

(dis)Connected Infrastructures and Violence Against Women (VAW)



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1. Executive Summary

Violence Against Women (VAW) has been continuous and widespread in urban India¹. The most recent data from the National Crime Records Bureau (NCRB) show an 83% increase in reported crimes against women in India between 2012 and 2017². The rate of all crimes against women (including VAW) in metropolitan cities is 77.2 per lakh³, compared with the national average of 55.2⁴. In response, scholars and activists alike have urged the importance of exploring links between VAW and urban contexts⁵.

While policy attention on this issue has surged in recent years the link between urban infrastructure and the types of VAW that take place across public and private spheres of the city remains little understood⁶. In order to make cities more inclusive, equitable and sustainable, it is important to broaden our understanding of infrastructure and their connection to Violence Against Women (VAW).



The basic physical assets and structures that are necessary for the organisation and management of a city is what we often think of as physical infrastructures. This includes roads, bridges, buses, pipes, cables, and other material elements that transport and provide essential services such as water, electricity, sanitation to urban citizens. Planning and design of a city which as a discipline and practice has developed around the distribution of resources, goods and physical infrastructures to its urban citizens. It is widely accepted that poor planning contribute most directly to VAW⁷ since inadequate public transport, lighting, sanitation or water puts women at greater risk of being exposed to various forms of violence in the city such as – harassment and groping in public spaces, exposure to risks of physical and sexual violence in the absence of accessible public toilets or bus stops.



Digital infrastructure includes three elements: networks, devices and storage which are the physical assets required to operate technologies such as digital communication, computing or data flows. Limited access to mobile phones, lack of network connectivity and low digital capacity is prevalent across women in low-income communities, which disconnects them from critical knowledge and information related to opportunities of participation in the public sphere of the city more broadly and ensuring safe access to public spaces more specifically⁸. Despite new investments addressing safety through increasing CCTV cameras, safety apps and police presence, it is widely understood that VAW cannot be addressed through surveillance alone⁹.



People as infrastructure refers to the social support structures and solidarities that marginalised communities construct across actors, institutions and scales. This is an important consideration in our focus on safety since much of the understanding of safety emerges from a fear of violence that is shaped by gender usage of public places as well as the institutional infrastructures that women have in dealing with VAW. This follows on from Simone's conceptualisation of 'people as infrastructure'¹⁰, which emphasizes social and economic collaborations across people who are marginalised and excluded from urban public life because of their locations within gender power relationships.

1 Poverities, 'Violence Against Women in India: The Crimes & Their Causes', 2017, <https://www.poverities.org/blog/violence-against-women-in-india>.

2 National Crime Records Bureau (NCRB), 'Crime in India' (New Delhi, India: Ministry of Home Affairs, 2017).

3 1 Lakh = 100,000

4 National Crime Records Bureau (NCRB), 'Crime in India'.

5 Christy Abraham et al., 'Safe Cities Programming and Campaigning in the ActionAid Federation', *Gender & Development* 23, no. 1 (2 January 2015): 31–44, <https://doi.org/10.1080/13552074.2015.1013668>; Shweta M. Adur and Shreyasi Jha, '(Re) Centering Street Harassment – an Appraisal of Safe Cities Global Initiative in Delhi, India', *Journal of Gender Studies* 27, no. 1 (2 January 2018): 114–24, <https://doi.org/10.1080/09589236.2016.1264296>; Sylvia Chant, 'Cities through a "Gender Lens": A Golden "Urban Age" for Women in the

Global South', *Environment and Urbanization* 25, no. 1 (1 April 2013): 9–29, <https://doi.org/10.1177/0956247813477809>; Carolyn Whitzman, Caroline Andrew, and Kalpana Viswanath, 'Partnerships for Women's Safety in the City: "Four Legs for a Good Table"', *Environment and Urbanization* 26, no. 2 (October 2014): 443–56, <https://doi.org/10.1177/0956247814537580>; Shilpa Phadke, Sameera Khan, and Shilpa Ranade, *Why Loiter?: Women and Risk on Mumbai Streets* (Penguin Books India, 2011).

6 Cathy McIlwaine, 'Urbanization and Gender-Based Violence: Exploring the Paradoxes in the Global South', *Environment and Urbanization* 25, no. 1 (2013): 65–79, <https://doi.org/10.1177/0956247813477359>.

7 Mahimkar and Gokhale; Yasminah Beebejau, 'Gender, Urban Space, and the Right to Everyday Life', *Journal of Urban Affairs* 39, no. 3 (3 April 2017): 323–34, <https://doi.org/10.1080/07352166.2016.1255526>.

8 Anita Gurumurthy and Nandini Chami, 'Digital Technologies and Gender Justice in India – An Analysis of Key Policy and Programming Concerns' (IT for Change, 2014), <http://www.itforchange.net/sites/default/files/IT%20for%20Change%20-%20HIPC%20Submission%20-%2016%20April%202014-1.pdf>; Siriginidi Subba Rao, 'Bridging Digital Divide: Efforts in India', *Telematics and Informatics*, WSIS Special Issue, 22, no. 4 (1 November 2005): 361–75, <https://doi.org/10.1016/j.tele.2005.01.007>.

9 Indian Express, 'Delhi Police's Himmat App for Women Safety Failed to Serve Purpose: Parliamentary Panel', 11 March 2018, <https://economictimes.indiatimes.com/news/politics-and-nation/delhi-polices-himmat-app-for-women-safety-failed-to-serve-purpose-parliamentary-panel/articleshow/63254248.cms>.

10 AbdouMaliq Simone, 'People as Infrastructure: Intersecting Fragments in Johannesburg', *Public Culture* 16, no. 3 (2004): 407–29.

11. (dis)Connected Infrastructures and Violence Against Women (VAW)

Infrastructures are gendered and relational¹¹. Urban infrastructures – physical, digital and people – are produced, accessed, used and transformed through gendered power relationships. It is important to have all three connected for women to be able to enact their agency and to fulfil their economic and socially reproductive roles from the home to the city. Access to resources at both city and household levels can be restricted due to disconnected, inadequate or a complete absence of infrastructures, such as waste collection and drainage systems affecting households and

neighbourhoods, transport connectivity, street lighting and footpaths, and public toilets affecting mobility and safety throughout the city.

Disconnected physical, digital and social infrastructures can have huge gendered impacts in everyday life and deny women full citizenship. These impacts can be felt as a form of ‘**infrastructural violence**’ in everyday life – which refers to “processes of marginalisation, discrimination and exclusion that operate through and are sustained by infrastructure”¹². Infrastructural violence is produced across different scales and spaces and is connected to structural, procedural, gendered and social exclusions from infrastructure from the home to the city.



Figure 1: Participant wading through flood waters in Mannar Colony, Kochi

Infrastructural violence became evident during the Kerala floods when women and their families were left stranded within their homes for days and sometimes weeks, as rainwater quickly collected in their neighbourhoods, filled their homes and destroyed their assets. Women recounted stories on sitting on their beds for days waiting for relief workers with water levels increasing all around them. Later as the floods receded, women undertook the unpaid work of cleaning the blocked drains in the neighbourhoods, replacing damaged goods and repairing their homes.

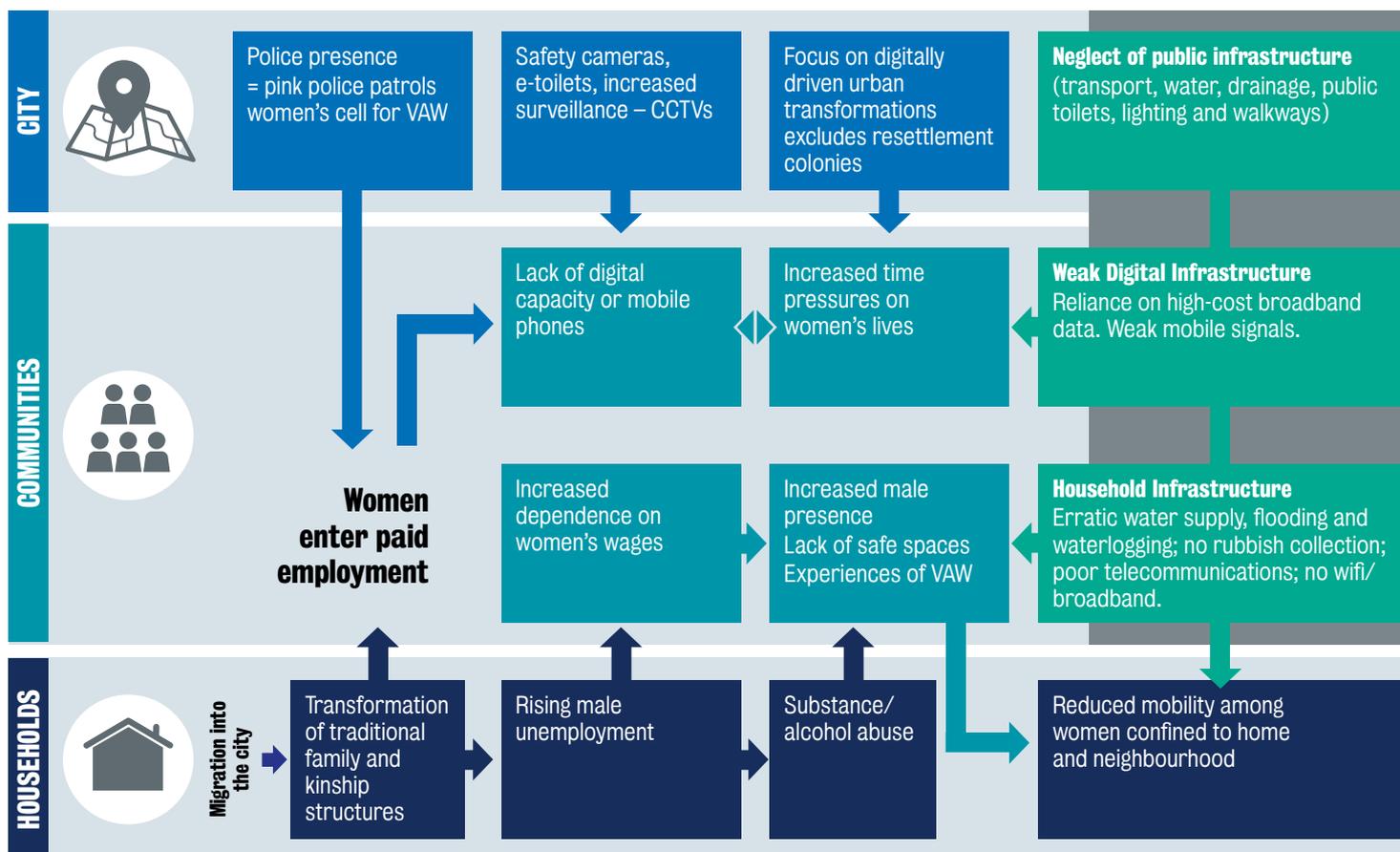




Figure 2: Participatory mapping of safety in Thiruvananthapuram

‘There is an increase of incidents every 5 minutes, an incident every one hour. It’s not decreasing. No matter what laws you bring or how many CCTV’s you install, this is not decreasing.’

PARTICIPANT IN THIRUVANANTHAPURAM, 2018

1.2. Aims and Objectives

Our project, ‘Disconnected infrastructures: innovating digital technologies to address Violence against women (VAW)’ is based on three key research questions

- How can we map infrastructures to reveal ‘blindspots’ of VAW in the city in order to inform urban policy, design and practice?
- How can we address Sustainable Development Goals #5 (Gender Equality) and #11 (Sustainable Cities and Communities) – by improving women’s knowledge of and safe access to infrastructure in the Indian city?
- How can digital innovations generate and communicate data that effectively mediate women’s right to infrastructure with the smart safe city?

In 2018 we undertook a multi-scalar study to answer these questions, conducting interviews, walkabouts and participatory workshops with women in two low-income communities in Thiruvananthapuram and Kochi – and interviews with key policy and advocacy stakeholders. We also collected city-wide visual data on gender safety through the mobile application software Safetipin as well as GIS mapping of publicly available infrastructure located data.

In this report we present our findings around the gendered nature of infrastructural violence – from the intimate to city-wide scales, identify limitations and provide recommendations around existing global and national policies including the UN Sustainable Development Goals #5: Gender equality and #11: Sustainable cities and communities.



Figure 3: Participatory mapping of safety in Kochi, 2018

- 11 Matti Siemiatycki, Theresa Enright, and Mariana Valverde, ‘The Gendered Production of Infrastructure’, *Progress in Human Geography*, 14 February 2019, 0309132519828458, <https://doi.org/10.1177/0309132519828458>.
- 12 Dennis Rodgers and Bruce O’Neill, ‘Infrastructural Violence: Introduction to the Special Issue’, *Ethnography* 13, no. 4 (1 December 2012): 401–12, <https://doi.org/10.1177/1466138111435738>.

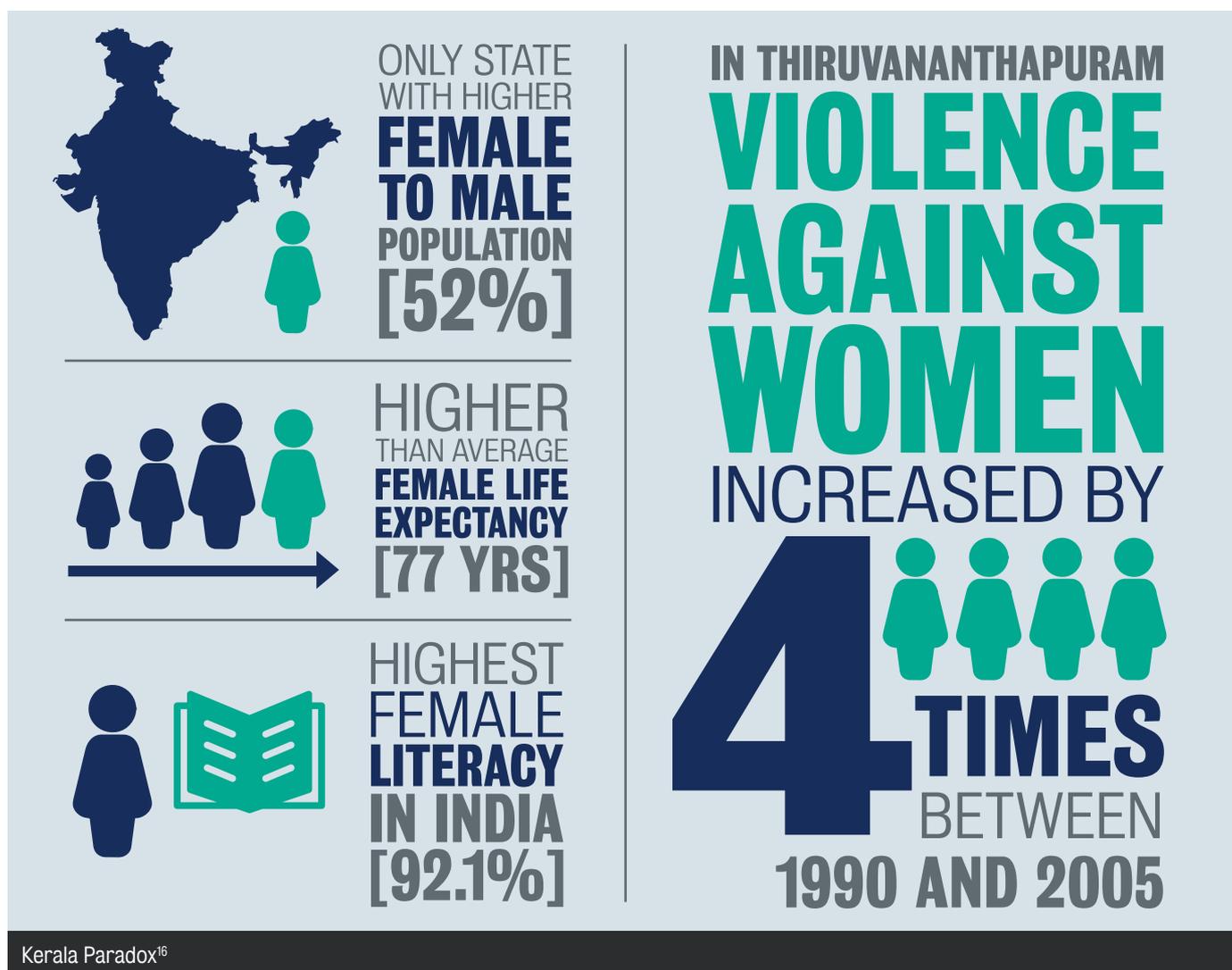
1.3. Research Context

The state of Kerala in southern India represents a paradox between its gender development indicators and actual incidents of VAW¹³. While Kerala has been heralded for its high female literacy and maternal health, women continue to be restricted in economic, social and political areas. In particular, urban Kerala has seen increases in VAW and domestic violence cases.

In a study of two cities in Kerala by our partner Sakhi in 2010, they found that in Thiruvananthapuram, over 80% women faced sexual harassment while either waiting for or riding public transport¹⁴. Women also face challenges in accessing potential benefits of digital infrastructure, because of their low digital literacy and capacity as well as unaffordability in accessing smartphones. This restricts

their economic and social opportunities keeping them further disempowered in the wider public realm.

While Kerala has passed inclusive and gender-sensitive legislation and policies in recent years¹⁵, several challenges remain. Overall, institutional capacity to implement gender equality strategies is weak, due to limited general awareness of the issues and a gap in terms of skills and capacity to respond to and to develop concrete strategies. In particular, there are distinct policy mismatches across several scales of global, national, regional and urban interventions in addressing VAW. These mismatches arise mainly in the ways that urban development policies have been created and implemented without reference to gender development policies and implementation from the home to the city.



13 Aparna Mitra and Pooja Singh, 'Human Capital Attainment and Gender Empowerment: The Kerala Paradox', *Social Science Quarterly* 88, no. 5 (2007): 1227–42, <https://doi.org/10.1111/j.1540-6237.2007.00500.x>.

14 Sakhi: Women's resource Centre, 'Are Cities in Kerala Safe for Women? Research Findings of the Study Conducted in Thiruvananthapuram and Kozhikode, Kerala 2009-2011' (Thiruvananthapuram: Sakhi, 2011), http://www.jagori.org/wp-content/uploads/2012/06/Safety_sakhikerala.pdf.

15 Glyn Williams et al., 'Enacting Participatory, Gender-Sensitive Slum Redevelopment? Urban Governance, Power and Participation in Trivandrum, Kerala.', *Geoforum* 96 (2018): 150–159, <https://doi.org/10.1016/j.geoforum.2018.07.021>.

16 Sakhi: Women's Resource Centre; 'Census of India' (New Delhi, India: Registrar General & Census Commissioner, 2011); National Crime Records Bureau (NCRB), 'Crime in India'.

1.4. Key Findings

We engaged with women in low-income neighbourhoods, in the cities of Thiruvananthapuram and Kochi in 2018 to answer the research questions we had set out. Below we present a summary of our main findings.

1.4.1. Immobile Infrastructures

The ‘infrastructural violence’ of absent, broken or disconnected infrastructures, lead to physical, digital and social immobility. We understand that mobility should be a choice, but when infrastructures such as public transport are inadequate or under-resourced, they can heighten risks of VAW and increase fear of public places. This increases immobility by removing access to employment and livelihoods, reinforces gender power relationships, thus disempowering women in terms of choice and agency in everyday life.

‘Immobile infrastructures’ is a way of seeing and understanding how infrastructure, in their absence, disconnectedness and exclusions reduce physical, digital and social mobility of women. Infrastructures are critical in providing access to public spaces for livelihood, and digital spaces for knowledge and information, and need to be supported by empowering gender relationships. Disconnected infrastructures produce physical and digital immobility which reduce choice and opportunities of social mobility and empowerment among women in low-income neighbourhoods.

- Women are denied the choice to participate in the public life of the city if physical, digital and social infrastructures are not connected. For example, mere presence of basic infrastructures such as public toilets is not enough if they are not properly repaired and maintained and connected to other infrastructures such as public transport or markets.
- Public transport plays a significant role in shaping physical (im)mobility of women in low-income neighbourhoods. While the city is served by a large public bus network, informal or semi-formal settlements are often excluded from public transport networks. As a result, older women were physically immobile due to fear of safety, combined with barriers at the household scale. When women’s mobility was necessitated by livelihood options, this was under continuous monitoring by male family members.
- Even when women are physically mobile, they face considerable challenges in getting around the city. The bus network is dominated by private sector providers with unreliable timetables and routes, and ferry services, walking, as well as auto-rickshaws are considered unsafe or unaffordable. This increases fear of travelling out far from home or staying out after dark. Many women felt they could not travel to work safely or timely, or in ways that could give them sufficient time to fulfil household responsibilities.
- Disconnected social infrastructures of institutions, state actors and family produce gendered immobilities. When women are not supported by family members in their domestic responsibilities or by police in filing complaints related to domestic violence and VAW, or by the municipality in addressing complaints related to blocked drains or lack of sanitation, women are constrained and confined within the brutal power structures within the home and neighbourhood.
- Lack of digital capacity among older and middle-aged women excludes them from crucial knowledge and information about gendered and infrastructural rights. Women in low-income neighbourhoods either did not own mobile phones, and if they did, used basic phones to make phone calls and keep in touch with families when they were outside home. In a context where the municipality is increasingly providing information via digital interfaces, this meant that women’s capacity in addressing infrastructural gaps was limited. They were denied access to online grievance redressal systems or information about their rights and procedures in cases of VAW and therefore left them vulnerable to abuse by intimate partners and family.
- Mobile communications can increase knowledge and awareness of violence, but this knowledge does not necessarily remove the violence. Since very few women used mobile phones to access internet, they were largely sheltered from online violence. However, even in cases where a few women were using phones, their experience and fear of violence were related to threats, intimidation and sexual assault in domestic, neighbourhood or public places.

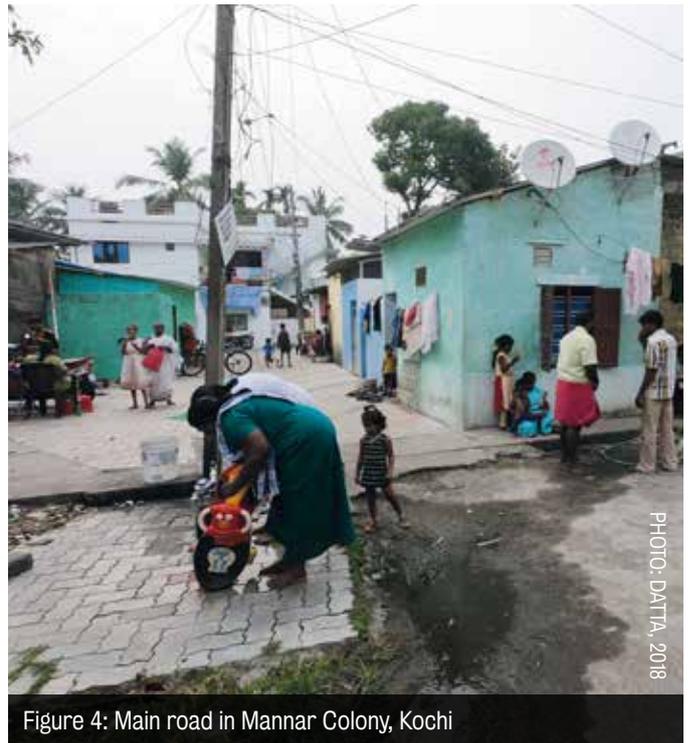


Figure 4: Main road in Mannar Colony, Kochi



Figure 5: Main road in NTL Colony, Thiruvananthapuram

1.4.2. Intimate Infrastructures

When infrastructures are absent, disconnected or inadequate, the impacts are also felt in very direct, intimate and emotional ways.

Women in urban poor neighbourhoods are faced with space and time burdens of disconnected infrastructures – water shortages, blocked drains and broken pipes in their homes and neighbourhoods. These infrastructures become intimate through risks to the body – infection and disease contracted via poor sanitation systems, or sexual violence faced when entering public spaces; and in the denial of working sanitation or drainage from municipality. Broken or absent infrastructures reduce choice and capacity in negotiating domestic responsibilities, apportioning household resources, and addressing time-poverty, which ultimately impact on the well-being of women, particularly in low-income neighbourhoods.

‘Intimate infrastructures’ is a way of seeing and understanding how infrastructure, in their absence, disconnectedness and exclusions are woven into the intimate material and social relationships of urban life. Understanding intimate infrastructures as assemblages of physical, digital and social infrastructures enables us to understand the everyday lived experiences of women, particularly those from low-income neighbourhoods as a form of ‘infrastructural violence’¹⁷.

- Intimate relationships with infrastructure can be perceived as forms of violence or can materialise as Violence Against Women (VAW). In Thiruvananthapuram (TVM) blocked drains increased women’s time burdens in the home, increased unpaid household labour and health risks to families.
- Women prioritised infrastructure issues as a bigger challenge over domestic violence emanating from substance abuse or alcoholism. Most cases of VAW went unreported and even normalised as an inherent aspect of gender power relationships. Women noted that the only deterrent to

VAW and enhancing feelings of safety was the presence of other women in public spaces, and connected infrastructures to enable them to move safely between public transport, bus stops, public toilets and home.

- Alongside infrastructure, substance abuse, particularly alcohol, is a key factor in VAW and affects safety and mobility in the city. From public to domestic spaces, alcohol and substance abuse led to sexual harassment and intimate violence, which affected the perception of safety among women and blocked women’s entry to public spaces.
- Mobile phone and other forms of digital technology were perceived as forms of intimate violence – either as providing young men with easy access to pornography as well as surveillance by family and sexual harassment of women and girls. This inhibits the agency of women and girls in using mobile phones in accessing information and knowledge about their rights as citizens and being able to act upon it.



Figure 6: Participant house in NTL Colony, Thiruvananthapuram

¹⁷ Rodgers and O’Neill, ‘Infrastructural Violence’.

2. Addressing UN Sustainable Development Goals ¹⁸

Our study challenges the assumptions inherent in the targets and indicators of several Sustainable Development Goals (SDGs) goals and targets, particularly SDG #5 and #11 below.

 SDG 5: GENDER EQUALITY calls for achieving gender equality and empowering all women and girls. This includes providing women and girls with equal access to education, health care, decent work, and representation in political and economic decision-making processes to fuel sustainable economies and benefit societies and humanity at large.		
SDG Target	SDG Indicator	Related Findings and Recommendations
5.1 End all forms of discrimination against all women and girls everywhere	5.1.1 Whether or not legal frameworks are in place to promote, enforce and monitor equality and non-discrimination on the basis of sex.	<p>Legal frameworks are not adequate in themselves. They need to be supported by effective social infrastructures. Discrimination continues to exist because women do not know how to access knowledge and information about their rights within a culture of victim blaming across public institutions.</p> <ul style="list-style-type: none"> • Increase women’s access to information and knowledge about legal frameworks and how to claim justice under these. • Improve municipal response times in addressing infrastructural repair and maintenance. • Provide gender sensitive training to law enforcement officials to support women under these legal frameworks.
5.2 Eliminate all forms of violence against all women and girls in the public and private spheres, including trafficking and sexual and other types of exploitation	5.2.1 and 5.2.2 Proportion of women and girls aged 15 years and older subjected to physical, sexual or psychological violence by a current or former intimate partner and by persons other than an intimate partner	<p>Measuring incidences of violence as an indicator of gender development is misleading. Violence is often normalised, and the challenges women face in reporting VAW are often unsurmountable.</p> <ul style="list-style-type: none"> • Address the huge data gap through inclusive and participatory methods in understanding forms and temporalities of infrastructural violence and their direct and indirect impacts on women’s lives. • Collect in-depth data on connections between public and intimate forms of violence perpetuated by disconnected infrastructures that go beyond measuring incidences to use varied methods and tools including participatory mapping, semi-structured interviews, focus groups and personal accounts of victims.
5.4 Recognize and value unpaid care and domestic work through the provision of public services, infrastructure and social protection policies.	5.4.1 Proportion of time spent on unpaid domestic and care work, by sex, age and location	<p>Infrastructural failures add to domestic burdens of women which increased unpaid and care work in unblocking drains, removing rubbish and finding alternative access to water and sanitation.</p> <ul style="list-style-type: none"> • Collect more in-depth data on time burdens of women related to increased care work due to infrastructural failures and disconnected infrastructures.
5B Enhance the use of enabling technology, information and communications technology, to promote the empowerment of women	5.B.1 Proportion of individuals who own a mobile telephone, by sex	<p>Mere possession of mobile phone does not indicate empowerment. There are huge challenges of digital capacity, technology and infrastructure in enabling access to knowledge and information. Most digital innovations are also directed towards smartphones that are unaffordable.</p> <ul style="list-style-type: none"> • Shift from measuring ‘ownership’ to understanding the varied forms of ‘possession’ of mobile phones by women. • Innovations in coverage, speed and locationality of network infrastructures should be directed towards basic feature phones used by urban poor women. • Access to enabling technology is more accurately measured by using qualitative indicators such as – kinds of mobile devices women in low-income communities can afford and own, knowledge of how to use mobile phones; access to mobile internet; digital capacity and literacy, as well as household power dynamics in owning and using mobile phones. • Initiate capacity-building among women in accessing the internet for information and knowledge and to claim gender and infrastructural justice.

18 United Nations, ‘The Sustainable Development Goals Report 2019’ (New York: United Nations, 2019), <https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf>.



SDG 11: SUSTAINABLE CITIES AND COMMUNITIES calls for cities and urban communities that are safe and inclusive for all, notably through design, planning and implementation processes that ensure safe, affordable, sustainable and universally accessible infrastructures and public spaces, particularly for traditionally marginalised groups such as women in low-income neighbourhoods.

SDG Target	SDG Indicator	Related Findings and Recommendations
11.1 Ensure access for all to adequate, safe and affordable housing and basic services and upgrade slums.	11.1.1 Proportion of urban population living in slums, informal settlements or inadequate housing	<p>Low-income neighbourhoods, even those that are not classified as slums are not adequately connected to urban infrastructures of water, sanitation, drainage, transport and are therefore vulnerable.</p> <ul style="list-style-type: none"> • Provide basic infrastructures of water, drainage, sanitation and public transport to all low-income neighbourhoods • Policymakers and planners need to go beyond mere access to basic infrastructures to fully address the connectedness of physical, digital and social infrastructural systems including their regular repair and maintenance.
11.2 Provide access to safe, affordable, accessible and sustainable transport systems for all.	11.2.1 Proportion of population that has convenient access to public transport, by sex, age and persons with disabilities	<p>Women experience violence at every juncture of their journeys from the home to the city. Safe access to transport requires adequate supporting physical, digital and social infrastructures at the household and neighbourhood levels.</p> <ul style="list-style-type: none"> • Understanding safety needs to go beyond notions of access to addressing daily experiences of violence while using public transportation. • More robust data is needed on temporal dimensions of access and use of public transport. This is critical in understanding when women are excluded from public transport and why.
11.3 Enhance inclusive and sustainable urbanization and capacity for participatory, integrated and sustainable human settlement planning and management in all countries	11.3.2 Proportion of cities with a direct participation structure of civil society in urban planning and management that operate regularly and democratically.	<p>Kerala has a legacy of participatory and gender-sensitive approaches to policy and implementation. However, this has not achieved the desired outcomes mainly because of entrenched gender ideologies across public institutions.</p> <ul style="list-style-type: none"> • Inclusive forms of gender participation need to be mainstreamed in all stages of urban development, from design and planning, to implementation, repair, maintenance and monitoring of infrastructures. • Women from community and neighbourhood level should be enabled to participate within all processes of urban development through consultation, mapping, skills training and digital capacity building.
11.7 Provide universal access to safe, inclusive and accessible, green and public spaces, in particular for women and children, older persons and persons with disabilities	<p>11.7.1 Average share of the built-up area of cities that is open space for public use for all, by sex, age and persons with disabilities</p> <p>11.7.2 Proportion of persons victim of physical or sexual harassment, by sex, age, disability status and place of occurrence, in the previous 12 months.</p>	<p>Universal access to public spaces may increase violence against women since public spaces are limited in low-income neighbourhoods, and the few available public spaces often have high male presence.</p> <ul style="list-style-type: none"> • Conduct 'Safety Audits' of public spaces to understand who is using these spaces and most importantly, when are they used, in order to provide gendered access. • Use more qualitative and participatory methods of understanding the temporal nature of violence against women that goes beyond measuring incidences of violence. • Design and dedicate safe public spaces for women that restricts male presence for significant periods of time during the day and evening.



PHOTO: ROHIT MADAN

Figure 7: Fort Kochi in the evening.

3. References

- Abraham, Christy, Daphne Jayasinghe, Rachel Noble, and Kasia Staszewska. 'Safe Cities Programming and Campaigning in the ActionAid Federation'. *Gender & Development* 23, no. 1 (2 January 2015): 31–44. <https://doi.org/10.1080/13552074.2015.1013668>.
- Adur, Shweta M., and Shreyasi Jha. '(Re)Centering Street Harassment – an Appraisal of Safe Cities Global Initiative in Delhi, India'. *Journal of Gender Studies* 27, no. 1 (2 January 2018): 114–24. <https://doi.org/10.1080/09589236.2016.1264296>.
- Beebeejaun, Yasminah. 'Gender, Urban Space, and the Right to Everyday Life'. *Journal of Urban Affairs* 39, no. 3 (3 April 2017): 323–34. <https://doi.org/10.1080/07352166.2016.1255526>.
- 'Census of India'. New Delhi, India: Registrar General & Census Commissioner, 2011.
- Chant, Sylvia. 'Cities through a "Gender Lens": A Golden "Urban Age" for Women in the Global South?'. *Environment and Urbanization* 25, no. 1 (1 April 2013): 9–29. <https://doi.org/10.1177/0956247813477809>.
- Gurumurthy, Anita, and Nandini Chami. 'Digital Technologies and Gender Justice in India – An Analysis of Key Policy and Programming Concerns'. IT for Change, 2014. <http://www.itforchange.net/sites/default/files/IT%20for%20Change%20-%20HLPC%20Submission%20-%2016%20April%202014-1.pdf>.
- Indian Express. 'Delhi Police's Himmat App for Women Safety Failed to Serve Purpose: Parliamentary Panel', 11 March 2018. <https://economictimes.indiatimes.com/news/politics-and-nation/delhi-polices-himmat-app-for-women-safety-failed-to-serve-purpose-parliamentary-panel/articleshow/63254248.cms>.
- Mahimkar, Sudnya, and V. A. Gokhale. 'Inclusive Cities: Towards Gender-Sensitive Urban India'. *Tekton: A Journal of Architecture, Urban Design and Planning* 2, no. 1 (2015): 26–36.
- McIlwaine, Cathy. 'Urbanization and Gender-Based Violence: Exploring the Paradoxes in the Global South'. *Environment and Urbanization* 25, no. 1 (2013): 65–79. <https://doi.org/10.1177/0956247813477359>.
- Mitra, Aparna, and Pooja Singh. 'Human Capital Attainment and Gender Empowerment: The Kerala Paradox'. *Social Science Quarterly* 88, no. 5 (2007): 1227–42. <https://doi.org/10.1111/j.1540-6237.2007.00500.x>.
- National Crime Records Bureau (NCRB). 'Crime in India'. New Delhi, India: Ministry of Home Affairs, 2017.
- Phadke, Shilpa, Sameera Khan, and Shilpa Ranade. *Why Loiter?: Women and Risk on Mumbai Streets*. Penguin Books India, 2011.
- Poverties. 'Violence Against Women in India: The Crimes & Their Causes', 2017. <https://www.poverties.org/blog/violence-against-women-in-india>.
- Rao, Siriginidi Subba. 'Bridging Digital Divide: Efforts in India'. *Telematics and Informatics*, WSIS Special Issue, 22, no. 4 (1 November 2005): 361–75. <https://doi.org/10.1016/j.tele.2005.01.007>.
- Rodgers, Dennis, and Bruce O'Neill. 'Infrastructural Violence: Introduction to the Special Issue'. *Ethnography* 13, no. 4 (1 December 2012): 401–12. <https://doi.org/10.1177/1466138111435738>.
- Sakhi: Women's resource Centre. 'Are Cities in Kerala Safe for Women? Research Findings of the Study Conducted in Thiruvananthapuram and Kozhikode, Kerala 2009-2011'. Thiruvananthapuram: Sakhi, 2011. http://www.jagori.org/wp-content/uploads/2012/06/Safety_sakhikerala.pdf.
- Siemiatycki, Matti, Theresa Enright, and Mariana Valverde. 'The Gendered Production of Infrastructure'. *Progress in Human Geography*, 14 February 2019, 0309132519828458. <https://doi.org/10.1177/0309132519828458>.
- Simone, AbdouMaliq. 'People as Infrastructure: Intersecting Fragments in Johannesburg'. *Public Culture* 16, no. 3 (2004): 407–29.
- United Nations. 'The Sustainable Development Goals Report 2019'. New York: United Nations, 2019. <https://unstats.un.org/sdgs/report/2019/The-Sustainable-Development-Goals-Report-2019.pdf>.
- Whitzman, Carolyn, Caroline Andrew, and Kalpana Viswanath. 'Partnerships for Women's Safety in the City: "Four Legs for a Good Table"'. *Environment and Urbanization* 26, no. 2 (October 2014): 443–56. <https://doi.org/10.1177/0956247814537580>.
- Williams, Glyn, Umesh OmanaKuttam, J Devika, and Berit Aasen. 'Enacting Participatory, Gender-Sensitive Slum Redevelopment? Urban Governance, Power and Participation in Trivandrum, Kerala.' *Geoforum* 96 (2018): 150–159. <https://doi.org/10.1016/j.geoforum.2018.07.021>.

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