



Kent Academic Repository

Kadiri, Yeshashwini (2026) *Out-of-sync infrastructure and the everyday politics of water injustice*. Water Security . ISSN 2468-3124.

Downloaded from

<https://kar.kent.ac.uk/116080/> The University of Kent's Academic Repository KAR

The version of record is available from

<https://doi.org/10.1016/j.wasec.2026.100217>

This document version

Author's Accepted Manuscript

DOI for this version

Licence for this version

CC BY (Attribution)

Additional information

For the purpose of open access, the author(s) has applied a Creative Commons Attribution (CC BY) licence to any Author Accepted Manuscript version arising.

Versions of research works

Versions of Record

If this version is the version of record, it is the same as the published version available on the publisher's web site. Cite as the published version.

Author Accepted Manuscripts

If this document is identified as the Author Accepted Manuscript it is the version after peer review but before type setting, copy editing or publisher branding. Cite as Surname, Initial. (Year) 'Title of article'. To be published in **Title of Journal** , Volume and issue numbers [peer-reviewed accepted version]. Available at: DOI or URL (Accessed: date).

Enquiries

If you have questions about this document contact ResearchSupport@kent.ac.uk. Please include the URL of the record in KAR. If you believe that your, or a third party's rights have been compromised through this document please see our [Take Down policy](https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies) (available from <https://www.kent.ac.uk/guides/kar-the-kent-academic-repository#policies>).

Out-of-Sync Infrastructure and the Everyday Politics of Water Injustice

Highlights

- Out-of-sync infrastructures produce everyday water injustice in Film Nagar Basti.
- Women's labour sustains fragmented water, power, and drainage systems.
- Misalignment reveals how governance, time, and care shape urban inequality.

Abstract

This article examines how fragmented and misaligned infrastructures in informal settlements produce enduring forms of water injustice. Based on ethnographic fieldwork in Film Nagar Basti, Hyderabad, it develops the concept of out-of-sync infrastructure to describe how multiple systems (water, drainage, electricity, and waste) operate on disconnected temporal logics. These mismatches reflect deep-rooted patterns of uneven urban governance. As infrastructures operate in conflict or contradiction, residents are drawn into continuous adaptive management such as queuing for water at night, coping with sewage overflows, and improvising during power cuts and floods.

The article foregrounds the gendered and embodied labour required to navigate these everyday breakdowns. Women, in particular, shoulder the burden of adjusting routines, protecting children from contaminated water, and absorbing the emotional and physical toll of infrastructural uncertainty. Water insecurity, in this context, is embedded within a wider ecology of neglect, territorial stigma, and piecemeal governance. Rather than attributing water injustice to scarcity or policy failure, the article argues that temporally misaligned infrastructures produce risk as a routine condition of urban life.

Introduction

In Hyderabad's Film Nagar Basti (informal settlement), women's days begin and end around uncertain flows. Pumps hum before sunrise, taps sputter in the dark, and electric cuts

decide when water can be stored. Many of these same women clean homes in the nearby gated apartments of Film Nagar, where piped water supply is continuous. Between these two worlds one waiting for the tap to flow, the other insulated from interruption lies a temporal divide that structures everyday inequality. This article argues that water injustice in Hyderabad cannot be understood through scarcity or illegality alone but through the chronic disjuncture between infrastructures, bureaucracies, and domestic rhythms. When water, electricity, and drainage fall out of sync, they redistribute time itself deciding who must wait, who can plan, and whose reproductive and paid labour maintains the city's unequal infrastructural functioning. In Film Nagar Basti, women's bodies and routines become the infrastructure that absorbs this temporal instability.

Film Nagar Basti is a notified settlement located beside Hyderabad's high-end film and IT corridor. Most *basti* residents work as domestic workers, cleaners, or caretakers in these affluent homes. Their everyday labour embodies the city's unequal synchrony, moving between erratic and reliable infrastructures. This article draws on six months of ethnographic fieldwork (January - July 2024) combining participant observation, 31 semi-structured interviews with women, four with men, and 15 with governance actors, including urban planners, government officials, water board employees, politicians, journalists, and NGO representatives. The article develops this argument by combining critical debates on water and infrastructure with ethnographic material from Film Nagar Basti, tracing how temporal misalignments and fragmented governance produce everyday water injustice. Out-of-sync infrastructure is defined as a condition in which interdependent urban systems operate on disconnected temporal rhythms, producing chronic and uneven misalignment. In doing so, the article contributes a conceptual

framework for understanding how infrastructural misalignment across multiple systems produces everyday forms of inequality that are not captured by analyses of individual services alone.

Methods

This study draws on qualitative ethnographic fieldwork conducted in Film Nagar Basti, Hyderabad, between January 2024 and August 2025. The site was selected due to its location within a rapidly urbanising corridor characterised by stark infrastructural contrasts, where informal settlement residents live alongside high-end residential and commercial developments. This juxtaposition makes visible the uneven distribution and coordination of urban services across water, electricity, drainage, and waste systems.

The research employed a multi-method qualitative approach combining participant observation, semi-structured interviews, and spatial documentation to examine how residents experience and navigate infrastructural misalignment in everyday life. Ethnographic fieldwork involved sustained immersion in the settlement, with a particular focus on daily routines related to water access, storage, and use. Observation centred especially on women's practices, including waiting for water, managing household supply, and adjusting domestic and work schedules in response to uncertain service provision.

A total of 50 semi-structured interviews were conducted, including 31 women from diverse housing and socioeconomic backgrounds, 4 men (including local leaders), and 15 stakeholders such as urban planners, municipal officials, water board employees, NGO representatives, journalists, and political actors. Interviews explored experiences of water access, perceptions of infrastructural failure, and interactions with governance institutions. Snowball sampling was used to reach more marginalised groups, including tenants, recent migrants, and single women,

whose experiences are often excluded from formal planning processes. Interviews were conducted in Telugu, Hindi, and English, and later transcribed and thematically analysed. To capture the spatial dimensions of infrastructural fragmentation, the study also incorporated transect walks and informal mapping of water access points, drainage flows, and areas prone to flooding or contamination. These observations provided insight into how different infrastructures intersect and how their misalignment is experienced across the settlement. The analysis followed an iterative, inductive approach, identifying recurring patterns related to temporal disruption, infrastructural interdependence, and everyday adaptation. Particular attention was paid to how residents synchronise their routines with multiple, often conflicting, infrastructural systems. Ethical approval was obtained from the University of Kent Ethics Committee and all participants provided informed consent. Anonymity has been maintained through the use of pseudonyms. As a Telugu-speaking researcher familiar with the broader urban context, I was able to build rapport with participants over time, though differences in class and social position remained present. Reflexive attention was paid to how these dynamics shaped interactions and the interpretation of fieldwork material. While the study provides in-depth insights into lived experiences of infrastructural misalignment, its findings are context-specific and do not aim for statistical generalisation. Rather, the analysis offers a conceptual contribution grounded in ethnographic evidence.

Conceptual framing

For much of the twentieth century, water problems in the global South were narrated through the language of scarcity as the natural outcome of limited supply and rapid population growth. Classic works such as Falkenmark's Water Scarcity Index (1989) and the subsequent policy vocabulary of "physical" and "economic" scarcity (Bakker and Cook, 2012) framed water

insecurity as a technical problem of balance with too many users, too little resource. This framing, while useful for mapping global stress, abstracted water from its social and infrastructural contexts. It produced what Mehta (2014) calls a “hydro-politics of blame,” in which poor communities appear as victims of nature or as inefficient users rather than as citizens living within unequal infrastructures.

Critical water scholarship since the 2000s has reoriented this debate. Authors such as Budds and Sultana (2013) and Loftus (2020) demonstrate that scarcity is socially produced. Access to water, they note, depends less on rainfall than on power relations, institutions, and the infrastructural networks that mediate everyday life. This turn from scarcity to security marked an epistemic shift where focus moved from the volume of water to the conditions through which people secure it (Bakker and Cook, 2012; Zeitoun et al., 2016). Yet the security discourse itself, as Bakker and Cook (2012) acknowledge, often remains technocratic, built around risk metrics, resilience indices, and global benchmarks that again detach water from the infrastructures through which it circulates. In this sense, both scarcity and security have tended to isolate water from the social and infrastructural relations that shape its everyday life.

At the same time, feminist and urban political ecology scholarship has showed that water insecurity is produced through everyday embodied practices. Sultana (2020), drawing on work in Dhaka, shows how water access is negotiated through what she terms “embodied intersectionalities,” where gender, class, and urban marginality shape not only who accesses water but how bodies endure its absence through waiting, carrying, and exposure. Similarly, Truelove (2019) argues that water insecurity must be understood through an embodied urban political ecology, where infrastructural inequalities are lived through daily practices such as storage, queuing, and risk management. Earlier work by Crow and Sultana (2002) further note

how access is structured through gendered divisions of labour, where women's responsibility for water collection embeds them within the uneven functioning of infrastructure systems.

In the Indian context, these embodied inequalities are also structured through temporal experiences of waiting and uncertainty. Studies from New Delhi show how women in informal settlements organise daily life around unpredictable water deliveries, where extended periods of "waiting for water" shape routines of care, mobility, and labour (O'Reilly 2006; O'Leary 2016). Similarly, research from the Darjeeling Himalaya notes how women's engagement with water management is mediated by both political participation and the temporal burdens of securing everyday access (Joshi 2014).

These dynamics are closely tied to processes of urban development and infrastructural modernisation. O'Reilly's (2006) study of Rajasthan shows how shifts toward "modern" water systems reconfigure gendered expectations, even as women remain responsible for managing unreliable supply, revealing how technological change does not displace but reorganises domestic labour. Allen, Dávila, and Hofmann (2006), working on peri-urban settlements, similarly show how residents navigate incomplete and uneven service provision, where infrastructure is extended in fragmented ways that require households to continuously improvise access. These studies note how infrastructural inequality is sustained through partial and uneven provision that redistributes labour onto already marginalised populations.

Recent scholarship has re-situated water within the material and temporal systems that sustain it. Anand's (2017) shows how water supply in Mumbai is organised through "water time," where daily life is structured around the scheduled arrival of water. Rather than simply distributing a resource, the state governs through time, determining when water flows and for how long. This temporal regime punctuates domestic routines, requiring residents to organise

cooking, cleaning, and storage around uncertain and intermittent supply. In informal settlements, these rhythms are especially consequential, as access depends on being physically present at the right moment. Anand further demonstrates how water time produces gendered and classed subjectivities, as women in particular must continually negotiate between household responsibilities, paid work, and the temporal demands of infrastructure. Importantly, residents often do not demand continuous supply, but rather water that arrives “on time,” revealing how temporal reliability becomes the basis of infrastructural justice. A parallel argument emerges in Björkman’s (2015) study of Mumbai where water scarcity is continuously recalibrated through everyday devices and neighbourhood bargains like pumps that shift pressure, strategically tolerated leaks, and alliances that modulate when and how water moves. Together, these studies reposition scarcity as a temporal accomplishment, produced by the synchronisation (and frequent desynchronisation) of bureaucratic schedules, hydraulic pressures, and domestic routines rather than by absolute shortages. These temporal arrangements are lived beyond schedules through experiences of waiting, anticipation, uncertainty and suspended time where access to water depends on being present at the right moment, often without guarantee that it will arrive.

Work in Bangalore similarly demonstrates how such temporal fragmentation is lived through the everyday labour of securing water. Drew et al. (2021) describe how low-income households engage in ‘patchwork adaptability’, coordinating multiple, unreliable sources of water through practices that require anticipation, waiting, and continual adjustment. These accounts foreground the time-intensive and socially embedded nature of water access, while also pointing to the governance failures that produce such uneven and uncertain temporalities.

In the Indian context, these temporal dynamics unfold across multiple, interdependent infrastructures. Castán Broto and Sudhira (2019), in their study of Bangalore, trace how water

and electricity networks are historically developed through separate institutional and planning regimes, each governed by distinct priorities, investment cycles, and technical logics. Their analysis shows that these systems rarely operate in coordination in practice that is water supply depends on electricity for pumping, while urban expansion stretches both systems unevenly across space. As a result, infrastructural access is shaped by their temporal operations alignment. This disjuncture across infrastructures produces uneven conditions of reliability, where breakdown emerges from their misalignment.

More recent work has further foregrounded the embodied and temporal costs of infrastructural fragility. de Jong and Butt (2025), examining fragile water systems, show how women's daily routines are structured around physically demanding and time-intensive practices of water collection, storage, and management, often accompanied by exhaustion, stress, and health impacts. Their analysis notes that infrastructural failure is a sustained bodily strain, where the burden of maintaining access is transferred onto those responsible for care work within the household.

Infrastructure studies have further deepened this relational perspective. Larkin (2013) describes infrastructures as “matter that enable the movement of other matter” (p. 328), arguing that their significance lies in the relations and imaginaries they generate. Pipes, wires, and roads are functional, but they are also political and affective mediators that connect citizens to the state and to one another. Similar insights emerge from work on gender-water geographies, which conceptualises water access as embedded within everyday social relations and spatial inequalities (O'Reilly et al. 2009). This body of work shows how infrastructures are sustained through routine practices of coordination, negotiation, and care, rather than through formal systems alone.

While much of the foundational work on infrastructural improvisation emerges from African urban contexts, these insights have been widely applied to cities across the Global South. Simone's (2004) work shifts attention from the physical to the social infrastructures that sustain urban life. His notion of "people as infrastructure" captures the improvisational collaborations and solidarities that arise when formal systems are absent or unreliable. In contexts of infrastructural breakdown, he observes, social relations themselves become the connective tissue of the city. Appel's (2019) ethnography of oil projects in Equatorial Guinea similarly foregrounds the incompleteness of infrastructure that is never fully finished but "always in process, stuttering between promise and ruin" (p. 33). What unites these perspectives is an understanding of infrastructure as an assemblage of material and social rhythms, whose coordination or lack produces the experience of modernity and citizenship.

Attention to temporality sharpens this relational understanding. Lefebvre's *Rhythmanalysis* (2004 [1992]) conceptualises the city as a polyrhythmic ensemble, where natural, bodily, and bureaucratic tempos collide and combine. Rhythm, for Lefebvre, is the pulse through which power and everyday life intersect. When infrastructures fall out of rhythm, failure appears not as collapse but as dissonance: the everyday disjuncture between one system's schedule and another's delay. Later scholars have built on this approach to interpret urban infrastructures as temporal ecologies rather than static systems (Edensor, 2010; Lyon, 2022). When infrastructures fall out of rhythm, their failures are experienced as material breakdown and as disorientation in time.

Comparative work from other Global South contexts, such as Kinshasa, further shows how interruption becomes a constitutive urban tempo. De Boeck and Baloji (2016) describe the city's infrastructural time as syncopated, a rhythm marked by beats that skip, stall, or rush in

uneven sequence. Their metaphor of the hole refers both to the collapsed roads, unfilled excavations, eroded plots and to the social and economic gaps that such absences create. These voids signal infrastructural decay yet simultaneously generate forms of opportunity where roadside vendors reposition their stalls near a flood, drivers reroute through informal paths, and residents repurpose abandoned construction pits for storage or habitation. The hole, then, is a site where people re-time their lives around discontinuity. In this book, infrastructural breakdown is a patterned time-signature that citizens learn to inhabit and improvise within a mode of living through instability that resonates with the temporal misalignments of other cities.

In Film Nagar Basti, such dissonance is routine, water arrives when electricity cuts out, drains overflow during monsoon repairs, waste remains uncollected when access roads flood. These asynchronous failures create an environment in which time itself becomes unevenly distributed, demanding constant recalibration. The dissonant rhythms of Film Nagar Basti reveal a broader condition of infrastructural modernity. Comparative work on energy interruptions makes the same point across infrastructures. In Zambia, Kesselring (2017) traces how planned and unplanned load-shedding stratifies time itself where mining enclaves are held in synchrony with the grid while households and small traders are relegated to erratic cycles, naturalising unequal claims on reliability.

Graham and Thrift (2007) observe, infrastructures usually attract notice only in moments of spectacular collapse. Yet, as ethnographic studies remind us it is the ordinary and ongoing misalignments and the systems falling out of sync rather than breaking entirely that most deeply shape urban experience. When infrastructures fail asynchronously, the effects are dispersed and continuous, producing a condition in which no single failure can be isolated or repaired because each is entangled in another. In such settings, residents inhabit time structured by interruption,

anticipation, and delay. Taking ordinary misalignment seriously also helps explain why “resilience” is so unevenly distributed. As Eledi et al. (2023) argue for Accra, the capacity to absorb disruption depends on pre-existing socio-spatial inequalities and on the energy practices households can mobilise from diesel generators, stored fuels to time-shifting labour. Research on community water governance further suggests that such inequalities are mediated through local institutional arrangements, where access depends on collective organisation, negotiation, and uneven participation (Adams, Zulu, and Ouellette-Kray 2020). Resilience here is a consequence of who is permitted to re-time their lives without catastrophic loss.

Attending to these asynchronous failures also extends debates on urban inequality. While spatial fragmentation has long been central to analyses of exclusion, who lives inside or outside serviced zones and temporal fragmentation reveals how power operates through the differential distribution of time itself. Sharma’s (2014) concept of power-chronography captures this dynamic where the social organisation of time through which certain bodies are made to wait, recalibrate, or endure delay in relation to others (pp. 15–16). Infrastructural governance, viewed this way, is a temporal project that allocates privilege through control over timing. Those with stable connections move through the city in linear, uninterrupted time, while those without must dwell in cyclical, suspended, or improvised time.

This leads to what might be called out-of-sync infrastructure, a condition where multiple systems operate on disconnected clocks, producing chronic misalignment rather than outright breakdown. Scholarship on infrastructural violence (Rodgers and O’Neill 2012; Schnitzler 2016; Schwenkel 2015) helps conceptualise this. Rodgers and O’Neill (2012) define infrastructural violence as the harm produced “not through overt coercion but through the differential operation of systems that sustain life” (p. 402). Schnitzler’s (2016) study of prepaid water meters in South

Africa and Schwenkel's (2015) analysis of post-socialist Vietnam both show how infrastructures materialise inequality through billing cycles, waiting times, and bureaucratic deferrals that inscribe hierarchy into everyday routines.

Infrastructural violence usually implies an uneven distribution of resources, temporal misalignment emphasises the uneven distribution of synchrony. Some urban subjects are kept in time with the city's official rhythms of supply, billing, and service while others are consigned to erratic and incompatible cycles. Bear (2016), writing on post-industrial labour regimes in West Bengal, calls such conditions "precarious rhythms" which are unstable and reactive tempos make planning impossible. Her insight travels easily to infrastructural contexts. Misalignment traps residents in what Gupta (2018, p. 21) terms "the ruins of the future", where systems are built with decay already embedded, promising order yet delivering deferral. Berlant (2016) suggests, contemporary precarity operates through slow attrition, through systems that "wear people out" rather than break them suddenly (p. 394). Out-of-sync infrastructures produce precisely this slow violence, distributing fatigue unevenly across the urban population.

From a governance perspective, misalignment thrives on fragmentation. Corbridge et al. (2005) and Baviskar (2011) note that Indian bureaucracies often function through dispersed responsibility each department acting on its own schedule, enabling the state to appear present yet perpetually delayed. Delay thus becomes a governing rationality, producing plausible deniability and sustaining the appearance of a state that is always almost working. In this context, temporal misalignment converts incompleteness into an administrative technique. To live within such infrastructures is to inhabit a city that never fully synchronises, where access and exclusion are measured not only by space but by rhythm.

While existing scholarship has examined infrastructural fragmentation, temporal governance, and embodied water insecurity, the concept of out-of-sync infrastructure brings these strands together by focusing on the misalignment between multiple interdependent systems. Unlike approaches that analyse single infrastructures or isolated temporal regimes, this framework shows how water, electricity, drainage, and waste operate on disconnected rhythms that only become visible in relation to one another. It is this multi-infrastructural desynchronisation that produces everyday instability. In this sense, out-of-sync infrastructure extends existing work on temporality and inequality by showing how injustice emerges from the failure of systems to function together in time.

Out-of-sync infrastructure thus names a distinctive mode of water injustice. It reframes infrastructural failure as a problem of timing, in relation to what and when the systems fail. By focusing on temporal dissonance, this perspective foregrounds how inequality is produced through the management of urban time through the everyday labour of resynchronising life around systems that refuse coordination. The violence of misalignment lies in the material deprivation and in the exhaustion of continual adjustment, the slow attrition of bodies and routines stretched across asynchronous infrastructures.

Results

Basti women describe the most distressing moments as “dirty water time.” During these episodes, the tap runs with brown, foul-smelling water that leaves a greasy film on utensils and an acrid odour in kitchens. The contamination is worst during the monsoon, when open drains overflow and push waste through fractured supply pipes, though it also appears during routine supply. Women told me how they lose entire days when stored water must be thrown away.

Anitha, a domestic worker, explained that she waits until the smell fades before refilling her drums. She said, “It looks clear sometimes, but we know it is not safe.” The water and drainage networks are so intertwined that neither can be repaired without disturbing the other. What is treated administratively as a minor leak becomes, for residents, a collapse of distinction between systems. Contamination reflects the entanglement of water and drainage systems in everyday experience.

Water and electricity are similarly entangled. For many households, supply depends on electric pumps that lift water to rooftop tanks. Without power, even when water briefly flows through the pipes, it cannot be pumped or stored. The water board’s schedule often clashes with the electricity department’s outages. During one such scheduled supply hour, there was a power cut. Sai Akka, who had returned from her morning shift to fill water before going to her next shift, stood holding a red pipe listening for water. Her electric pump sat silent beside her, connected through a tangle of wires. She told me she was “checking her luck” to see if anything might still flow. Without the pump, the pressure was too weak to reach her tank and without electricity, the pump could not start. She filled a few bottles with the thin trickle that appeared, hoping to catch what she could before the line ran dry or before she had to go back to work. Residents continually improvise around these disjointed systems. As shown in Figure 1, water supply, electricity, and domestic time rarely align.



Figure 1. *Woman checking for water during a power cut, Film Nagar Basti. Source: Author (Fieldwork, 2024)*

In some cases, supply may arrive at three in the morning, when current is uncertain, forcing women to wake repeatedly through the night to test whether the pump will start. Rama, who runs a grocery shop from her house, told me that she sleeps beside the switch, listening for the rush of water in the pipe. She said, “Sometimes it comes for ten minutes, sometimes not at all. We keep buckets ready in case.” These nocturnal routines have become part of household time. Children often wake late or doze off in class because the household has been awake since the early hours. Women describe packing lunches and getting children ready while still half-asleep, eyes burning from interrupted rest. Domestic workers delay leaving for their employers’

homes until they have filled enough water for the day. Small shopkeepers open late or keep one ear tuned to the sound of pipes while serving customers. For many families, income and education hinge on the ability to manage this nocturnal schedule. The night's supply thus reverberates into the day, shaping who can work, when children can study, and how bodies endure the cumulative exhaustion of living by an uncertain flow. Night-time supply reshapes daily routines, affecting work, schooling, and rest.

When the monsoon arrives, these dissonances multiply. The settlement's hilly terrain channels water downhill, turning narrow lanes into running streams. Garbage and sewage collect in the depressions near the *nala*, flooding low-lying houses every year. Families living there lift beds onto bricks and stack pots on shelves, but the water still enters. Mani, who lives closest to the drain, said, "When the rain starts, we move everything higher, but still it comes. For days, the smell does not go." The houses on the upper slope, built on stronger foundations, escape the worst flooding. Those who live uphill experience the rain as inconvenience, while those below experience it as displacement. These spatial differences are rooted in earlier land allocations and political patronage that determined who obtained which plot. The terrain therefore records the social history of the settlement, translating political hierarchy into physical vulnerability. For residents, the monsoon is an expected disruption, yet its timing and intensity have grown increasingly erratic. They describe it as "known uncertainty," a season that always returns but never on schedule. Water, waste, and terrain converge to create a recurring but unpredictable insecurity that must be managed each year through memory and improvisation.

Across these overlapping systems, women carry the main burden of adaptation. They are the ones who wait at the taps, rise at night to pump water, clean after floods, and find ways to

reuse or replace contaminated supplies. This work is heavy, repetitive, and rarely acknowledged. Radha, a single woman who supports her mother and two children, explained, “Our time is never ours. Everyday changes because of water.” The strain is both physical and emotional, involving continuous anticipation and worry. Women speak of sleeplessness, back pain, and anxiety over children falling ill. Yet their labour is often described by men as routine, part of household duty. The division of responsibility reinforces gendered expectations about care and endurance. In the *basti* women’s bodies absorb the temporal pressures created by these infrastructural conditions.

These experiences are not evenly distributed across the settlement. Tenants, recent migrants, and single women often face greater precarity, as they have less control over storage infrastructure, weaker social networks, and fewer resources to buffer disruptions. Similarly, households located in lower-lying areas experience more frequent flooding and contamination than those uphill, reflecting how earlier patterns of land allocation continue to shape present vulnerability. These differences show how infrastructural misalignment is mediated through intersecting inequalities of class, tenure, gender, and location, producing uneven capacities to anticipate, absorb, and respond to disruption.

Discussion

This section interprets these patterns through the lens of out-of-sync infrastructure, with particular attention to governance, fragmentation, and temporal inequality. The empirical patterns described above reveal a condition in which multiple infrastructures fail to operate in coordination, producing what this paper conceptualises as out-of-sync infrastructure. When one system falters, others are drawn in, producing a chain of interruptions that shape how people organise daily life. These misalignments are disproportionately absorbed through gendered

labour, as women remain primarily responsible for managing and resynchronising everyday infrastructural breakdowns. Contaminated water lines, erratic electricity, and seasonal flooding together create a landscape of adjustment. These conditions make visible how water insecurity is produced by the uneven timing and entanglement of multiple infrastructures.

These observations show that infrastructural injustice is experienced through continuous mistiming. Each system works, but rarely at the same moment as the others. The daily effort to make water, electricity, drainage, and terrain coincide is what constitutes life in the *basti*. Residents inhabit time marked by interruption and anticipation, by the constant need to be ready for things to fail together. The terrain of mismatch is the ordinary condition of the settlement, which reveals how inequality is reproduced through the uneven distribution of synchrony and the unequal labour required to maintain it. These patterns are sustained by the wider bureaucratic and political arrangements that govern through fragmentation.

In Film Nagar Basti power is exercised through fragmentation. Water, drainage, electricity and sanitation each fall under different agencies that operate on separate schedules, budgets, and chains of command. For residents, this fragmentation is a daily obstacle encountered at leaking taps, blocked drains, and municipal counters. When infrastructure fails, responsibility scatters. One department blames another, and the work of connecting these institutional fragments is pushed onto citizens themselves. This form of rule through dispersion is characteristic of Indian urban governance. As Corbridge, Williams, Srivastava, and Véron (2005) note, bureaucracy in India often functions through “responsibility without accountability,” where no single actor can be held answerable. Baviskar (2011) and Chatterjee (2004) show how the state governs through calibrated uncertainty, producing citizens whose access to legality and

services depends on negotiation rather than entitlement. These dynamics are further shaped by broader processes of neoliberal urban transformation, where infrastructural investment and service provision are unevenly distributed across urban space, reinforcing existing patterns of inequality (Banerjee-Guha 2009).

In Film Nagar Basti, these dynamics unfold in the ordinary labour of pursuing repair. When a sewage line bursts or a supply valve fails, residents begin a chain of appeals to the local corporator (municipal councillor), to the Greater Hyderabad Municipal Corporation (GHMC), to the Water Board office several kilometres away. Each visit produces a new referral or a promise deferred. A GHMC officer told one woman after she complained of dirty water, “Go to the water people, this is not drainage work.” At the Water Board, the clerk responded that “drainage belongs to GHMC.” Between the two offices, responsibility circulates but never settles. Sai Akka, who coordinates a small residents’ committee, described the process: “We keep going in circles, Water Board says GHMC, GHMC says Water Board. By the time they decide, the water clears on its own.” The slow oscillation between departments transforms every complaint into a temporal ordeal, stretching urgency into waiting. Residents learn to navigate this bureaucratic rhythm knowing which official will sign a letter, when to arrive before the lunch break, and how to invoke the corporator’s name to expedite a file. Yet these techniques of navigation also reproduce dependency. Access depends on personal familiarity, deference, and persistence rather than entitlement.

Officials, for their part, manage absence through language. When questioned about service lapses, they do not deny responsibility outright but invoke procedural limits from missing files, pending transfers, overlapping jurisdictions. Although Film Nagar Basti is now regularised, officials often speak of it as if it still sits in a grey zone, referring to it as a “*basti* area” or

“unapproved layout.” One state engineer explained, “It’s regularised on paper, but we don’t have the budget line yet for major works.” Such phrasing allows inaction to appear procedural rather than political. Responsibility is displaced upward to another department, another phase, another plan so that neglect is continually deferred rather than resolved. In this framing the problem is administrative, the state is imagined as waiting with its hands tied by the paperwork of its own fragmentation. Such narratives align with what Wacquant (2007) calls territorial stigma, a discursive strategy that devalues entire neighbourhoods to justify their exclusion. Bhan (2016) has shown how in Delhi, the language of illegality sustains “governance by exception,” where state intervention oscillates between welfare and eviction. In Hyderabad, too, illegality persists as an idiom long after formal regularisation, allowing officials to narrate infrastructural neglect as a matter of administrative prudence rather than inequality.

The state appears simultaneously near and distant. Officials and corporators are physically accessible often living/working within a few streets but institutionally elusive. When water fails, residents can reach a corporator on the phone, yet the resolution depends on whether a resolution can be arranged, or a junior engineer persuaded to visit. These temporary fixes sustain a sense of proximity even as structural repair remains indefinitely deferred. A GHMC official explained that “we do what we can within limits; full pipelines will come after complete regularisation.” Such half-promises are politically useful. They convert incompleteness into evidence of effort, allowing the state to appear always almost working. As Corbridge et al. (2005) observe, this strategy enables governance through delay and responsiveness without resolution.

For residents, navigating this fragmented apparatus demands both patience and ingenuity. Maryamma, a long-time resident, described how she carries a folder of petitions and

photocopies, showing them to whichever office she visits. She said, “every file has to be moved by our own hands, otherwise it sleeps.” Others rely on local brokers who maintain informal ties with municipal workers and can secure small repairs in exchange for cash or favours. These brokers translate between bureaucratic language and everyday urgency, mediating state response while profiting from its gaps. Over time, such intermediaries become fixtures of governance, performing the work of coordination that departments refuse to undertake. The state, meanwhile, remains fragmented yet continuously invoked where its fragments are stitched together by citizens who have learned to speak its idioms of procedure, persistence, and petition.

Conclusion

In Film Nagar Basti, water injustice arises from misalignment. Across water, drainage, and electricity systems, infrastructures fail together yet on different clocks, producing a chronic condition of waiting and improvisation. This dissonance makes time itself a site of inequality where synchrony becomes a privilege, while others live in cycles of anticipation and fatigue.

Out-of-sync infrastructure captures a form of governance that operates through fragmentation and delay. Bureaucratic dispersion, overlapping mandates, and procedural deferrals allow the state to appear active while remaining indefinitely postponed. Incompleteness becomes administrative form. Residents, in turn, do the work of connection, linking offices, papers, and officials to make the state move. This temporal misalignment is absorbed most visibly through women’s bodies and routines. Their nightly vigilance for water, their cleaning after floods, their constant recalibration of domestic and paid work where care becomes infrastructural labour that sustains system continuity. Endurance becomes the hidden labour that sustains the city’s uneven flow.

The argument extends debates in urban and infrastructure studies by shifting attention from failure to misalignment, from collapse to the everyday politics of timing. For policy, this means recognising that repair and supply must also address the unequal distribution of waiting, delay, and exhaustion. Although grounded in Hyderabad, the analysis resonates with cities across the Global South, where fragmented systems and deferred governance produce similar temporal burdens. Attending to these rhythms offers a way to rethink urban justice as the capacity to live without perpetual anticipation of failure and to inhabit infrastructures that not only reach everyone but also function in temporal alignment with citizens' lives.

Building on this analysis, future research could examine how infrastructural misalignment unfolds across different temporal scales, including variations across seasons, times of day, and shifting cycles of supply and disruption. Comparative work within the same city would also be valuable in tracing how synchrony and delay are differently distributed across neighbourhoods, particularly between informal settlements and more formally serviced areas.

Declaration of Interest

The author declares no conflict of interest.

References

Adams, E.A., Zulu, L. and Ouellette-Kray, Q., 2020. Community water governance for urban water security in the Global South: Status, lessons, and prospects. *Wiley Interdisciplinary Reviews: Water*, 7(5), p.e1466. <https://doi.org/10.1002/wat2.1466>

Allen, A., Dávila, J.D. and Hofmann, P., 2006. The peri-urban water poor: Citizens or consumers? *Environment and Urbanization*, 18(2), pp.333–351.
<https://doi.org/10.1177/0956247806069608>

- Anand, N., 2017. *Hydraulic City: Water and the Infrastructures of Citizenship in Mumbai*. Durham, NC: Duke University Press. <https://doi.org/10.1215/9780822373599>
- Appel, H., 2019. *The Licit Life of Capitalism: U.S. Oil in Equatorial Guinea*. Durham, NC: Duke University Press. <https://doi.org/10.1215/9781478004578>
- Bakker, K. and Cook, C., 2012. Water security: Debating an emerging paradigm. *Global Environmental Change*, 22(1), 94–102. <https://doi.org/10.1016/j.gloenvcha.2011.10.011>
- Banerjee-Guha, S., 2009. Neoliberalising the 'urban': New geographies of power and injustice in Indian cities. *Economic and Political weekly*, pp.95-107.
- Baviskar, A., 2011. What the eye does not see: The Yamuna in the imagination of Delhi. *Economic and Political Weekly*, 46 (50), 45–53.
- Bear, L., 2016. Time as technique. *Annual Review of Anthropology*, 45, 487–502. <https://doi.org/10.1146/annurev-anthro-102313-030159>
- Berlant, L., 2016. The commons: Infrastructures for troubling times. *Environment and Planning D: Society and Space*, 34(3), 393–419. <https://doi.org/10.1177/0263775816645989>
- Bhan, G., (2016). *In the public's interest: Evictions, citizenship, and inequality in contemporary Delhi*. Athens, GA: University of Georgia Press.
- Björkman, L., (2015). *Pipe politics, contested waters: Embedded infrastructures of millennial Mumbai*. Durham, NC: Duke University Press. <https://doi.org/10.1215/9780822375210>
- Budds, J. and Sultana, F., 2013. Exploring political ecologies of water and development. *Environment and Planning D: Society and Space*, 31(2), 275–279. <https://doi.org/10.1068/d3102>

Castán Broto, V. and Sudhira, H.S., 2019. Engineering modernity: Water, electricity and the infrastructure landscapes of Bangalore, India. *Urban Studies*, 56(11), pp.2261–2279.

<https://doi.org/10.1177/0042098018815600>

Chatterjee, P. (2004) Are Indian cities becoming bourgeois at last? In: *The politics of the governed: Reflections on popular politics in most of the world*. New York: Columbia University Press, pp. 131–147.

Corbridge, S., Williams, G., Srivastava, M. and Véron, R., 2005. *Seeing the State: Governance and Governmentality in India*. Cambridge: Cambridge University Press.

Crow, B. and Sultana, F., 2002. Gender, class, and access to water: Three cases in a poor and crowded delta. *Society & Natural Resources*, 15(8), pp.709–724.

<https://doi.org/10.1080/08941920290069308>

De Boeck, F. and Baloji, S. (2016) *Suturing the city: Living together in Congo's urban worlds*. London: Autograph ABP.

de Jong, M. and Butt, B., 2025. “We Women Are Suffering”: Fragile water infrastructure and gendered embodied labor. *Annals of the American Association of Geographers*, 115(3), pp.705–724. <https://doi.org/10.1080/24694452.2024.2446559>

Drew, G., Deepika, M.G., Jyotishi, A. and Suripeddi, S., 2021. Water insecurity and patchwork adaptability in Bangalore's low-income neighbourhoods. *Water International*, 46(6), pp.900–918. <https://doi.org/10.1080/02508060.2021.1963031>

Edensor, T., 2010. *Geographies of rhythm: Nature, place, mobilities and bodies*. London: Routledge. <https://doi.org/10.4324/9781315584430>

Eledi Kuusaana, J. A., Monstadt, J. and Smith, S. (2023) 'Toward urban resilience? Coping with blackouts in Dar es Salaam, Tanzania', *Journal of Urban Technology*, 30(2), pp. 79–101. <https://doi.org/10.1080/10630732.2022.2153318>

Falkenmark, M., 1989. The massive water scarcity now threatening Africa: Why isn't it being addressed? *Ambio*, 18(2), 112–118.

Graham, S. and Thrift, N., 2007. Out of order: Understanding repair and maintenance. *Theory, Culture & Society*, 24(3), 1–25. <https://doi.org/10.1177/0263276407075954>

Gupta, A., 2018. The future in ruins: Thoughts on the temporality of infrastructure. In: N. Anand, A. Gupta and H. Appel, eds. *The Promise of Infrastructure*. Durham, NC: Duke University Press, pp. 62–79. <https://doi.org/10.1215/9781478002031-003>

Joshi, D., 2014. Feminist solidarity? Women's engagement in politics and the implications for water management in the Darjeeling Himalaya. *Mountain Research and Development*, 34(3), pp.243–254. <https://doi.org/10.1659/MRD-JOURNAL-D-13-00097.1>

Kesselring, R. (2017) 'The electricity crisis in Zambia: Blackouts and social stratification in new mining towns', *Energy Research & Social Science*, 30, pp. 94–102. <https://doi.org/10.1016/j.erss.2017.06.015>

Larkin, B., 2013. The politics and poetics of infrastructure. *Annual Review of Anthropology*, 42, 327–343. <https://doi.org/10.1146/annurev-anthro-092412-155522>

Lefebvre, H., 2004 [1992]. *Rhythmanalysis: Space, Time and Everyday Life*. Translated by S. Elden and G. Moore. London: Continuum.

Loftus, A., 2020. Political ecology II: Whither the state? *Progress in Human Geography*, 44(1), 139–149. <https://doi.org/10.1177/0309132518803421>

Lyon, D. (ed.), 2022. *Rhythmanalysis: Place, mobility, disruption and performance*. Research in Urban Sociology, Volume 17. Bingley: Emerald Publishing.
<https://doi.org/10.1108/S1047-0042202217>

Mehta, L., 2014. Water and human development. *World Development*, 59, 59–69.
<https://doi.org/10.1016/j.worlddev.2013.12.018>

O’Leary, H., 2016. Between stagnancy and affluence: Reinterpreting water poverty and domestic flows in Delhi, India. *Society & Natural Resources*, 29(6), pp.639–653.
<https://doi.org/10.1080/08941920.2016.1150534>

O’Reilly, K., 2006. “Traditional” women, “modern” water: Linking gender and commodification in Rajasthan, India. *Geoforum*, 37(6), pp.958–972.
<https://doi.org/10.1016/j.geoforum.2006.05.008>

Rodgers, D. and O’Neill, B., 2012. Infrastructural violence: Introduction to the special issue. *Ethnography*, 13(4), 401–412. <https://doi.org/10.1177/1466138111435738>

Schwenkel, C., 2020. *Building Socialism: The Afterlife of East German Architecture in Urban Vietnam*. Durham, NC: Duke University Press.

Sharma, S., 2014. *In the Meantime: Temporality and Cultural Politics*. Durham, NC: Duke University Press.

Simone, A.M., 2004. People as infrastructure: Intersecting fragments in Johannesburg. *Public Culture*, 16(3), 407–429. <https://doi.org/10.1215/08992363-16-3-407>

Sultana, F., 2020. Embodied intersectionalities of urban citizenship: Water, infrastructure, and gender in the global south. *Annals of the American Association of Geographers*, 110(5), pp.1407–1424. <https://doi.org/10.1080/24694452.2020.1715193>

Truelove, Y., 2019. Rethinking water insecurity, inequality and infrastructure through an embodied urban political ecology. *Wiley Interdisciplinary Reviews: Water*, 6(3), p.e1342. <https://doi.org/10.1002/wat2.1342>

von Schnitzler, A., 2016. *Democracy's Infrastructure: Techno-Politics and Protest after Apartheid*. Princeton, NJ: Princeton University Press.

Wacquant, L. (2007) 'Territorial stigmatization in the age of advanced marginality', *Thesis Eleven*, 91(1), pp. 66–77. <https://doi.org/10.1177/0725513607082003>

Zeitoun, M., Lankford, B., Krueger, T., Forsyth, T., Carter, R., Hoekstra, A.Y., Taylor, R., Varis, O., Cleaver, F., Conway, D., Jaspers, F., Lovell, C., Matthews, N., Mekonnen, M.M., Molden, D., Pahl-Wostl, C., Mirumachi, N. and Warner, J., 2016. Reductionist and integrative research approaches to complex water security policy challenges. *Global Environmental Change*, 39, 143–154. <https://doi.org/10.1016/j.gloenvcha.2016.04.010>