# 20. Multiple publics, disjunctures, and hybrid systems: how marginalised groups stake their claims to transport infrastructure

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The term 'infrastructure' has emerged over the past several decades as one of the key theoretical frameworks with which to understand contemporary urban life (Coutard and Rutherford, 2015). The discourse on infrastructure engages with socio-technical solutions for the more equitable and sustainable provision of services, often involving 'networked' issues such as water or electricity (see Pollio, Cirolia, and Pieterse, 2022; Lemanski and Massey, 2022; Cirolia and Pollio, this volume). Transport, too, is a crucial form of urban infrastructure, as mobility and movement underpin the basic functioning of cities and regions by providing access to essential resources and services. Examining transport reveals how disjunctures between 'citizens' and various levels of 'the state' arise, related to how all of these actors imagine their roles and manage their expectations about how they expect other groups to respond. These disjunctures frequently result in disappointment, anger, and frustration – but they also present opportunities for transformation.

Transport infrastructure is a powerful means with which space and everyday life are shaped. This is, first of all, because transport is often a major policy target and source of capital investment by states, in attempting to achieve growth or improve social justice. Second, it is highly present in the minds of people in regard to what they expect the multiple levels of the state to deliver. Similarly to other forms of infrastructure, there is not a singular public to serve and respond to, but rather *multiple publics*, with differing needs and ways of engaging with complex layers of the state (cf. Watson, 2003, 2006). Thus, transport illustrates the concept of *hybridity*, or the multiple forms and systems of supply, central to contemporary forms of infrastructure and the governance thereof (see Rutherford and Jaglin, 2015; Rateau and Jaglin, 2022). This chapter also notes the links between the existence of multiple publics and hybrid infrastructure that resonate with the concept 'infrastructural citizenship' proposed by Lemanski (2019, 2020), as symbolic of the overarching relationships between people and the state.

Our conclusions are grounded in extensive empirical research conducted in South Africa and Mozambique. Echoing Star (1999), these case study areas inform an understanding of what infrastructure is and what it can do, by functioning as 'the relational settings in which otherwise invisible infrastructures' (Blok *et al.*, 2016, p. 3) are made visible through ethnographic research. Both sites clearly show the existence of multiple publics, and that state actors, too, embody a multiplicity as they respond to these publics. The chapter focuses on the presence of hybrid systems of state-led public transport and *paratransit* through the private market, as a result of state–citizen disjunctures. Such disjunctures also demonstrate the ways in which a 'slow' form of infrastructural violence unfolds, between multiple publics and

state(s) in transport – and how these events can sometimes erupt into more acute and physical moments of protest or violence.

While conceptualised through our case study areas, the fundamental disconnects between the macro-scale production of transport infrastructure and the micro-scale spatial practices of people going about their everyday lives apply to many contexts and institutional arrangements. Our lines of inquiry into connections and disjunctures in public transport therefore aim to learn from and enrich discourses on the governance of infrastructure (see McFarlane and Rutherford, 2008), infrastructural citizenship (see Lemanski and Massey, 2022), and infrastructural violence (see Graham, 2010; Baumann and Yacobi, 2022; and the other chapters in Part III of this volume).

## RELATIONAL SETTINGS AND METHODOLOGICAL APPROACH

The empirical research upon which this chapter is based originated from a collaborative project investigating the intersection of infrastructure and human relations in Metropolitan Maputo (MM) in Mozambique and the Gauteng City-Region (GCR) in South Africa from 2020 to 2021[1]. It is predicated upon long-term research in the GCR, which has found that, in conducting the routine activities of their daily lives, ordinary people intersect with the delivery or absence of transport infrastructure by a complex network of providers (cf. Stäheli *et al.*, 2012). There is not a clear division of routes, destinations, or travellers linked to specific modes as part of their daily routines. Mutual mistrust exists amongst all of these stakeholders: governments generally prefer to expunge 'informal' systems; private-sector providers seek to defend their livelihoods and profits; passengers want to move in the cheapest and most convenient ways possible – often overriding their concerns with safety. In focusing on how deeply marginalised populations stake their claims to space through everyday movements and interactions, we identified multiple levels of connection and disjuncture in the two large urban regions surrounding Gauteng and Maputo. This is tied to the long history of spatial and social fragmentation in these postcolonial contexts, but also relates more broadly to questions about the existence of multiple publics in contemporary urban environments.

Our empirical material therefore illustrates the issues of multiple publics and hybrid infrastructure for wider application, in particular through the issue of *paratransit* (on this notion, see Engfeldt and Warah, 1998). This is essentially an alternative transport system usually taking the form of sixteen-seater vans – referred to as 'minibus taxis' in Gauteng and 'chapas' in Maputo – which cater to the needs of those who cannot access state-led public transport, due to affordability, geographical accessibility, or the fact that they simply do not trust public transport systems. 'Taxi associations' run paratransit routes in specific geographical areas, but according to flexible paths that can change, for example, based on passenger needs and

[1] The study examined the micro-dynamics of mobility at the household level in three neighbourhoods from each city-region. It then contrasted these findings with an analysis of macro-scale development processes, based on transport and planning policy reviews as well as interviews with key officials in transport and urban planning. On the household level, the mobility patterns of approximately 60 participants (10 in each neighbourhood) were analysed using volunteered geographic information garnered from a smartphone application (Howe, 2021a). Participants were also interviewed and engaged continually through WhatsApp, allowing them to share messages, audio recordings, photos, and videos.

traffic conditions. The drivers are responsible for maintaining their vehicles and pay a portion of their earnings to the associations and often to the taxi owners. Across much of the Global South, various levels of state agencies intervene in paratransit at the level of regulation – often through informal and unofficial modes of engagement – due to their limited capacities to address the manifold challenges of rapidly urbanising areas (Ferro, 2015). As a result, paratransit providers ultimately take on a 'state-like' role in supplying the transport to the majority of the population, producing their own form of infrastructural citizenship.

Both the MM and GCR city-regions have experienced significant investment in transport infrastructure in recent decades and have established new transport agencies at a large metropolitan scale, which was part of the motivation to examine these extended urban regions in comparison. Our research showed that the adoption of new transport infrastructure by residents has been slow, and paratransit continues to prevail as the main mode with which people move around both urban regions. This reflects the perspectives of differing social groups, and between these social groups and the layers of the state delivering transport. Rationalities are shaped by historic power relations; they are 'contingent … rather than context-free and objective' (Flyvbjerg and Richardson, 2002, p. 11). To this end, this chapter focuses on presenting the theoretical lessons for infrastructure studies that can be abstracted from the conflicts and potentials surrounding paratransit in these two contexts. Such lessons are important because when interfaces between state and citizen are characterised by disjunctures, as they often are in the GCR and MM, this reduces the impact that bold infrastructure projects can have on the people they intend to serve.

Many of the examples cited originate from the Gauteng Province, as the research team has had a longer and more substantive engagement with this context. But although the findings presented are specific to public transport in South Africa and Mozambique, the realities of hybrid systems and the challenges of governance they represent make them potentially relevant to many other infrastructure sectors and geographies worldwide. Accordingly, the rest of this chapter delineates: (1) how paratransit emerged and what the sector represents; (2) the disjunctures we identified in Gauteng and Maputo, and what this signifies in the sense of infrastructural citizenship; and (3) that hybridity exists both in material infrastructure of transport systems and the governance thereof. Examining the way transport is planned, regulated, and how it is actually used reveals the GCR and MM as paradigmatic examples of how 'citizens' respond to the limited capacities of various levels of the state (on this notion, see Cervero and Golub, 2007; Bierschenk and Olivier de Sardan, 2014).

## PUBLIC TRANSPORT VS. PARATRANSIT

Public transport infrastructure is an important economic driver in urban environments, but it is not necessarily framed as a 'right' of residents. There are, however, a host of documents in South Africa and Mozambique, for example, that actively pursue transport plans to meet the needs/to access the rights of their respective populations. In South Africa, although there is no clear constitutional mandate to supply transit, the post-apartheid government has prioritised the provision of public transport in various policies. In the contemporary South African National Development Plan of 2012, the state's transport commitment is clear: government investment in public transport is seen as a priority to enhance the mobility of underprivileged households, and a key pillar of the plan is creating 'effective, safe and affordable public transport' (The

Presidency, 2021, pp. 28, 41). This document also explicitly acknowledges the central role of transport in stitching together the spatial mismatch of apartheid-era planning. The public transport commitment is thus directly linked to the state's ambition to 'uplift' poor and marginalised households (White Paper on National Transport Policy, 2021, pp. 46–54, 60–61). The institutional architecture of the state also reflects this commitment, in the form of transport departments and policies at national, provincial, and local tiers of government. Mozambique government's dedication to developing and supporting transport is evident through transport policies and departments such as the Maputo Transport Agency, and most recently, reported plans to launch a bus rapid transit (BRT) project by 2023 (Smart Cities Journal, 2022).

Yet in both contexts – as across much of the Global South (Holston, 2008; Alderman and Goodwin, 2022; Hermanus and Cirolia, 2022; Rateau and Jaglin, 2022) – there is a long history of alternative means of transit arising as a reaction to inaccessible or insufficient state-led initiatives. During apartheid in South Africa, local governments designed areas known as 'townships' for Black Africans on the geographic peripheries, deliberately restricting outside access with limited state-subsidised public transport services available to residents; typically, train or private bus services were provided and heavily subsidised by the government (Pirie, 1992). The paratransit industry arose alongside these government systems and private motorised transport, as there were neither enough buses available nor the desired routes possible for people to meet their needs (Beavon, 2001). Paratransit therefore aligns with the 'decentralised initiatives carried out by citizens and users ... in response to emergent needs' described by Egyedi and Mehos (2012). Currently, paratransit is the predominant mode of transport for the majority of residents in both the South African and Mozambican case study areas (Culwick Fatti, 2021).

Paratransit arose at specific moments in the history of South African and Mozambican urbanism, when an increasing population dwelling on the urban peripheries required access to the economic and social opportunities of urban centralities (Makgetla and Levin, 2016, p. 7; Olivier and Booysen, 1983, pp. 124–125). As freedom of movement allowed an influx of populations into the urban centres of Johannesburg and Maputo, provision of infrastructure in the form of public transport was both weak and limited (Kushner and MacLean, 2015). It did not provide the necessary modes of transportation, at the right price, and in the kind of configuration required by people with differing and changing needs. As such, private-sector entrepreneurs provided a service that the state was not able to, and in such a way that it responded to the needs of these urbanising social groups. By the end of the 1980s, the taxi industry had become a highly organised and efficiently run sector, with a plethora of powerful associations, tightly governed set of practices, and intense competition for passengers (Boudreaux, 2006; Ngubane, 2022). Through this process, the infrastructural relationship between people and transport providers became increasingly complex.

## MULTIPLE PUBLICS WITH COMPLEX EXPECTATIONS

Describing infrastructure as the manifestation of socio-political processes (see Coutard and Rutherford, 2015) is a marked transformation from an understanding of infrastructure as a top-down system, delivered to a homogeneous 'public'. This shift in the field includes acknowledging that people living in urban areas have differing, contentious notions about the roles and responsibilities of government (Collier *et al.*, 2016), and that infrastructure is not

neatly centralised or networked (McFarlane and Rutherford, 2008). However, this shift has not yet fully come to fruition in transport planning. In our research, transport as infrastructure reveals the ways that planning remains 'disjunctive', or disconnected, in practice, and fails to adequately address the needs of people staking their claims to urban environments (Lemanski, 2019; 2020). As a result, multiple improvised practices ensue – as described above with the emergence of paratransit – highlighting the observation that ordinary people's voices are only marginally included into the process of planning infrastructure (see Monstadt and Schramm, 2017).

Aligning with these theoretical advances, one of the major findings of our research into the GCR and MM was the presence of multiple publics operating at multiple scales. This strongly resonates with the discourse on infrastructural citizenship. Lemanski (2020, p. 592) defines the term *citizenship* as 'the relationships (rights and responsibilities) and expectations between the state and citizens that manifest in legal rules, everyday acts, and radical practices'. She finds that there is often a disconnect, or disjuncture, between the 'identities, perceptions and actions of citizens' – their expectations of what the state should be and how it should act – and what is actually being delivered. The concept of infrastructural citizenship (on this notion see Lemanski, 2020, p. 590) therefore became a particularly useful lens with which to consider public transport as a relational process and series of socially produced outcomes.

Embracing this perspective thus allowed us to analyse transport in Gauteng and Maputo from multiple points of view, to describe the dialectics of by whom and for whom infrastructure is implemented (cf. McFarlane and Silver, 2017), and to shift from 'a public' towards the notion of multiple and diverse 'publics' (Watson, 2006). This approach also draws inspiration from Simone (2010, pp. 288–289), noting that:

> cities are also about publics, i.e., about forms of being together or of being connected that go beyond the specific details of what a person does or where he or she lives and comes from [and about the] elaboration of publics – a sense of operating in concert with known and unknown others.

Thus, we see publics as the diverse array of groups that are configured and reconfigured by a sense of identity and opportunity to mobilise around it; hence as fluid rather than stable groups, in which individuals belong to many publics at different times. It is also a politically configured idea, in thinking through groups at specific moments in space and time.

The design and provision of transport infrastructure has a long history of indifference towards passenger needs. While the typical male commuter has largely been considered, the needs of women and children have long been ignored (Hanlon, 1996). They often have less straightforward pathways linking between the complex activities of everyday life (see Hanlon, 1996). 'Trip-chaining' is one example of this: women are considerably more likely to have multiple destinations along their paths, from dropping off children to conducting household activities like shopping, going to their place of work, or caring for other family members (Spain, 1996). Such a disregard for complexity of the requirements and difficulties of accessing transit for groups like women and families can be considered a form of 'slow violence' enacted through infrastructure (see Baumann and Yacobi, 2022; Otsuki, this volume).

An empirical example of this from the research in South Africa and Mozambique comprises the publics that emerge through the use of different modes of transportation. Within this, there are differentiated experiences based on (group or individual) identity, including class and gender dimensions of infrastructural provision. Geographical location – regionally and rela-

tionally – is also a significant factor in determining the publics that need to be addressed. Our studies have shown that paratransit is often more suited to these complex needs, as well as the variety of destinations served and increased points of access close to the activities people need to reach. It can extend much further into the geographical peripheries than can fixed corridor routes, for example.

Yet while paratransit is more responsive to multiple publics in this sense, it is often considered dangerous and expensive by women in particular. They frequently report feeling unsafe or worrying about their children during paratransit travel, because of the conditions of the vehicles and behaviour of drivers or fellow passengers. Waiting times and uncertainty about delays were often cited by study respondents as not just an inconvenience, but also a significant source of stress. Some noted having lost work, or having had high levels of anxiety about losing work, due to the irregularity of routes and extended waiting times making them late. From this kind of unease, to bullying or disrespect from drivers or queue martials, and even to physical violence between taxi associations where passengers are caught in the middle: this illustrates how flexibility can be a proverbial double-edged sword for transit users.

What many of the people interviewed in our case study areas think 'the state' – which they typically refer to as a singularity – should do is to meet their needs by supporting the hybridity of the existing systems, from improving access to transport to making paratransit safer. They want transit that reflects their not-always-regular spatial practices. The City of Johannesburg has invested heavily in costly, large-scale transit over the past several decades, including new highway bridges, BRT, and bus lines (Burger, 2021). Yet many respondents noted being unable to access this new transport infrastructure: physically, because there are no nearby stops and the routes do not take them where they need to go; or financially, because ticket prices are too expensive for the average resident of these large urban regions. Understanding this complexity and identifying the publics to be served requires fine-grained, transdisciplinary, and mixed-methods research, considered through people's highly specific mobility needs and real spatial practices (Howe, 2021a, 2021b). Otherwise, planned infrastructure runs the risk of further consolidating privilege along existing arterials (McFarlane and Silver, 2017) or becoming another form of 'spatial fix' (Harvey, 1984).

All of these phenomena could be characterised as forms of slow violence for travellers. In part, these issues arise due to the constraints taxi operators face, as providers of what could be characterised as a form of public transport service that conflicts with government systems and mechanisms for support. Citizens, in conducting the practices of everyday life, are thus continually confronted with trade-offs in how to reach their destinations. This results in disjunctures between the users and providers of transport infrastructure in almost every direction. In the end, no single transit system is fully satisfactory.

There are occasional moments when disjunctures between the levels of the state and the publics erupt into more acute violence as a result. In the contexts investigated, this primarily involved protests about transport infrastructure. Interviewees from the City of Johannesburg expressed consternation in our research as to why, after having provided so much transport infrastructure, the systems are underutilized generally, or vandalized in these more acute cases. An example cited was the Westbury (in Gauteng) BRT station, which was set alight in 2018 by residents protesting criminality in their area and frustrated with the state's lack of action about this crime. Lemanski's (2020, p. 592) definition of citizenship as a sometimes-radical practice applies to this kind of protest. Setting fire to the material objects provided by the state is a radical act of declaring citizenship against the symbolic target of the BRT.

## HYBRID SYSTEMS AND THE GOVERNANCE THEREOF

The definition of infrastructure is broad, but the prevailing definition today includes an understanding that it involves the political and mutual shaping of socio-technical systems (Watson and Shove, 2022). Infrastructure is essential for the 'working of an economy' (Asquer, 2013) and underlies the complex activities of daily life (see Shove, Pantzar, and Watson, 2012; Pilo and Jaffe 2020). We suggest that transport infrastructure presents an opportunity to examine the interface between state, citizen, and private sector (on this notion, see Satgé and Watson, 2018, p. 29) through the manifold systems that exist in urban regions like the GRC and MM. Framing 'multiple publics' is related to the hybridity of this infrastructure, which exist both within and beyond formal planning (see Pollio, Cirolia, and Pieterse, 2022; and the chapters in Part II of this volume). Hybrid systems reveal particularly well how infrastructure is a relational process, not merely a material outcome (Lemanski and Massey, 2022).

Post, Bronsoler, and Salman (2017) point out that in reality, and especially in the Global South, there are far more hybrid situations than there are 'pure' state provisions of services and public goods. Kushner and MacLean (2015) indicate that this is often due to the state's 'weakness' and inability to provide the requisite service to the public, while other scholars place emphasis on 'bottom-up actors and organizations' constructing hybrid arrangements, with potentially transformative results (Schmid, 2021). Similarly, rather than unilaterally framing what we found in Gauteng and Maputo in terms of a singular state and its failure, we see how, as Satgé and Watson (2018, p. 26) note: 'policy is shaped through power struggles between different interests, where knowledge and truth are contested'. For example, there are significant struggles between and amongst the variegated taxi associations of paratransit, which constitute a powerful industry in places like South Africa and Mozambique, and those who plan transport infrastructure.

This is evident when engaging with, for example, what the City of Johannesburg and Gauteng Province imagine as their mandate with regards to the transport sector. The City purports public transport as a means of achieving economic growth targets, as well as a measure of improving social justice. Documents on the City's flagship corridor development initiatives explicitly discuss 're-stitching the city back together' (Harrison, 2016; Harrison *et al.*, 2019) to overcome the legacy of apartheid. Aligned with this framework, a significant portion of transport infrastructure investment in Gauteng has focused on supplementary transport systems such as the Gautrain – a rapid rail service connecting the major economic nodes – and the BRT system. Taxi associations vehemently resist such policies, which typically include their incorporation into these state-led transit systems (Pernegger, 2020, p. 31). For its part, the taxi industry sees itself primarily as a service provider, rather than the purveyors of public transport, and typically remains relatively disconnected from other forms of public transport.

There are varying degrees of understanding for paratransit within the various levels of the state. On one hand, some interviewees from City agencies responsible for delivering transport described the taxi industry as 'recalcitrant', noting that they do not understand why commuters prefer to use taxis despite the many evident pitfalls of the taxis. In some cases, they indicated feeling unsure how to proceed in planning as a result. On the other hand, an interviewee from the Gauteng Province described the role of paratransit as 'always picking up the slack, and ensuring people are still getting to their destinations' (GPG Transport, pers. comm., 2021). The same government official described the Gautrain rail system as the only one getting it right, having 'contracted out certain feeder routes to some taxi organisations and integrated

them into their coherent transport network'. Successful integration, the official noted, has not occurred with the BRT networks, who primarily try to enact buy-out options and conduct negotiations with taxi associations rather than seeking to integrate the taxis themselves into the overarching transport framework of the BRT (see Woolf and Joubert, 2014).

All of this indicates that City of Johannesburg and Gauteng Province officials sometimes embrace a multiplicity as they respond to publics and conflicts associated with them. They expressed an openness to the taxi industry co-existing alongside their more 'sustainable' visions for the future, and thus to working with hybrid systems. One example is in the provision of 'taxi ranks', or stations where taxis can park while people queue and wait to depart for their destinations. Several such platforms have been constructed by the City for major transport nodes at the edge of Downtown Johannesburg, serving feeder routes from regional paratransit networks. In the Baragwanath Taxi Rank in Soweto, taxi drivers can pull up to platforms and people can queue for their connecting destinations. Faraday Taxi Rank, built by MMA Architects in 2006, was widely celebrated at the time for its architectural form and integration of spaces for informal vending (Makubo, 2015). These are examples of how the City responds to the hybridity of infrastructure and the governing thereof, proving that paratransit need not be regarded as a relinquishing of control over transport, but rather, it can be framed as an opportunity to address the needs of multiple publics.

## LEARNING FROM DISJUNCTURES

We understand transport as an essential backbone infrastructure in the functioning of urban systems: vital in connecting families with public services, workers with facilities and amenities, job seekers with possible opportunities. When pathways intersect and people encounter one another, it becomes possible to valorise the conflicting perspectives of different social groups (Fraser, 1990, 1995; Sandercock, 1998). Public transport infrastructure – especially in extended urban regions like the GCR and MM this chapter draws from – provides people with essential access to opportunities; these arterials and junctions are, therefore, can become a litmus test for how included people are in urban life. It is in recognition of urban 'citizen' rights to mobility and centrality that this chapter engaged with public transport. It is a key responsibility assumed by many governments, to a greater or lesser extent, and a hope and expectation urban citizens often have of authorities. The degree to which this public transport expectation is met, of course, is highly variable. In this sense, we assert that a right to transport can be equated with a right to access opportunities, which is as significant a claim as those to infrastructure like water, sanitation, or housing.

Lack of access, reliability, functionality, and affordability are some of the reasons why, in our case study areas, people have responded to the state-led provision of infrastructure with mistrust. In both of our empirical contexts, such disjunctures are exacerbated by intangible expectations about transit as a means of economic development and redress for inequitable spatial legacies (Pernegger, 2020, p. 32). This gap between societal expectations and the inability of the infrastructure to meet people's needs has resulted in various forms of protest and conflict. In MM, the cost of transport and inaccessibility generated substantial social unrest and protest action over the past several decades. In our two Southern African contexts, such 'authority constraints' (McQuoid and Dijst, 2012, p. 27) have often deepened people's mistrust of the system, and created a power vacuum beyond the control and governance of formal

systems. The paratransit system, so often juxtaposed with state-led transport, evolves its own agenda, agency, and assumptions about the multiplicity of state and citizen in response.

Our research suggests that disjunctures arise from the expectations multiple publics have of one another, which are iterated in the kinds of conflicts between spatial practices and planning this chapter illustrates. They originate, to an extent, from how state agencies responsible for transport see themselves as a particular kind of service provider, delivering socio-technical infrastructural solutions to the public (singular). The prevailing objective is to provide unified systems that allow whichever level of government responsible to achieve their socio-economic targets. People primarily want to access opportunities – and do this however they can most cheaply and conveniently – leading them to make difficult trade-offs no matter which system they end up utilising. They have diverse and factious needs, which vary widely based on socio-economic factors, identities, as well as relational geographic locations (see Howe, 2021b). The result is that the relationship of infrastructural citizenship exists between multiple publics and multiple institutions. The continuing use of paratransit, therefore, speaks to the complexity, failures, and successes of planning and delivering infrastructure inherent to the hybrid systems of the GCR and MM.

Furthermore, examining disjunctures and citizenship in public transport highlights the value of difference, of extending epistemological knowledge and normative thinking in the planning of infrastructure. How is conflict mediated? What do people imagine, and how does the other party fall short? Is there a way to assume a more agonistic approach – even if in small moments like the creation of taxi ranks at major transit nodes in Johannesburg – to valorise the existence of multiple publics and their needs? It is not just the publics, but also the state that can embrace multiplicity and hybridity going forward.

Ignoring or disregarding people's needs is a form of slow violence; so, too, is a failure to acknowledge the parallel existence of multiple publics and multiple layers of the state. In the context of Southern Africa, people's options are constrained by the geography of city-regions: colonial and apartheid legacies of spatial planning as well as continued market forces limit where people can live. As in many contexts around the world, this frequently entails a relegation of poor and historically underprivileged populations to the geographical peripheries, where transport is both more expensive and more limited (Howe, 2021a). Many study respondents from the GCR and MM reported that they have few, if any, options for transport because some are unaffordable, or not within a reasonable distance, or they are considered unsafe. This severely restricts their mobility, access to resources and opportunities, and ability to participate in the forms of encounter found in urban centralities. In this way, the lack of options in transport infrastructure can actually serve as a form of 'social and material alienation … cleaving communities in 'the background' from the infrastructures supporting urban lives and livelihoods' (Addie, 2021, p. 8).

We encourage further comparative investigation of ordinary cities and their ordinary citizens to understand the moments of connection and disjuncture. The cases of the GCR in South Africa and greater urban area of Maputo in Mozambique suggest the possibility for a more progressive governance of hybrid infrastructure. Responding to existing forms of hybrid transportation systems, as a legitimate response to the specific constraints of complex urban areas, could constitute a path forward for more inclusive, equitable infrastructure. Assuming such an agonistic approach could have significant implications for transport, as well as many other sectors of infrastructure.

## REFERENCES


Addie, J.P.D. (2021) 'Urban life in the shadows of infrastructural death: From people as infrastructure to dead labor and back again', *Urban Geography*, 42(9), 1349–1361.

Alderman, J. and Goodwin, G. (eds.) (2022) *The Social and Political Life of Latin American Infrastructures*. London: University of London Press.

Asquer, A. (2013) *Inverse Infrastructures: Disrupting Networks from Below*. Cheltenham: Edward Elgar.

Baumann, H. and Yacobi, H. (2022) 'Introduction: Infrastructural stigma and urban vulnerability', *Urban Studies*, 59(3), 475–489.

Beavon, K.S.O. (2001) 'The role of transport in the rise and decline of the Johannesburg CBD, 1886–2001'. 20th Annual South African Transport Conference, CSIR, Pretoria, South Africa, 16–20 July.

Bierschenk, T. and Olivier de Sardan, J.P. (2014) 'Ethnographies of public services in Africa: An emerging research paradigm' in Bierschenk, T. and Olivier de Sardan, J.P. (eds.) *States at Work Dynamics of African Bureaucracies*. London: Brill, 35–67.

Blok, A., Nakazora, M. and Winthereik, B.R. (2016) 'Infrastructuring Environments', *Science as Culture*, 25(1), 1–22.

Boudreaux, K. (2006) 'Taxing alternatives: Poverty alleviation and the South African taxi/minibus industry', *Mercatus Policy Series*, Policy Comment No. 3, February 2006 [online]. Available at: http://dx.doi.org/10.2139/ssrn.1027017.

Burger, S. (2021) 'Johannesburg International Transport Interchange to launch at the end of June', *Engineering News*, 3 June [online]. Available at: www.engineeringnews.co.za/article/johannesburg-international-transport-interchange-to-launch-at-the-end-of-june-2021–06–03.

Cervero, R. and Golub, A. (2007) 'Informal public transport: A global perspective', *Transport Policy*, 14(6), 445–457.

Collier, S.J., Mizes, J.C., and von Schnitzler, A. (2016) 'Preface: Public infrastructures/infrastructural publics', *Limn* 7 [online]. Available at: https://limn.it/articles/preface-public-infrastructures-infrastructural-publics.

Coutard, O. and Rutherford, J. (eds.) (2015) *Beyond the Networked City: Infrastructure Reconfigurations and Urban Change in the North and South*. London: Routledge.

Culwick Fatti, C. (2021) 'Transport', in de Kadt, J., Hamann, C., Mkhize, S.P., and Parker, A. (eds.) *Quality of Life Survey 6 (2020/21): Overview Report*. Johannesburg: Gauteng City-Region Observatory.

Egyedi, T. and Mehos D. (2012) *Inverse Infrastructures: Disrupting Networks from Below*. Cheltenham: Edward Elgar.

Engfeldt, C. and Warah, R. (1998) 'Sustainable urban transport', *Habitat Debate*, 4(2).

Ferro, S. (2015) 'Paratransit: A key element in a dual system', *Agence Francaise de Developpement* [online]. Available at: www.codatu.org/wp-content/uploads/transports_collec_artisanal_V03ecran_EN.pdf.

Flyvbjerg, B. and Richardson, T. (2002) 'Planning and Foucault: In search of the dark side of planning theory' in Allmendinger, P. and Mark Tewdwr-Jones, M. (eds.) *Planning Futures: New Directions for Planning Theory*. London: Routledge, 44–62.

Fraser, N. (1990) 'Rethinking the public sphere: A contribution to the critique of actually existing democracy', in Scott, A. and Nash, K. (eds.) *New Critical Writings in Political Sociology*. London: Routledge, 56–80.

Fraser, N. (1995) 'From redistribution to recognition? Dilemmas of justice in a 'post-socialist' age', *New Left Review*, I/212.

Graham, S. (2010) *Disrupted Cities: When Infrastructure Fails*. London: Routledge.

Hanlon, S. (1996) 'Where do women feature in public transport? Women's travel issues', *United States Department of Transportation, Federal Highway Administration* [online]. Available at: www.fhwa.dot.gov/ohim/womens/chap34.pdf.

Harrison, K. (2016) 'Transit corridors and the private sector: Incentives, regulations and the property market', Report 4. *Spatial Transformation through Transit-Oriented Development in Johannesburg Research Report Series*. South African Research Chair in Spatial Analysis and City Planning. University of the Witwatersrand, Johannesburg.

Harrison, P., Rubin, M., Appelbaum, A., and Dittgen, R., (2019) 'Corridors of freedom: Analyzing Johannesburg's ambitious inclusionary transit-oriented development', *Journal of Planning Education and Research*, 39(4), 456–468.

Harvey, D. (1984) *The Limits to Capital*. Oxford: Blackwell.

Hermanus, L. and Cirolia, L.R. (2022) *The Cable Is Coming: Distributed Energy Technologies, Decentralising Systems, and the Future of African Cities*. Cape Town: African Centre for Cities.

Holston, J. (2008) *Insurgent Citizenship: Disjunctions of Democracy and Modernity in Brazil*. Princeton, NJ: Princeton University Press.

Howe, L.B. (2021a) 'Thinking through people: The potential of volunteered geographic information', *Urban Studies*, 58(14), 3009–3028.

Howe, L.B. (2021b) 'The spatiality of poverty and popular agency in the GCR: Constituting an extended urban region', *Urban Geography*. doi: 10.1080/02723638.2021.1922200.

Kushner, D.C. and MacLean, L.M. (2015) 'The politics of the nonstate provision of public goods in Africa', *Africa Today*, 62(1), vii–xvii.

Lemanski, C. (2019) *Citizenship and Infrastructure: Practices and Identities of Citizens and the State*. London: Routledge.

Lemanski, C. (2020) 'Infrastructural citizenship: The everyday citizenships of adapting and/or destroying public infrastructure in Cape Town, South Africa', *Transactions of the Institute of British Geographers*, 45(3), 589–605.

Lemanski, C. and Massey, R. (2022) 'Is the grid people or product? Relational infrastructure networks in Cape Town's energy-housing nexus', *Urban Geography*. doi: 10.1080/02723638.2022.2092306.

Makgetla, N. and Levin, S. (2016) 'A perfect storm: Migrancy and mining in the North West province', *Inequality and Economic Inclusion Series*. Johannesburg: Trade and Industrial Policy Strategists (TIPS) [online]. Available at: www.tips.org.za/research-archive/inequality-and-economic-inclusion/item/3099-a-perfect-storm-migrancy-and-mining-in-the-north-west-province.

Makubo, M. (2015) 'Jozi's jumble of buildings defines an African city', *Mail & Guardian* [online], 1 January. Available at: https://mg.co.za/article/2014–12–30-jozis-jumble-of-buildings-defines-an-african-city.

McFarlane, C. and Rutherford, J. (2008) 'Political infrastructures: Governing and experiencing the fabric of the city', *International Journal of Urban and Regional Research*, 32(2), 363–374.

McFarlane, C. and Silver, J. (2017) 'Navigating the city: Dialectics of everyday urbanism', *Transactions of the Institute of British Geographers*, 42(3), 458–471.

McQuoid, J. and Dijst, M. (2012) 'Bringing emotions to time geography: The case of mobilities of poverty', *Journal of Transport Geography*, 23, 26–34.

Monstadt, J. and Schramm, S. (2017) 'Toward the networked city? Translating technological ideals and planning models in water and sanitation systems in Dar Es Salaam' *International Journal of Urban and Regional Research*, 41, 104–125.

Ngubane, L. (2022) 'Feuding families in the South African mini-bus taxi industry', *African Journal of Peace and Conflict Studies*, 11(1).

Olivier, J.J. and Booysen, J.J. (1983) 'Some impacts of Black commuting on Pretoria', *South African Geographical Journal*, 65, 124–134.

Pernegger, L. (2020) *The Agonistic City? State-Society Strife in Johannesburg*. London: Zed Books.

Pilo, F. and Jaffe, R. (2020) 'Introduction: The political materiality of cities', *City and Society*, 32(1), 8–22.

Pirie, G. (1992) 'Travelling under apartheid', in Smith, D. (ed.) *The Apartheid City and Beyond: Urbanization and Social Change in South Africa*. London: Routledge, 172–181.

Pollio, A., Cirolia, L.R. and Pieterse, E. (2022) *Infrastructure Financing in Africa: Overview, Research Gaps, and Urban Research Agenda*. Cape Town: African Centre for Cities & Alfred Herrhausen Gesellschaft.

Post, A.E., Bronsoler, V., and Salman, L. (2017). 'Hybrid regimes for local public goods provision: A framework for analysis', *Perspectives on Politics*, 15(4), 952–966.

Rateau, M. and Jaglin, S. (2022) 'Co-production of access and hybridisation of configurations: a socio-technical approach to urban electricity in Cotonou and Ibadan', *International Journal of Urban Sustainable Development*, 14(1), 180–195.

Rutherford, J. and Jaglin, S. (2015) 'Introduction to the special issue: Urban energy governance: Local actions, capacities and politics', *Energy Policy*, 78, 173–178.
Sandercock, L. (1998) *Making the Invisible Visible: A Multicultural Planning History*. Berkeley, CA: University of California Press.
Satgé, R. and Watson, V. (2018) 'Conflicting rationalities and southern planning theory', in Satgé, R. and Watson, V. (eds.) *Urban Planning in the Global South*. London: Palgrave Macmillan, 11–34.
Schmid, B. (2021) 'Hybrid infrastructures: The role of strategy and compromise in grassroot governance', *Environmental Policy and Governance*, 31(3), 199–210.
Shove, E., Pantzar, M., and Watson, M. (2012) *The Dynamics of Social Practice: Everyday Life and How it Changes*. London: SAGE Publications Ltd. Available at: https://dx.doi.org/10.4135/9781446250655.
Simone, A.M. (2010). '2009 urban geography plenary lecture: On intersections, anticipations, and provisional publics: Remaking district life in Jakarta', *Urban Geography*, 31(3), 285–308.
Smart Cities Journal (SCJ). (2022) 'Mozambique's capital city to implement bus rapid transit project in 2023' [online]. Available at: www.thesmartcityjournal.com/en/smart-mobility/mozambique-s-capital-city-to-implement-bus-rapid-transit-project-in-2023.
Spain, D. (1996) 'Run, don't walk: How transportation complicates women's balancing act. Women's travel issues', *United States Department of Transportation, Federal Highway Administration* [online]. Available at: www.fhwa.dot.gov/ohim/womens/chap14.pdf.
Stäheli, L.A., Ehrkamp, P., Leitner, H., and Nagel, C.R. (2012) 'Dreaming the ordinary: Daily life and the complex geographies of citizenship', *Progress in Human Geography*, 36(5), 628–644.
Star, S.L. (1999) 'The ethnography of infrastructure', *American Behavioral Scientist*, 43, 377–391.
The Presidency (2021) 'Executive summary, NDP 2030' [online]. Available at: www.gov.za/sites/default/files/Executive%20Summary-NDP%202030%20-%20Our%20future%20-%20make%20it%20work.pdf.
Watson, V. (2003) 'Conflicting rationalities: Implications for planning theory and ethics', *Planning Theory and Practice*, 4, 395–407.
Watson, V. (2006) 'Deep difference: Diversity, planning and ethics', *Planning Theory* 5(1), 31–50.
Watson, M. and Shove, E. (2022) 'How infrastructures and practices shape each other: Aggregation, integration and the introduction of gas central heating', *Sociological Research Online*. doi: 10.1177/1360780421105549.
White Paper on National Transport Policy (WPNTP) (2021) 'Department of Transport Notice 1050 of 2022, 27 May 2022, No. 46422', *Government Gazette*. Pretoria: Department of Transport [online]. Available at: www.gov.za/sites/default/files/gcis_document/202205/46422gen1050.pdf.
Woolf, S.E. and Joubert, J.W. (2014) 'A people-centred view on paratransit in South Africa', *Cities*, 35, 284–293.