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Gendering Infrastructure



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Gendering Infrastructure: An Introduction

Yaffa Truelove and Sneha Annavarapu¹

At regional, national and international scales, gendered symbolism and power relations shape the forms and meanings that buildings, roads and digital infrastructures take. Yet, despite the pervasiveness with which gender affects our everyday life, gendered dimensions of infrastructure have received relatively less attention in the literature compared with other aspects of the social, political and cultural embeddedness of infrastructure. In this issue of *Roadsides*, we aim to add to the emergent but significant scholarship that tackles the conceptual and analytical intersection of gender and infrastructure (see Schwenkel 2015; Thompson 2016; Datta and Ahmed 2020; Sultana 2020; Annavarapu 2022; Truelove and Ruszczyk 2022; Alda-Vidal et al. forthcoming; Truelove and Sabhlok forthcoming). Instead of thinking about gender as just another variable to keep in mind while assessing the impact of infrastructure in daily life, we contend that – as a relational and intersectional concept, as a category of self-identification and as lived experience – gender fundamentally shapes infrastructure and is, in turn, shaped by infrastructure (Kern 2021).

¹Each author contributed an equal share of labour to this article. The order of authors is thus arbitrary.

This issue of *Roadsides* brings together diverse approaches to thinking about gender in relation to infrastructure with a view to expanding our conceptual, analytical, methodological and empirical horizons. Emerging from the multifaceted contributions to this issue, we explore the following three themes: 1) gendered infrastructures of labour and care, 2) gendered infrastructural imaginaries and contested futures, 3) gendered forms of infrastructural coping and resistance.

Gendered and fragmented infrastructures of water in Shimla, India.

Photo: Naomi Hazarika, 2022.



Gendered Infrastructures of Labour and Care

A significant literature engages with the ways that labour can be understood with regard to infrastructure as both undergirding its function and viability, as well as forming a type of infrastructure in and of itself: piecing together networks and enabling materials and things to move and flow (Star 1999; Harvey and Knox 2012; Anand, Gupta and Appel 2018). Authors in this issue bring a gendered dimension to this important scholarship by examining and explicating the important ways that gendered labour and care constitute often unseen yet critical infrastructures, which in turn produce rippling social, material and environmental consequences. Gender relations become the terrain on which social infrastructures, resilience and care are forged.

Oldenburg and Buelvas's scholarship in Cartagena, Columbia reveals how women's labour and care practices make it possible for housing infrastructure to be built amidst peripheral environments of mud, soil and flooding. Weaving together the stories of women's efforts to "resuscitate" rubble as "building material for 'filling up' houses," they reveal the ways in which gendered labour and care have complex effects for women's bodies, communities and belonging in the city. While ensuring materials and land can be shored up to make housing viable, these time-consuming practices take an enormous toll on the women's wellbeing. In an alternate vein, Rivera's article captures the nuanced ways infrastructures of care can shape and mitigate the challenges that

characterize women's labour, focusing on women street vendors in San Salvador. Using the term *acuerpamiento*, a concept that empirically emerges from street vendors' own narration of their care experiences and support systems developed through a theatre company, Rivera demonstrates how "the bodies of the caregivers and the spaces they inhabit become essential parts of the infrastructures of care that sustain and support everyday life."

Gendered infrastructural labour and its connections to practices of care are also embedded in development projects and the actions of the state. Rehman's contribution considers how the labour of state workers in regulating dengue in Lahore rests on dominant gendered assumptions concerning women, space and mobility. The practices and obligations of state workers who comprise Lady Sanitary Patrols reveal and concretize gendered ideologies regarding women's role in caretaking domestic environments, and women workers' role as specifically 'indoors' and preserving women residents' *purdah*. Similarly, in depicting how state-directed development of infrastructure simultaneously reifies unequal gender ideologies, relations and labour, Kang's article focuses on the "infrastructure aunties" of Seoul – working-class, middle-aged women who have been cleaning the subway systems in South Korea since the 1970s. Conceptualizing infrastructure as labour, Kang shows how the aunty labour that keeps the city moving is exploited.

Finally, Debarry's investigation of irrigation development in rural Ethiopia uncovers gender-differentiated dimensions of infrastructural labour associated with international funding for large-scale infrastructure. Utilizing visual methods in which participants' photograph their labour and practices surrounding irrigation, Debarry traces how irrigation development exposes "gendered, aged and classed bodies not only to stress and harm, but also to becoming living infrastructure themselves."

Gendered Infrastructural Imaginaries and Contested Futures

The authors in this issue also bring out the nuanced ways that transformations in infrastructure are tied to competing gendered infrastructural imaginaries and aspirations which in turn produce contested futures. Explicitly or implicitly, the articles here probe certain fundamental questions that reveal how infrastructure is gendered: Who is the imagined user of infrastructure? What kinds of intersectional power relations and/or exclusions do these imaginations and assumptions around gendered behaviours and aspirations produce? What sorts of futures are imagined and in turn created?

Perera demonstrates how the relocation of families from *wattes* settlements to high-rises has been an integral part of making Colombo a "world recognized city" since 2012. However, as Perera argues, this infrastructural imaginary of world-classness obscures the impact that urban resettlement has had on women's labour and leisure, on filial and familial relations, and on neighbourly intimacy, comfort and security. As she points out, "the desired aesthetics of controlled order is promoting [gendered] disorder of a different kind." Similarly, Hanna Ruszczuk's piece indicates how paved and clean streets in urban Nepal are specifically gendered desires and can serve to reify gendered power relations. She shows how gendered modalities of political engagement and participation

reflect and also shape how and why masculinized infrastructural imaginaries of road construction are being supported by the state. The logic of exclusion is, thus, built on an implicit devaluation of the collective aspirations, desires and concerns of women in various political-economic and socio-cultural contexts.

This point comes to a sharp focus in Sugawara's research on how menstruating women experience the rail infrastructures in Tokyo. Sugawara shines a light on how menstruation is not just a biological or cultural issue, but an infrastructural one; centring menstruation as a highly common and painful experience lays bare the assumptions around gender and able-bodiedness that undergird transport infrastructures. This infrastructural apathy and/or ignorance cements stigma and secrecy around menstruation, relegating it (back) to the sphere of 'the private,' and thereby reproducing gendered norms in society.

Despite – or, perhaps because of – the gendered exclusions produced by competing infrastructural imaginations and aspirations, there are also emergent imaginations of feminist and queer futures. In a provocative exploration of how the socio-material conception of “the straight line” concretizes capitalist, patriarchal and heteronormative relations into the world, Dominic Davies puts forward a call for a queer engagement with infrastructure. This conceptualization that celebrates collective repair and posits an interlinking and weaving of lines, he contends, makes space for queering the masculinized notion of “the perfect infrastructure as a straight line passing through frictionless terrain.”

Gendered Forms of Infrastructural Coping and Resistance

Explicating the centrality of gender in the production and reproduction of infrastructure also invites us to reckon with strategies of coping and resistance. Whether we conceptualize them as intentional or incidental, as tactical or spontaneous, all the articles in this issue engage with acts and articulations that signal an orientation to the status quo. And while our intention is hardly to romanticize these ways of coping and/or resisting, there is also an invisibilization of gendered labour if one does not account for it. We therefore pull at the threads of situated agency in some of the articles – not to celebrate individual heroism but to document the means through which chronic and episodic exclusions engender responses, if not outright refusals, and at times produce some sort of incremental transformation.

Sugawara details how menstruating commuters in Tokyo resort to a variety of tactics to manage pain and discomfort during travel. Similarly, Perera discusses how women in Colombo end up working more and for longer than before, in order to adjust to the domestication demanded by modern high-rises. Debarry, too, shows how women in Koga rationalize the laboriousness of their work as a form of duty and, thus, cope with the unevenness of norms and expectations that keep large infrastructure projects working. Oldenburg and Buelvas reveal how practices of care that are deeply gendered become ways in which vulnerable, low-income households in Cartagena build infrastructural belonging. In all four cases, anticipating and accommodating infrastructural betrayal become coping mechanisms by design, and at times open up spaces where resistance can take a stronger foothold.

Elsewhere, infrastructural exclusions produce more overt forms of resistance and refusal. Kang, for instance, points to how subway aunties in Seoul build ethics of care and resistance with other precarious workers by participating in organized labour movements. Rehman, too, notes that despite the gendered and classed inequalities in the labour that operationalizes dengue management in Lahore, female health workers “reclaim time and space” by registering their presence in the urban public fabric while also participating in protests to demand better labour conditions. Highlighting a different modality of resilience, Rivera details how a theatre company created by women street vendors in San Salvador becomes a space of care and communitarian belonging – a refuge in, and a refusal of, the violent vulnerabilities they are operating in.

Taken together, the articles here help shed light on why gendering infrastructure is both critical and integral for understanding how infrastructures come into being and shape our everyday lives and environments. Thinking infrastructurally, we propose, necessitates thinking also about gender relations and their myriad manifestations in social life.

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Estoy llenita de agua:

Caring for Infrastructural Belonging in Cartagena

Silke Oldenburg and María Buelvas

Getting up with bare feet and touching the soil. Playing in the soil. Picking something up from the soil. Sweeping and mopping the soil. Falling down on the soil. But, what soil? In Playa Blanca, a sector of the Olaya Herrera neighborhood, the soil is bare. A world out of balance. Who takes care of this place? Women take care of the house, i.e. the soil. They clean it, they make sure that it does not fill up with water and they take care of the family that 'grows' on it. Women are the soil. "I am full of water" (estoy llenita de agua) remarks Nora, to say that her house is full of water.¹

¹Introductory reflection
by María Buelvas.

Nora, an Afro-descendant woman in her thirties, faces regular urban floods during the increasingly irregular rhythms of the Caribbean's rainy season. "I am full of water" she states, referring both to her flooded self-built home but also to herself, embodying water as infrastructure. Nora lives with her six children beside the Ciénaga de la Virgen, Cartagena's biggest urban wetland. Olaya Herrera is one of the vast and populous neighborhoods around the Ciénaga de la Virgen, which is dominated by a mangrove ecosystem that represents a valuable refuge for wildlife while also being an important source of community livelihoods. In the Ciénaga, the watery edge of the city also constitutes the slippery margins of urban infrastructure and citizenship. As urban wetland, the Ciénaga is mainly inhabited by people who have been displaced by gentrification, by the dynamics of Colombia's protracted conflict and, most recently, the arrival of people fleeing Venezuela's dire living conditions – as did Nora four years ago in 2019.

Houses constructed in the swamp, not yet 'filled up' with debris (see below), in the midst of a flood event.
Photo: María Buelvas, Olaya, 2021.



Largely inhabited by an Afro-Colombian population, entanglements of race, ecology, citizenship and socio-spatial inequalities impact strongly on everyday life in Olaya. Indeed, eking out a living close to the mangrove forest brings many challenges that inscribe processes of colonial continuities into both the built environment and the social fabric of the neighborhood (Sultana 2022).

For this essay, we will zoom into a part of Olaya called Playa Blanca, where Nora navigates the tides and flows between dry and rainy seasons, the latter with its deleterious and regular urban flooding. We argue that Nora's story is a window onto how Playa Blanca's

women engage in everyday practices of care that constitute gendered infrastructures. As Truelove and Ruszczyk (2022: 8) write, these gendered practices are “unseen yet critical infrastructures” making the neighborhood and the city work while creating a sense of belonging.

Between Mangroves and Marginalization

The coastal city of Cartagena is full of contrasts. Cartagena’s urbanization process has been deeply shaped by racial logics in the context of tourism and ‘patrimonialization’² of the colonial city center (Deavila 2015). As the city expands, certain socio-economic phenomena like precarious housing or street vendors are discouraged by the local government and as a result the low-income population is being displaced to the urban fringes (Abello and Flórez 2015). Here the new arrivals try to make a life by reclaiming plots of land from the water. This practice is called ‘filling up’ or *rellenar*, in Spanish (Oldenburg and Neville 2021: 9). It ironically connects the two Cartagenas – the beautiful one in the touristic center, where buildings are being demolished in order to construct bigger, more modern ones – and places in the other Cartagena, like Playa Blanca, where rubble is resuscitated as construction material for ‘filling up’ houses in anticipation of urban flooding.

² *Patrimonialización*, in Spanish, indicates here the appropriation of Cartagena’s UNESCO World Heritage status (*patrimonio*) for touristic purposes.



Bare ground in Playa Blanca. These houses are near one of the canals leading to the swamp.
Photo: Maria Buelvas, 2021.

As the seasonal rhythm shifts due to the climate crisis, the lifeworlds of women in the Ciénaga change as well. Nora states:

“During summer, activities are easier but in the winter or rainy seasons, things are getting complicated due to mud, flooding and material loss. It is stressful if you don’t know if the water is going to rise and if we need to leave our homes because of the floodings.” (July 2021)

As in many fringe contexts, women work in the domestic sphere and engage in informal sales of different sorts of items to make money. Besides in/formal economic activities, women take care of their children, their family and the household, often also collaborating with neighbors in building up or repairing their makeshift homes, therewith creating a sense of belonging to an unfamiliar place through material and social bonds.

Entangled Rhythms of Socio-Environmental Neglect and Care

As in many urban contexts of the Global South, social, political and economic infrastructures are embodied through women in the form of what we call caring infrastructures. Playa Blanca can be described a space of social abjection and neglect, both from the city and the state (Anand 2017), as one of “infrastructural violence” (Rodgers and O’Neill 2012) or, as Truelove and Ruszczyk (2022) specify, of “slow infrastructural violence,” hinting at the entanglements of gender, race and class in this urban wetland. As much as Cartagena’s uneven urbanization process has heightened infrastructural inequalities between ‘center’ and ‘periphery’, it has also shaped the micropolitics around water and soil, where social practices and relations pertaining to access to and distribution of these resources enable negotiations of urban citizenship and of making space (Truelove 2021: 1014).

At Playa Blanca, access to adequate public infrastructure like transport to the city center but also to the sewage system, water, housing and electricity is not distributed equally. While it is mostly men who, for example, bring the rubble into the neighbourhood or tap the water pipes of formalized areas, it is women’s bodies and social practices that improvise and substitute for the non-existent public infrastructure (Simone 2004). In the process, they reveal new terrains of potentiality and alternative forms of belonging to a city which is one of the most unequal in Colombia. In particular, practices of ‘filling up’ illustrate female care as a gendered practice and its importance for infrastructural belonging.



House in Playa Blanca.
The clothes are washed
with purchased water.
Photo: Silke Oldenburg,
2021.

Filling Up the Urban Wetland

To avoid the seasonal floods, Nora ‘fills up’ the water in her makeshift home, adding layers and layers of rubble, mud and debris in order to build her house a little higher than the upper water level. Men do most of the labor of bringing debris to the houses, while women take care of the landfill and convert the waste into new ground, new soil on which life and family can subsist. Nora explains: “Women take care that when the rains come the soil is still soil and not just another part of the swamp.” They also ensure that the landfill is not too sharp so that children will not cut themselves while playing on the ground. But more importantly, they add more rubble to avoid the drowning of toddlers, as flood water will frequently come through the porous huts, reaching knee or even waist level. Similarly, during heatwaves, women water the improvised ground around their huts to cool down the hot air surrounding their homes, helping each other out and cooperating in this daily task. As the Ciénaga is a place of relocation and refuge for many, the unfamiliar context is made familiar through these practices of care and place-making.

Concrete debris serving as the initial backfill for the foundations of a house in Playa Blanca.

Photo: Silke Oldenburg, 2021.



This social practice of *rellenar* illustrates the specific intersection of socio-material, ecological and political forces in an urban wetland and the need for women to make up for absent housing infrastructure by constantly maintaining and rebuilding the soil. Nora’s practice of taking care of the soil as embodied infrastructure could be viewed as her claiming a right to the city (Lefebvre 1968). In remarking that she is “full

of water” while referring to her makeshift home, her body morphs into infrastructure itself and evokes a sense of infrastructural belonging to the larger social ecosystem – the neighbourhood and her family. Embodying infrastructure means both the constant need to juggle and substitute absent or failing public services but also the role of the women’s bodies in enacting practices of care in the larger socio-economic context.

*Paradox of the two
Cartagenas: a poster of
the city center’s iconic
clock tower used as
construction material.*
Photo: María Buelvas,
2021.



Caring for the Soil, Making the Soil, Being the Soil

Reflecting on Nora's and other women's practices of care in relation to water and soil during times of urban flooding, we understand the gendered body as a site of lived experience, revealing how environmental and infrastructural crisis contributes to wider patterns of urban and social differentiation in the coastal city of Cartagena. In the face of state absence, women in an urban wetland deal with everyday uncertainties and create opportunities between mangroves and marginalization. By caring for her home, her children and her neighborhood, Nora articulates a sense of belonging to this liminal space by navigating the seasonal challenges of floods, rising sea level and the socio-material consequences of economic precarity – thus a specific kind of infrastructural belonging to the city is achieved. In portraying Nora's gendered take on everyday infrastructures of care, we hope to open discussions that go beyond the technological side of infrastructure but rather bring to the fore the different ways that gendered infrastructures anchor urban life through practices of belonging in times of environmental crisis and rapid socio-economic transformation.

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Bodily Infrastructures of Care

Sofía Rivera-García

Introduction

In El Salvador, as in most Latin American countries, caregiving tasks are performed mainly by women. This structural inequality in caregiving relationships has historically constituted an invisible discrimination, since those who must take care of others often perform these tasks under asymmetrical power structures. This condition of inequality is aggravated when caring tasks are carried out in precarious contexts and with labour insecurity, where caregivers care as they can and when they can (Pautassi 2007). This violent cycle of inequality is completed when the principle of reciprocity and interdependence, in which caregivers must also be cared for, is not fulfilled (Soto-Villagrán 2022).

In recent years, the struggle to achieve recognition of care as a right has seen significant advances in the Latin American region, such as with the National System of Care in Uruguay in 2015, the “Municipal Law of Co-responsibility in Unpaid Care Work for Equal Opportunities” in Cochabamba (Bolivia) in 2019, or the recent recognition of the right to dignified care, to one’s own time and the creation of a National System of Care in Mexico in 2020. In the case of El Salvador, a Social Co-responsibility for Care Policy was formulated between 2015 and 2016; unfortunately, it was never discussed at the Senate, and the initiative has not been taken up again.

In the absence of recognition of care as a right, the bodies of the caregivers and the spaces they inhabit become essential parts of the infrastructures of care that sustain and support everyday life. By paying attention to caregiving tasks, reproductive activities and collaborative practices, the concept of *acuerpamiento* might help us to understand these practices in a collective way.¹ *Acuerpamiento* is defined by communitarian feminists as “a loving agreement to accord, to accompany each other amid the complexities and risks that the defense of life in the communities entails for [women] and their families” (Cabnal 2017: 100, my translation). In this article, I reflect on this idea and specifically on a theatre company created by a group of women street vendors called La Cachada Teatro, and on the space where they currently practice and perform: the Nave Cine Metro. In this context, the Nave has turned into a refuge for women and their children, supporting bodily infrastructures of care and self-care that can bring us closer to revealing how certain infrastructures are created and gendered in one of the most violent cities in Latin America.

¹ The term *acuerpamiento* can be translated literally as ‘surrounding and supporting a body with other bodies.’

Caring on the Streets of San Salvador

The Historic Centre of San Salvador (CHSS) is the foundational area of the city. After decades of abandonment and deterioration due to numerous earthquakes, the relocation of the main functions of the state and the gradual decay brought about by the Civil War (1980–1992), the CHSS has become an area of dispute and conflict, a space for the trade and exchange of almost all types of goods and products, housing six of the city’s main markets and thousands of street vendors. In addition, this area has become one of the most fraught battlegrounds for El Salvador’s major gangs, in which multiple subgroups (*clicas*, in Spanish) compete for control of commercial streets, markets, drug deals, smuggling and prostitution, among other commercial and criminalized activities (Papadovassilakis and Dudley 2020).

Amid this violent context, the street vendors are mainly women who must daily balance their role as caregivers with the need to sell to support their families. As Soto-Villagrán (2022) argues, care practices are not only anchored to the domestic space but move alongside those who exercise care. In the last twenty years, the thousands of informal stalls have become small spaces of commerce and care, where children stay after school until the end of the day, either doing homework or helping with their mother’s business. Added to the above is the fact that El Salvador is a tropical country, where for most of the year it either rains torrentially or the sun beats down. The lack of supporting built infrastructure, such as public toilets, as well as the conditions of harassment and insecurity caused by gangs, complete this situation so poorly suited for caring.

Under these circumstances, life has been reproduced and sustained in the streets of the CHSS. The Covid-19 pandemic brought with it a crisis of care in all its dimensions – not only for children but also for the elderly and infirm, representing a greater burden for caregivers. In the case of El Salvador, the confinement and restriction measures were among the most severe in the region, with a lockdown that lasted ninety-five days (López and Domínguez 2021), which precipitated a total inability to work for a large part of the population from the informal sector, including women street vendors in the CHSS.

The Ship that Sailed in the Midst of the Storm

It was during this period of crisis that La Cachada Teatro² and Teatro del Azoro³ founded the Azoro Cultural Association (ACA) and initiated the Nave Cine Metro project, in the bowels of the CHSS. The Nave ('Ship') started in March 2020 when ACA repurposed the old Cine Metro, turning it into a space dedicated to creating and researching performing arts with a focus on the community of vendors and their children, specifically on Delgado Street. Since their beginnings, both theatre companies have worked in testimonial and documentary theatre, addressing multiple issues of Salvadoran society, from different types of violence to mental health. At the same time, their performances aim to provoke the audience to transform the reality they see described.

² La Cachada Teatro was set up by a group of women street vendors and domestic workers. See: <http://cachadateatro.com/>

³ Teatro del Azoro was founded by four Salvadoran women pioneers of documentary theater (FES 2020).

In its almost three years of existence, the Nave has become a space in which vendors can come to rest and practice self-care, a place for their children to play and take part in various workshops while they are out working in the streets. In this way, the Nave can be interpreted as a space that supports the bodily infrastructure of care, not only satisfying the life-sustaining needs of those who require care but also giving space for self-care and healing practices for caregivers themselves – a forgotten dimension and one not experienced by the vendors. Part of these healing processes of self-care are triggered by the emotions that arise from breaking the silence through the theatrical performances, which reflect testimonies from their daily life as street vendors, helping the women recognize the different types of violence they have experienced.

In the Nave's day-to-day activities, these bodily networks of care become visible. Women's bodies are an essential part of this infrastructure, as living mediation of what organizes and sustains life (Truelove and Ruszczyk 2022). However, what does caregiving imply in contexts where conditions of exclusion and inequality allow violence to proliferate? If we think of infrastructures as originally understood, as a material system, it is clear that any infrastructure will erode and thus require maintenance, support and care. When bodies are an essential component of these infrastructures, they also become vulnerable and susceptible to harm, and thus require care. This rough analogy can help us to connect with one of the main concerns when thinking about infrastructures of care: who takes care of those who care?

This same concern struck communitarian feminists in Guatemala, when they identified that in the struggle for the defense of their territories they had neglected their own bodies (Cabnal 2017). By recognizing their bodies as the first territory to retrieve, they discovered a shared path of healing through supporting each other's bodies. The practice of *acuerpamiento* describes this path, and in the absence of recognition of

the right to self-care, to care for others and to be cared for can help us to acknowledge and support the actions, emotions and decisions of individual bodies as a practice of collective resistance.



← *Workshop on the Cachada Method at Nave Cine Metro.*
Photo: Gerardo Bonifacio, 2021.

↓ *Workshop Festival al Parque by Nave Cine Metro crew.*
Photo: Melissa Castro, 2022.



Both in the workshops and in the Nave's theatrical practices, the infrastructures of care and self-care are materialized in exercises of contact and support between bodies. These practices can be interpreted through *acuerpamiento*, as bodies supporting other bodies, ensuring not only company but also emotional support and wellbeing. This practice of *acuerpamiento* breaks with the narratives of violence and fear imposed by both the official discourse disseminated by the state and the criminal organizations that control the CHSS.⁴ No surprise, then, that through *acuerpamiento*, understood by communitarian feminists as a 'loving agreement' (*acuerdo amoroso*), the vendors' children have appropriated this space of mutuality and reassurance as their place of leisure and rest. Although the need to work and sell every day does not allow the vendors to fully occupy and enjoy the Nave, as they give priority to their children (putting their role as caregivers first), the possibility of accessing a space of self-care for the first time reveals the importance that proper support for bodily infrastructures of care should have in the city. Although there is still a long way to go towards co-responsibility and recognition of the rights of those who care in El Salvador, the Nave Cine Metro is opening the way for new care networks to consolidate in the capital city.

⁴ Since March 2022, a state of exception has been in place in El Salvador. In February 2023, four thousand vendors were evicted from around the Nave.

Final presentation of a workshop with children in the CHSS at Nave Cine Metro.

Photo: Gerardo Bonifacio, 2022.



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Indoor Public Health:

Gendered Infrastructures of Epidemic Control

Nida Rehman

A crippling epidemic of dengue fever in Punjab, Pakistan in 2011 prompted the creation of a new socio-technical system of disease surveillance and control, comprising a smartphone application, vector surveillance forms, chemical larviciding, public awareness campaigns, the collection and testing of mosquitoes and larvae, and a hierarchical administrative structure with regular progress review meetings. Crucially, Sanitary Patrol (SP) workers were deputed to conduct door-to-door surveillance: to closely observe, identify, geo-tag and eliminate mosquitoes and larvae clusters (Department of Health 2014).

These workers form a critical component of public-health infrastructure. Moving through urban space with fluorescent vests and brochures, they are responsible not only for disrupting conditions for mosquito breeding but also relay public-health messaging and enable the state's view of epidemiological potentialities. However, unlike AbdouMaliq Simone's (2004) formulation of people as infrastructure, where residents create provisional networks to access services outside of state and formal associations, here health workers' highly codified methods are the very armature for the state to see and govern the city (Rehman 2022).



This codification, the “thickness of definitions and classifications” (Simone 2004: 408), maps onto the social milieu in uniquely gendered ways. Dengue field staff are divided into Indoor and Outdoor Teams, overseen by health inspectors and assigned to particular neighborhoods on the basis of weekly plans that organize field labor according to mosquito breeding cycles.¹ Yet this nomenclature does not reference mosquito habits or habitats, nor interior or exterior spaces. Indoor Teams, comprising two female workers (known as Lady Sanitary Patrol or LSP) and one male worker (Sanitary Patrol or SP), conduct surveillance in private residences, while Outdoor Teams, comprising two SPs visit commercial or public spaces like parks, banks, schools, graveyards, factories and workshops.² The categories thus index dominant assumptions about women, space and mobility: that women are the rightful caretakers of domestic environments, that LSPs going into homes preserve female residents’ *purdah*,³ that visiting non-residential sites is inappropriate for LSPs, and that SPs on Indoor Teams provide protection for their female counterparts.⁴ The infrastructural framework of dengue control thus rests on and reifies an ideological framework about women’s proper placement in space, circumscribed by notions of propriety, respectability and safety.

Scholars have widely noted that disease surveillance procedures aimed at separating humans from mosquitoes and microbes can restructure ecological, labor, gender and social relationships (Beisel 2010, 2015; Nading 2012, 2014; Brown and Kelly 2014). Looking beyond the configuration of surveillance technologies, attention to gendered spatial dimensions reveals more contingent infrastructural relationships – in this case marked by neglect, coercion or hostility on one hand, and affirmation and resistance on the other. The material artifacts, discursive categorizations and institutional frameworks of the dengue control system are undergirded by gendered labor and subjectivities, and layer onto existing infrastructural failures and unevenness in the city. These create a “gendered infrastructural assemblage” (Truelove 2021: 1010) that straddles the boundaries of private and public realms. In the following vignettes, I draw from

A female health inspector holding a Dengue surveillance checklist, while an SP hands her a smartphone to document field conditions on the Dengue Activity Tracking System app.

Photo: Nida Rehman, 2017.

¹ For a fuller account of dengue surveillance methods see Rehman (2022).

² The default description of sanitary worker as male belies the crucial role of women health workers in Pakistan.

³ In South Asia, *purdah* refers to practices around veiling, seclusion and segregation, ostensibly to preserve women’s perceived honor.

⁴ The acronyms LSP and SP are commonly used within the public-health community.

interviews and fieldwork conducted with dengue field staff (particularly LSPs and women inspectors) in Lahore in 2016 and 2017 to highlight three aspects: the uneven and often hostile infrastructures of urban mobility and public space that women workers negotiate every day, the architectural infrastructures that form a threshold of the indoor and outdoor, and the fractured infrastructures of water access and storage whose maintenance relies on gendered labor inside the home. I end with a note about how, through this negotiation of public and private, the gendered infrastructural labor of mosquito surveillance reconfigures social relations of workers to the state, their communities of practice and urban spaces.

On the Street, at the Threshold, in the Home



A female health inspector walks with an SP, avoiding roadside debris, waste and traffic.

Photo: Nida Rehman, 2017.

Women's access to and movement within public spaces in Pakistan has long been constrained by patriarchal views of propriety and modesty, limited pedestrian and transit infrastructures, and subjection to staring, insults or sexual violence (Khawar 2018; Masood 2018). Female workers, who comprise the majority of the dengue workforce in Punjab, make their way through threatening urban environments during house-to-house surveillance. One LSP, Fareeda,⁵ told me: "At times, if I am waiting at the [bus] stop, a man might say he wants to go out [with me]. So, we try not to wait too long by ourselves. If someone is passing by on his motorbike or in his car, he might start to ride around in circles around us, or stand nearby." Such negative experiences are coupled with a lack of mobility options. Despite being state employees, workers are not provided vehicles or a travel allowance. While their male colleagues usually own motorcycles, the women make do by spending extra money on rickshaws, getting rides from SPs or walking long distances.

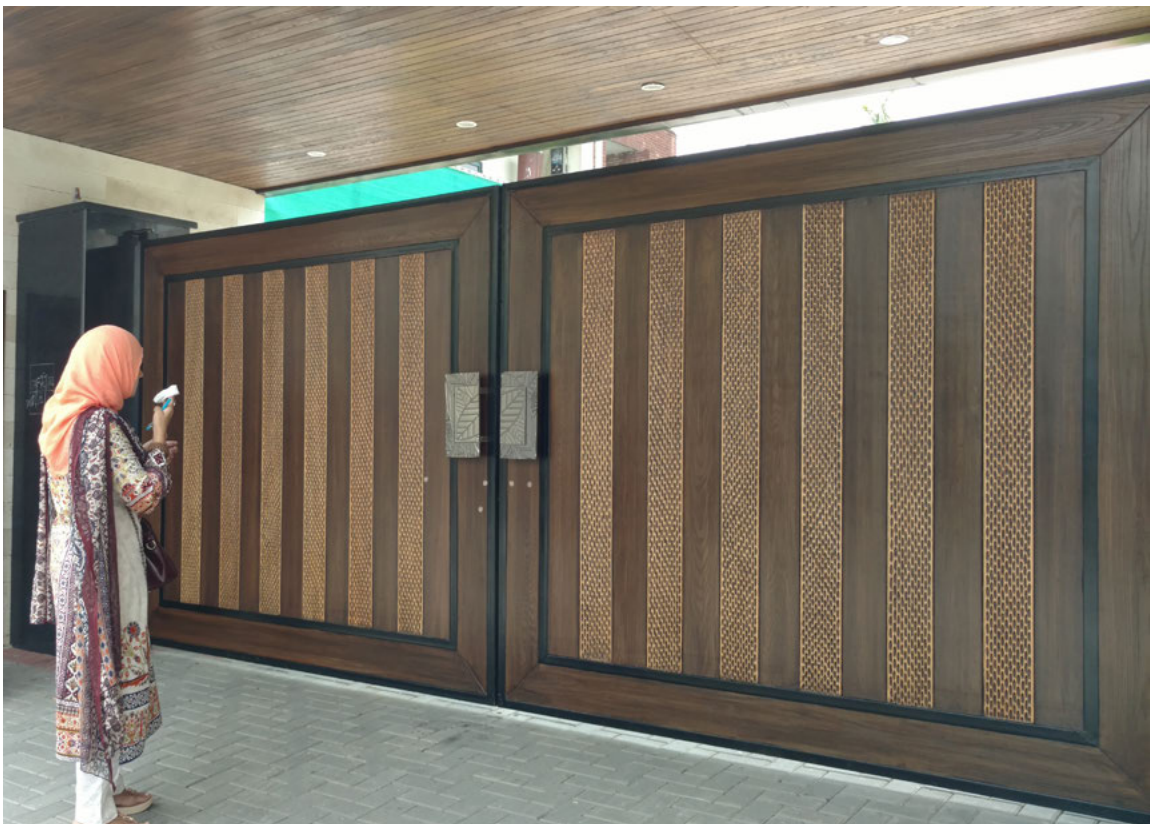
⁵ All names are anonymized.

Crossing the boundary from public to private raises other gendered and classed tensions. Entry into elite and upper-middle class spaces – *barre ghar* ('large houses', in Urdu) and gated compounds – is mediated by domestic staff and architectural boundaries.

It entails long waits or outright refusals of entry. A female inspector highlighted the need to manage such refusals and rudeness by walking a fine line between extreme politeness and professional assertiveness. But this boundary also signals the potential danger of misbehavior or harassment inside. As Fareeda noted, “sometimes the servants are not nice people, sometimes the owners are not nice people ... we don’t know ... If someone wants to do a bad deed, they’ll do it, either in words or otherwise.” Her colleagues explained that if they were harmed by residents, they had no recourse: “we do the work, we have our orders, but god forbid if anything happens to us inside, our department people don’t do anything for us.”

A female health inspector waits outside a large entry gate in the August heat.

Photo: Nida Rehman, 2017.



A different set of gendered infrastructural relationships contour the home as a site for dengue surveillance. *Aedes aegypti*, often called a ‘domestic mosquito’, is attracted to small pools of water: fridge trays, depressions in manhole covers, pet or bird feeding containers, evaporative water coolers, flowerpots, vases and other household receptacles where water is intentionally held or unintentionally stands. In a context marked by widespread failures of water infrastructure, mosquito breeding is closely linked to a variety of individualized mechanisms and practices to manage water shortage. Depending on social class, these range from concrete water tanks to rooftop polymer drums, to buckets or pots. Such household receptacles form key targets for surveillance, and the responsibility to maintain cleanliness falls disproportionately on women. This is reinforced by the LSPs as they conduct surveillance underscoring to women the importance of *khyal* (care) and *safai* (cleanliness/hygiene). With the “absence(s), disconnectedness



A resident helps an LSP inspect inside a water storage drum located next to her outdoor cooking area.

Photo: Nida Rehman, 2017.

and exclusions” of infrastructural systems marking the “intimate material and social relationships of urban life” (Datta 2019) on the street, at the threshold of public or private, or inside the home, differentiations across gender and class lines inevitably shape the localized practices of public-health management.

Contingent Infrastructural Relations

Despite female health workers’ centrality to the public-health apparatus and role as government representatives, their relationship to the state remains partial and contingent. Many struggle with financial insecurity and irregular contracts, and must manage everyday challenges of access, security and hostility in the absence of government support. Meanwhile, they also form new, sometimes positive, relationships within their sites of practice. In contrast to refusals and hostile behavior, interactions between LSPs and women residents can sometimes be cordial. Some workers belong to the communities

where they work, or create familiarity and bonds of trust after visiting for extended periods. Female residents might invite LSPs for tea while proudly demonstrating their diligence in clearing mosquito breeding opportunities from their homes. One LSP explained: “I press the doorbell or I just call out, and many of the ladies say ‘I only open when I hear your voice. If it is someone else I don’t let them visit.’”

In negotiating urban space, female workers also try to reclaim time and space. Dengue field staff are mandated to conduct surveillance until a fixed time in the afternoon and visit a set number of houses. Despite their regimented schedules and the socio-spatial impediments of the urban environment, female workers might try to carve out time and stop in a safe place or less frequented park, loosening temporal limitations and claiming rights to public space. The gatherings of female health workers in the city have also taken on a more visible, insurgent, role in [protests](#) to demand better labor conditions and the regularization and payment of contracts, which have been met by further state [violence](#). Just as feminists in South Asia have sought to challenge taboos associated with women’s presence in urban spaces through small- and large-scale interventions (Phadke and Ranade 2011; Khawar 2018; Kirmani 2018), the movement of female health workers in the street and through public spaces allows the possibility for momentarily holding the mandates of state and society at bay (Parikh 2019) and for more radical acts of resistance. Gendered infrastructures of public health are thus constituted relationally and flexibly across the spatial boundaries and fragmentations of urban and intimate spaces – as female dengue workers translate official procedures into embodied practices, weave their social worlds and lay claim to the city.

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Infrastructure Aunties

Youbin Kang

The *emo* (이모, in Hangul) subway cleaner rides the subway to work late on a Friday night in Seoul as the city's debauchery subsides.¹ Dressed in colorful patterns deemed unfashionable by the young, and with a characteristic short-haired perm, her outward presentation is bold, in the style of a stereotypical aunty. She stands out as an anomaly in a crowd filled with young, alcohol-flushed faces and older men whose liver problems are betrayed by their greying complexions. She tends to stay home on weekend nights, brought up by a generation that had gender roles with clear spatial connotations. The husband is *bakkatsaram* (바깥사람), the 'outside person', and the wife, *ansaram* (안사람), the 'inside person'. The *bakkatsaram* traverses wider economic structures and contributes to matters of money and society, while the *ansaram* is symbolically and physically relegated to the domestic sphere of family and care. Riding the subway to work amongst drunk people are the *emos*, who I refer to as 'infrastructure aunties.' They are objects of discipline and fascination whose presence blurs the boundaries between inside and outside.

¹ 이모 (*emo*) is Korean for an aunt on the mother's side. This term is also used affectionately to refer to middle-aged women workers.

Arriving at the workplace, the *emo* changes into her uniform of navy polo and chinos bearing the logo of the Seoul Metro and waits in the closet-sized staff room for the crowd to disperse, snacking on cut fruit the cleaners prepare for each other. Middle-aged female workers, employed mainly on part-time, precarious contracts, have been cleaning the subway systems of South Korea since the 1970s. Accompanying the *emo* on their work shift, we discussed the time this one *emo* was on TV. She complained that she was ‘outed’ to all her family and friends as a subway cleaner; she enjoyed the fame but was also embarrassed. The ladies follow up with words of empowerment, reminding her that their work is an integral civil service.

When the last train pulls out of the station, the women put on rubber boots and the same [pink rubber gloves](#), or ‘mommy hands’ (마미손), used by housewives around the country to protect their soft hands from harsh detergent and salty marinades. They duck under the half-closed metal gates, and the team leader hoses the platform of grime while the rest of the workers use squeegee brooms to clear vomit and the detritus of urban life from the underground station. They are the first to wake and last to sleep, as housewives tend to do.

The *emo*, as infrastructure aunty, traverses the boundaries of public and private through invisibilized work. Their gendered labor has been considered supplemental, not worthy of focus and generally dismissed (Wijunamai 2022). However, the infrastructure aunty as liminal space-taker, equipped with the habitus of care and a solidarity sharpened throughout their life in modern Korea, scrubs derision into clean adoration – making the importance of this figure harder to camouflage or take for granted.

Conceptualizing infrastructure as labor emphasizes its socio-materiality, its “dynamic processes that both disrupt and reinscribe social positions across a range of scales, locations, and demographics” (Murton 2019: 2). This helps to foreground the ways that labor maintains, activates and embodies infrastructures. Infrastructure aunties are the workers who clean the subways in South Korea, but as a semiotic vehicle,² this term foregrounds the auntiness of infrastructure, departing from its common association with the masculinity of state-led projects. “As a form of kin, aunties blur the boundaries of the family[;] with the capacity to both surveil and sabotage its circumference,” notes Khubchandani, “aunties appear as figures of fascination, adoration, derision, and desire in public discourses” (Khubchandani 2022: 223). Like aunties, infrastructure is networked. It is not itself productive capital, yet is integral to the latter’s maintenance. The aunty is symbolic, ubiquitous and adored, yet derided and complained about; she traverses the public and private spheres. It is also the case that infrastructure aunties keep the metropolis moving. Their labor reproduces the glossy infrastructures of seamless mobility that characterize the modern cityscape.

² The poetics of infrastructure “take on fetish-like aspects that sometimes can be wholly autonomous from their technical function” (Larkin 2013: 327).

The Collective Agency of Infrastructure Aunties

“Obviously, they didn’t really think of us when building these stations,” a Busan subway cleaner told me during my fieldwork in 2021. “We have an unventilated closet to rest in. Sometimes we have to travel to another station to take a shower.” The neglect of laboring aunties’ bodies is reflected in the material infrastructure of subway stations. This



history can be traced to the gendered experience of compressed modernity in Korea, where the undervaluation of domestic labor was exploited to build the modern nation (Kim 1997; Koo 2001; Moon 2005; Chang 2020). The architectural layout of subway systems is material evidence of this reality; they were built under direct state supervision by the military dictatorship. The military corruption behind such outsourced cleaning work also meant that the infrastructure of train stations did not have cleaning workers in mind.

← **Protective gear.**

Photo: Youbin Kang, 2020.

→ **The grime of the subway platform.**

Photo: Youbin Kang, 2020.

Nevertheless, aunties have not been silent about their mistreatment – as evinced by the attention of the labor movement to cleaning and service workers, who are mostly middle-aged women (Korea General Labor Union 2014). The symbolic struggle for their work to be classified as formal and legitimate highlights the agency of aunties as key participants in the contemporary labor movement of Korea.

The strategies of aunties are informed by their habitus as mothers within a family unit. Many of the activists I interviewed were not student-turned-organizer types with the militant youthful bravado of typical Korean labor movements, but mothers. Some of them were out of the main workforce while raising their children, taking outsourced jobs on the side from nearby factories sewing buttons or embellishing boots with diamante. Others found that their old, retired husbands were no longer able to bring in the same monthly wages and so took the family's finances into their own hands. Some tried to save up for their children's weddings or escape more stressful, lower-paid restaurant work, preferring the stability of a public-sector job because subways are too important to go bankrupt overnight.

The habitus of care translates into the aunties' self-organizing and activism. When I asked one aunty why she was so involved when she could just take her pay home and retire in a few years, she answered that she spent her energy organizing in the workplace because she was a mother. Another explained that her concern for other precarious workers also came from an ethic of care: "These kids, you know, in their twenties and thirties, should be making at least three million won to be able to get married. But the most they get 2.4 million. I ask them because they are like sons to me." She went on to describe that her work as aunty-cum-activist benefits these younger subcontracted workers who she saw as much more vulnerable to employer repression compared to her. She explained, "When they organize, they terminate their contracts. [...] I always feel sorry for them." Aunties build solidarity by leveraging the liminal space in which they dwell as mother-workers.

Many of the women claimed that their disinterest in politics had transformed when they started their jobs. One aunty told me that she would always vote conservative because her husband was conservative, and she had previously thought trade unions only caused trouble. Now, she is head of the union for the Busan subway and appears on the news wearing her distinctive red headband with the word 투쟁! ('Fight!'), and a blue utilitarian vest, both symbolic of the labor movement in South Korea. Moreover, a group of aunties from the Busan metro are active participants in solidarity rallies, arranging cleaning-worker campaigns in universities and hotels through the aunty-networks they have built.



Akin to some of the processes and products of infrastructure itself, infrastructure aunties weave networks and build solidarity through relational gestures. Aunties often complain about the younger and more educated formal employees working as station agents who project a sense of superiority around them, and who also sometimes oppose attempts to regularize precarious contracts (Kang 2023). The women commented that these young people had 'dried hearts' (메마른마음). Yet, in picket lines and union meetings, the aunties are still quick to share snacks with everyone, unabashed in their

Aunty Triptych.

Photo: Jimmy Sert, 2021.

labor of weaving networks and crafting solidarity. Aunties readily build camaraderie with others; they always know whether someone has a strict spouse or is too busy outside of work to participate in the latest labor action planned for the weekend. Their solidarity and other-oriented behavior are intersectional with their gender and class positions (McGinn and Oh 2017).

Infrastructure is both ordinary and spectacular. As ‘inside people’ negotiating their roles as ‘outside people’ within a state-run infrastructure that maintains the behemoth economy, infrastructure aunties prompt us to think twice about the auntyness of infrastructures – which bedazzle cityscapes but only continue to exist through the banal and invisibilized labor of aunties.

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Working, Bending, Suffering:

Embodying Irrigation Infrastructure in Rural Ethiopia

Annapia Debarry

On a sunny day during the dry season in Ethiopia's northern Amhara region, a boy herds cattle along a concrete canal in the Koga irrigation scheme. What looks like a simple construction is in fact part of one of the country's first large-scale irrigation infrastructure projects,¹ providing water for about ten thousand households to irrigate their fields in a second agricultural season outside of the rainy period (Beyene 2018). The technical infrastructure consists of a large dam and reservoir that supplies water to the irrigation scheme. The water is channelled along a main canal from the reservoir to several catchments in the irrigation area, before being diverted into smaller canals from which farmers supply their fields with furrow irrigation. Due to the availability of extensive water resources such as lakes and rivers, the development of large-scale water infrastructure is a key aspect of Ethiopia's development policy aimed at modernizing and increasing agricultural productivity. Often considered merely as technical advances to sustainably intensify agriculture (World Bank 2020), such grand irrigation projects represent a major intervention in the lives of local people, creating new social inequalities in the process (Eguavoen and Tesfai 2012; Mulugeta 2019; Gebreyes et al. 2020; Müller-Mahn et al. 2022).

¹ The Koga irrigation project, partly financed by the African Development Fund, was initiated by the Ethiopian government in 2001 and completed in 2012 with the goal to enhance agricultural productivity.



Embodying Irrigation Infrastructure through Visual Storytelling

Although irrigation contributes to the improvement of livelihoods, it also increases the burden of work for farmers – mainly as a result of year-round farming. The crucial role of human labour in (irrigation) infrastructure projects, especially in contexts where there is a highly gendered division of labour, has only been explored to a limited extent.² Early feminist research linked irrigation and gender by drawing attention to women's lack of participation and proposing gender-sensitive planning (Zwarteveen 1995), while more recent studies have deepened our understanding of the gendered impacts of irrigation in terms of vulnerability and poverty (Harris 2008). Recent feminist approaches rooted in political ecology 'embody' the growing literature on natural resources (Gururani 2002), water (Sultana 2009, 2011; Truelove, 2019) and infrastructure (Sultana 2020; Truelove and Ruszczyk 2022) through focusing on the body as a site of experience and inquiry. Although such embodied dimensions lead to nuanced encounters with power relations and social inequalities, they tend to be marginalized in the discourse on irrigation. This article seeks to link embodied approaches to the infrastructure of irrigation through visual storytelling, in order to shed light on the gendered and socially differentiated dimensions of infrastructural labour that are usually taken for granted by project planners and which therefore remain invisible.

All photographs illustrating this piece were taken by farmers – both men and women – living and working in various villages of the Koga irrigation scheme during fieldwork in September 2019, documenting their daily life with irrigation. Semi-structured interviews and group discussions were conducted with these farmers and translated from Amharic into English as part of broader ethnographic fieldwork in Koga between 2019 and 2022.

Boy herding cattle along a concrete canal in the Koga irrigation scheme.

Photo: Male farmer, Kolela village, 2019.

² Leila Harris's (2006) study on irrigation projects in Turkey offers a detailed example of an emerging labour economy that is something of an exception here.

Infrastructural Labour: Powered by Labour Norms and Expectations

Without ongoing human labour, irrigation infrastructure would be inconceivable. This can be further illuminated by considering recent work that views infrastructure as non-material, social and ‘peopled’ (Simone 2004; Berlant 2016). In this sense, the working, walking, carrying, suffering and bending bodies of the women, men and children of Koga that find visual expression in the photographs included here are themselves infrastructure critical to upholding productivity. When exploring expectations and norms related to labour in Koga, it becomes clear that ‘infrastructural bodies’ are gendered, aged and classed. Women and men alike expressed how social norms have evolved to reinforce expectations around hard work, especially targeting women and girls. As farmers explained in interviews:

“Since the irrigation, women are expected to wake up early and prepare food, then expected to help in the fields, even when they are pregnant or breast-feeding. They are busy the whole year.” (male farmer)

“Now the women work both in the house and on the farm. Before, the women sometimes worked only at home, but now that there is irrigation and more labour is needed, we all work to benefit from irrigation.” (female farmer)



Boys applying pesticides on their family farm without protective clothing. An embodied agricultural activity in the Koga irrigation scheme that can cause harm.

Photo: Female farmer, Andinet village, 2019.

Labour expectations are not only gendered but also depend on other social factors such as age. Many respondents stated that children are now much more involved in agricultural activities and are kept back from school on days when the family has a lot to do. This is also evident from the photo documentation, where farmers frequently pictured their children at work, including doing dangerous tasks such as spraying

pesticides. Application of pesticides is mainly the domain of men, but it is sometimes handed down to boys due to lack of time and insufficient knowledge about the dangers of such chemicals.



Daily wage labourers planting seedlings in a field in Koga. High-income families who own irrigated land hire additional labour on a daily basis depending on the season.

Photo: Male farmer, Andinet village, 2019.

Looking further through an intersectional lens, it becomes clear that labour in Koga is not only unequally distributed along lines of gender and age, but also in terms of social class and status. In the photograph below, a farmer has documented female daily wage labourers employed by families who own irrigated land. The work of these mostly female labourers remains extremely precarious despite the extended agricultural season in the irrigation scheme, as it continues to be seasonal, ad hoc and depends on the financial capacity of the landowning households to hire additional labour. But low-income landowners often find themselves in a precarious situation too as they are forced to hire labour to keep up with the time-consuming and costly demands of irrigated agriculture. As a female farmer explained:

“Irrigation requires a great deal of labour and capital. Farmers with a lot of money have a major advantage. We need additional labour, it costs us and the profit is small. But my husband and I cannot manage without hiring additional labour.”

To a State of Exhaustion: Embodied Experiences of Irrigation Farming

Embodied experiences of irrigation agriculture were related by many women to exhaustion, time constraints on self-care, a general burden and pressure, and the unequal distribution of work between men and women. In the images captured by

the farmers, we see the embodied dimension of agriculture expressed in the bending (female) bodies responsible for many exclusively female agricultural tasks. For women, irrigation has led to a cumulative dynamic in their workload as their traditional tasks – especially the time-intensive provision of drinking water – have become interwoven with gendered agricultural work. Due to this increased workload, women are under even more pressure to supply their households with drinking water. While there is now plenty of water for irrigation, the domestic water situation in Koga is still dire, although the project was supposed to improve it through a watershed management component (AfDB 2001). As a result, women must continue to fetch water from unsafe sources such as rivers and traditional wells and in doing so have to travel long distances, where they often feel unsafe and anxious. Fearing crime, many women do not let their daughters fetch water. As a female farmer reported:

“As the river is far from our house, we never allow our girls to go there alone. We fear that someone might take them by force to rape or harass them. As mothers we are not afraid, we have to go alone.”



A mother and her children weeding a field. Apart from ploughing, women carry out most farming activities with the help of their children.

Photo: Male farmer, Andinet village, 2019.

These protection mechanisms draw our attention to what Sultana (2015: 642) calls “feminization of experience”: women in Koga feel it is their duty to endure the suffering of fetching water and so they carry on.

(In)visible Labour: Thinking Infrastructure through People

Through a visual journey, this article has investigated how irrigation labour practices are unequally distributed in socially differentiated ways, thereby exposing gendered,

aged and classed bodies not only to stress and harm, but also to becoming living infrastructure themselves. Exploring micro-contexts like Koga by “sense-making through the body” (Shattuck 2019: 3) and thinking infrastructure through people by incorporating a non-material dimension can elevate our attention to social inequalities and gender-sensitive and intersectional perspectives on irrigation infrastructure. This becomes particularly important as human labour too often remains invisible to project planners, governments and even researchers.

Fetching water from a traditional well. Women in Koga often have to walk long distances several times a day to fetch water.
Photo: Female farmer, Kolela village, 2019.



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Laundry and Leisure

Iromi Perera

“Luckily we are on this side of the building so we get the morning sun. My sister in the other building gets no proper sun, so her clothes take hours to dry.” This was said to me one gloomy morning by Samanmalee,¹ a forty-year-old domestic worker in Colombo, as she examined some damp clothes drying outside her eighth-floor apartment. It was meant to be a conversation about her housing documents, or lack thereof, following her relocation to a high-rise complex in a different part of the city in 2016.

¹ Names have been changed.

Over the years, I found that conversations with women in these high-rise complexes always came back to chatting about all the household chores and care work they perform as a way of explaining how relocation had changed their lives. This was not what was promised in the brochures of the Government of Sri Lanka’s postwar flagship city beautification programme. In 2012, the Urban Regeneration Programme (URP) ambitiously set out to create a “world recognized city” by eliminating “[shanties, slums and other dilapidated housing from the city of Colombo by relocating dwellers into modern houses](#),” while also recognizing various social and economic benefits of relocation (CPA 2014: 8). Since then, the URP has moved almost twenty thousand families to high-

rise complexes across the city, with another forty thousand to go (Perera 2020a). The majority of those who have been, or who are going to be relocated, did not and do not actually live in slums. Their settlements are referred to as *watte* (වත්ත, in Sinhalese), which literally translates to ‘gardens.’ They have permanent, fully upgraded houses with formal grid access to water, electricity and sanitation, and some form of housing documentation that ties the residents to their house. Residents in these settlements



Clothes drying in a watte while residents are out at work.

Photo: Iromi Perera, 2021.



A woman plays with her grandchild while clothes dry outside their top-floor apartment.

Photo: Iromi Perera, 2019.

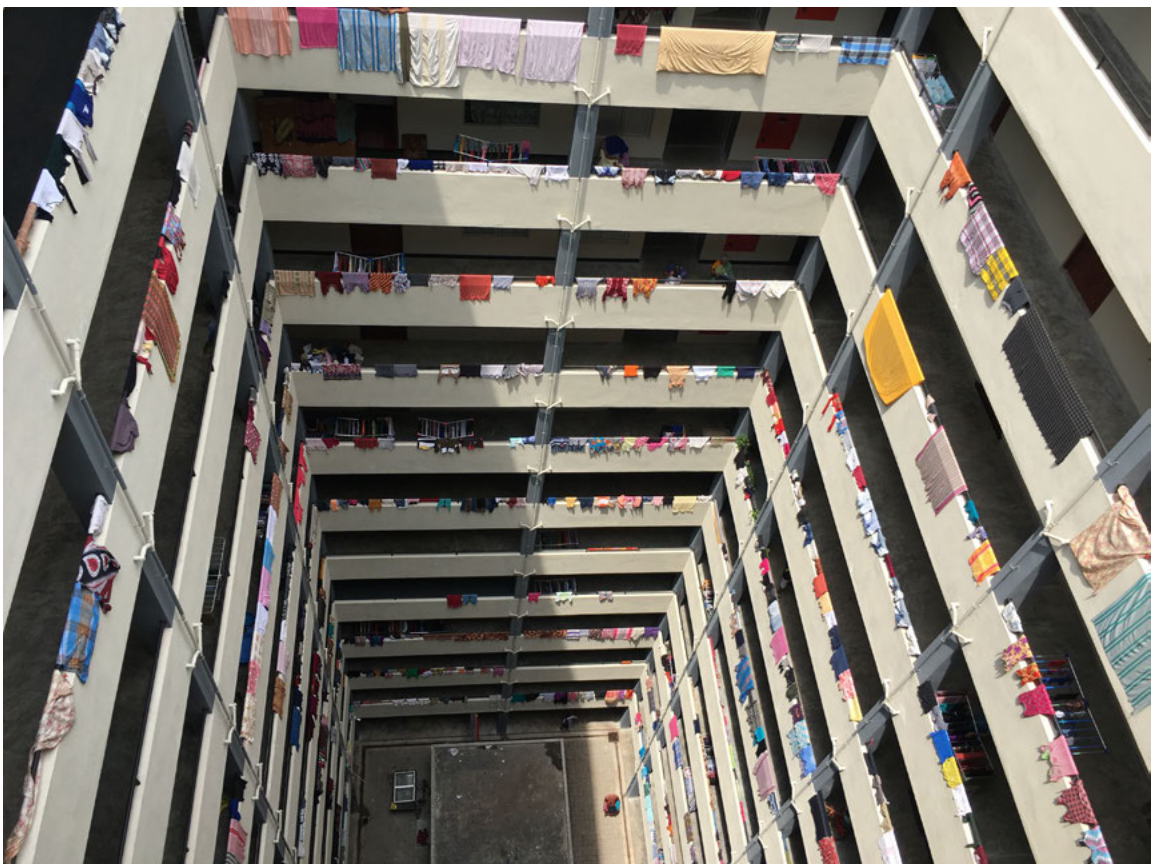
have lived in the city for generations and consider Colombo to be their ‘village’, i.e. the place where their roots are (Abeyasekera et al. 2019). However, they all occupied or occupy prime property that has been earmarked for mixed development projects and luxury condominiums (Perera 2020b).

One of the more telling entry points for understanding the impact of relocation is to look at the human–infrastructure conflict taking place in these high-rises. Apartment dwelling is a very different way of living for anyone who has spent their life in a house. The design and form of this built environment does not take into consideration how people have previously used space. The URP assumes that a “modern” apartment of 400–500 square feet alone is enough to increase quality of life, despite the fact that some citizens had bigger homes previously.

The complexes house various communities from all over the city and the Urban Development Authority deliberately breaks up *wattes* in the involuntary relocation process. Many residents do not have a close relationship or community network with their new neighbours, even after living there for years. Families and former neighbours are now scattered across different blocks. Over time, there have been more complaints by residents about the increase in drug use and petty crime in the buildings, as no one is able to identify whether someone is an outsider or a resident. For the most part, other residents are also strangers anyway.

A regular weekday in a high-rise block where a community had just been relocated.

Photo: Iromi Perera, 2019.





The same block in May 2022 during the Vesak festival. Over the years the women have added some green to the building, personalizing the front of their homes. Photo: Iromi Perera, 2022.

A typical day for many women in the high-rises means waking up around three or four in the morning, then cooking breakfast and lunch for the whole family before getting the children ready for school. For those who have a home-based livelihood or go out to work, all this care work, as well as household tasks like laundry, must be done first. What makes this work much harder and longer now is that the built environment has neither been planned with these daily activities in mind, nor does it facilitate the communal nature of routine tasks. The women who do not work spend days inside their apartments without interacting much with others in the building.

One of the most common complaints is seemingly minor but it has profound implications that shape and are shaped by gender relations: the drying of clothes. Apartments in the older high-rise buildings each have one small individual balcony that is also used as storage space. Hanging wet clothes on this balcony is the only way of drying them other than hanging them in the public corridors, and in the older complexes these corridors are long and dark, with little to no sunlight or ventilation. Newer apartments do not have a balcony, which means residents are left with the corridor, and laundry can only be done in small batches because everyone is competing for corridor space. Depending on where you are situated in the building, some apartments have minimal sunlight or breeze, and clothes take much longer to dry. In buildings where there is a lot of petty crime, it is not unusual to see women sitting outside their door – literally watching clothes dry and sometimes keeping an eye on their neighbours' laundry as well.

Leisure, or free time, is yet another area that reveals the gendered dynamics of resettlement. The men in the buildings go out to work, and when they come home they rarely help with the household work that has fallen on the women. As many men engage in labour-intensive work during the day, coming home and resting is the norm. Even in

households where women also go out to work, the expectations of running a smooth household has not changed, nor have the ideas of what is considered women's work in the household. In my research over the last eight years I have regularly heard women remark that even if they did have time for themselves, they would still be cooped up or 'caged' (කුඩුව) inside the flat. The complexes were not built with the idea of leisure in mind. Their apartments and the corridor areas have become the only spaces where women can spend time, which has made their world physically smaller. The buildings all have twelve to fourteen floors, and over time the lifts have broken down, receiving no maintenance or repair for months on end. This means that older people, as well as those with disabilities, feel trapped in their small spaces, too.



Car parks and balconyless concrete buildings.

Photo: Iromi Perera, 2021.

This new life in the high-rises is all the harder because residents have another, prior life to compare it to. While dwelling in the *watte* was not always easy and had its own conflicts and tensions, space and time were things that women had more control over there. "Even if we were sometimes annoyed with our neighbours, we would never let their clothes get wet in the rain, and there was always someone to keep an eye on my child or give him some food if I came home late from work," explained Kanchana, who worked as a cashier in a supermarket. She had been allocated an apartment in

a different block from the rest of her *watte* and hardly knew anyone on her floor. In the *watte*, activities could spill over to the passageways and streets, and spaces for leisure or privacy were not limited to the home. The *wattes* are not designed in a grid-like way, leaving open spaces and small public garden areas that afford privacy. Most importantly, communities and care networks had evolved over time. Even when relocation has kept a community together in a block, the layout and design can never replicate the forms and functions of a *watte*. It is too sterile, too disciplined (Amasuriya and Spencer 2015), and does not allow for life to spill over from one place to another in an organic fashion.

Neither does it allow people to adapt to change, whether this is driven by circumstances, aspirations or socioeconomic conditions. If a family expands in a *watte*, they build another floor or an annex to accommodate everyone. So when working-class poor communities in Colombo, just recovering from the impact of the COVID-19 lockdown (Perera 2020c), were hit hard by [Sri Lanka's crippling economic crisis in 2022](#), the *watte* communities found it easier to adapt in comparison to those in the high-rises. [They shifted from using gas cylinders to cooking on wood-fired stoves](#), growing whatever edibles they could in their gardens and cooking communally in the public areas. None of these were options for those in the high-rises.

The aesthetics of controlled order promote disorder of a different kind, and this plays out in a gendered way. Life is harder for the men as well. Relocation has increased household expenses, leaving men with less disposable income. But in comparison to the women's experiences, their stress is caused less by the built environment. For the women in the high-rises this is, as one of them described, a 'slow death' (අපි හිමින් හිමින් මැරෙන්නෙමු). Not only does the stress of the everyday creep up on them, but there is great difficulty in adjusting to these 'modern' houses. In advocating for changes in housing policy or even simple upgrades to their building – for instance better garbage collection – women do not usually prioritize their own wellbeing in terms of space. They are more likely to campaign for a children's playground or shop space where they can sell groceries and earn an income, but not a park or green area for people of all ages, nor even a better place for drying clothes. Had planners and policy-makers considered the gendered dimensions of housing infrastructures, consulting the people who were going to occupy the high-rises, the likes of Samanmalee and Kanchana would perhaps be living a very different life today.

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“We have arrived”: Gendered Roads in Bharatpur, Nepal

Hanna A. Ruszczyk

“My desire is to create a middle-class area in the city. As the president of the neighbourhood group, my goal is to pave the three streets of our neighbourhood and to clean the streets of plastic.”

- Ram Prasad (pseudonym), November 2014

Ram Prasad, president of the Citizens' Village neighbourhood group, is a high-caste Brahmin, a charismatic and energetic man in his early fifties. Ram is retired, a self-titled “social worker” engaged in community activities. He earns money from renting out residential and commercial space in his building as well as receiving remittances from his son living in the USA. In the mid-2000s, Ram and his wife migrated from the hills of Nepal to Bharatpur, a city of 270,000 residents on the plains of Nepal near Chitwan National Park. They built a three-story building on a quiet street in the centre of the city's Ward 4. This photo-essay offers snapshots over a five-year timeline from 2014 to 2019, showing the temporality of road construction in urban Nepal and its intimate relationship to gendered aspirations for physical infrastructure.¹

¹ For insights into rural and mountain road construction in Nepal see Murton 2018, Pigg 2019 and Gurung 2021.



*Commercial street
adjoining the
neighbourhood.*
Photo: Hanna Ruszczyk,
2014.

The four-block area that constitutes Ward 4 has a mix of three-story housing units, which are home to approximately one hundred households and light manufacturing businesses. As can be seen from the quote above, Ram has aspirations for his future in the city. He wants his neighbourhood to be viewed as a middle-class area where homeowners can live peacefully in a clean environment. This can be achieved through enhancing the physical infrastructure and also by “getting rid,” in Ram’s words, of informal settlement dwellers who live in one-room shacks.



Informal settlement.
Photo: Hanna Ruszczyk,
2015.

Ram established and led an informal neighbourhood group comprising male homeowners in the neighbourhood who each contributed dues of approximately two hundred rupees, or two U.S. dollars, per month. In addition to the monthly dues, Ram was collecting money for neighbourhood infrastructure projects. Meanwhile, the wives of the members of the neighbourhood group were enlisted to keep the streets clean of plastic. This gendered division of labour is significant because while their opinions did not matter to the neighbourhood group members – i.e. their husbands – the women nonetheless provided labour.



Gravel road after drainage has been installed, informal settlement on the left.
Photo: Hanna Ruszczyk, 2017.



Ram showing me the paved road.
Photo: Hanna Ruszczyk, 2019.

By September 2015, the drainage pipes were purchased and about to be installed in the roads. In September 2017, I could observe their benefit in the community: there were no puddles to be seen. The street was no longer muddy and there were no potholes.

When I last visited Nepal in April 2019, Ram took me and my research assistant around the neighbourhood. The infrastructural transformation was complete in some parts: there was a paved road, and the streets were clean and tidy. Furthermore, the informal dwellers who had migrated from eastern Nepal, and who had been there for over a decade, were gone. Talking about the paved road, he told us proudly, "We [the men in the neighbourhood group] have arrived!" The gendered, masculine nature of this comment reflects his priorities. The neighbourhood group had focused on paved roads and clean streets as their gendered infrastructural desires. It took years of sustained effort and relationship-building, but they were successful. "Slowly, slowly," Ram had achieved his urban aspirations within his own realm of possibility.

← *Paved road in the Citizens' Village leading toward the informal settlement.*

Photo: Hanna Ruszczyk, 2019.

→ *Close-up of partly paved road in the neighbourhood.*

Photo: Hanna Ruszczyk, 2019.



Informal organizations of women called 'mothers' groups' (*Aama Samuha*, in Nepali) are present in various neighborhoods across Bharatpur. They have different aspirations for their families and the lives of people in their neighbourhoods. Members of several mothers' groups I interviewed explained that they were concerned about issues such as access to healthcare, domestic violence, education for their children, including

access to learning English, support for poor families struggling with purchasing school uniforms, as well as needing savings and loan schemes for members (Truelove and Ruszczyk 2022). The divergent gendered aspirations for urban futures were thus clearly visible by comparing neighbourhood groups with mothers' groups (Ruszczyk 2019).

Mothers' groups are not deemed necessary in Ram's neighbourhood since, in his opinion, he effectively manages everything of importance himself. Over five years of travelling to Bharatpur, I learnt that if there is a powerful neighbourhood group, more often than not there will be no mothers' group. In places where there were no neighbourhood groups, the mothers' groups thrived. They met the social, cultural and financial needs of the community.



'Forest road' dirt track.
Photo: Hanna Ruszczyk, 2017.

With my repeat trips, it became evident how quickly Ram Prasad had learnt to navigate relationships in the neighbourhood and with the ward-level local government to achieve masculinized aims in the city. He had the time, the social power accorded to his high caste, the right gender and homeowner status to be able to network with the appropriate men to meet urban aspirations such as the paving of roads. He understood how to access the new state spaces and how to rework the grey space of governance (Yiftachel 2009) to fulfil these desires.

The municipal government shared certain dimensions of this vision, as it was also concerned with providing visible, modern forms of physical infrastructure and had informally declared that it would bring paved roads to some parts of the city. The caveat was that there must be an informal neighbourhood group that could provide 20–30 percent co-financing for construction of such roads.² The local authority did not communicate directly with all neighbourhood groups; rather, information was passed on informally in these re-spatialized state spaces open only to some neighbourhood groups, specifically the male-dominated groups.

² For similar practices in Kathmandu, see Dennis 2017.



← **Forest road partly paved.**

Photo: Hanna Ruszczyk, 2019.

↓ **Forest road partly paved, with yellow and white lines.**

Photo: Hanna Ruszczyk, 2019.



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Everyday Tactics of Menstruating Commuters in Tokyo

Sakuko Sugawara

“When I compare myself to men, I think about how disadvantageous it is to have your period. A woman’s body changes so much during and after each period and because I experience mental fluctuations too, I think I am very disadvantaged,” Yuna tells me over a Zoom call.¹ She suffers from premenstrual dysphoric disorder (PMDD) and dysmenorrhea, and is one of the fifteen women I interviewed in 2022 as part of my research on how menstruation impacts train commuters in Tokyo.² As she chronicled her commute on rush-hour trains where she battled with lethargy and debilitating cramps every month, what became clear was that menstruation was not just a physical or biological issue but, as I will show in this essay, an infrastructural one.

¹ All respondents have been given pseudonyms to protect their identity.

² Although menstruation can be experienced by other demographics, my research is on cisgender women due to my positionality as a cisgender woman.

My Research Journey

My research on how menstruation shapes the experience of travel in Tokyo emerged from a broader interest in exploring how infrastructures of transport enable commuters to move from one place to another while simultaneously reducing their physical mobility by containing them in a restrictive space. This concept – termed motility by Jörg Beckman (2005) – has been explored by urban scholars like Michel de Certeau (1984) and Nigel Thrift (2005). Yet, as suggested by how de Certeau (1984: v) dedicates his book to “the ordinary man,” the conversation has largely revolved around the mobility of cisgender, able-bodied men. There is limited scholarship that considers how transport infrastructure can impede physical mobility for those with different physiological functions and capabilities.

As someone who has suffered heavy and painful periods for a long time, what especially struck me was the continued absence of mainstream discussions on menstruation in urban planning. However, most women I knew talked about menstruation in relation to how it affected their mobility and access to public spaces. They spoke about how they have canceled plans to go out if it overlapped with their heavier days and complained about the struggle of finding places to sit down and rest without having to pay for a cup of coffee. Even the question, “Can you check?” – used to ask others to check for period stains – is always asked in relation to being in public when there is heightened anxiety and shame around staining and leaking. Why, then, I wondered, was menstruation not centered in thinking about urban infrastructure?

³ Some exceptions are Kern 2020, Tuli et al. 2020, Lowe 2018 and Greed 2016.

Through my study, I found that this could be attributed to the perennial stigma surrounding conversations on women’s physiological functions. Some of my interlocutors were initially hesitant to speak about their menstrual struggles until I explained the purpose of my research. Others mentioned that they would never bring up menstruation to anyone outside of their close female social circle, to avoid causing embarrassment and discomfort. As a result of this perpetual silence encompassing public discussions on women’s bodily functions, I found that even spaces women use on an everyday basis, like the commuter railway infrastructure, fell short in catering to their menstrual needs.

Being Tactful

One of my most memorable respondents was Akari who, in an animated tone, recalled her struggle commuting to high school. Although she laughed as she spoke, she revealed an especially distressing experience where she was unable to locate a restroom while suffering from severe cramps. “I cried, I just cried. Inevitably, I had to embark on the train again and I rode to the next station before alighting again,” she said. When asked about the role of priority seating, which can potentially provide a certain degree of comfort to commuters experiencing strong cramps, she replied: “It’s difficult to see that I am suffering extreme pain so if I sit in a priority seat, people will think ‘Why is this young jerk sitting there?’” Thus, for people like Akari, public restrooms and priority seating played a minimal and insufficient role in alleviating the burden of menstruating in public.



Furthermore, women-only compartments, which I assumed at the outset of my research would assuage the anxiety of menstruation, featured least in my conversations. The limited timeframe in which these operate (usually during the morning rush hour) and their inconvenient location at the rear of trains deterred respondents from seeking gender-based affinity, despite the possibility that they would have more understanding fellow travelers if they experienced any period-related incidents.

Sign for priority seating taken at Futakotamagawa Station.

Photo: Sakuko Sugawara, 2022.

Where my respondents felt that the commuter railway infrastructure did not meet their menstrual needs, they devised their own tactics. Knowing that menstrual products are not easily accessible, many respondents carried around extra tampons, sanitary towels and painkillers, preemptively imagining a situation where they are away from home and on the move. They also attempted to cope with their struggles by internalizing the message that periods are a normal occurrence and something that must be endured. As Chihiro described it: “I think it’s something to endure, so I don’t ask for people to be [especially] considerate. Because I think that it’s normal. Maybe that’s not very good.” Moreover, frequent negative encounters during menstruation helped the women prepare for similar future events by remembering at what point the train usually clears out and memorizing the locations of public restrooms and stores where one can purchase menstrual products. Hence, they pieced together embodied experiences to view their environment as a complex set of possibilities and paucities.

Menstruation can seem mundane, as people are taught from an early age to manage it in privacy, eventually learning how to cope. Yet not everyone possesses equal capacity

simply to keep it as part of their daily routine when it poses an obstacle to their activities. When menstruation occurs in unexpected ways – whether it be through leakage or experiencing severe pain – it threatens to spill out of the private realm, where it has been safely kept secret, and into the public realm, where it is often subject to stigma and misinformation. The stain, the pain and the physical discomfort make the boundary between public and private not just porous but downright leaky.

'Just' a Period

Being prone to severe menstrual cramps and having vasovagal syncope, a chronic condition that causes fainting triggered by pain, meant that I often collapsed inside trains packed with businessmen, amidst a sea of unfamiliar male faces. Even though I was surrounded by many people, my mind would already be thinking ahead about how I was going to deal with this on my own. I would try frantically to recall what the platform at the next station looked like, where the benches were located and whether there were any restrooms nearby. In these instances, there was always a voice in my head that mocked my self-pity, reminding me that no one would help because it was 'just' a period. When I saw women in high heels standing in the train during their commute, never did it cross my mind that they too dismissed their own struggles as being just a period, enduring the journey to their office every day.



Public restrooms at Futakotamagawa Station.
Photo: Sakuko Sugawara, 2022.

As I concluded my interviews, many respondents told me that they had never been given the opportunity to speak so openly about their struggles with periods or to question exactly why the surrounding infrastructure seemed so hostile to their needs. As Akari remarked towards the end of her interview: "I mentioned earlier that I wouldn't ask for help when I am experiencing menstrual pain and I assume that other people

would say the same, but it would be ideal if there was an environment where people could seek help.”

Although Yuna felt that menstruation was a significant disadvantage for women, my study reveals that this disadvantage is in part due to rectifiable factors pertaining to the lack of attention to and aid for menstruating commuters. While menstruation will always entail physical discomfort, the feelings of isolation and shame may be alleviated if we could see clear efforts to improve our infrastructure. This would include public restrooms with fully functioning, well-stocked menstrual product dispensers and priority seating that takes into consideration less visible impediments, as well as – on a more macro level – calls to actively combat gendered exclusions. Creating feminist cities requires that we think beyond the mere numerical inclusion of women in public life; it means making possible conditions that foster mobility and belonging. One way to do this is by accounting for the lived experience of menstruation and anticipating the needs of people like Yuna, Akari and the scores of others who have learned to quietly cope with period pain, discomfort and the attendant experience of inequality.

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Queering the Line

Dominic Davies

Introduction

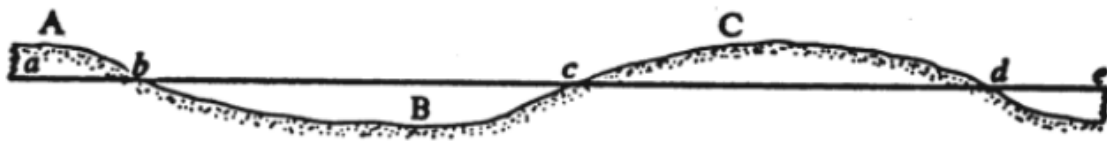
Under capitalist modernity, the straight line emerged as the ideal against which all kinds of mobility infrastructures were measured, from railways and roads to flightpaths and pipelines. Providing the quickest route from point A to point B, the straight line presents the most time-efficient direction of travel, maximizing profits and accumulated capital. But from the levelled tracks of the railways through to masculine fantasies of the open road, there are also thickly gendered imaginaries folded into this line.

This essay argues that capital's economic ideal of the 'straight' infrastructural line does not simply echo heteronormative and patriarchal ideals, but actively concretizes them into the world. It produces and reproduces social relations, contends Tim Ingold (2007: 4), its "straightness" epitomizing "not only rational thought and disputation but also the values of civility and moral rectitude." By queering the straight line, I refute this 'rational' ideal and show instead how it blends together systems of patriarchy and accumulation. To avoid straightness in my own line of argumentation, I approach this topic from three different directions. Each section begins with an image and

statement about the straight line, which it then deconstructs and disorganizes. The aim is to weave together a cross-hatched argument, rather than marching a masculine line through the empty page.

1. Smooth, Level, Hard, Straight

Capital's ideal infrastructure runs in a straight line.



In his much-celebrated 1836 book, *The Steam Engine*, the Victorian writer Dionysius Lardner praised the new railways for surpassing in mobility and comfort what were then Britain's unmetalled roads. "A perfect road should be smooth, level, hard, and straight," wrote Lardner. "Were it possible to construct a road between two places, absolutely smooth, absolutely level, absolutely hard, and absolutely straight, then a carriage put in motion from one end of this road would move to the other end without any tractive force at all" (Lardner 1851: 315–16; see also Schivelbusch 2014).

An illustration of a straight railway line carved through an undulating landscape.
Source: Wood 1838: 136.

Where roads and canals wound around undulating landscapes, the railway blasted through mountains and bridged over ravines, ploughing a direct corridor through the countryside. Its straight rails necessitated the labor-intensive levelling up and levelling down of hills; the new speeds it facilitated made this economically worthwhile. Indeed, because it hastened the annihilation of space by time (Marx 1993 [1939]), the railroad's straight line presented itself to Lardner as an infrastructural ideal, maximizing the imperatives of accumulation. By speeding up the circulation of goods without requiring additional labor time, the perfectly straight line promised to resolve one of capital's most acute spatial contradictions.

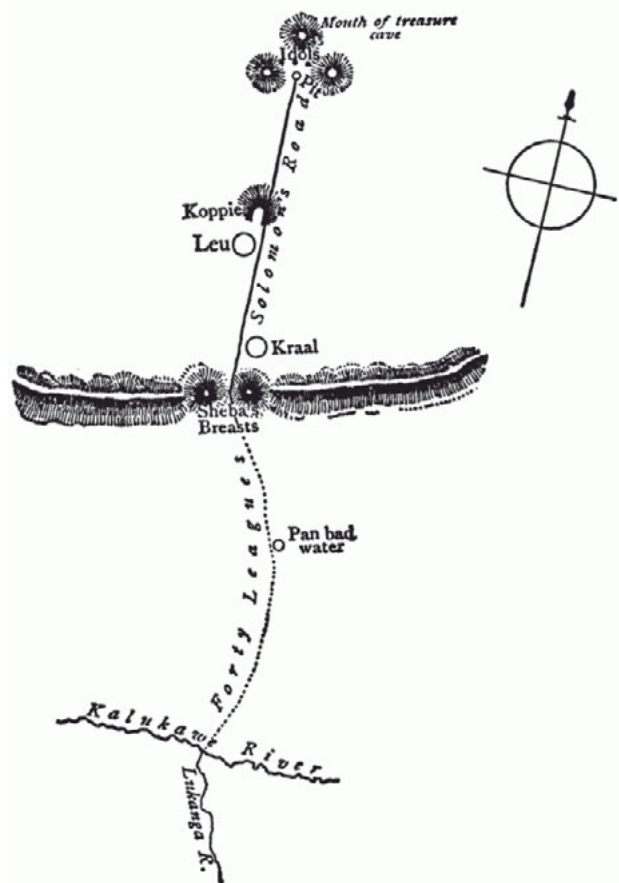
For Lardner, the truly "perfect" road would produce movement without any input at all. It would be so "smooth, level, hard, and straight" that it would remove all friction from the world, allowing an object to move as though in an abstract plane. Lardner therefore saw the railway as step toward the material realization of Isaac Newton's mathematical laws. "Every body perseveres in its state of being at rest or of moving uniformly straight forward," wrote Newton (1999 [1687]: 62) in his first law of inertia. In this frictionless world, capital would circulate and profit accumulate without any contradiction, crisis or diminishing of resources, sustaining the fantasy of endless growth.

Of course, steam engines did not glide from point A to point B along a perfect road. They required unprecedented levels of energy, millions of years of solar power released through the burning of fossil fuels mined by vast labor reserves. This would place limits

on the accumulation of profits, from the emergence of class warfare and industrial action to the pressures of the climate crisis. But the straight line has nevertheless sustained capitalism imaginatively, projecting a fantasy of abstract movement and endless growth by denying the labor required to produce material infrastructures – from pipelines in the twentieth century to flightpaths in the twenty-first.

2. The Open Road

The straight line concretizes patriarchal and heteronormative relations into the world.



The hand-drawn map included in H. Rider Haggard's imperial romance, *King Solomon's Mines*.

Source: Haggard 2008: 21.

While the straight line enacts the capitalist fantasy of frictionless movement by erasing the conditions of its own production, it nevertheless requires empty space through which to move. Implicitly constructed as male, the straight line feminizes this space, sublimating the gendered work of biological reproduction, domestic labor and care into its abstract field. As Henri Lefebvre put it, “the space of modernity ... is an unreservedly visualized space, a dictatorship of the eye – and of the phallus” (1991 [1974]: 302). Masculinity defines itself through the straight line as productive, temporal and mobile; meanwhile, the reproductive space that throws this line into relief is presented as static, feminized and often racialized (see Massey 1994: 182–83).

This is particularly evident in the imperialist portrayal of colonial landscapes as feminized and fertile spaces emptied of inhabitants. Feminist critics have pointed to the hand-drawn map that fronts H. Rider Haggard's 1884 romance, *King Solomon's Mines*, as a stark example of this heteronormative projection (Stott 1989). This image figures the colonial landscape as an inverted female body through which the novel's male protagonists then move, penetrating the landscape and following the straight line of the plot. "Haggard's map thereby hints at a hidden order underlying industrial modernity," writes Anne McClintock (1995: 3): "the conquest of the sexual and labor power of colonized women."

The straight line on this map is an infrastructure, Solomon's Road, which runs exactly parallel to the compass pointing due North and links the mountains to the treasure cave by the most direct route. Though not visible on the two-dimensional map, the road's construction has physically levelled the landscape through which it moves. "At one place we came to a great ravine three hundred feet broad and at least a hundred deep," remarks Haggard's narrator. "This vast gulf was actually filled in, apparently with huge blocks of dressed stone, with arches pierced at the bottom for a waterway, over which the road went sublimely on" (2008: 69). The protagonists assume the road must be left over from a lost white civilization in the centre of Africa; they are unable to believe a Black population could build such infrastructure, despite the material evidence in front of them. With the straight line, a white, heteronormative masculinity monopolizes temporal movement, while gendered, racialized and environmental labor is expelled to static space and exiled from the progress of history.

The straight line has sustained these ideals by reproducing them everywhere, from the plots of adventure fictions to extraction pipelines to intoxicating fantasies of the open road (Sheller 2018). Countless advertisements for 4x4s and episodes of the popular TV series *Top Gear* use a strip of black tarmac cutting through 'virginal' landscapes to project the straight line as a sexualized fantasy. They sell their implied male viewer private access to Lardner's ideal of effortless mobility. On the perfectly smooth and straight road, movement is rest. By erasing the labor that makes automobility possible, the straight line produces serenity, sexual gratification and even death. For instance, in J.G. Ballard's *Crash*, a 1973 novel in which the protagonist gets off on car crashes before eventually dying in one himself, the heteronormative fantasy of frictionless mobility reaches its demise in the dead end of a concrete bollard.

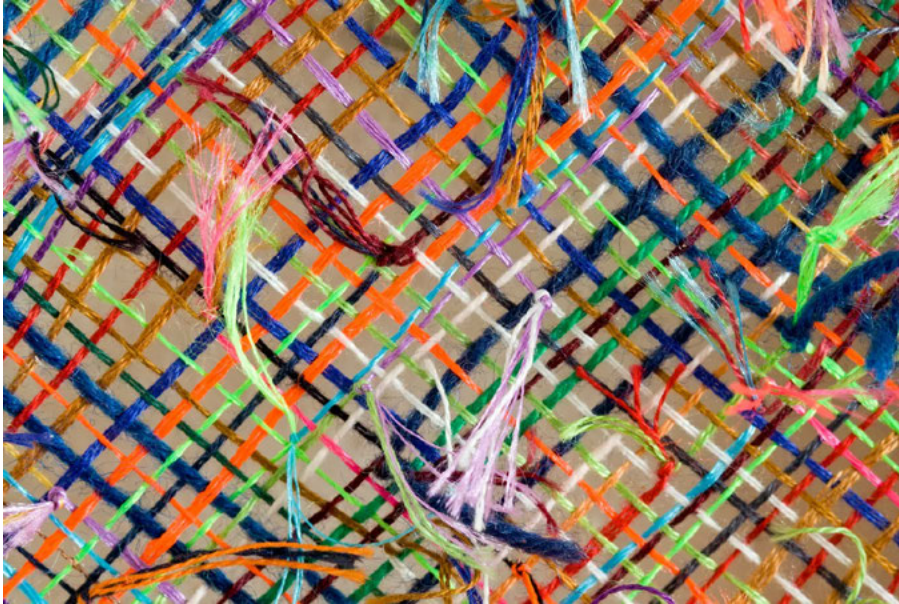
3. Queering the Line

Queering the line produces the freedom of place.

Queering the straight line reveals how systems of heteropatriarchy and capitalist accumulation are concretized both into one another and the world. But we should not do without lines altogether. If the first step is to reveal the straight line's violence, the second is to conceptualize different kinds of line.

To do so, we might look to 'orts', or 'old ratty threads', which knit together multiple intersecting lines into a dense fabric to produce a textured surface. The plane of orts

are not abstract but responsive to the bumpy topographies of the world, significantly made from recycled scraps and remainders of thread. Rather than concealing the labor that goes into its manufacture, it pushes that work to the fore. The weaving of orts is a project of collaborative repair, turning leftovers and spares into solid ground.



*Fluorescent ort loom
(weaving detail).*

Artist: [Nic McPhee, 2013](#).

Searching for the origins of straight lines, Ingold shifts attention from their intellectual genealogy to their everyday use: exercise books, floorboards, brick walls, pavements. These lines “ruled surfaces, but did not seem to connect anything with anything else. Their source lay not in the geometry – literally ‘earth measurement’ – of Euclid, but in the taut warp-threads of the weaver’s loom” (Ingold 2007: 4). Rather than abstracting the world into capitalist fantasies of unlimited accumulation, these straight lines return us to the world by knitting it together. As individual lines they may be inexact, but through the collective overlapping of the weave, they realize a surface that is situated and secure.

“The promise of a queer engagement,” writes Deborah Cowen (2014: 223) in her queer reading of infrastructure, resides “in its potential for transforming relations of rule through the desire and occupation of those relations differently.” This essay has sought to queer the idea of the perfect infrastructure as a straight line passing through frictionless terrain. In the terms of abolitionist geographers such as Ruth Wilson Gilmore (2022: 227), this frictionless movement conceals the far more enduring freedom of place. Against the straight line’s abstraction of space for capital accumulation and heteropatriarchal norms, the woven surface creates a foundational plane on which different ideas of freedom might be built. Surely these futures are what infrastructure is for; when we queer the straight line, they come into reach.

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