
CULTURES AND POLITICS OF INDONESIAN INFRASTRUCTURES

Joshua Barker and Sheri Lynn Gibbings

Before 2015, Heri spent most days waiting with his motorcycle outside of Kiaracondong Station in Bandung.¹ Along with the other *ojek* (motorcycle taxi) drivers at his *pangkalan* (*ojek* post), he would wait for hours for commuters emerging from the station to flag a motorcycle taxi to take them to their next destination. Now, Heri can sit at his home and receive orders from passengers using a mobile application on an Android phone leased to him by the company GO-JEK. Since joining GO-JEK, the number of customers he gets using the online GO-JEK app is already greater than the number of passengers he could find outside of the station. “It’s easy now,” Heri explains, “but at first, understanding the method of accepting orders on the mobile application was difficult. I was often not able to process the orders.”² After a GO-JEK training session, however, he uses it with ease.

According to Heri, lots of students and office workers know about GO-JEK, and just as the number of passengers is increasing, so, too, is the number of GO-JEK drivers—for example, following its launch in Bandung in 2015, the number of drivers in the city totaled nearly eight hundred in late 2016. Whereas *ojek pangkalan* (traditional motorcycle taxis) are usually operated by people who work exclusively as

Joshua Barker is an Associate Professor in the Department of Anthropology at University of Toronto. Sheri Lynn Gibbings is an Associate Professor in the Department of Global Studies at Wilfrid Laurier University. The authors acknowledge the support of an Insight Development Grant from the Social Sciences and Humanities Research Council of Canada; and they thank Emily Hertzman for her help drafting the opening vignette and for her comments on the introduction. All but one of the papers in this special issue were presented at the “Indonesian Infrastructures: Politics, Poetics, Plans” workshop, held at the Asian Institute at the University of Toronto’s Munk School of Global Affairs, March 18–20, 2016.

¹ The following vignette about Heri is based on fieldnotes written by Dr. Emily Hertzman as part of our ongoing research project about GO-JEK in Indonesia.

² Interview with Heri by Emily Hertzman, January 12, 2015.

ojek drivers, GO-JEK is attracting new kinds of drivers who use their personal motorcycles as a way of making money in their free time. Heri has observed that, increasingly, students, private security guards, and other freelancers are joining the ranks of GO-JEK drivers. Heri himself has tried to recruit some of his friends to join in order to take advantage of the rewards offered by signing up new drivers, but many of his friends are not interested because they are intimidated by the technology.

Heri is part of a new transportation infrastructure that developed quickly in major cities across Indonesia. When GO-JEK launched in Jakarta in 2011, there were antecedent start-up companies that used telephone operators in the early 2000s. Unlike some *ojek* drivers who protested against the GO-JEK drivers, Heri was among those who decided to embrace this new network and take advantage of what the company had to offer. He still spends time at the *pangkalan* at Kiaracandong station, where many of the other *ojek* drivers have also joined GO-JEK, but he never wears his GO-JEK uniform there, partially out of respect for the head of the *pangkalan*, who was not interested in joining GO-JEK, even after being taken to the recruiting office.

The ascent of GO-JEK reveals how quickly infrastructures can shift in Indonesia, leading to transformations that open up opportunities but also lead to conflicts. These conflicts are most pronounced along divisions of class, age, and technological literacy, with the young, urban middle class being one of the primary groups embracing recent infrastructural change. Indonesia is a particularly useful place to study the political life of infrastructures, precisely because conflicts over access to and control over infrastructure systems such as water, transportation, and housing are highly visible, and involve a wide range of actors (private, state, cooperative, and public). Regions across the archipelago all face serious challenges building new infrastructures and maintaining older ones. Every year dozens of people die due to flooding in Jakarta, and hundreds of thousands of people are negatively affected by the absence of functioning drainage and sewer systems.³ Jakarta also has a traffic and public transportation crisis. Indonesia's car market has been growing faster than China's, causing gridlock and unbearable commutes.⁴ To cope, people tweet warnings about traffic-blocked roads, abandon their cars, and take *ojek*, or hire passengers (called "3-in-1 children") to ride with them in high occupancy lanes. It is also predicted that Java will have a water crisis in the near future, with the demand for water reaching more than five times the annual availability.⁵

Infrastructures are typically viewed as the material and social forms that allow for exchange over space: the pipes, wires, people, roads, and, in the digital age, cell towers and wifi, that connect villages, towns, and cities to wider national and transnational systems,⁶ and facilitate the flow of goods in both a cultural and physical sense.⁷

³ Indah Setiawati, "Flood Death Toll Rises to 23 People," *Jakarta Post*, January 27, 2014, <http://www.thejakartapost.com/news/2014/01/27/flood-death-toll-rises-23-people.html>, accessed February 6, 2016.

⁴ "Let Them Walk," *The Economist*, May 26, 2012, <https://www.economist.com/business/2012/05/26/let-them-walk>, accessed February 10, 2016.

⁵ Nila Ardhanie, "Coping with Water Scarcity in Indonesia," *Jakarta Post*, March 25, 2015, <http://www.thejakartapost.com/news/2015/03/25/coping-with-water-scarcity-indonesia.html#sthash.EZXvCTz4.dpuf>, accessed February 6, 2016.

⁶ Stephen Graham and Simon Marvin, *Splintering Urbanism: Networked Infrastructures, Technological Mobilities and the Urban Condition* (London: Routledge, 2001).

Infrastructures are important for social life, not only because they allow for exchanges but because they “mediate” social reality, connecting individuals and localities to wider cultural, religious, and economic networks.⁸ While, historically, the study of infrastructures has mainly attracted the interest of scholars in fields like civil engineering, architecture, and urban planning, the present volume comes out of a growing focus on infrastructures by anthropologists and other social scientists who are interested in situating infrastructural change within the context of specific sociocultural and historical formations.

The articles in this special issue grew out of a workshop held at the University of Toronto in summer 2016. By accident rather than design, these articles are almost all urban in focus, with the partial exception of Johan Lindquist’s article, which traces a transnational infrastructure of migration that reaches from Lombok’s hinterlands to Jakarta and on to Malaysia. It is also important to note that the cities represented in these studies—Jakarta, Yogyakarta, Semarang, and Bogor—are all on Java, even if the kinds of infrastructures they highlight can be found in cities throughout the archipelago. While all of the papers pay considerable attention to the ways that particular infrastructures produce and reproduce social differences (along lines of gender, class, ethnicity, age, and cohort, etc.), the kinds of social differences they find salient may be specific to these predominantly urban and Javanese settings. Nevertheless, we anticipate that scholars with expertise in other parts of Indonesia will also find much that is recognizable in these studies. One of the benefits of studying infrastructures is that they seem to invite comparisons—not just regional or national comparisons, but historical ones. Our hope is that this volume will provoke comparisons that reach beyond the regional and historical frame of the studies included here.

The infrastructures analyzed in this volume include infrastructures for informal living and working (Jan Newberry), accessing the internet (Merlyna Lim, Jessika Tremblay), mitigating urban flooding (Lukas Ley, Abidin Kusno), handling household waste (Tammara Soma), moving people around cities (Sheri Lynn Gibbings et al.), and delivering migrant workers to and from their jobs in other countries (Johan Lindquist). In each case, infrastructure is seen to have both social and technical aspects, such that it becomes difficult to see where the social ends and the technical begins, or conversely, where the technical ends and the social begins. If “rendering technical” sometimes has been understood to be a strategy for depoliticization,⁹ since it removes overt politics and political ideology from a given field of discourse and practice, these studies can be understood to be taking the opposite tack: reinscribing the social, the cultural, and the political within the domain of the technical.

This effort at reinscription is an approach that has many precedents, both within and beyond Indonesian studies. In what follows, we situate the contributions to this volume within the contours of some of this earlier work, including both recent scholarship on infrastructures in other countries and previous studies on Indonesian

⁷ Brian Larkin, *Signal and Noise: Media, Infrastructure and Urban Culture in Nigeria* (Durham: Duke University Press, 2008), 5.

⁸ Larkin, *Signal and Noise*, 6.

⁹ Tania Li, *The Will to Improve: Governmentality, Development, and the Practice of Politics* (Durham: Duke University Press, 2007), 7–8.

infrastructures. The articles in this volume therefore should be read against both these backdrops: the so-called “infrastructure turn” in anthropology and cognate fields¹⁰ and the longer lineage of work on Indonesian infrastructures that largely predates this self-conscious turn (and whose authors did not necessarily frame their work in these terms).

Although the survey below covers only a portion of recent scholarship on Indonesian infrastructures, it shows what a productive line of inquiry it has been. It has explored the legacies of colonialism and Indonesian nationalism on a wide range of infrastructures; it has drawn illuminating contrasts between infrastructures of authoritarianism and infrastructures from below; it has highlighted the important role played by informal authority structures in shaping the cultures and politics of infrastructures; and it has traced how the material and symbolic aspects of infrastructure change can become deeply intertwined with wider processes of societal transition. Evidently, the particularities of the Indonesian experience—from colonial times to the present—have provided a highly fertile ground for studying the cultures and politics of infrastructures.

Politics and Imaginaries of Infrastructures

In the book that effectively announced the infrastructure turn, Brian Larkin calls for a focus on “technopolitics,” the study of the ways that the materiality of infrastructures shapes politics.¹¹ In many studies beyond Indonesia, technopolitics is examined primarily through the lens of citizenship. For example, James Holston has shown that residents lobbying for housing at the margins of a Brazilian city engaged in “insurgent citizenships” as a strategy for attracting better public infrastructure to their neighborhoods, while also redefining their relationship to the state.¹² Struggles over citizenship and rights therefore played out at the margins of conflicts over illegal residences, rather than centrally through conflicts over work. Nikhil Anand, studying Mumbai’s water supply, argues that citizens engage in “hydraulic citizenship: a form of belonging to the city enabled by social and material claims made to the city’s water infrastructure.”¹³ This type of citizenship is produced by the configuration of certain laws, politicians, and patrons, but also enabled by plumbing, pipes, and pumps. Anand argues that hydraulic citizenship doesn’t fit neatly into the liberal concept of

¹⁰ Graham and Marvin, *Splintering Urbanism*; Wendy Steele and Crystal Legacy, “Critical Urban Infrastructure,” *Urban Policy and Research* 35, 1 (2017): 1–6.

¹¹ Larkin, *Signal and Noise*, 328. See also: Bruno Latour, *Reassembling the Social: An Introduction to Actor-Network-Theory* (Oxford: Oxford University Press, 2005); Timothy Mitchell, *Rule of Experts: Egypt, Techno-Politics, Modernity* (Berkeley: University of California Press, 2002); Joshua Barker, “Footprint of the State: Satellite Communications in Soeharto’s New Order,” in *Indonesia in the Soeharto Years: Issues, Incidents and Images*, ed. John H. McGlynn et al. (Jakarta: Lontar/ISAI, 2005), 107–9; and Joshua Barker, “Guerilla Engineers: The Internet and the Politics of Freedom in Indonesia,” in *Dreamscapes of Modernity: Sociotechnical Imaginaries and the Fabrication of Power*, ed. Sheila Jasanoff and Sang-Hyun Kim (Chicago: University of Chicago Press, 2015), 199–218.

¹² James Holston, *Insurgent Citizenship: Disjunctions of Democracy and Modernity in Brazil* (Princeton: Princeton University Press, 2008).

¹³ Nikhil Anand, “PRESSURE: The PoliTechnics of Water Supply in Mumbai,” *Cultural Anthropology* 26, 4 (2011): 542–64.

citizenship.¹⁴ Instead, through modifying pipes and negotiating at the local level with city officials, people gain differential access to water in the city, which itself becomes a proxy for their claims to belonging and citizenship.

Some scholars have questioned the framing of technopolitics in terms of citizenship and called for a broader approach. Lisa Björkman, who also writes about the political salience of water in Mumbai, describes how people who “wield infrastructural authority” have become important actors in the city.¹⁵ She argues that we should not study the politics of infrastructure merely through the conventional categories of rights, citizenship, or informality, but, rather, by asking “through what political, sociocultural, and materially embedded processes and practices are claims to legitimate access (whether rights-based or otherwise) articulated in the first place? What sort of access to what sorts of urban resources (land, water, housing) is being claimed? When, by whom, by what means, and to what effect?”¹⁶ Björkman, therefore, pushes us to see how people take up positions as citizens in ways that cannot be easily predicted by categories such as class or rights, which “do not *describe* but *produce* their objects.”¹⁷ Similarly, Penny Harvey and Hannah Knox are interested in pushing the boundaries of what is considered political in their work on roads in Peru. They focus in particular on how roads offer a way to think about the state, and how roads both create and recreate the state’s territorial power across time and space.¹⁸ They show the role that roads play in political struggles but seek to move beyond a liberal idea of politics to focus on the role of “both nonhuman subjects (forces, materials) and the refusals of impossible publics whose actions tend to be illegible to those who limit the political to particular modes of struggle and contestation.”¹⁹

Within Indonesian studies, approaches to technopolitics have long been framed in a more expansive way. In large part, this is owing to the influence of Benedict Anderson’s work on the origins and spread of nationalism, which showed how the rise of “print capitalism”—in the form of a social and technical infrastructure for a modern reading public—enabled people to see themselves as part of an “imagined community” of individuals geographically distanced and unknown to each other, yet sharing an imagined connection and movement together through time.²⁰ Although print capitalism (and other related infrastructures that Anderson describes, such as map-making and census-taking) lacks the hard materiality of roads, pipes, or electrical wires, his work has provided a powerful way of understanding the relationship between the development of infrastructures and the development of new social and political imaginaries steeped in desire and affect. Others, such as Joshua Barker and Merlyna Lim, have built on Anderson’s work by examining how nationalist and other

¹⁴ The liberal concept of citizenship suggests that membership in the community is primarily individual and involves a set of rights and corresponding duties.

¹⁵ Lisa Björkman, *Pipe Politics, Contested Waters: Embedded Infrastructures of Millennial Mumbai* (Durham: Duke University Press, 2015), 229.

¹⁶ Björkman, *Pipe Politics, Contested Waters*, 231.

¹⁷ Björkman, *Pipe Politics, Contested Waters*, 232 (emphases in the original).

¹⁸ Penny Harvey and Hannah Knox, *Roads: An Anthropology of Infrastructure and Expertise* (Ithaca: Cornell University Press, 2015).

¹⁹ Harvey and Knox, *Roads*, 187.

²⁰ Benedict Anderson, *Imagined Communities: Reflections on the Origin and Spread of Nationalism* (London: Verso, 1983).

social imaginaries have emerged in Indonesia around subsequent communications infrastructures, such as *interkom* (a neighborhood-level cable-based communications system), satellite, and the internet.²¹ As well as addressing questions of how infrastructures become a new terrain for the operations of differentiated citizenship, these studies draw attention to the role of infrastructures in developing new social imaginaries and aspirations for belonging whose relations to the state may be much more oblique.

A particularly fertile domain for the cultivation of new social imaginaries has been infrastructures that are seen to be new, future-oriented, and “modern.” Mrâzek traces the history of such high modern fantasies in Indonesia to the late-colonial period, showing how both European colonials and nationalists variously used the advent of infrastructures like asphalt roads, sewage systems, and radio as occasions for imagining a modern society that transcended the problems of the present.²² In colonial and postcolonial times, the state has often positioned itself as the mediator of such future-oriented dreams by shaping both the meanings associated with new infrastructures and their material forms. Sulfikar Amir’s case study of the Indonesian Aircraft Industry (Industri Pesawat Terbang Nusantara, IPTN) shows how the New Order regime used IPTN as a vehicle for justifying its developmental ideology of “technological leapfrog.”²³ When problems in the aircraft industry emerged, the government sought to shield itself from criticism by deploying the rhetoric of technological nationalism. As Amir puts it, “the ideological character of technological nationalism has the capability of hypnotizing the public’s mind through the amazement of technological artifacts.”²⁴

A similar investigation of how the New Order state deployed nationalist discourses around new infrastructures is Barker’s work on the Palapa satellite system, launched in 1976.²⁵ Like Amir, Barker focuses on different meanings that engineers, entrepreneurs, and government officials gave to the technology. Barker argues that these individuals were important “mediators” of the new technology because they altered old discourses about the role of communication technologies in nation building and national development and applied them to the satellite. He describes how the discourses around this infrastructure mattered because they served both the political ambitions of the Suharto regime and the economic ambitions of Indonesian

²¹ See: Bart Simon and Joshua Barker, “Imagining the New Order Nation: Materiality and Hyperreality in Indonesia,” *Culture, Theory and Critique* 43, 2 (2002): 139–53; Joshua Barker, “Interkom in Indonesia: Not Quite an Imagined Community,” in *Southeast Asia over Three Generations: Essays Presented to Benedict R. O’G. Anderson*, ed. James T. Siegel and Audrey R. Kahin (Ithaca: Cornell Southeast Asia Program Publications, 2003), 383–96; Joshua Barker, “Playing with Publics: Technology, Talk and Sociability in Indonesia,” *Language and Communication* 28 (2008): 127–42, doi:10.1016/i.langcom.2008.01.002; Joshua Barker, “Guerilla Engineers”: and Merlyna Lim, “Clicks, Cabs, and Coffee Houses: Social Media and Oppositional Movements in Egypt, 2004–2011,” *Journal of Communication* 62, 2 (2012): 231–48.

²² Rudolf Mrâzek, *Engineers of Happy Land: Technology and Nationalism in a Colony* (Princeton: Princeton University Press, 2002).

²³ Sulfikar Amir, “The Regime and the Airplane: High Technology and Nationalism in Indonesia,” *Bulletin of Science, Technology & Society* 24, 2 (2004): 109.

²⁴ Amir, “The Regime and the Airplane,” 113.

²⁵ Joshua Barker, “Engineers and Political Dreams: Indonesia in the Satellite Age,” *Current Anthropology* 46, 5 (2005): 703–27.

entrepreneurs.²⁶ Rather than focusing on the users or inventors of this infrastructure, Barker focuses on the elites who decided to build and promote it. He argues that these individuals played an important role in shaping how the satellite system came to be understood, interpreted, and eventually materialized, in Indonesia.²⁷

Although infrastructures, especially those of high technology, represent the possibility of being modern, they do so through specific discourses that are historically and politically contingent. The scholarship on high technology from Indonesia illustrates how both state and non-state actors are involved in shaping the ideologies around technologies, and that these ideologies are central to shaping the outcomes, effects, and experiences of technological infrastructures. While new infrastructures like print capitalism or the internet may form the basis for new social and political imaginaries, they are also themselves subject to material and ideological framing, often in ways that serve the interests of existing political regimes and their elites.

Doreen Lee has explored the limits of such ideological framing in her consideration of “absolute traffic” in contemporary Jakarta.²⁸ She argues that the problem of traffic exceeds the scale of any technopolitical discourse and thus people develop their own strategies for living with it and making sense of it. While citizens continue to dream of easy travel and better lives, they are also consistently being caught up in total gridlock (*macet total*). Rather than understanding traffic as merely dividing citizens, she explores the variety of subject positions it creates, which range from the idea of “I am traffic” to ‘how can I outwit traffic (today)’ to ‘how do I profit from and play with traffic.’²⁹ For Lee, traffic has become a core feature of social life in the city, with the power to shape daily social interactions and fantasies. But exploring how it does so requires attentiveness to the particularities of people’s stories and experiences.

Kusno’s contribution to this volume likewise focuses on the limits of technopolitical imaginaries. Analyzing the problem of *banjir* (flooding) in Jakarta, as it was understood historically, especially in the time of Basuki Tjahaja Purnama’s (aka Ahok) governorship, Kusno shows how the discourse on *banjir* disrupts and undermines attempts to contain it within the usual postcolonial imaginary of national development through mega-projects. *Banjir* is what Kusno calls a “slippery object,” as it is cyclical, defying the logic of progress, and its agency cannot be definitively located. It has variously been seen as a disaster (*bencana*), as leakage (*bocor*), or as a blessing (*berkah*). Through a discursive analysis of these associations, Kusno shows how it is the shared uncertainty of *banjir*, rather than any unified infrastructure capable of addressing it, that connects Jakartans with one another. As in his earlier work, discussed below, Kusno thus traces the origins of infrastructure dreams and their related imagined communities to the ways people are connected by underlying cultural fears and anxieties, rather than by infrastructures as such.

²⁶ Barker, “Engineers and Political Dreams, 704.

²⁷ Barker, “Engineers and Political Dreams, 704.

²⁸ Doreen Lee, “Absolute Traffic: Infrastructural Aptitude in Urban Indonesia,” *International Journal of Urban and Regional Research* 39, 2 (2015): 234–50.

²⁹ Lee, “Absolute Traffic,” 241.

Infrastructures of Authoritarianism

While advanced technology infrastructure projects played an important role in New Order rule, they were only one piece of a much broader set of what can be called “infrastructures of authoritarianism.” This broader set included a range of social infrastructures and techniques of governmentality, some of which were self-consciously modern but many of which involved claims to being derived from “tradition.”

The *Rukun Tetangga* (RT; neighborhood association) and *Rukun Warga* (RW; citizen association) are among the most important and enduring infrastructures of authoritarianism in Indonesia. First set up during the Japanese occupation, the New Order regime retooled these quasi-bureaucratic structures for its own purposes. Each RT and RW had a representative leader who was inserted into the lowest ranks of a government bureaucracy that spanned all the way up to the highest in command.³⁰ John Sullivan has described how residents in a *kampung* (low income settlement) came to view these associations as “community possessions” in spite of the fact that the inspiration for these so-called “traditional” community organizations was a need to more easily administer the vast Indonesian population.³¹ Much of the literature about the RT and RW systems in Indonesia³² describes them in a “poetic mode,”³³ highlighting the ways that residents view these organizations as manifestations of traditional community culture rather than seeing their pragmatic function as infrastructure for state monitoring and social control. Yet social infrastructures associated with citizens’ autonomy and agency are also capable of being appropriated and used as a surveillance infrastructure by the state.³⁴ For example, Robbie Peters has shown how alongside the visible RT/RW system, the New Order regime also developed a broad network of informants who were covertly embedded in neighborhoods, as well as in social, political, and economic organizations, and who reported back to the government. At the *kampung* level, such informants might report on such things as gambling, drinking, and drug dealing. Peters argues that because no formal police or military were based inside the *kampung*, this infrastructure of informants played a key role in making state surveillance possible.³⁵ Such work highlights how in authoritarian contexts, the state can create social infrastructures or communicative channels to the state that may be as essential to social control as the military and the police.

³⁰ Merlyna Lim, “Cyber-Civic Space in Indonesia: From Panopticon to Pandemonium?” *International Planning Development Review* 24, 2 (2002): 389.

³¹ John Sullivan, “*Kampung* and State: The Role of Government in the Development of Urban Community in Yogyakarta,” *Indonesia* 41 (April 1986): 63.

³² See: John Sullivan, *Local Government and Community in Java: An Urban Case-Study* (Singapore: Oxford University Press, 1992); and Alison J. Murray, *No Money, No Honey: A Study of Street Traders and Prostitutes in Jakarta* (Singapore: Oxford University Press, 1991).

³³ Brian Larkin, “The Politics and Poetics of Infrastructure,” *Annual Review of Anthropology* 42, 3 (2013): 327–43.

³⁴ Joshua Barker, “State of Fear: Controlling the Criminal Contagion in Suharto’s New Order,” *Indonesia* 66 (October 1998): 7–44.

³⁵ Robbie Peters, *Surabaya, 1945–2010: Neighbourhood, State and Economy in Indonesia’s City Struggle* (Singapore: Asian Studies Association of Australia in association with NUS Press, 2013), 137.

Ley's article in this volume examines the legacy of such localized social infrastructures in the post-Suharto years. Focusing on a marginalized riverside neighborhood in northern Semarang, Ley delves into an ongoing discourse about flood control, showing how the idea of river "normalization" (*normalisasi*) has come to frame this community's relation to the state, as well as community members' views about anti-flooding infrastructure projects in their midst. Ley shows that, since colonial times, the neighborhood was stigmatized as being a place of disease, criminality, and backwardness, and that such a view has been used to justify successive waves of governmental interventions aimed at "normalizing" the *kampung*, from *kampung* improvement projects to repressive anti-crime drives to current projects aimed at cleaning up the river (which simultaneously drive out squatters and other marginalized inhabitants). What Ley finds notable about these most recent "normalization" efforts is that community members regard them as having helped turn the neighborhood around. He argues that the perceived success of the program has less to do with how it has actually impacted flooding and more to do with how it has enrolled community members in an ideology that allows them to engage with government authorities and assert rights to the city. "Normalization" of the river infrastructure is thus an ambivalent process, facilitating top-down technocratic projects while providing some openings for bottom-up participation.

Alongside such social infrastructures, there were also important material forms through which authoritarian control was practiced. Karen Strassler describes how the New Order government required that all citizens have "proof of identity" and carry with them a KTP (*kartu tanda penduduk*), or identity card.³⁶ She argues that the identity card system created a new relationship between citizens and the state—a "new regime of visibility"—whereby citizens were required to submit their image and information, such as their place of residence, to government agencies to be recognized and considered valid citizens.³⁷ As an infrastructure, identity cards transmitted not only information but also legitimacy, because such cards were necessary to access a wide range of services—such as education, healthcare, and travel. The identity card had instrumental value, but was also much more because it served as a symbol of one's value as a person vis-à-vis the state bureaucracy. By developing a mandatory identity card, the government asserted its authority to decide the terms of legitimate belonging to the nation-state.

While infrastructures of surveillance were critical to New Order rule, the disciplining of the Indonesian population took place through other infrastructures, too. In some of his earlier work, Kusno has examined how Suharto's developmentalist regime used a range of urban infrastructures to buttress authoritarian rule.³⁸ He describes how groups of investors and professionals worked alongside the state to produce spaces in the city that would help foster "productive," "obedient," and "modern" subjects.³⁹ Both large-scale infrastructure projects, such as elevated

³⁶ Karen Strassler, *Refracted Visions: Popular Photography and National Modernity in Java* (Durham: Duke University Press), 138.

³⁷ Strassler, *Refracted Visions*, 138.

³⁸ Abidin Kusno, *Behind the Postcolonial: Architecture, Urban Space and Political Cultures in Indonesia* (London: Routledge, 2000).

³⁹ Kusno, *Behind the Postcolonial*, 122. Kusno argues that architects and urban planners have their own "culture," but they were also entangled in the political imagination of the authoritarian state (142).

highways, and small ones, such as efforts to improve *kampung* infrastructures, were used to this effect. He argues that the “building of the elevated highways, the proliferation of large scale air-conditioned shopping malls, and the creation of gated suburban housing in the major city of Indonesia constituted a form of modernity which was also accomplished by a fear of falling towards the category of the ‘internal other’—the Indonesian underclass.”⁴⁰ In other words, understanding the political power of infrastructures requires attentiveness not just to the way they play on people’s desires, but also how they play on people’s fears.

Lindquist’s article in this volume shows how fears, appeals to tradition, and an amalgam of human and material infrastructures can come together to buttress state control over populations. His focus is the recently renovated infrastructure for workers’ transnational migration and how it rests on, and elaborates, older ideas and practices surrounding the escort of family members and guests to and from home (*antar-jemput*). He shows how the multi-faceted migration infrastructure—involving numerous levels of brokers, lots of paperwork, and special vehicles and airport terminals for migrant workers—incorporates a didactic element that recasts older ideas about *antar-jemput* in terms that allow the state to portray itself as the paternalistic protector of vulnerable rural people (many of the migrants are young women). A key aspect of this is what Lindquist calls “encapsulation,” the containment of those being escorted within a closed system of mobility (here, closely overseen by the state). Such encapsulation rests on and reinforces the paternalistic culture of *antar-jemput*, while also serving to heighten the capacity of the state to monitor and discipline migrant workers. In this regard, the infrastructure of escort can be seen to be growing out of, and connecting into, an underlying infrastructure of authoritarianism that has continued to shape Indonesian state-society relations well into the reform era.

Infrastructures from Below

The flipside of work on infrastructures of authoritarianism is scholarship that helps us to understand the gaps, inconsistencies, and fractures in regime authority through studies of infrastructures from below. This scholarship illustrates how, even in the context of an authoritarian environment, not all infrastructures are under government control, and the infrastructures that citizens build and control on their own can allow them to produce identities or imagined communities separate from those promoted by the regime and its elites.⁴¹ This scholarship has also described infrastructures that are—at least for a time—nonessential, or what could be called “creative infrastructures.” In contrast to more essential infrastructures, like housing and water, creative infrastructures have a playful aspect that enables new forms of sociality and community without demanding a reified sense of their political function.

One realm where infrastructures from below have been identified is that of the media. As shown by Philip Kitley, along with Krishna Sen and David T. Hill, television and newspapers were under the careful control of Suharto’s regime during the New

⁴⁰ Kusno, *Behind the Postcolonial*, 118.

⁴¹ Barker, “Guerilla Engineers.”

Order.⁴² While initially this control was exerted by the state through what amounted to an infrastructure of censorship and propaganda, over time Suharto's family and friends also gained financial control over much of the print, television, film, and radio industry.⁴³ Despite such efforts, gaps in this control could also be found. For example, Barker has described how in the 1980s local residents in Bandung and elsewhere built *interkom* at the neighborhood level, which they described as being "just for fun."⁴⁴ Rather than focusing on the building of *interkom* as a kind of citizenship practice in the city, Barker examines what kind of "imagined community" the *interkom* produced and how it differed from the imagined community of the nation (395). He shows how *interkom* "allows people to move beyond the familiar and safe settings of the household but does so in a manner that ensures that the routes back to these worlds remain open and traversable."⁴⁵ In this sense, *interkom* is creative and exploratory, and it encourages an openness to new social possibilities rather than seeking to impose new structures and controls.

In many respects, the infrastructure of the Indonesian internet—especially during its early years—also had the qualities of a creative infrastructure from below. While the internet in many countries has been state-developed and controlled, in Indonesia it was not.⁴⁶ Barker describes how, beginning in the late 1990s, a group of individuals at the Institute of Technology in Bandung—among them, Onno Purbo, one of the main developers of the internet in Indonesia—created a network linking campuses and research centers, and this system developed separately from state institutions.⁴⁷ While these individuals were building this network on campuses, Barker argues that they were also generating a "sociotechnical imaginary that linked the technology to a politics of freedom."⁴⁸ He shows how this imaginary was related to global ideas about the internet commons, but also was a product of the specific history of technology and nationalism in Indonesia. Examining Purbo's writings and talks, Barker shows how Purbo increasingly came to understand his efforts in terms of a "bottom-up" activism rather than in terms of state-led national development.⁴⁹ Such ideas had a profound impact on how the internet was organized and understood as it proliferated across Indonesia in its early years. This illustrates how bottom-up imaginaries can be forceful and can help to shape the ways that infrastructures are built and used.

Tremblay's article in this volume focuses on some of the complexities and contradictions of such bottom-up imaginaries. Examining the case of a celebrated internet *kampung* in Yogyakarta, she describes how residents of the neighborhood joined together in 2008 to build an internet infrastructure from below, a process Tremblay shows was more about constructing a shared imaginary and brand than it

⁴² See: Philip Kitley, *Television, Nation, and Culture in Indonesia* (Athens: Ohio University Centre for International Studies, 2000); Krishna Sen and David T. Hill, *Media, Culture and Politics in Indonesia* (Jakarta: Equinox Publishing, 2007).

⁴³ Sen and Hill, *Media, Culture and Politics in Indonesia*, 90.

⁴⁴ Barker, "Interkom in Indonesia," 396.

⁴⁵ Barker, "Interkom in Indonesia," 395.

⁴⁶ Krishna Sen and David T. Hill, eds., *Politics and Media in the Twenty-First Century Indonesia: Decade of Democracy* (London: Routledge, 2010).

⁴⁷ Barker, "Guerilla Engineers."

⁴⁸ Barker, "Guerilla Engineers," 200.

⁴⁹ Barker, "Guerilla Engineers," 209.

was about building a physical network. What gave these efforts such currency was the way residents dressed them up with well-worn tropes of “traditional” *kampung* solidarity and mutual self-help. The image residents and local leaders created—that of a traditional Javanese community embracing and domesticating high technology—proved irresistible for many outsiders (especially the media) and helped to propel the neighborhood to national and international renown. As in Ley’s article on *kampung* flood control, infrastructure here is shown to function as a key ground for negotiating neighborhood relations with outside authorities (only in Tremblay’s case, the authorities include not just the state but also private corporations).

Infrastructures, Informality, and Privatization

It should be evident from the discussion above that infrastructures of authoritarianism and infrastructures from below traverse the boundaries of formal and informal, as well as state and non-state, authority structures. As such, any examination of the politics of Indonesian infrastructures must also consider the roles of informal, non-governmental actors as important sources of authority. The literature on Indonesian “informal sovereignties” is particularly helpful in this regard.⁵⁰ It shows that while government institutions remain important, the provision of basic infrastructures does not rest exclusively in formal state institutions, but spans a spectrum of state, non-state, and private actors, who variously cooperate and compete in their efforts to control—and profit from—the flows enabled by infrastructures in their domains.

Nowhere is this more apparent than in the realm of security infrastructures. As is well known, Suharto’s New Order regime employed violence as an important strategy of political control.⁵¹ Both state apparatuses and state proxies, such as criminal and paramilitary groups, were involved in the practice of violence and intimidation.⁵² While often cultivated by the state, these networks of strongmen (*preman*) also challenged the state’s sovereignty by laying claim to, organizing, and profiting from the distribution of water, electricity, communications, and transportation, and of land, labor, and services of various kinds.⁵³ Although state-sponsored violence has decreased since the end of the New Order in 1998, the number of groups using violence and intimidation has arguably increased.⁵⁴ In times and places when the state has failed to provide basic infrastructure and services, gangs, vigilantes, and other kinds of social organizations have often stepped in or helped to lobby the government

⁵⁰ See: Thomas Blom Hansen and Finn Stepputat, “Sovereignty Revisited,” *Annual Review of Anthropology* 35 (2006): 295–315, doi: 10.1146/annurev.anthro.35.081705.123317; and Joshua Barker, “From ‘Men of Prowess’ to Religious Militias: Informal Sovereignties in Southeast Asia,” *Bijdragen tot de taal-, land- en volkenkunde* 172, 2–3 (2016): 179–96, doi:10.1163/22134379-17202026.

⁵¹ Benedict R. O’G. Anderson, ed., *Violence and the State in Suharto’s Indonesia* (Ithaca: Southeast Asia Program and Cornell University Press, 2001).

⁵² Ian Douglas Wilson, “Continuity and Change: The Changing Contours of Organized Violence in Post-New Order Indonesia,” *Critical Asian Studies* 38, 2 (2006): 265–97, doi:10.1080/14672710600671244.

⁵³ See: Barker, “State of Fear”; Loren Ryter, “Pemuda Pancasila: The Last Loyalist Free Men of Suharto’s Order?” *Indonesia* 66 (October 1998): 45–72; and James Siegel, *A New Criminal Type in Jakarta: Counter-Revolution Today* (Durham: Duke University Press, 1998).

⁵⁴ Wilson, “Continuity and Change.”

for improvements.⁵⁵ Mass-based organizations (Organisasi Masa, or Ormas), for instance, have helped provide basic public infrastructure, such as drainage and sanitation, and groups such as Forum Betawi Rempug actively seek out work contracts from the government for new infrastructure projects, such as transportation systems.⁵⁶ Such groups also continue to play an important role in infrastructures of security. For example, Jeremy J. Kingsley shows how religious networks in Lombok have been integral to reducing and managing conflict at a time when the state has been seen to be unable to fulfill this function.⁵⁷

It is not just gangs or security groups, however, that wield authority in post-Suharto Indonesia. Lindquist's research shows how, in a context of an increasingly managed structure of labor migration, informal brokers have emerged to help recruit potential migrant workers in villages.⁵⁸ He argues that while migration has become more centrally controlled, the recruitment processes have fragmented, providing openings for new kinds of informal brokers. These new-style brokers are not perceived as having the same immoral character as that of old-style brokers, called *calo* (smugglers). In the arena of electoral politics, brokerage infrastructures also play a key role, helping political candidates to mobilize voters.⁵⁹ Such brokerage infrastructures are highly unstable, as brokers shift between candidates, defy instructions from their patrons, and pocket cash or materials that are meant to be given to voters. Gibbings, Elan Lazuardi, and Khidir Prawirosusanto describe how a street vending organization tried to create an infrastructure of street vendors across the archipelago that would support one presidential candidate. They show how the attempt by this organization failed, as many street vendors decided to support local patrons who had a more immediate impact on their future as traders.⁶⁰

Other actors that have had considerable power in shaping the provision of infrastructures in Indonesia are those coming from the private sector. Richard Robison and Vedi Hadiz describe how the creation of *yayasan* (charitable foundations), in the late 1960s, allowed for a stronger relationship between state authority and

⁵⁵ Ian Douglas Wilson, *The Politics of Protection Rackets in Post-New Order Indonesia: Coercive Capital, Authority and Street Politics* (London: Routledge, 2015), 23, 94.

⁵⁶ Wilson, *The Politics of Protection Rackets in Post-New Order Indonesia*, 94, 150.

⁵⁷ See: Jeremy J. Kingsley, "Peacemakers or Peace-Breakers? Provincial Elections and Religious Leadership in Lombok, Indonesia," *Indonesia* 93 (April 2012): 53–82; and Jeremy J. Kingsley, "Village Elections, Violence and Islamic Leadership in Lombok, Eastern Indonesia," *Sojourn: Journal of Social Issues in Southeast Asia* 27, 2 (October 2012): 285–309. Telle's work analyzes another aspect of such informal security infrastructures, showing how civil security groups, or *pamswakarsa*, asserted their authority over Lombok's religious infrastructure when they opposed the building of two Hindu temples. Kari Telle, "Vigilante Citizenship: Sovereign Practices and the Politics of Insult in Indonesia," *Bijdragen tot de taal-, land- en volkenkunde* 169, 2–3 (2013): 183–212, doi:10.1163/22134379-12340029.

⁵⁸ Johan Lindquist, "The Elementary School Teacher, the Thugs and His Grandmother: Informal Brokers and Transnational Migration from Indonesia," *Pacific Affairs* 85, 1 (2012): 69–89. See also Johan Lindquist, "Infrastructures of Escort: Transnational Migration and Economies of Connection in Indonesia," 77–95, in this volume of *Indonesia*.

⁵⁹ See: Edward Aspinall, "When Brokers Betray: Clientelism, Social Networks, and Electoral Politics in Indonesia," *Critical Asian Studies* 46, 4 (2014): 545–70, doi:10.1080/14672715.2014.960706; and Sheri L. Gibbings, Elan Lazuardi, and Khidir M. Prawirosusanto, "Mobilizing the Masses: Street Vendors, Political Contracts, and the Role of Mediators in Yogyakarta, Indonesia," *Bijdragen tot de taal-, land- en volkenkunde* 173, 2–3 (2017): 242–72, doi:10.1163/22134379-17301004.

⁶⁰ Gibbings, Lazuardi, and Prawirosusanto, "Mobilizing the Masses."

politico-business families.⁶¹ In the 1980s, Suharto's family and other political families built extensive business infrastructures that included partnerships with military officers and Chinese business owners.⁶² Robison and Hadiz also note that these groups diversified in the 1980s into "mega projects in infrastructure" and infrastructure industries.⁶³ Tracing these networks into the post-Suharto era, the authors' approach analyzes the dense networks and the institutions that the private sector and government relied on to maintain their power.

In a similar way, Gerry van Klinken and Edward Aspinall examine the construction industry during the Suharto and post-Suharto era.⁶⁴ They also focus on the networks and relationships that members of the construction industry developed with government in order to receive contracts. They argue that across the construction industry, whether it is the big players or small, there is "illegality in the dense web of relationships between governmental officials and building contractors in the provinces."⁶⁵ They understand the construction industry and the infrastructures that this industry is building as being shaped by "social actors strategizing to promote their interests."⁶⁶ For these authors studying the private sector, infrastructure is less the technical or material side of the roads, buildings, or bridges, but the amalgam of people, administration, and finances that allows this infrastructure of elites to flourish.

In our multi-authored article in this volume, "Yogyakarta's *Colt Kampus* and *Bis Kota* Transit Systems," we look at the interplay of these kinds of interests as manifested in a case of urban infrastructure change in the 1970s and 1980s. Tracing the origins and development of Yogyakarta's two main bus systems in this period, we contrast the more *ad hoc* development of the *colt* minivan system, in which student entrepreneurs and ethnic Chinese investors took a leading role, to the more formalized and large city bus system, dominated by a military and *pribumi* elite, that came later. We show how the advent of the latter system, while heralded as an effort to create a more modern transit system, provided an occasion for a shift in who would profit from the system, who could work in it, and how it was organized. This shift mirrored at the city-level broader changes in New Order rule that sought to reduce the power of students and informal actors, while formalizing street-level authority and consolidating economic power in the hands of a *pribumi* military-bureaucratic elite. Cases such as this illustrate how studies of infrastructure can provide insights into the nature of state power as well as into the lives of groups that wield authority within and across informal and privatized domains. They also illustrate the value of studying infrastructures in times of transition.

⁶¹ Richard Robison and Vedi R. Hadiz, *Reorganising Power in Indonesia: The Politics of Oligarchy in an Age of Markets* (London: RoutledgeCurzon, 2004), 57.

⁶² Robison and Hadiz, *Reorganising Power in Indonesia*, 58.

⁶³ Robison and Hadiz, *Reorganising Power in Indonesia*, 73.

⁶⁴ Gerry van Klinken and Edward Aspinall, "Building Relations: Corruption, Competition and Cooperation in the Construction Industry," in *The State and Illegality in Indonesia*, ed. Edward Aspinall and Gerry van Klinken (Leiden: KITLV Press, 2011), 139–64.

⁶⁵ Van Klinken and Aspinall, "Building Relations," 144.

⁶⁶ Van Klinken and Aspinall, "Building Relations," 151.

Infrastructures in Transition

In times of political transition, infrastructures may be used as instruments to effect change and they may come to symbolize that change. A number of studies of infrastructures in Indonesia have highlighted how the political transitions that the country has undergone in recent decades have played out within and through various infrastructures. In some of her earlier work, Lim describes how, toward the end of Suharto's authoritarian regime, the infrastructure of the *warnet*—small, commercial establishments equipped with several computers connected to the internet—allowed for the creation of “cyber-civic spaces.”⁶⁷ Mostly developed by young people, these spaces offered the opportunity for individuals to meet and share information in a manner that was comparatively free of state control. Even though much activism took place on the internet, Lim argues that activists, political parties, and others still had to hold events and meet with people on the streets, which they often did in *warnet*.⁶⁸ This mix of online and face-to-face activism led to the proliferation of what she calls “communal projects.” Such projects had a range of objectives; most of those involved saw themselves as acting for democratic purposes, but Lim notes that more thuggish groups, such as Laskar Jihad, also mobilized its followers in this way.⁶⁹

Lim's article in the present collection provides an interesting sequel to this earlier study, focusing on how urban Indonesian middle-class youth are accessing the internet in more recent times. As smart phones have become ubiquitous, she explains, the importance of *warnet* has diminished and more and more Indonesians are accessing the internet on their phones. This has meant that youth in search of inexpensive internet connections are more likely to look for free hotspots than an internet café. Within this context, Lim's article focuses on *Sevel*, a culture of internet access that grew up around the hotspots once provided by 7-Eleven convenience stores in many urban areas. *Sevel* culture contained elements of the older *warnet* culture—providing internet users with the opportunity for face-to-face hanging out and meet-ups (*nangkring* and *kopi darat*), but there are also important differences. Whereas *warnet* tended to have a more inclusive and communal orientation, *Sevel* culture was more individualized and tended to reproduce dominant patterns of urban social and class segregation (youth from wealthier backgrounds were getting their access at Starbuck's, not *Sevel*, for example). Lim also describes how, in *Sevel* culture, the idea of the internet became largely synonymous with social media, and online and offline social interactions became much more seamlessly interwoven, a phenomenon she describes as “dis/connection.” Her study thus highlights how even modest changes in a material infrastructure can have subtle but important implications for the culture of its use.

In times of political change, infrastructures—especially state-owned and operated ones—may also be subject to symbolic and material contestations and reappropriations. Strassler has described how the 50,000-rupiah bill with Suharto's face on it came to be widely produced in different mediums, such as t-shirts and

⁶⁷ Lim, “Cyber-Civic Space in Indonesia.”

⁶⁸ Lim, “Cyber-Civic Space in Indonesia” 395.

⁶⁹ Lim, “Cyber-Civic Space in Indonesia.” 398.

artwork, and circulated among citizens.⁷⁰ Using new digital communications infrastructures, such as photocopiers, digital scanners, and cameras, the money was “remediated,” or immersed into other media forms (such as artwork), in a process that recast its political significance, and with it, Suharto’s place in the national imaginary.

This connection between the instability of a political regime and the instability of meanings attached to infrastructures is also elaborated by Sulfikar Amir in his study of the politics of nuclear power in post-Suharto Indonesia.⁷¹ Amir describes how, with Indonesia’s energy infrastructure in deep trouble after the economic crisis, President Yudhoyono announced a project to build a nuclear power plant to diversify the government’s energy resources. While there was growing support for nuclear power among government officials and elements of the private sector, many citizens distrusted the proposed program because they viewed the government as dysfunctional and incapable of delivering even basic infrastructures. How could they trust that the government would succeed in developing and operating this high-risk project? Amir argues that it was this public sense of distrust that underpinned much of the opposition to the project by grassroots groups, nongovernmental organizations, and some entrepreneurs. Ongoing political instability had created a crisis of trust that undermined the government’s capacity to attach positive meanings to its bid for a new, spectacular infrastructure project.

A focus on infrastructure change can also shed light on broader societal transformations that go beyond changes in political regime. Soma’s article in this volume is a case in point, highlighting the environmental implications of a shift in food consumption patterns that has followed the rapid spread of a new-to-Indonesia food retail infrastructure, in the form supermarkets and “big box” stores. Soma examines how household technologies, practices, and ideas about food and waste in Bogor articulate with this new infrastructure—where more than 30 percent of all food is now purchased—as well as with the older retail infrastructure of traditional markets and small grocers (*warung* and *tukang sayur*). She shows how the rise of supermarket patronage and attendant decline in the use of traditional markets leads to households wasting food at a rate that resembles that found in countries of the global north. By contrasting the food consumption and waste patterns of householders from Bogor’s various social strata, she demonstrates how the study of infrastructures in transition can illuminate an emerging environmental crisis.

Newberry’s contribution to this volume also highlights the value of studying infrastructure as a way of understanding wider societal changes, but her focus is less on infrastructure change and more on its stability. She examines what she calls the “spectacular ordinary” of a Yogyakarta *kampung*, where she has conducted research spanning decades. Observing the *kampung* from one of its street corners, Newberry ruminates on some of the visible changes the *kampung* has undergone—electrification, empty spaces filling in, the hardening of roads—but also draws attention to how enduring many of its material and human infrastructures are. Such endurance, she suggests, is due partly to the flexibility of its core institutions, which can be

⁷⁰ Karen Strassler, “The Face of Money: Currency, Crisis, and Remediation in Post-Suharto Indonesia,” *Cultural Anthropology* 24, 1 (2009): 69–103.

⁷¹ Sulfikar Amir, “Nuclear Revival in Post-Suharto Indonesia,” *Asian Survey* 50, 2 (2010): 265–86.

repurposed to suit shifting political regimes, and partly due to the fact that the *kampung*, as both a space of urban informality and a container of a “*kampung* class,” has been such a useful infrastructure of Indonesian capitalism. Like Soma, Newberry thus encourages us to understand cultures subject to infrastructural change not only in relation to politics and the state, but also in relation to the broad sweep of capitalist development.

• • •

The study of infrastructures in Indonesia has a productive history. It has influenced the study of infrastructures more widely in the social sciences, and has provided a unique set of entry points into Indonesian social worlds. The papers in this collection continue this work of reinscribing the social, the cultural, and the political within the domain of the technical. They shed light on a range of issues that are easy to overlook in relation to infrastructures, including the formation of collective identities, the role of ideologies in subject formation, the evolving mechanisms of social control and resistance, and the relation between formal and informal authority. They also help us to better understand how broad changes currently underway in Indonesia, such as changes to the environment and shifts in Indonesian capitalism, are playing out in specific settings. In doing so, these papers show how the lens of infrastructure can serve as the basis for a wide range of critical reflections on Indonesian’s past, present, and future.

