted the lack of ‘drainage’ as a primary site of violence that unfolds on their very doorsteps. Malfunctioning drainage systems add to the direct burdens of unpaid labour for women; enact bodily harm through risks of disease both

to women forced to clean up accumulated waste and children playing in the neighbourhood gullies where drainage is blocked. This pressing burden also makes them downplay, excuse and often even laugh off the everyday domestic violence they face from husbands and fathers, and sons. Violence Against Women (VAW) or domestic violence is usually normalised and attributed to male peer pressure, substance abuse and lack of paid employment. On the other hand, burdens of infrastructural failure are explicitly gendered and borne without support from either the state or household, and therefore are also experienced in deeply intimate ways.

In this paper we seek to illustrate how infrastructures can become structures, spaces and nodes of intimate violence. Following Wilson's (2016) call to connect the "rubrics" of infrastructure and intimacy, we take an expanded notion of infrastructure as a relational, intersectional and social process (Star, 1999; Simone, 2004), constituting and constituted by gender-based relations of power and violence. In doing so, we engender the 'infrastructural turn' in critical geography, expanding the scope of literatures on gendered bodies and physical infrastructures (Truelove, 2011; Sabhlok, 2017) to focus on gendered violence in cities. Developing Rogers and O'Neill's definition of 'infrastructure violence' as continuous "processes of marginalisation, discrimination and exclusion" through and sustained by infrastructure, either passively or intentionally (2012: 401), we propose that a) lack of access to infrastructure itself constitutes passive intimate violence in relational, structural, material and bodily terms and b) that these forms of violence are directly enabled and exacerbated through multiple scales, forms, sites and temporalities of infrastructural absence or failure. This means we draw together debates on 'infrastructural violence' that are often located in geopolitical and ecological conflicts, disaster and crisis contexts (Rogers and O'Neill, 2012; Gupte and El Shafie, 2016; Appel, 2018), and entwined with the structural violence of neoliberal urbanisation (Graham and Marvin, 2001; Kern and Mullings, 2013) towards the

intimate scale of corporeality. On the other hand, we also extend debates in feminist critical geography that challenge binary constructions of gender-based violence as intimate/structural, public/domestic, political/private, spectacular/everyday (Sweet and Ortiz Escalanate, 2010, 2015; Datta, 2012; Pain, 2014a) (Katz, 2006; Brickell, 2008). In this way we move beyond mere claims of ‘blurring’ the “boundaries between the body and the city” (Gandy, 2005: 33) and integrate structural and slow forms of gendered violence that are currently muted in feminist accounts of urban violence (Whitzman, 2007; Sweet and Ortiz Escalanate, 2010) into the intimate domain to understand infrastructural violence as a continuum between the physical (and digital/social) terrain of the body and the spaces that ‘service’ its everyday corporeal needs. This ‘infrastructural violence’ is experienced in intimate ways by women in low-income neighbourhoods. Infrastructure spatialises not only structural violence, but an intimate and corporeal experience of this violence from the city to the household.

Taking a gendered approach to urban infrastructure has predominantly centred on recognising gender in urban planning and design (Fenster, 2005; Sweet and Ortiz Escalanate, 2015; Beebejaun, 2017)O’Flanagan, 2018). However, while material interventions are vital for addressing the continuum of violence from domestic spaces to public spaces of the city at large, merely addressing the absence of physical infrastructures will not address the structural and social contexts of violence (Datta, 2016). We argue that infrastructural violence is also temporal as well as spatial. The gendered paucity of time (Arora, 2015; Elson, 2017), particularly among women in low-income neighbourhoods is further shaped by infrastructure. Absence or poor quality of infrastructure – public transport, drainage, public toilets and so on, puts direct pressure on women’s time that need to be divided between productive and reproductive work in the city and at home. This is compounded by diverse range of intimate gendered violence (harassment, assault, abuse) that they face during the use of and access to

infrastructure. Mobilising the feminist impetus to analyse intimacy as a domain of power (Berlant, 1998; Pratt and Rosner, 2012), we will overturn conventional hierarchies of violence along public and private divides and instead identify intimacy as a relationship of violence that cuts across infrastructural spaces from the domestic to the urban. We contend that gender power relations are reified, shaped, embodied and embedded within the most mundane of urban infrastructures (Star, 1999; (Larkin, 2013a).

By focusing on intimate infrastructures that wield violence in corporeal, structural and symbolic ways, we develop Wilson’s conception of infrastructure as “the concrete force of abstract power” (Wilson, 2016). We argue that infrastructure in urban India is a form of power that is differentiated along intersectional lines of gender, caste, class and other social markers (Devika, 2016) and experienced in affective and emotional ways that are highly subjective. The entanglements between assemblages of physical (transport, water, sanitation, waste) and digital infrastructures (mobile phones and sim cards, satellites and mobile phone towers, broadband and fibre-optic cables, network connectivity) and people (social tactics in place of adequate infrastructures; power relationships between individuals, communities and their social networks) highlight how infrastructures are mutually constitutive of intimate relationships within the home and family, as well as with the city. This moves the debates much beyond the recent ‘infrastructural turn’ as we suggest in the following section.

The ‘infrastructural turn’ in urban violence

The role of infrastructure in debates around urban violence is understood largely in terms of physical systems and the spectacular violence that bring them down. Urban warfare wrought through war machines to destroy infrastructure in order to render the ‘enemy’ ineffective continue to define the relationship between cities, infrastructure and violence (Gregory, 2011; Schwenkel, Christina, 2018). This is also upheld in work on urban riots and scholarship on public disorder that examine that ‘hyperlocal’ violence as those enacted in

‘ungovernable’ spaces ie. those without legitimate institutions and legal frameworks. This is seen as a result of state-imposed differentiations in the distribution of resources and organisation of infrastructures in the city (Gupte 2017). The “increasingly urban geography of violence” as observed in the work of Gupte (2016; 2017) and colleagues focusing on urban conflict (Buhaug & Urdal, 2013; Rodgers, 2015; Raleigh, 2015), has shifted the terrain of state-led violence from a unitary and centrally located state to a multiscalar notion of violence that plays out in pluralist and ‘hyperlocal’ scales within and through cities.

It is now widely accepted that disconnectedness or breakdown of infrastructure systems such as water, sanitation and health; waste management, sewage and toilet access (Fredericks, 2014; McFarlane & Silver, 2017; Truelove, 2011) in the global south is a form of ‘structural violence’ extending colonial legacies of violent infrastructure development (Larkin, 2013b; Anand *et al.*, 2018). We invoke the lexicon of contemporary articulations of ‘infrastructural violence’ to first, conceptually harness the structural and cyclical violence enacted by denial of everyday urban infrastructures and second, to unpack forms of symbolic and intimate violence evoked by this denial. We argue that differentiated access for urban citizens and risks of direct violence are enacted by lack of vital infrastructures such as sanitation systems or transport connectivity, and that this ‘warfare’ of infrastructure in wielding urban exclusions and discriminations through selective targeting of infrastructural configurations can incur or enact violence (Graham, 2006). As Easterling (2016) notes, ‘infrastructure space’ can enact power as a covert set of diverse operations or ‘formulae’ for the planning, design and operations of city systems. This extends from urban trading zones that operate outside of state regulations to wider geopolitical spaces of submarine telecommunication systems that geographically differentiate the quality of access to the internet. In this way, urban infrastructures configure global capital, state interests and processes of development (Ferguson, 2010) and structure everyday urban life through

differential access that privilege certain urban inhabitants and exclude others (Rodgers & O’Neil, 2012).

In this paper, we move beyond a framing of spectacular (state orchestrated or geopolitical) urban violence to a notion of ‘infrastructural violence’ (Rodgers & O’Neil, 2012) that conceptualises all infrastructures as inherently ‘geographically uneven’ (Harvey, 2015), resonating with what Graham and Marvin have noted as ‘premium networked spaces’ (Graham and Marvin, 2001). We extend this notion of violence to analyse how those without access to urban infrastructures see infrastructural failure as a form of intimate gendered violence. Here we follow Graham and MacFarlane’s argument of ‘infrastructural lives’ (Graham and McFarlane, 2015) suggesting that there is a need to examine how people relate to, experience and negotiate infrastructural spaces and how that shapes their everyday constructions of subjecthood in the city. This is also noted by Amin (2014) as ‘lively infrastructure’ where ‘infrastructures – visible and invisible – are deeply implicated in not only the making and unmaking of individual lives, but also in the experience of community, solidarity and struggle for recognition’. In the absence of state infrastructure, people strategically engage in improvised, entrepreneurial and strategic transactions to “generate concrete acts and contexts” (Simone 2004: 419). We argue that an intimate sociality is embedded within infrastructures – people improvise, exhibit resilience and agency, articulate affect and emotion – through and with infrastructure (Simone, 2004; Sabhlok, 2017; Schwenkel, Christina, 2018) and therefore lack of access to urban infrastructures creates increased precarity that is both material and affective.

While much of the research on everyday infrastructures focuses on a rich analysis of everyday life and rights claims that can be labelled as forms of ‘infrastructural citizenship’ (Lemanski, 2018), they remain largely gender-blind. Indeed, none of the existing literature explicitly frames everyday infrastructures through the lens of gendered violence – whether

social, material, affective or symbolic. Infrastructural violence however, permeates every aspect of life for women in low-income urban neighbourhoods (Datta, 2012, 2016a, 2016b), and remains conceptually isolated in the literature on infrastructures and largely absent in discussions on infrastructure. We develop these ideas to take on a gendered perspective towards infrastructural violence in its direct and indirect forms. We expand the notion of everyday infrastructure itself as an embodiment and driver of violence against women in low-income settlements, and other intersectionally disadvantaged citizens.

We further conceptualise this gendered infrastructural violence as ‘slow violence’ (Nixon, 2011) – ‘a violence that occurs gradually and out of sight, a violence of delayed destruction that is dispersed across time and space, an attritional violence that is typically not viewed as violence at all.’ ‘Slow violence’ gives credence to the gradual but continual pace of threats, risk factors and barriers that women can face, offering an original take on erosive and pervasive impacts of continued exclusion from basic social or physical infrastructures (Appel, 2018) or digital innovations designed to address these gaps. This violence need not always be “observable, its stakeholders identifiable, and its functions variable” (Rodgers and O’Neill, 2012, p. 402). But paying heed to slow violence enables us to see infrastructures as everyday spaces where banal and mundane practices to sustain power over the gendered body are tied to the symbolic and material practices of infrastructural violence.

Thus, we develop ways of seeing infrastructure as passive or active forms of gender-based violence enacted through the denial of infrastructural access over time and across space, such as lack of accessible water sources (Truelove, 2016; Gandy, 2006; Ferguson, 2010) or blocked drains. Infrastructures reinforce intimate relationships of power within the household, and shapes how women and marginalised social groups simultaneously construct intimacy and violence from the home to the city.

Intimate infrastructures from the home to the city

We locate ‘intimate infrastructures’ in spaces where the violence of an exclusionary city is woven into its intimate material and social conditions, and where this violence is also domesticated and rendered into the affective and emotional realms of the body and its domestic power relationships. By expanding the horizons of infrastructural violence to include the intimate relationships of power within the family and community, we propose a framework of ‘intimate infrastructures’ to analyse how intimate violence is entangled with the geographies of urban infrastructure. We understand active forms of infrastructural violence (Rodgers and O’Neil, 2012) that are gendered and take place across wider scales of surveillance and monitoring to the “intimate scale” (Datta, 2016b) of the home and family. We analyse intimate relations of power and violence in, and through, infrastructure, incorporating physical and digital infrastructures that have been given policy credence in India’s ‘smart urban age’ (Datta, 2019a). These relations of violence are channelled and mediated in the context of disconnected infrastructures such as poorly-lit streets or lack of safe transport and mapped in ways that the city is planned and prioritised (Rodgers and O’Neill, 2012; Amin, 2014; Sweet and Ortiz Escalanate, 2015; Easterling, 2016; Beebejaun, 2017), Flanagan, 2019).

The multiple scales and temporalities of gender-based violence illustrated in the conceptual diagram above develops recent feminist critical geography research (Datta, 2012; Pain, 2014a), Brickell, 2008) – unpinning normative hierarchies of violence to map the multiple scales from global policies to household spaces as reciprocal and interlinked. It follows on Pain’s (2014) argument against the false binary drawn between everyday violence against women such as domestic violence, often dismissed as “private, apolitical and mundane” (534) and ‘spectacular’ forms of violence conventionally regarded as terrorism. While Pain does not directly address infrastructural violence the larger affective capacities of this infrastructural

violence is a rubric that we argue is also a form of domestic violence and violence against women.

While it is acknowledged that all violence is inherently gendered (Hume, 2009), the gendered specificities of structural, symbolic and direct violence in urban settings and its connections to the intimate scale remains little understood. As Wilson (2015, p. 248) notes, ‘Understanding how infrastructures enable or hinder intimacy is a conduit to understanding the concrete force of abstract fields of power by allowing us to identify actually existing systems rather than a priori structures’. As a system of gendered power at several scales, Violence Against Women in India is mainly understood through time-bound incidents and ‘shock’ events, but this approach fails to acknowledge the long-term impacts on affective, corporeal and intimate lives of those at the receiving end – that can also be understood as slow violence. Gendered infrastructural violence is temporally and spatially modulated – the absence or disconnectedness of infrastructure can reinforce the proclivity to violence. For example, lack of drainage for our participants translated as a form of intimate violence for women participants since they come under increased health risks and well as increased domestic burden of cleaning up accumulated waste. Similarly, the risk of increased violence without public toilets or the fear of violence while waiting for public transport at night, can exacerbate existing gendered exclusions from the public life of cities.

Intimate infrastructures can be examined through the entanglements between structural and intimate forms of power across multiple scales. This means as Wilson (2015, p. 247) argues ‘tracing circuits of how pipes and cables embed intimate relations in unpredictable junctures of material and symbolic power.’ In making this argument, we have two objectives. First, this problematises normative conceptions of the home as a place of safety against urban violence. In doing so it brings to light the spatial restrictions and time-burdens for women inside the home that are hidden from public understandings of urban violence (Warrington,

2001; Meth, 2003; Datta, 2012). Second, it also problematises infrastructure-based solutions (such as provision of private toilets) that assume its lack to be a source of violence (Datta, 2016a). We suggest instead that infrastructures are invisible – relegated to the “forgotten, the background, the frozen in place” (Star, 1999: 379) – except for those who are denied infrastructure. Thus while the presence of infrastructures might not reduce violence, its absence or disconnecteness certainly increases the risks of intimate and gendered violence. Making visible how infrastructures become entwined with the intimate means considering how violence maintains a continuum from the household through to the public realm. Finally this enables us to challenge the hierarchy of state priorities on violence that are scaled to imply “judgements of magnitude and importance” (Paine, 2014: 544) with terror and conflict relegated to the top of the list.

Methodology

This paper is part of an international research project on ‘Disconnected Infrastructures and Violence Against Women’ across two cities in Kerala, India. This research was supported by a local partner NGO, a well-established feminist advocacy group based in Thiruvananthapuram, as well as a Delhi based NGO focusing specifically on safe cities for women. The objectives of the project was to examine how violence against women were linked to infrastructural disconnectedness or absence from the home to the city. It aimed to also examine the role of technology in understanding and addressing this violence in the context of a turn towards the ‘smart safe city’ (Datta, 2019b). The methodology was multiscalar. At the city level, it involved conducting interviews with policymakers and town planners creating and implementing smart safe city initiatives and collecting visual data on urban infrastructure via GPS software for safety scoring; at the neighbourhood level, we conducted a series of transect walks, participatory mapping and digital capacity building workshops; and at the household level, we conducted in-depth interviews and mental mapping with women across diverse age

groups (20s through to 60s).

This paper is based on the fieldwork in NTL Colony – a resettlement colony within a ward located south of the city centre of Thiruvananthapuram, the capital of the regional state of Kerala. At the time of fieldwork, the ward was run by the ruling Bharatiya Janata Party (BJP) – which often clashed with the political alignments of several residents who were members of the local Communist Party of India (Marxist). An assortment of political symbols of major national and Keralan parties on flags, graffiti and signboards mark the neighbourhood streets, community centres, households and basic infrastructures such as electricity pole, representing both the sociality embedded within material infrastructures and the chaotic and potentially confusing lines of accountability observed for infrastructural deficits in the neighbourhood.

NTL Colony consists of approximately 325 households - a combination of *pukka*, semi-*pukka* and *kacha*² houses predominantly owned/occupied by Hindu households (the neighbourhood is located next to a significant temple) and a small minority of Christian households. While there is little in the way of available official documentation regarding its origins, according to local stakeholders (including town planning bureaucrats) and resident interviews, we established that the neighbourhood originated in the 1970s as a resettlement colony for Dalits (so called ‘untouchable’ castes) developed by the municipal government. However, over time, new households belonging to different, historically more privileged caste groups, have encroached the settlement. As one resident and self-styled community leader, Radhika (name changed), a 34-year-old woman who refers to herself as a “social activist without politics” said, “now, there are at least one family from each caste in this colony.” We

² In India, ‘kacha’ (literally ‘unripe’ in Hindi) housing refers to housing made of temporary, low-cost materials, versus ‘pukka’ (ripe) housing which refers to housing constructed of robust, permanent materials.

interviewed Radhika and 16 other women in NTL colony over four months in 2018. These women were either engaged in unwaged and/or waged labour; most were married but some were also separated / divorced or widowed.

The original colony resonated with a familiar story of resettlement in India's urban history. They were provided unserviced plots at subsidised rates with no connections to urban basic services such as water, sewage, sanitation or energy. After three decades, the neighbourhood still has varying access to private piped water supply, public water taps or drainage. It is located by a public pond, established in the pre-colonial era according to local residents, which is now the site of male loitering and therefore considered unsafe for women. The local municipality has also established a library, an *anganwadi* (childcare centre) and two community centres; however, according to the residents they have become sites of antisocial behaviour or lie unused. On the outskirts of the neighbourhood lies an unused bio-gas plant which was supposed to make the community self-sustainable in terms of energy, but as other infrastructures, this is also not maintained and therefore unused.

The fieldwork was a multi-layered undertaking – having to navigate language – and cultural - barriers (see: (Devika, 2008) as well as working with local partners in a multi-partner international project context. As a Overseas Development Assistance (ODA) funded project we were also required to produce transformative changes, for which we had to work closely with local partners. This often brought in divergent demands from different project team members – where we had to negotiate between academic, research and development outcomes expected from this project. Facilitating the fieldwork by a South Asian diasporic research associate and Principal Investigator (the latter two unable to speak Malayalam), was a complex task that intersected in nuanced gendered, classed (including caste and religion) relations – engagement with which is essential in ethnographic work (Devika, 2008; Nagar, 2003). We were fortunate to be supported by a local Malayalam speaking research assistant, a

PhD student who while familiar with the cultural contexts but as an economics student was somewhat unfamiliar with the qualitative approach of the project. Given this challenge we had to prepare detailed interview schedules and toolkits which we shared with our partners in Kerala who were supervising the research assistant, as well as have regular skype meetings with her as she navigated the gatekeepers and conducted interviews with the participants. In some contexts, these identities privileged us and in others we had to work hard to communicate the purpose of the research to the research partners and participants. Our local research assistant, who grew up in Thiruvananthapuram and visited the site on a daily basis, was often invited to family and social functions and referred to as ‘daughter’ by the community. This enabled an enriched and multi-faceted engagement with the community through a variety of relational markers. Yet at the same time, being separated by distance, language and context, our UK research team could not respond to some of the pressing demands of the participants which were part of our overseas development commitments. This became particularly apparent during the Kerala floods in the autumn of 2018 when our participants’ homes were flooded and our research partners engaged in the widespread relief efforts. Although the academic community in the UK collected funds to assist the relief efforts, as a project team we were largely reliant on our partners to assist our participants. The floods delayed the timelines on the project since we had to be sensitive to participants’ emotional and material conditions in the aftermath of the floods. The findings in this paper therefore has to be understood in the context of the huge impact of the floods and therefore the significance of drainage that emerged in all the conversations and workshops thereafter.

Urbanising the ‘Kerala Paradox’

Since the Nirbhaya sexual assault case in Delhi in 2012, public narratives around safe cities and Violence Against Women in urban India have largely focussed on the north of the country. Yet Kerala is a complex state in terms of gender rights and crimes against women.

The term ‘Kerala paradox’ was coined in the 1970s to describe the confounding gap between state’s low levels of economic development with high levels of social development indicated by a robust public health system, uniquely high female literacy, life expectancy, maternal health and even in terms of presence - it is the only state in India with a higher proportion of women in their population (Ramachandran, 1997; Mithra & Singh, 2007; Devika, 2016). Statistical data based on reported crimes against women show that the VAW is widespread across Indian states (NCRB, 2016), among the highest of which is the southern state of Kerala – where our research in NTL Colony is based (Mitra and Singh, 2007; George, 2011).

A contemporary “gender paradox” (Mitra and Singh, 2007) recurs in Kerala across multiple contexts – from violence and entrenched patriarchal norms, to low labour participation and restricted political representation despite high indicators for literacy, demographics and ‘gender-sensitive’ public spending (Devika, 2006, 2014; Williams *et al.*, 2015). This paradox emerges in the transformation of matrilineal traditions in parts of Kerala’s population towards more traditional forms of “colonial-postcolonial patriarchal norms” (George, 2011: 304). It becomes particularly significant in the context of Kerala’s favourable female population ratio and widespread political mobilisation among women in low-income contexts with limited access to a range of citizenship rights – including access to functioning infrastructures, substantive political representation and labour rights and opportunities (Mitra and Singh, 2007; George, 2011; Devika, 2016). Yet despite placing a women’s collective – Kudambasree³ - as the main implementing authority of infrastructure for the urban poor, the programmes have not been able to deliver on participatory objectives

³ Kudambasree is the nodal agency established in 1998 to take a woman-centred approach under Kerala state’s poverty eradication mission and are given the lead on implementing urban housing and poverty programmes in Thiruvananthapuram.

and gender inclusion (Williams *et al.*, 2015, 2018). Studies suggest high rates of violent crime against women including domestic violence, dowry deaths, physical and emotional abuse, and sexual harassment spanning private and public space (Panda, 2004; George, 2011). The implementation of ‘Pink Police’ – an all-female police force have yet to curb crimes against women.

The Kerala paradox is urbanised in the high rate of Violence Against Women present in informal urban settlements where mobility and economic empowerment is limited by lack of infrastructure; male unemployment is high and alcohol abuse – often attributed as the cause of rising violence – is rampant (George, 2011; Devika, 2016). Political mobilisation around infrastructure deficits – mostly in the form of community petition and municipal visits – is routine and familiar in the lives of women in NTL Colony. These “domestic publics” (Gupta, 2018) where affected communities gather to demand everyday public resources, nevertheless fail to access direct routes to citizenship accountability. A detailed account of the opportunities and limits of political feminist mobilisation through multiple types of material, bureaucratic and social infrastructures in the municipality of Thiruvananthapuram that speaks to Kerala’s broader historical context goes beyond the theoretical scope of this paper. However the accounts of intimate infrastructures in this paper illustrate histories of “slow” infrastructural violence that spans generations, despite the same community members frequently visiting the local municipality and engaging in political protests from time to time.

The Kerala paradox is further urbanised in a context where Thiruvananthapuram was nominated under the national 100 smart cities programme whereby a series of technological ‘fixes’ were planned to address safety concerns directed at Violence Against Women (VAW). These included introducing wifi hotspot facilities in bus stops, upgradation of public toilets, installing water ATMs, creating a ‘safety corridor’ between two women’s colleges in the city centre that would be fitted with CCTV cameras, rest stops and public toilets; and last-mile

connectivity using e-rickshaws, bike sharing pods and taxi stands. These have largely been ineffective – first, because most of these are not maintained even if some rudimentary implementation has taken place. Second, the scale of these interventions (eg safety corridor) is too small to make a difference in the everyday lives of women in low-income colonies who live in the margins and do not move between women’s colleges. Finally, in the context of smart cities, digitalisation is seen as a fix for infrastructural activities ie. travelling to work, returning home safely, lodging a complaint to the municipality, finding healthcare or livelihood opportunities and maintaining social ties. In order to be transformative, the smart city requires its citizens to use infrastructures of communication such as smartphones and mobile internet. However, resources to purchase appropriate phones or the capacity to use these are largely absent among those living in peripheries and intersectionally disadvantaged such as the women of NTL colony. Women in the city thus face multiple infrastructural exclusions that persist despite Kerala state’s commitment to gender equality, infrastructure upgrading and participatory planning.

Intimate infrastructures of the body

The history of NTL Colony has been marked by a ‘slow violence’ (Nixon, 2011) of accumulating waste with each generation. When the colony was set up, there were no drainage facilities, therefore each household built ad-hoc drainage systems from their homes to the streets. As a result they face regular blocked drains and accumulated waste that swell and ebb each year with the floods and droughts. In particular the incessant rains and floods during the 2018 monsoons brought to light the precarious and disconnected nature of the infrastructures that participants endure on a daily and seasonal basis and the inherent violence that this endurance entails.

Infrastructural breakdowns revealed the intergenerational persistence of poor sanitation infrastructures and continued denial of state recourse or accountability. The absence of mains

sewer connections in the houses for example meant that they relied on pit latrines that swelled and overflowed during monsoons and often contaminated the water supply leading to diseases. This revealed an intimate violence in reinforcing gendered power relations; women's bodies were made vulnerable to multiple forms of health risks, infectious diseases; their lives are burdened with increased social reproduction and care duties in the face of accumulated waste and infected children alongside continued domestic violence from male partners who enforce such duties.

Even though there is sewage system here, many of the houses here do not have toilets with proper septic tanks. In many households, pits are dug to be used to dump the toilet wastes. Once the pit gets filled, they dig another pit somewhere else. It is fifth generation [living here] now... Most of the households do not have any place to dig any more pits. (Radhika, aged 34)

Typically, it is the women of the household who bear the responsibility of locating, rationing and 'digging' up space for waste disposal, extending spatially the intimate household domain and temporally the amount of labour, exposing them to risks of corporeal violence, and constituting structural and symbolic violence. The role of infrastructures is highlighted here in its reinforcement of gendered power hierarchies in the intimate scale (Datta, 2016; Sabhlok, 2017; Truelove, 2011).

We live atop all this garbage. At night, snakes come, millipedes come, worms come. We haven't cleaned the drains. When we do, so many drain worms come out of it. This is the living condition, water gets stagnated in the drain, one doesn't get sleep at night, there are snakes that sneak in and stay here and there. Even if we go to the toilet, this is the situation. (Kamala, 50s)

Here, material infrastructures constitute the underlying structure of Kamala's and her neighbours' houses and streets, drawing in violence that is at once structural, symbolic, and immediate and intimate. Even subterranean infrastructures (such as pipes and drains) become visible for low-income communities through their attendant parasites. This viscerality marking the "developed from the undeveloped" (Wilson, 2016: 271) spaces within the city. A continuum (rather than hierarchy) of violence plays out from the structural to the intimate, across temporal (both continual and sporadic) and spatial (confined and mobile) scales (Pain, 2014; Davies, 2018). Other infrastructures such as household toilets wield intimately violent impacts, not only in their material absence or in inadequacy within NTL Colony but in social ways, such as rupturing gendered norms and barriers regulating intimacy such as privacy, menstrual health, shame and propriety (Wilson, 2016; Gershenson & Penner 2009; Jewitt & Ryley, 2014). The embedded patriarchal norms which reinforce these infrastructural 'deficits' are nonetheless internalised by participants as gendered 'burdens' to endured through sacrifice.

Here, all women go to work normally, men are unemployed, it is the women who give them money for food and to use drugs as well, some of them go and suicide, but none, see if people don't sacrifice their lives, no society changes for good, but no one is willing to sacrifice their lives [...] The centre of a home is women, if they are good, then everything is good. (Renuka, community leader and tutor, 34)

Burden and "sacrifice" are ascribed to accepted gender norms as much as it is to infrastructure. While infrastructures can often feel like a burden, participants also note that their gendered role is in making a sacrifice. Such norms are dichotomised between exigencies to mobilise beyond the home to engage in paid labour to sustain families, and the firm emplacement of women at the core of social reproduction labour within the home. This is another scale of the Kerala paradox, where women are both the active economic agents in the home but remain spatially and socially confined and restricted within the household domain because of their social and infrastructural burdens.

Sexual assault and varied forms of gendered violence unfold beyond the slow and intimate infrastructural violence of swelling and overflowing drainage systems. The affective and corporeal nature of broken infrastructures are directly experienced when a faulty door lock or an opening in a wall provide points of entry for male intruders. Narratives of intimate violence experienced by women in the neighbourhood are frequently based on such encounters where physical barriers are breached. Yet for participants, its normalisation and routine trivialisation is marked by laughing it off. When asked about public safety, harassment – from verbal to physical - and other forms of structural violence (from police, for example) participants referred to these as ordinary occurrences, hardly deserving of note or attention. They seemed surprised that we had several questions around domestic and physical violence in the home – something that they deemed as ordinary and regular feature of their domestic life. Sarina, a woman in her early 60s, Sarina, who helped to run her family's roadside food stall attributed domestic violence solely to alcohol abuse rather than to a pattern of gendered misogyny and ruthless power.

See, they are mostly drunk, and they [men of the household] come and ask, 'Why haven't you bathed the children, or didn't you wash clothes, why are you with friends even after I come back.' When they say some things and there are differences, small fights break out - then the woman shouts back too, she answers back saying 'I was talking to my friends, you have friends whom you drink with, why can't I have them?' Then these men get provoked here.

[...] What is inside them, and the thing inside their bodies is different right? It's alcohol.

The regulation of gendered household and care duties – including that of managing waste accumulation – is enforced through domestic violence, even in the face of verbal resistance from our participants. Simultaneously, though gendered power relations are questioned, critiqued and resisted, the widespread abuse of alcohol (and illicit substances

among younger men) are often publicly sanctioned⁴ as ‘normal’ male behaviour in NTL colony. Substance abuse is perceived as an intimate invasion of male bodies that render them incapable of making a judgement on moral or ethical grounds. This locates intimate violence not in gender power relations, rather in substances literally – ‘inside their bodies’. The elision of private and public gendered space is represented in the domestic impacts of publicly sanctioned substance abuse, prevalent not only in NTL Colony but across low-income communities in Kerala (Devika, 2016). Alcohol abuse in particular is seen as the responsibility of the state, rather than the individuals perpetrating violence in homes and in public spaces. As Beena, in her mid-40s went on to provide more detail on the influence of male alcohol consumption on households and in specific neighbourhood locations.

Alcohol is the biggest problem- at home, in society, in public places, be it any issues, it's the first problem, the government should take initiative [...] Near the library- there is alcohol problem, they hide and drink in these places- basically the biggest problem is alcohol.

...there is a community hall, it lies deserted as no activities take place there, even though it was built thinking it will be active, it remains shut. There boys who take marijuana or arrack [moonshine] assembles and drinks.” (Vaneetha, 40, cleaner in a hostel)

Although the link between alcohol abuse and domestic violence has been well-evidenced in the literature (WHO, 2006; Jayne and Valentine, 2016), Beena’s narrative highlights that this linkage is not only confined to domestic abuse but spills onto public spaces in the neighbourhood and subsequently the city. Alcohol abuse affects each male generation in specific ways according to the participants – fuelling domestic violence perpetrated by older men, and when combined with a cocktail of pharmaceutical drugs, fuelling public performances of sexual aggression, assault and stalking among local unemployed youth.

⁴ The state of Kerala has shifted between the prohibition, regulation and licencing of alcohol sales, distribution and consumption in the past two decades.

The bigger problem is that these boys do not do any work. They sit around doing nothing, with other young boys, and that spoils them as well. They tell them the wrong things, make them do drugs. I heard that there are some injections available for that nowadays [referring to intravenous drug use]. (Sanjana, community activist, employed in a hospital canteen, mid-40s)

Municipal infrastructures such as the library, the community hall, the public pond and other community spaces in the neighbourhood are gendered by the presence of men across all ages, engaged in illicit and antisocial behaviours, namely alcohol or substance abuse. In the participant narratives, the very areas where local infrastructures and resources are located in the neighbourhood, are claimed by men and rendered ‘unsafe’ or inaccessible for women. These infrastructural spaces are therefore sites of intimate violence and experienced as extensions of the domestic violence they experience from fathers, husbands, sons and male in-laws at home. A phenomenon of drug use is described as affecting the youth of the neighbourhood – attributed to the influence of local politics, the influence of digital technology or as disenfranchisement ascribed to male youth groups. In this way, both domestic and public infrastructures become intimate in their relationality with male social behaviours that emanate from the home, and by extension, the threat of gendered violence to women’s bodies from the home to the city.

Intimate infrastructures of the city

Urban infrastructures remain consistently gendered and differentiated in state-provisioned services, as they are in the urban peripheries and neighbourhoods such as NTL Colony. These intimate experiences of violence are differently assembled in the city – mainly through the location of street lighting, public transport, public toilets and the temporality of gendered presence. Verbal, sexual and structural forms of violence are enabled and embodied in infrastructures of mobility – such as public transport or walkpaths where they are continually affronted by sexual harassment or assault. This produces an enhanced fear for

their own safety as well as anxiety is staying outdoors after dark, particularly in the context of poor lighting and lack of police surveillance. These intimate experiences of public infrastructures reinforces the notion of violence as analogous to the everyday regulation of women's bodies through temporalities and spatialities of access, connectivity and safety in the city.

Women's toilets would be in such isolated corners in the city that on the way to it, one can get harassed. In other places, the toilets are right in front of the bus stops [where there are men standing] and so on. Women have this problem of hesitating to go inside the toilet when there are men. [...] There is no light on the way to toilets, and they hesitate to go. This will lead to health problems, there is no need for all this. It is the most natural thing in a human, everyone knows that a woman needs to pass urine in so many hours - so why hide it in some corner then? (Deena, 34 years unmarried community activist and dressmaker)

The absence or inadequacy of public toilets for women is an intimate form of violence experienced throughout the city. In public spaces, such as the bus stations that Deena describes, toilets become inaccessible to women and girls due to their isolation and infrastructural inadequacies (cleanliness, lack of lighting, lockable door, running water). This too is a form of slow violence, where women who have to go to work in the city increasingly find themselves waiting for hours before using safe toilets and running risks of urinary tract infections, and other related diseases. Over time, participants note that working women contract infectious and water-borne diseases in the city. Restrictions on the mobility, health, bodies and rights of women, perpetuated through internalised patriarchies do not always have immediate markers of spectacular urban violence such as sexual assault. Yet over time, the accretionary nature of everyday micro-violences produce wider and long-term gendered exclusion from the public life of the city.

Deena's narrative also highlights the faultlines in the normative urban planning ideas of public safety as citizen surveillance through 'eyes on the street' (Jacobs, 1961). Designing for

public safety has relied upon practices of placemaking that construct crowded public spaces as safe, and inversely deserted spaces with ‘unsafety’ and risk. Participants suggest that such simple connections are deeply problematic since crowded public spaces are often largely defined by male presence, particularly in confined areas such as public buses. These findings further trouble notions of ‘crowded’ spaces as inherently safe (Whitzman, 2007).

When we enter the bus, the men, including young men the age of our sons come and stand near us. Initially I keep quiet because there is not much space and I do not want to make an issue. But they keep inching closer, and then they feel us up from behind, that's when I get angry...because they behave in this dirty way. [...] When I stare at them, they behave as if they do not know anything and move away a bit. After that, they move close again and repeat the same behaviour. [...]But when I protest, the other women and people in the bus give us condescending looks. (Sanjana)

Bodies are jostled, shoved, grabbed, pulled in public spaces – both within and while waiting for public transportation, reinforced by societal gendered norms of feminine passivity and pacificism. Yes while the absence of infrastructure was seen as intimate violence, even in the presence of infrastructural services such as street infrastructure, the presence of men turned this into an unsafe space. As Deena noted, “Light? There is light installed very recently. But the men are more comfortable drinking under the light.” Similarly while the lack of police presence was seen as a problem, particularly in the post-Nirbhaya context (Datta, 2018; Vishwanath and Basu, 2015), policing infrastructures themselves, including the Kerala state ‘Pink Police’ programme, are seen as redundant and disconnected from intimate lived experiences of the women.

*There are separate police for women alone, [...] There are so many issues created by the Pink Police, that is a different thing altogether. They unnecessarily harass girls at schools - they stand near M*** school, many Pink Police, if you just turn and look, they would immediately get involved, they would get inside the school and create problem, unnecessary issues, they too need awareness.” (Deena)*

... if the husband comes home drunk and the wife gets angry, then fights break out and, the wife gets angry and call the Pink Police. Then they come and say, 'you are husband and wife, it happens' (Sarina)

Even state provisions, such as the Pink Police that gestured towards gender-sensitive governance, were seen as counterproductive – a sentiment articulated particularly by older women in the neighbourhood. As outlined above by Sarina, the gendered policing innovations were restricted to the mere presence of a female police force that in no way challenged or disrupted normative gendered power within the household, even going so far as to reinforce them with statements like “it happens.” As with other social issues such as rampant substance abuse, the state itself is identified as the source of intimate violence. This was particularly in the context of basic assumptions on the temporality of intimate violence made by the state. The Pink Police patrolled from 8am to 8pm each day, that were ainly daytime hours and potentially less dangerous for the women. Since most violence happened in public transport or after dark when women were retyring home, the Pink police was another example that abjured the the spatio-temporalities of intimate violence in the city.

Part of the challenge of addressing intimate violence in the city was that there was no predictability or rationality of this violence that could be addressed through mere police presence, surveillance or infrastructural ‘fixes’.

There are no particular places [of danger]. Even if you and I are, say, in the bus stop, we are all sitting as friends inside the bus stop, [...] without much distinction as girls and boys. It might be that where we [feel that we] are secure is when someone's hand might just come in. I wouldn't even be able to react. People would say I was in the wrong, even if the person [harassing me] continued what they were doing. So, even a crowded bus stop - can we say it is secure? no, one can never.”[Anu, early 20s, training to be a beautician]

Thus physical and digital infrastructures typically perceived in policy discourses as

necessary for creating ‘safe cities’⁵ (Viswanath & Basu, 2015) are rendered as powerless in safeguarding against it. Intimate violence in the city is commonplace and widespread and did not make distinctions of time-space and subjectivity, although participants noted that the possibility of its occurrence was increased after dark, or in crowded male places. Intimate experiences of infrastructures were therefore relational, and spatio-temporal, and mutually constitutive of gendered power relations in situ.

Intimate infrastructures between the digital and analogue

For women in NTL Colony, the infrastructure of communications were largely restricted to the analogue face-to-face social relationships with families, neighbours or friends. The technology of communication was limited to basic mobile phones, which were used primarily when they left home. Ownership of mobile phones were not necessarily linked to incomes, but rather to gender power. Mobile phones were often owned by male head of household or male members who would restrict their use. Households with teenage and young adults were more likely to use mobile internet and/or smartphones than those without, but they did not necessarily own these phones. While education, entertainment communication and maintaining social networks were all listed as ‘positive’ functions of mobile phones the combination of lack of access, low capacity as well as restrictions over its ownership and use constructed the phone as a morally transgressive technology. Among the women of NTL Colony, smartphones were routinely cited as a source of distraction and as morally corrupting. The older generation of women in NTL Colony constructed mobile phones as social taboo and as drivers of intimate violence that extended from the home to public infrastructures

In fact it is after the camera phone that women are subject to more

⁵ UN Safe Cities Programme: <http://www.unwomen.org/en/what-we-do/ending-violence-against-women/creating-safe-public-spaces>

[violence]’ isn’t it? People take photos, it is because it is seen as sexual, through social media, and things like that. After the arrival of the camera phone, women are not secure. Earlier women would bathe near river-, now they wouldn’t, they are scared it will come on Whatsapp (Deena)

Thus mobile phones transgressed the borders between digital and the analogue forms of intimate violence. No longer were women’s bodies simply confined to the spatio-temporalities of physical infrastructure. Indeed micro-violations of their bodies and spaces – a minor indiscretion from a neighbour, a fleeting glance through a door left ajar, a banal movement through public space could be captured, stripped of its original pixels and manipulated to create grotesque violations of their bodies and subjectivities that could find its way into the vast spaces of the internet. In other words, women participants were now not only fearful and anxious of the corporeal nature of intimate violence, with the presence of mobile phones in the hands of errant men, they were increasingly anxious of the symbolic violence of their manipulated images and videos landing up in pornographic sites.

When the woman was leaving the bus, the man took a video of the woman on her mobile, of her backside while she was walking towards the exit. (Anu)

The violation of intimate space is embodied here not only through unsafe public transport (the Kerala State bus) but further enabled through the medium of digital and surveillance technologies. According to Anu’s observation, online content can directly inform offline behaviours, thus breaking down divides across digital/analogue infrastructures across private and public spaces (Willems, 2019). These transgressions across private and public spaces enabled by the mobile phone meant that infrastructures were further rendered intimate through the spatialised and gendered narratives violence.

Conclusions

Infrastructures become intimate in ways that they regulate the violence and violation of

women's bodies from the home to the city. Public and household infrastructures are grounded in the accounts shared by women living in NTL Colony and our observations of everyday life in the neighbourhood. The narratives that emerged portray the intimate scales, sites, forms and temporalities of violence played out through and in infrastructural spaces. Gendered bodies and by extension, gendered roles and spatialities, construct the domain of household infrastructures (drainage), as the site of intimate and corporeal violence (Sweet and Ortiz Escalante, 2015). The temporality of violence wielded through broken drainage systems referenced at the outset of this paper, and their concomitant risks and instantiations of domestic, bodily and structural forms of violence is embodied in what we have suggested as 'intimate infrastructures'.

Infrastructural violence carves up time and agency of women, recalibrating their intimate lives and relations and over time it becomes a form of slow violence. Despite dominant safe city logics which are directed towards CCTV cameras, street lighting, public toilets and wifi hotspots; domestic and urban infrastructures organise and mediate gendered time and space in far more complex and unpredictable ways. This is affective, emotional and intimate in infrastructural spaces which highlight the need for more relational ways of addressing infrastructural lack or gendered safety. While infrastructures both physical and digital are the sites and mediums of intimate geographies of violence across the city, it is clear that the mere provisioning of infrastructure will not address VIOLENCE AGAINST WOMEN directly. Men dominate both public and private space and any attempts at infrastructure provisioning can be coopted or hijacked towards their interests, excluding women or making them fearful of entering these spaces. On the other hand the lack or absence of basic infrastructures affect women in intimate ways that are seen as extensions of the intimate violence they face at home or in the neighbourhood.

Seeing the city as an assemblage of 'Intimate infrastructures' thus enables us to

examine from a gendered perspective, the multi-layered nature of violence and its tenuous relationship with physical and digital infrastructures. The experience of infrastructures as intimate splinters cities, disconnects homes and neighbourhoods from the public sphere and demarcates geographies of abjection on its marginal citizens (Graham and Marvin, 2001); (Rodgers and O’Neill, 2012; Wilson, 2016); Lemanski, 2014). Intimate infrastructures are also directly the outcome and driver of the Kerala’s gender paradox – where policy budget, design and implementation of urban infrastructures are all framed by gender-sensitive intentions and rhetoric but ironically reinforce patriarchal norms across state-citizen spaces. While the ‘infrastructural turn’ (Amin, 2014) has paid necessary attention to the connections with urban conflict (Gupte, J. and El Shafie, H., 2016), military warfare (Gregory, 2011), ecological crises (Truelove, 2011) (Anand, N., Gupta, A., Appel, H., 2018), this paper shows how this violence is also pertinent in the home and neighbourhood, travels via infrastructures to spill onto the public spaces of the city. Such intimate infrastructures highlight the potential to offer a metric for analysing the everyday, mundane and ever-shifting spatial, temporal and material modes of violence enacted and embodied by infrastructure at intimate scales that has been referred to as the ‘intimate city’ (Datta, 2016). In doing so, we have built upon the scholarships on infrastructural violence and feminist geopolitics to synthesise understandings of gendered relationships to infrastructures in multiple forms. Thus we have suggested that different assemblages of infrastructure – from sanitation and drainage, to policing and surveillance, to public transport and municipal governance, to neighbourhood communities, are relational, provisional and intersectional. They constantly configure different formations of violence across a continuum from internalised, externalised, public, private, structural, affective and intimate in intersecting and expansive ways that has so far received little attention in both feminist and infrastructure studies.

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