Mapping gendered infrastructures: Critical reflections on Violence Against Women (VAW) from Thiruvananthapuram, Kerala

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Maps are all around us. They tell stories of our world that are social, political, technological and temporal. They help us understand the world through the eyes of those who produce them. Maps are therefore loaded with the power of – a) vision – how we imagine the world; b) cartography – how we see and represent the world; and c) practice – how we then act upon this. When maps exclude the visions and aspirations of women, make their spaces and times invisible, they inform policies that deny women and marginal communities a right to the city.

Fig 1.tif

This essay will illustrate the stories that maps can tell us when they are produced through critical reflection, through participatory processes involving women users of space, and through the representation of everyday spatio-temporal experiences of fear and safety in Thiruvananthapuram, Kerala. The findings are based on a British Academy funded research project titled 'Disconnected Infrastructures and Violence Against Women (VAW)'[1] which had three aims – To map physical, digital and social infrastructures to reveal 'blindspots' of VAW in the city in order to inform urban policy, design and practice; To empower women from low-income neighbourhoods by improving their knowledge of and safe access to infrastructure in the Indian city; and To generate and communicate data that effectively mediate women's right to infrastructure with the safe city. Drawing upon the broader findings, this essay will critically map the hot-spots and blind-spots of violence in the city and their connections to physical (such as public transport, lighting and toilets), digital (such as network connectivity, mobile phones and storage) and social (such as family/friends, law enforcement, institutional capacity) infrastructures in the city. It suggests that women in low-income neighbourhoods are exposed to increased violence (physical, emotional and sexual) in navigating the city if these three types of infrastructures are disconnected. Since infrastructures are gendered in their use and experience, their absence, failure or disconnectedness is a form of 'infrastructural violence'[2] – a "process of marginalisation, discrimination and exclusion that operate through and are sustained by infrastructure" which deny women the right to safely inhabit or navigate the city.

Fig 2.tif

Mapping gendered infrastructures involves a multi-scalar study of how women living in low-income settlements experienced and navigated physical, digital and social infrastructures from the home to the

city. At the scale of the city, a mobile application called Safetipin nite[3], was used to collect images taken from a moving automobile at every 50 metres across the city streets which were then coded by programmers using nine parameters – lighting, footpaths, visibility ('eyes on the street'), openness, security, access to public transport, gender diversity, density of people (crowds), and feeling of safety. These parameters were overlaid on public infrastructure data – bus stops, police stations and public toilets to produce rich GIS maps. At the scale of the low-income neighbourhood, participatory mapping exercises with the women identified infrastructure blind-spots and the spatio-temporality of violence in public spaces. This was supplemented with transect walks ie. systematic walks with project team along a defined path (such as a participant's daily journey to work), to generate in-depth knowledge of women's everyday experiences with(out) public infrastructures and in public spaces. At a household scale, the project team conducted a series of in-depth interviews and mental mapping exercises with the women to understand their daily experiences with infrastructure and VAW across public and private realms. This information was then geolocated and mapped alongside the wider city-level data above to highlight gendered infrastructures and VAW in Thiruvananthapuram.

Thiruvananthapuram as a 'Safe city'

While Kerala has passed inclusive and gender-sensitive legislation and policies in recent years, several challenges remain. Overall, there exists a huge data gap as well as awareness of the infrastructural contexts that impact on gender safety. Moreover, institutional capacity to implement gender equality strategies is weak due to limited general awareness and a gap in terms of skills and capacity to respond to and to develop concrete policies. In 2014, Thiruvananthapuram was included in India's 100 Smart Cities initiative under which it proposed to add CCTV surveillance, smart lighting, bus stops with wifi hotspots and an Integrated Command and Control Centre. A national law was passed in 2017, to make panic buttons and inbuilt GPS systems mandatory in all new mobile phones while police in several cities including Thiruvananthapuram, pushed smart safety apps for women to download in smartphones. In Thiruvananthapuram, a significant initiative was also to facilitate a 'safety corridor' between two women's colleges in the city centre, which has not yet materialised. These initiatives however showed a lack of understanding of the very real fear of and actual violence in the form of sexual harassment and assault that women faced in the city and in their homes and neighbourhoods.

Mapping urban infrastructures

The following series of GIS overlays across Safetipin parameters and public infrastructure data and personal accounts of the women suggest that while access to infrastructure does not necessarily preclude violence, the lack of access to infrastructure can reinforce existing forms of structural, material or symbolic violence for women in disadvantaged groups.

The first map shows the Safetipin scores on security – based on proximity of police or security guards in each street. This is scored mostly 'None' as shown by the red hotspots. When overlaid with public data on police stations, it shows that even proximity to police stations do not make much difference to security.

Fig 3.tif

The next map shows that the city is predominantly scored with poor walkpaths during evening hours and these are poorly correlated with location of bus stops. The high male presence in public spaces in the evening also align with local social norms that discourage women from leaving the house. The red and orange hotspots show how roads lack safe walking space to access infrastructure such as public transport, suggesting poor attention to gender inclusive planning.

Fig 4.tif

It is evident that there is a geographic divide in digital infrastructures when the distribution of mobile networks is mapped across the city. Even with the most popular carrier (Jio), it is evident that network coverage of the city at large is very poor, and particularly outside the central zone. When there is coverage, this is often intermittent and sporadic – resulting in dropped calls, slow download speeds and crashed apps. This is particularly poignant in the context of pushing safety apps that rely on the network to be effective. Further very few women in low-income neighbourhoods use the smartphones, or have the digital capacity to install and use these apps effectively.

Fig 5.tif

The final map shows the overlay of the narratives of violence faced by women across the city against the location of the 'safety corridor'. Violence in this context is spatio-temporal and widespread across the city's public spaces. It is particularly poignant however that the route of the safety corridor discounts the ubiquitous nature of violence against women and focuses on a narrowly defined version of safety across two women's colleges.

Fig 6.tif

Participatory mapping with women in low-income neighbourhoods

Fig 7, 7a, 7b.tif

Participatory mapping with a group of women living in a low-income neighbourhood reveals a much more complex story of the entanglements of infrastructure and VAW. In the three 'mental maps' generated by women participants, they narrated their everyday routes in and out of their neighbourhood to approach the city. The first image on the left shows red crosses to highlight local areas considered 'unsafe' during evening and night hours. These are usually occupied by men engaging in alcohol and/or substance abuse, who tend to cluster around both the few public spaces in the neighbourhood during the day and in the evenings. In the second image, red crosses mark regular intervals in one woman's local neighbourhood (around the temple) and at the bus stand connecting her journey from home to work in a college canteen. The third image highlights the community water body (pond) – a public space used by the neighbourhood for both bathing and washing clothes and utensils, as an unsafe area. Transect walks, women's safety audits and mapping as participatory and feminist research methods[4] enable understanding of how women embody and perceive both affective and material barriers to infrastructures from the home to the city. The mental maps suggest how social infrastructures of family and public institutions are crucial to producing 'infrastructural violence'[5] wrought by disconnected gendered infrastructures. They highlight that while it is important that women have access to physical and digital infrastructures, it is only in the context of supportive social institutions of family, community and public institutions (such as law enforcement) that this access can become 'safe' and empowering[6]. Broken or absent social infrastructures meant that women expressed deeply embedded fears and disinclinations to even go out on transect walks with the project team. Their mental maps suggested that violence against women is not only in actual physical or sexual violence – rather violence is present in the immobility of women that confine them to their homes, forced to accept often abusive domestic relationships.

Fig 8.tif

The illustrated map of the neighbourhood represents stories by the women regarding places and infrastructures they consider safe and unsafe. On the one hand, since the city has expanded, it is close to some of the important commercial and retail districts, yet these are largely male dominated spaces. Women in low-income neighbourhoods have lower mobility than men - they are confined to the neighbourhood or places nearby. Yet even within the neighbourhood, women's access to public places such as the main road or the public pond are limited since these are dominated by presence of men engaged in drug and alcohol abuse.

In this context, women focussed on the infrastructures present at their doorsteps, such as blocked drainage and sewage collected outside their houses, which increased their time-burdens and domestic labour, and which they perceived as another form of violence against women brought on by infrastructural failure. Participatory mapping became a process rather than a mere product which

enabled women to represent their spatial knowledge, to critically reflect upon their experiences and articulate what they considered a safe environment. The participatory mapping process represented ways of knowing, navigating and seeing the city that challenge the urban planning and technology-based approaches which focus on violence as incidents detached from the contexts in which they emerge.

Critical reflections on violence

Urban planning and design as disciplines are often accused of being gender-blind[7] because they produce policies and masterplans that do not consider the ways that women and marginal groups live in, navigate and experience the city. This is crucial particularly in the context of Violence Against Women (VAW) where 'top down' masterplans made by built-environment professionals construct safety as a surveillance issue to be 'fixed' by improving technology. While technological advancements are important, a crucial slippage in this approach is the assumption that violence against women is an 'event' that can be addressed by improving 'response' times.

This essay shows that violence is a complex assemblage of social, political and infrastructural blind-spots in planning and governance of cities that have disempowered women from lower income groups for decades and over generations. Women in low-income groups historically left out of decision making and participatory approaches to planning, 'see' and experience the city in much more spatio-temporal ways. Their experiences are often internalised and passed down as patriarchal family ideologies. Violence is routine, pervasive and cyclical between day and night perpetuated by family, neighbours and strangers alike. This understanding of violence should be central to questions of *who* maps the city at *what* scale and *how*. Taking a multi-scalar approach to mapping will develop narratives that are embedded within the contexts of women's everyday and intimate experiences of infrastructure and safety across household, neighbourhood and city scales.

Figures:

Figure 1: Urban infrastructure. Created by Visual Voice, 2019.

The infographic shows the three aspects of urban infrastructure – physical, digital and people, which when disconnected produce 'infrastructural violence' from the home to the city.

Figure 2: Entrance to low-income neighbourhood, Thiruvananthapuram. Photo by Ayona Datta, 2018.

Figure 3: Safetipin score on 'security' overlapped with location of police stations.

The map shows how security is low (red) across the city, and that the presence of police stations do not make a difference to the sense of security.

Figure 4: Walkpath vs. location of bus stops. Safetipin data.

The map shows the poor accessibility (in red) to bustops with safe walkpaths, particularly outside the city centre.

Figure 5: Distribution of mobile network across Thiruvananthapuram.

The map suggests the poor coverage across the city which is not conducive to using smart safety apps on mobile phones.

Figure 6: Narratives of violence overlaid on Safety Corridor route.

Figure 7: Mental maps produced with women in low-income neighbourhood of Thiruvananthapuram

Figure 8: Annotated map of low-income neighbourhood produced from transect walks with women.

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[1] https://disconnectedinfrastructures.wordpress.com
[2] D. Rodgers and B. O'Neill, 'Infrastructural violence: Introduction to the special issue', Ethnography XIII (2012), pp. 401–412
[3] www.safetipin.com
[4] Y. Beebeejaun, 'Gender, urban space, and the right to everyday life', Journal of Urban Affairs XXXIX (2017), pp. 323–334
[5] D. Rodgers and B. O'Neill, Infrastructural violence
[6] A. Datta, 'Another rape? The persistence of public/private divides in sexual violence debates in India', Dialogues in Human Geography VI (2016), pp. 173–177
[7] E. L. Sweet and S. Ortiz Escalanate, 'Bringing bodies into planning: Visceral methods, fear and gender violence.', Urban Studies LII (2015), p. 1826 1845