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Article:
The Critical Infrastructure Collective (2022) Infrastructures, processes of insertion and the everyday: towards a new dialogue in critical policy studies. Critical Policy Studies, 16 (1). pp. 121-130. ISSN: 1946-0171

https://doi.org/10.1080/19460171.2022.2026236

This is an Accepted Manuscript of an article published by Taylor & Francis in Critical Policy Studies on 02/02/2022, available online:
http://www.tandfonline.com/10.1080/19460171.2022.2026236.

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UNIVERSITY OF LEEDS
University of Sheffield
UNIVERSITY of York

Infrastructures, processes of insertion and the everyday: towards a new dialogue in critical policy studies

The Critical Infrastructure Collective1

ABSTRACT

This forum argues that the complex assemblages of infrastructures, and their reproduction in our everyday worlds, offer a privileged lens through which to explore the practices of much of what critical policy studies holds dear. It draws attention to processes of insertion that reproduce infrastructure in everyday lives, arguing that such processes cast new light on the work of the state, governance, and democratic struggles. It discerns three avenues as a means of exploring such infrastructural processes: first, an invitation to transcend the physical form and reflect on infrastructural temporalities; second on the transformation of spatial governance and policy through infrastructure; and third, a re-assessment in the relationship between infrastructures and the 'modernist ideal'. Through these avenues, light can be shed on the often 'hidden' practices of policymaking. We conclude by calling for a dialogue across diverse disciplines, side-stepping embedded divides between academics-activists, cities-towns, and the global south-north.

Infrastructure projects abound, be it the construction of nuclear power stations, high-speed rail links, airport runways, sporting stadiums, river dams or new town developments. These projects, often large in scale, are perceived, and promoted as distinct events, or artifacts. Yet, they also invariably form nodes within the networks of everyday infrastructures that constitute the power, transport or housing systems through which we reproduce our daily social, political and economic practices. They enter our lives and routines, not always as singular entities but as multi-connected socio-technical assemblages. But, in the process of making possible our lives, infrastructures also constitute them, reproducing and bringing into being forms of agency, modes of conduct, and technologies of governance.

We conceptualize infrastructure as a relational and experimental process, a dynamic assemblage of heterogeneous elements that encompass political and organizational work as well as technology in the formation of power relations (Alderman and Goodwin 2022 forthcoming; Slota and Bowker 2016). This definition offers a privileged lens through which to explore the practices of much of what critical policy studies holds dear. It opens up the possibility of investigating practices of 'everyday making' that cannot be dissociated from the role of the state, policy and practices of resistance and adaptation. It acknowledges that infrastructures are more than their immediate physical materiality; they involve a sociotechnical dimension (Furlong 2011; Larkin 2013), functioning, in the conceptual language of Foucault, as modes of governmentality disciplining populations through an assembly of processes, practices and beliefs that enable infrastructure technologies to be enacted (McFarlane and Rutherford 2008; Vanolo 2014). In this way, infrastructures are political because they congeal social interests through interwoven and decentred networks of people, organizations and institutions that reproduce patterns of inclusion and exclusion (Graham and Marvin 2001). Borrowing from Slota and Bowker (2016, 531), we turn attention not to whether 'a given thing is in essence an infrastructure but when it is an infrastructure.'

Calling for the unpicking of the complex work of infrastructure in the concealed reproduction of the everyday, we make a case for bringing the study of infrastructure firmly into the foreground of critical policy studies. We seek not merely to better understand infrastructures as a tool or outcome of policy, but to shift attention on to how we

capture and explain their organic embeddedness or integration within the fabric of life, and within settlement patterns. Studying such processes of insertion into the everyday can, we suggest, cast new light on the work of the state and the operation of power; the contested role of knowledge and expertise; the politics of competing coalitions; the material and symbolic dimensions of policymaking; and the normative assumptions underpinning political action and representation in struggles for democratic policymaking.

In studying those processes of insertion, we build upon the insights of anthropology debates and science and technology studies (STS) (see Anand et al. 2018 for a comprehensive analysis), as well as the stream of work exploring the discursive policy and politics of infrastructure, specifically protests against large infrastructure projects within the field of critical policy studies (Chailleux 2020; Durnova 2018; Metze and Dodge 2016). These perspectives have underlined the value of understanding infrastructure as relational processes across different dimensions: social, political, legal or environmental. They have also acknowledged the association of infrastructure with ideas of modernity and progress, and how these associations are carriers of moral or political ideas that accentuate global south and north divides. Finally, they have emphasized the importance of time in how infrastructures are conceived and represented (i.e. from spectacle to ruination) and through this temporal process how infrastructures justify the building of a nation or the management/disciplining of citizenship.

Although we value the above mentioned contributions, here, we suggest that further insights into the contemporary practices of governance might be gleaned from the sustained study of the processes of insertion of infrastructure into the everyday. As such, critical explanations of infrastructure as 'objects of governance' become part of the characterization and analysis of the processes of insertion that anchor infrastructure into everyday practice (Castán Broto 2019). These processes of insertion are contingent, they are outcomes of the complex interplay between multiple social forces and indeed technologies (Winner 1980). Moreover, these processes can often be forced or be dependent on the imposed translation of a particular territorial imaginary which goes against the alternative readings of the broader context in which an infrastructure already sits. This complexity opens a cross-disciplinary discussion on infrastructure, which brings critical policy studies further into dialogue with political geography, public sociology, critical planning, urban studies, STS and critical legal studies and economics to unpick the 'black box' of infrastructures in practical ways (Bowker and Star 2000; Winner 1993).

We set out three potential avenues for characterizing and analyzing such processes of insertion. We first aim to advance studies from the focus on the physical elements of 'networked' infrastructure (Graham and Marvin 2001) towards 'heterogenous' infrastructure and its alternative temporalities (Lawhon et al. 2018). Second, we underline how the insertion of infrastructure into the everyday transforms spaces of governance and the politics of identity, reframing existing understandings of scale and boundaries. Finally, we explore the 'grip' of the modernist ideal of infrastructure and how heterogenous understandings shape material changes and everyday practices. Our insights call for a historical understanding of infrastructure dynamics across imagined urban and non-urban and north-south boundaries.

Avenue 1: beyond physical structures and the temporalities of the everyday

Engaging with daily interactions of infrastructures moves beyond just the physical structures of transport and communication systems to consider, for example, nontraditional political, socio-environmental and information systems (Frischmann 2013).

Focusing on heterogenous infrastructure configurations (Lawhon et al. 2018) take us away from an initial privileging of standalone projects. This focus pushes us towards identifying and studying diverse and simultaneous chains of infrastructure that deliver social interactions across interconnected scales of action: from the local to the transnational. Such a perspective makes visible the many social interactions by drawing attention to the complex configurations of infrastructure whereby people access resources, connect

and interact. The focus on the process of constituting infrastructure, as Winner (1980, 180) argues, is intrinsic to a form of order and the reproduction of different modes of life and reasoning, such that 'issues that divide people or unite people in society are settled not only in the institutions and practices of politics proper, but also, and less obviously, in tangible arrangements of steel and concrete, wires and transistors, nuts and bolts'. By bringing in the heterogenous approach, we build upon Winner's argument as it allows us to become aware of the socio-political meanings developed in such multi-layered processes, not only by state but also by non-state actors.

In broadening our investigations into different modes of infrastructure, we recognize the temporal extension of existing studies that explore 'the lifespan' of infrastructures. Such approach builds upon an emerging interest within engineering and other sociotechnical subjects to study the life cycle of material life (Star 1999; Anand et al. 2018).

This temporal extension should also explore how infrastructure evolves through use and the strategies generated by communities and users to live with or exploit infrastructures. Indeed, this stretching of the temporal boundaries of studies foregrounds the informal practices of individuals through which they engage in their everyday lives with infrastructures, acknowledging how they are historically constituted through the co-evolution of material arrangements, institutional arrangements, and everyday practices.

However, revealing the concealed intricacies of material and immaterial elements involved in the production of infrastructures poses difficulties, especially when populations may well not notice their existence until there is breakdown or rupture that generates a crisis. For example, a blackout or closure of railway stations and lines (Star 1999); or when being invisible to the state is a necessary strategy for survival, as it is the case in informal settlements. The temporal extension of our analytical engagement with infrastructure should, we suggest, privilege such moments or episodes 'evoking reforms, crises and accessibilities' with regard to infrastructure provision, maintenance and breakdown (Graham 2010; McFarlane and Rutherford 2008, 369).

When things stop working, they create 'glitches' that 'threaten the conditions and the sense of belonging' (Berlant 2016, 403), given the anxiety and destabilization caused. As Berlant (2016) argues, societal consciousness of and towards infrastructures is commonly found after facing crises or moments of destabilization. The emergence of new infrastructures themselves can be profoundly destabilizing. Their capacity to reshape physically the environment or the less immediately perceptible reconfiguration of social and economic relations can likewise induce crises and be perceived as rupture. Hence, destabilization can range from the complex neoliberal effects of service privatization to a sense of decay resulting from the decline in the levels of maintenance that many infrastructural systems depend upon coupled with reduced public spending and state neglect. Paradoxically whilst maintenance offers a veneer of stability what is maintained is not simply the physical structures but lifestyles and modes of existence with profoundly destabilizing climatic and planetary consequences (Henke and Sims 2020).

Avenue 2: infrastructure transforms space, governance and policy

The critical analysis of such processes of insertion and destabilization cannot be divorced from the critical assessment of how infrastructure transforms spatial governance. Take for example a straightforward understanding of 'network infrastructures' such as roads, energy, transport and technology systems. The latter are highly interlinked with extractive infrastructures through the provision of materials and as a reason for construction; from water aqueducts built from rural sites to main urban centres, to the road, energy and communication technology networks required for mining and hydrocarbon industries to develop. Such infrastructural interdependencies render rural and isolated areas to be more connected and open to urban areas and to create new types of social relations. A case in point is the logics of the campaigns and resistance to megaprojects that range from airports to mining, which has been combined with the reaffirmation of peasant and indigenous identities coupled by environmental urban discourses (Bebbington et al.

2008; Griggs and Howarth 2013; Hayes 2013).

Here infrastructures expand boundaries and create spatial overlaps, acting as Keil (2017, 125) argues, as 'keystones of sub/urban metabolisms, especially in the establishment and definition of boundaries and transition of the global suburban with the natural environment.' Infrastructures challenge the administrative boundaries that define cities and other type of localities as well as the embedded social and collective identities shaped by territorial boundaries. They bring into question the role of government authorities, especially their organization, the procedures and regulations followed, planning and policy-making practices (Addie and Keil 2015; Castán Broto 2019). Here land, its use and how it changes (Brenner and Schmid 2015), and importantly the speed in which land use changes is significant. For example, 'priority areas' of development (i.e. economic export zones that require large infrastructure) commonly spearheaded by state actors clearly tap on central-local government relations and the tensions of power in decision-making, surfacing the spatial and political challenges of multi-level governance and territory. Indeed, they draw attention to communities' daily and historical relationships with territory, foregrounding the dynamics of capital and the relationship between the global and the local, the network and the place, territory and scale. These issues crystallize the political challenges that local tiers of government have over how and whether to begin to get 'organizationally' ready to align their policies to the processes that national agencies require, as opposed to getting 'organizationally' ready to contest the higher tier based on their constituency's views. They also foreground the in-between spaces of the urban and the rural that allow us not only to break further the comparative divide between the global south and global north (given that in both regions there is 'rurbanization' where rural life influences urban life and vice versa), but also to understand more fully the spatial and governance dynamics of infrastructure policy and practices.

Campaigns against infrastructure projects foreground the importance of social movements and their role in revealing normative assumptions underpinning the operation of power and governance that lie behind the insertion of infrastructure into place. Social movements are material actors, challenging the appropriation or unequal distribution of allocative resources: funding, territory, technology, or goods. But they are also, perhaps primarily, *symbolic* actors, whose engagement in social conflict serves to identify the way that the interests of power are presented as natural, immutable and inevitable. Social movements thus act 'to *reveal the stakes*, to announce to society that a fundamental problem exists in a given area' (Melucci 1985, 797), and correspondingly to 'announce to society that something "else" is possible' (1985, 812). And in doing so, social movements can through a repertoire of actions unveil actions and decisions by the state within the informal sphere, which can be highly interlinked with illegality in the effort to minimize opposition to the infrastructure. These may include, for example, state actors' actions violating environmental regulation to promote mining or other extractive industries requiring network infrastructure (Zaremberg, Ivich, and Roo 2019).

Such political interactions are subject to 'frictions' (Tsing 2005), which are central to our understanding of how traditional livelihoods and governance arrangements change. Frictions also include illegal or alegal resource activities (irregular land use, logging, mining and oil theft), that bring alongside them informal arrangements and rules and question the extent to which they are either considered criminal, corrupt or a hybrid mode in understanding the governance of place (Isunza Vera 2018). This latter point is also raised by Coutard and Rutherford (2016) who emphasize processes and practices that form composite infrastructures (combined state-private led and grassroots/organic led), while underlining the reproduction of the everyday through their use and sociopolitical meaning. In doing so they question the 'modern infrastructure ideal' (see also Zerah 2008), which aligns infrastructure projects with an objective of universal, networked, centralized provision, arguing that this has only been partially adopted and most often wielded opportunistically to advance colonizing, nationalistic modernization projects

(as argued below).

Avenue 3: infrastructure and the work of the 'modernist ideal'

The signifier 'infrastructure' has come to reproduce the modernist ideal of capital expansion and production alongside the raising standards of living it is supposed to offer (Graham and Marvin 2001; Marshall 2012). Infrastructures have been commonly associated with the western paternalistic, technocratic notions of development often alongside urban uniformity, integration and at least the potential for more equitable cities. Such appeals have also been accompanied by efforts to politically construct infrastructure as an indicator and driver of 'civilized' behaviour. At the same time, infrastructures can be articulated as 'weapons' in political struggles. Authoritarian politicians speak of future infrastructures as political weapons to throw against their enemies, real or imaginary (Koch 2018). This recognition of the coercive hierarchical 'uses' of infrastructures has indeed challenged investments in modernist associations related to universality and equality. The waning of such associations has been amplified by practices of neoliberalization insofar as service provision has increasingly been offered by non-state actors (Graham and Marvin 2001; Anand et al. 2018).

However, it would be short-sighted to overlook the continued resonance or 'grip' of the modernist ideal when critically evaluating infrastructures that are legitimated by discourses of growth, employment creation and global trade. Of course, global trade is often unequal and the production and management of infrastructures entwined with neoliberal financialization (Torrance 2007; O'Neill 2013; Sassen 2014; Pike et al. 2019); but so too is the popular articulation of demands for the likes of sanitation, clean water, and electricity and their relationship with the global trade of extractive commodities. The appeal of comprehensiveness and putatively egalitarianism that the modernist ideal of infrastructure holds has been difficult to ignore for many governments, leading in part to the maintenance of aggressive extractive policies to 'sponsor' redistributive policies requiring yet again more infrastructures (Gudynas 2016).

The modernist ideal has also prevailed beyond the physical, in what public administration scholars have known as the Weberian state, in which the rule of law is supposed to be followed and coordination between government agencies is included in policy design and implementation. Generally, colonial approaches underscore the lack of realization of the Weberian state in postcolonial countries, but authors have argued that this lack of realization is also present in the global north, as the impacts of neoliberalism and new public management reforms were rolled out in the 1990s (Pollitt and Bouckaert 2011). In the so-called global south, cases show a boomerang effect in the use of the modernist ideal. Zaremberg, Wong, and Guarneros-Meza (2018) find that a myriad of fragmented and uncoordinated state agencies intervenes in the implementation of extractive projects that perpetuate conflict between communities and extractive corporations, tending in the end to favour the latter. This imbalance in power is propelled by federal agencies that distort legal principles and procedures, which break with the Weberian state; but paradoxically such distortions provide a space to those excluded communities to mobilize and recapture a voice by appealing to the modernist ideals of the rule of law and transparency (also see Rodríguez-Garavito and Arenas 2005).

North-south boundaries can thus be transcended through investigations of the rhetorical work of the signifier 'infrastructure', the 'symbolic' or affective appeal of infrastructure and its complex relations to modernity. The circulations of such appeals, demands and narratives across different sites opens up the possibility of tracing or mapping the different spatial contours that structure the discourse of infrastructure, generating novel insights into the understanding of global south-north relations (Robinson 2011). Indeed, Flyvbjerg (2014) has written of four sublimes associated with infrastructure, the way it speaks to the fascination with technology, political ambitions, economic and financial boosterism, or to the aesthetic pleasure of design. Equally, Griggs and Howarth (2013) identify the fantasmatic appeals of the expansion of aviation infrastructure embedded in

the British state. Such fantasmatic appeals cannot, as we suggest above, be divorced from economic aspirations of governing elites and are repeatedly articulated as protection against the horrific threats of lost economic gains, existing benefits and ultimately prestige. Of course, there is a need also to recognize, particularly in post-colonial debates, that the integration infrastructures is instead transected by spatial fragmentation and inequities. This shift invites a new set of discourses – environmental, legal, community-managed, accountability/transparency – that overlap and interweave with that of modernity. In the post-colonial debate, present in both the global south-north and rural-(peri)urban, infrastructures have been brought to the forefront of people's daily lives, especially of traditional precarious groups or groups experiencing precarity for the first time (Graham and Marvin 2001; McFarlane and Rutherford 2008; Lawhon et al. 2018). Infrastructure projects, especially large ones, entail deep conflicts in their symbolic dimension that involve disputes among cosmogonies and identities.
Hence, we argue that heterogeneity is a central character of the infrastructural project of modernization. This heterogeneity is not only present in the so-called global south (Coutard and Rutherford 2016), but also in the north and it manifests both in physical discontinuities through putatively universal infrastructure networks and in the systems of governance and administration in charge of coordinating (or not) the design and implementation of infrastructures.

Towards a new dialogue in *critical policy studies*

This forum calls for a new dialogue on the politics and policy of infrastructure within the pages of *Critical Policy Studies*. In making such a claim we acknowledge the rich engagement across the field with the politics of infrastructure. The exploration of infrastructure and contested projects has represented, and continues to represent, one of the fruitful areas of inquiry for the key theoretical, methodological, and normative concerns of critical policy scholars. However, further grounding of the study of infrastructure in its processes of insertion into our everyday lives opens fruitful avenues of inquiry through which we can add to current understandings of the work of the state, governance, and forms of resistance and contestation. We argue that three avenues of inquiry can foster interdisciplinary dialogues even further: the politics of heterogeneous infrastructure and its multiple temporalities; the spatial politics of infrastructure; and the ideological 'grip' of the modernist ideal. These avenues unite diverse interests in a common set of 'infrastructure' problems by side-stepping embedded divides between cities and towns and the global south and north. *Critical Policy Studies* offers, we suggest, a rich arena for us to continue these reflections and to engage in a broader dialogue with critical policy scholars over the social, political, economic and environmental impacts of the constellations of infrastructures and their role in our future well-being. Moving forward, the field of critical policy studies is only too aware of the challenges of considering subaltern voices on the topic. Although the Collective included non-white women's voices, it must be said that white-male views predominate in the study of infrastructure. The latter has fostered a new field of feminist infrastructure studies (for example, Elmhirst 2011) which problematize further the modernist ideal and bring to the fore social interactions around everyday (re)production and care that were until recently overlooked. Equally, the voices of those who study infrastructural conflicts are often heard over and above those involved in those very same struggles. We believe that interdisciplinary dialogues that foreground the non-hegemonic voices of scholars and activists are the only way forward to overcome these biases.

Contributors

Vanesa Castán Broto (Professor of Climate Urbanism, Urban Institute, University of Sheffield, interests: governance of global environmental change, urbanization).
Mercè Cortina-Oriol (Senior Lecturer in Public Policy and Urban Studies, De Montfort University, interests: urban development and collective action).

Daniel Durrant (Lecturer in Infrastructure Planning, Bartlett School of Planning, UCL, interests: infrastructure, democratic innovation, discourse analysis).
Steven Griggs (Professor in Public Policy and Director of the Local Governance Research Centre, De Montfort University, interests: local governance, environmental politics, discourse analysis).
Valeria Guarneros-Meza (Reader in Politics and Public Policy, De Montfort University, interests: local governance, securitisation, infrastructure).
Graeme Hayes (Reader in Sociology and Policy, Aston University, interests: social movements and protest strategies).
David Howarth (Professor in Government and Co-Director of the Centre for Ideology and Discourse Analysis, University of Essex, interests: poststructuralist theories of society and politics).
Ernesto Isunza-Vera (Professor of Political Science and Sociology, CIESAS-Golfo, Mexico, interests: democratic control of public policy, social/citizen participation).
Marcela Torres Wong (Senior Lecturer in Political Science, FLACSO-Mexico, interests: environmental public policy).
Gisela Zaremberg (Professor in Social Sciences, FLACSO-Mexico, interests: political and sociological processes).

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