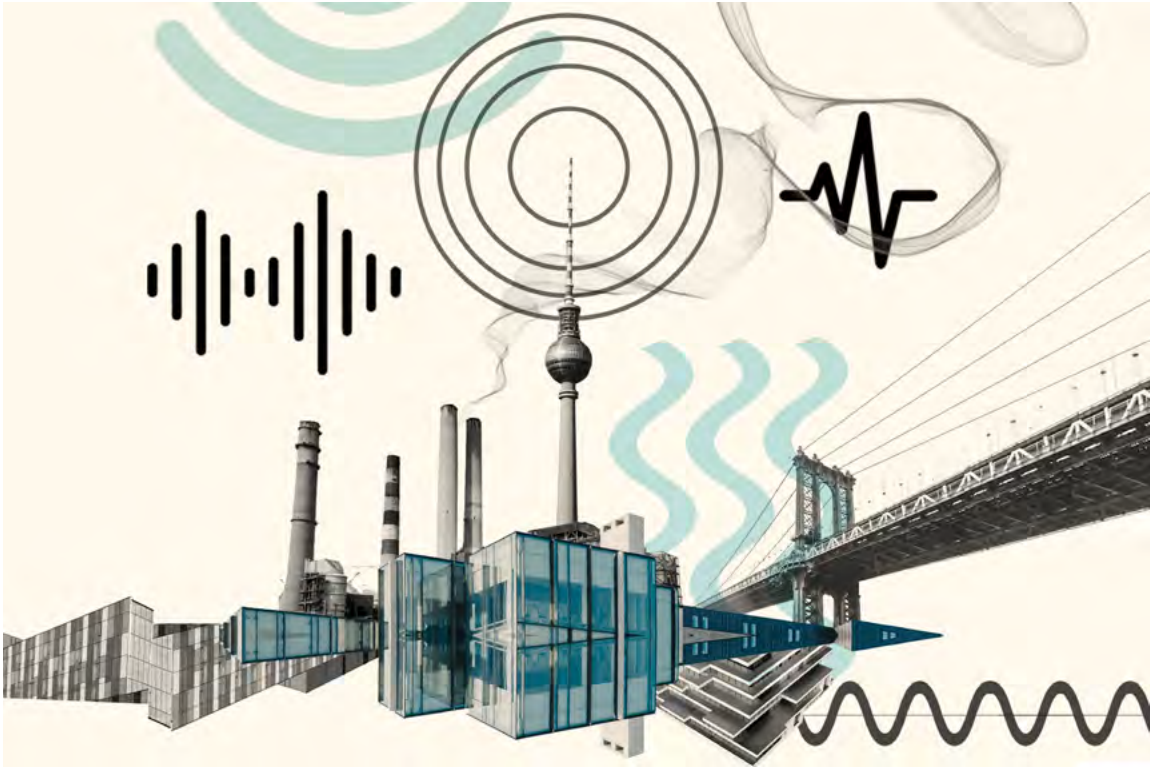


Sensing Infrastructure: An Introduction

Christina Schwenkel

There is no shortage of exciting, interdisciplinary scholarship in the field of critical infrastructure studies. And yet the dominant conception of infrastructure as built matter that moves other matter has privileged the material and sociotechnical over its more intimate and sensory dimensions. This issue brings together these analytical approaches to produce more embodied understandings of the diverse and contingent ways in which humans and nonhumans apprehend and make sense of infrastructure through particular modes of sensing. It does so by revisiting the idea that infrastructure is beyond perception – invisible, silent, intangible – until it breaks down or decays. The sensations that infrastructures generate – the whiff of gas, the hum of turbines, the shock of electricity, the bitterness of chlorine – show that efforts to attune to the smells, sounds, feelings and tastes associated with infrastructure are historically grounded and culturally specific. Rather than think along the lines of sensory deprivation then, infrastructure – broken or not – evokes a range of experiences across the sensorium. And yet there is no sensorial stability here: embodied encounters with infrastructures are shown to be paradoxical and ever shifting. While infrastructures may serve to mediate and regulate the senses, the articles in this issue also demonstrate with much clarity how the meanings and values of infrastructure are in turn mediated by

the senses. Most importantly, in the face of climate change and mounting disparities around the globe, the authors show how “sensory forms of agency” (Ringel 2021: 161) have been, with varying degrees of success, generative of political action and calls for a more just infrastructural future.



The impetus for the issue came from my own work on mass housing in Vietnam, where people deployed sensory expressions to talk to and teach me about infrastructure: how to listen for the sound of water in the pipes to know when to open or close the valves (a good ear, my landlord advised, can hear when a tank is near full); how leaks could be either detected through smells like mold, which was also slimy to the touch, or felt as dampness in the bones that could lead to debilitating ill-health (Schwenkel 2015). The authors take a similar, non-ocularcentric approach to consider what is gained methodologically and theoretically by bringing multisensory studies together with critical studies of infrastructure.

Essays in this issue explore the culturally specific ways humans and nonhumans make sense of infrastructure through overlapping modalities of sensing.

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[Alejandro De Coss-Corzo](#) pushes for thinking about the senses relationally through his own fieldwork experience of “participant sensation,” or the act of “sensing along” with workers who repair hydraulic systems in Mexico City (Howes 2019: 18). Developing the idea of “embodied calculation,” he shows how situated forms of collective hearing, feeling and smelling are critical to the infrastructural labor of maintenance and repair of an urban water supply system deep underground in the absence of sight. Such attunement, he argues, is learned collectively, iteratively and performatively through engagements with both infrastructural objects and the attuned perceptions of other workers.

If De Coss-Corzo reminds us that infrastructure works to define and delimit membership in a particular community of embodied practice (see also Star 1999), [Rashmi Sadana](#) invites readers to consider the ways in which infrastructure serves as a mechanism of exclusion from “sensory modernity.” In her multimedia essay which immerses readers in the sounds, sights and feel of the high-speed Delhi Metro, Sadana demonstrates how a new sensory ecology and hierarchy of mobility around public transport has forged novel relationships between self and technology that augment the lines between belonging and nonbelonging in the city.

The gendered and classed politics of sensation that Sadana outlines takes on a new dimension in [Kate McClellan](#)’s article on animal sensations and encounters with human-built infrastructure in a wildlife sanctuary. Moving beyond anthropocentric approaches to suggest a broader infrastructural ontology (Barua 2021), McClellan considers the ways nonhuman life forms habituate to electrical infrastructures that manage and restrict their mobility. Security fences that teach captive animals through touch and sound and the accompanying painful jolt are a reminder of how a politics of humane ‘care’ is entangled with the threat of electric shock.

The violence of infrastructure, apprehended through the senses by marginalized and racialized actors, appears as a key theme woven across many of the papers, even as those very sensations may also generate new social and political possibilities. Intertwining musical and literary representations of urban transformation, [R. Benedito Ferrão](#) examines the unrealized promises of Margaret Thatcher’s neoliberal agenda of deregulation. Opening up an alternative view of immigrant aspirations, Ferrão narrates how postcolonial subjects encounter and navigate the former metropole sensorially with the dismantling of public infrastructure and the illusory opportunities of free-market reforms.

The retreat of the state from the provision of public goods and services, together with the emergence of new political actors, makes clear the extent to which the state can be sensed – or felt to be absent – through infrastructure. In their article on the infrastructural inheritances of settler colonial geographies, [Liam Grealy and Tess Lea](#) examine ‘techno-fix’ responses to oppressive heat in Australian Indigenous housing as the outcome of both climate catastrophe and a history of state infrastructural neglect. To “swelter at home,” they cogently argue, is to “sense an insensitive [and fragmented] state.”

State-produced vulnerability is also deeply sensed as insecurity with the creation of a militarized border infrastructure linking Uzbekistan and Kyrgyzstan. Coining the term “sensuous nostalgia,” [Asel Murzakulova](#) traces changes to the everyday sensorium of place that followed the militarization of post-Soviet borderlands. Sensuous nostalgia, she persuasively contends, highlights the “colossal infrastructural changes” that transpired as a result of border securitization, changes that engendered instability and a profound longing for the social and sensory experiences of a more fluid, pre-border past.

Beyond an emerging military industrial complex in postsocialist states, the oil industrial complex in petrostates like Ecuador also shows how meanings are produced and contested through unwelcome sensory engagements with harmful infrastructures.

Focusing on “smell events” and the noxious fumes from oil processing, [Nicholas Welcome](#) analyzes how Afro-Ecuadorians struggle to make sense of toxic atmospheres and a negligent petrostate. Here, health effects associated with air pollutants are questioned as misperception or instances of “mis-sensing,” as officials “gaslight” impoverished residents and deny the dangers of contamination.

Shifting from the racial politics of contaminated atmospheres to the atmospheric politics of thermal environments, [Katja Jug and Madlen Kobi](#) foreground changes to the daily rhythms of everyday life in the frigid environments of southern Chinese homes. In documenting corporeal and technological strategies to keep the cold out, this mixed-media collaboration reveals the lack of investment and unevenness of state policy on centralized heating infrastructure that leave individuals to manage thermal comfort on their own – in contrast to the government provision of heat in the north.

If infrastructures “produce the ambient conditions of everyday life” (Larkin 2013: 336) that are disproportionately felt and embodied across space, [Felix Ringel](#) evokes the temporal dynamics that shape and give meaning to sensory events. His “sensorial biography” of a prefabricated-panel city in eastern Germany considers how residents of Hoyerswerda perceive the changing of infrastructural time. Deploying oceanic metaphors as a device to conjure an embodied sense of place, he challenges the city’s characterization as a “sea of concrete.” His tour of mass housing offers an evocative history of socialist planning and restructuring through evolving multisensory encounters with the re/built environment.

Moving from concrete materialities to green ecologies, [Dimitrios Bormpoudakis](#) invites readers to listen to the sounds of renewable energy across differing wind-power landscapes. His multi-sited approach stresses the situated practices of listening to green infrastructures that produce feelings of both hope and despair in the face of global climate change. Whether productive of enchantment or annoyance, sensory perception of infrastructural objects, Bormpoudakis reminds us, is imbued with particular values that are historically grounded and culturally mediated.

Together, the contributors to this issue attend not only to the richness of lived, sensory geographies of infrastructure that deepen our understanding of human and nonhuman relationships to one another, to the state and to socio-technological things; they also introduce innovative methodological approaches to the study of infrastructural systems. Engaging with the senses as a means of inquiry and analysis of infrastructure and not simply as an object of study, the authors’ embodied research practices of “sensory participation” (Pink 2009), or sensing *with* and *alongside* their interlocuters, allows them to experience, interpret and represent how such intensities are felt and shared, while remaining cognizant of their own positionalities. In so doing, as reviewer Bada Choi pointed out in his comments, they move away from the “lone and agentive” researcher, to emphasize their situated embodiment and relationality to other sensing bodies. In advancing a multisensory ethnography of infrastructure – one that sees the senses not as isolated, but as working in tandem with one another; after all, we perceive the world around us with the entire body, as Ingold (2004) reminds us – the contributors also invite readers to attune themselves to infrastructure through their multimedia journeys. Their deployment of song, text, field recordings, sketches and

images – images that are not meant to re-center vision but to convey other embodied sensations, like holding the nose to protest toxic fumes – raise important questions about the translatability of sensory experiences, while offering, in Welcome’s words, a powerful critique that demands justice and accountability.

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