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Maintain and Repair: Rethinking Essential Labor through Infrastructural Work

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Workers who maintain and repair urban infrastructures are caught in a paradox. Their labor is essential for the functioning of cities and the ongoing circulation of capital and other resources—water, energy, people, information—and yet it is also mostly invisible and unheralded (Graham and Thrift 2007). This invisibility mirrors that of infrastructure itself: as long as roads, electrical wires, underground pipes, and so forth *work* as they are supposed to, infrastructure commands little attention (Star 1999). When breakdowns occur, by contrast, the productive and reproductive functions of infrastructure come into sharp relief, and so does the essential character of infrastructural work. What, then, makes infrastructural labor suddenly so visible, so unmissable, during the COVID-19 pandemic?

Processes of maintenance and repair shed light on the essential nature of certain forms of work, both in the present emergency and long preceding it. What logics and politics make this kind of infrastructural labor essential? Looming in the background, I argue, is the threat of breakdown. Maintenance and repair is work for sustaining, restoring, and ensuring the ongoing circulation of resources, capital, and labor. It is necessary for the reproduction of capitalist relations and forms of governance. For maintenance and repair workers, meanwhile, this form of labor is simultaneously vital and noxious, exposing them to serious hazards and harm even as it is imperative for their own survival. In a moment of acute crisis and danger, this contradiction is heightened. Essential workers are labeled heroic just as they are made dispensable. This double movement calls for a critical appraisal of what essential work is and what it is for.

In what follows, I draw on my research on Mexico City's public water utility, the Sistema de Aguas de la Ciudad de México (SACMEX), in order to work through these claims.

Logics

The Mexico City water grid faces enormous pressures. Official data shows that 42 percent of the total water circulating in the city is lost through leaks (SACMEX 2018). Breakdowns are common and many neighborhoods, despite being formally connected, have only intermittent water supply (Schwarz 2017). SACMEX has also been systematically underfunded, resulting in serious material and staffing shortages. I worked alongside two of its maintenance and repair teams for a year, and I found that their labor—at once improvisational, incremental, and adaptive—is what makes the water grid operate. These findings resonate with those of other researchers studying infrastructures in the Global South, where maintenance and repair work keeps things functioning, often in precarious conditions (Anand 2017; Alda-Vidal, Kooy, and Rusca 2018; Baptista 2019). At the same time, maintenance and repair work sustains state power and unequal patterns of resource access, both in the city and beyond. Work is thus essential to the maintenance of these forms of power and inequality.

When carrying out their daily tasks, such as fixing leaks or malfunctioning pumps, SACMEX workers rarely rely on manuals or standardized codes of practice. Rather, they are guided by their practical knowledge, shaped through longstanding interactions with decaying urban infrastructures. In a context of lack, where spare parts and tools are hard to come by, these practices include the fashioning of new components from discarded and seemingly useless material. These, in turn, are used to fix the grid through a series of patches, which do not promise complete repair but rather an ongoing one, which is always in flux and transformation (De Coss-Corzo 2020). In doing so, workers are not only maintaining the circulation of water but are also sustaining the social, political, and economic relations that water enables, including patterns of socio-spatial difference.

Considering the adaptive practices that workers deploy can enrich our understanding of what essential labor is and of the logics that underpin it. By highlighting the role of creativity and improvisation in sustaining resource circulation, I suggest that work is essential not only in maintaining an ideal order of flow, but also in fashioning normality as an ongoing process, constantly changing alongside infrastructure. This suggests that, beyond binaries of heroism and disposability, labor is necessary and undervalued. Moreover, it can be understood not as the mere mechanical repetition of tasks, but as a purposeful and creative process that nevertheless upholds uneven and unjust socio-material relations.

Politics

The work of SACMEX maintenance and repair teams is shaped by a multiplicity of pressures (Anand 2011). These can be those of leaking water, of senior engineers demanding that a certain repair is prioritized over others, or of organized neighbors demanding that water supply is restored to them. Even the lack of water pressure can be a political problem, leading to water shortages across the city. Far from solely technical concerns, the (techno)politics of water supply and sanitation in Mexico City constitute and are constituted by the city's lived inequalities. Workers are aware of these tensions and of the role their essential and unseen labor plays.

One cold, crisp morning, the team I was working with was asked to check a water shortage problem in the scarcely populated mountains west of Mexico City. There, springs supply small villages and towns that have not yet been integrated into the urban fabric of Mexico City. When we arrived, we could not find the source of the problem. We wandered through the forest, relying on workers' patchy memories of the place. We stumbled upon hoses that tapped water from the springs to supply informal, self-built housing, but we could not find the springs themselves. A couple of hours in, we received a call from one of the senior engineers in the area. He told the workers that now there was a new priority: a wealthy neighborhood in Mexico City was also experiencing shortages and more teams were needed to tackle this problem immediately. In this way, repair and maintenance priorities shaped the distribution of hydraulic resources.

The technopolitics of maintenance and repair also affects workers' livelihoods. At SACMEX, workers are often exposed to risk and harm when tending to hydraulic infrastructures. Managing sewage, reaching leaks in water mains, and restoring supply to empty reservoirs are everyday tasks that can result in injury or worse, even if workers are skilled enough to avoid these risks most of the time. Salaries tend to be too low for workers to support their families, even when other members of the household are employed. This means that maintenance workers often take second jobs, putting added pressure on their health and well-being. Workers reflect, often proudly, on the importance of their labor, even as they criticize not only their low incomes but also the ways in which their work is undervalued by senior officials at SACMEX and by urban dwellers at large. The essential character of their work, which they consider fundamental for the survival of the city, compels them to perform it even if it is devalued. In turn, the supposedly low-skill nature of their labor justifies this devaluing, creating the contradiction in which workers live.

The current emergency has sharpened the inequalities inherent to repair and maintenance politics across different geographies. For example, as [Ayona Datta has argued](#), the response to the pandemic in India has heightened the vulnerability of migrant workers who maintain urban flows by cutting off access to housing, food, and transportation amid travel and work restrictions. In cities across the world, couriers, drivers, and delivery workers become increasingly visible as those who can retreat to their homes do. The present limits to movement in urban spaces foregrounds the work that goes into sustaining the flow of resources, commodities, and capital. Those who must remain working do so as they cannot afford to stop, but their exposure to the now-forbidden spaces of what was, until recently, the everyday puts them at higher risk.

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The workers with whom I carried out research with have a rich diversity of opinions regarding their work and its wider importance for the city. However, they tend to agree in two respects. First, they would like to have better working conditions and more materials at their disposal. Second, they would like their work to be recognized beyond moments of breakdown. This would be an acknowledgement that, without their everyday labor, disruptions would not only go unfixed but also proliferate. Such a recognition could also have profound consequences for how we understand urban flow: not as seamless and given but as something that must be constantly worked on.

These reflections point toward revalorizing these forms of essential labor, resulting in better conditions for workers as well as a different position in imaginaries of urban life. Conceptualizing urban life—and, indeed, life in general—as something brittle, which must be constantly cared for, can foreground the essential work that is now devalued and carried out in precarious conditions. At the same time, it is important to critically interrogate what exactly is being maintained. Revaluing essential labor need not mean looking away from the inequalities and injustices that it sustains.

Calling for material changes in the working conditions of essential workers speaks to the possibilities of the here and now. Calls for protective equipment, as well as increases in wages and access to social security protections, are demands that workers have already been making. Others have questioned what counts as essential when it is clear that their work is only sustaining the flow of commodities with significant risks to their health. For those workers not deemed essential, the need to work also remains, particularly where there are no safety nets enabling them to endure indefinite periods of unemployment. This is the case for many workers in Mexico, where [12 million jobs](#) were lost at the height of the pandemic's first wave of the pandemic and where many more hang in the balance (in spite of [recent signs of recovery](#)). These workers, like those at SACMEX, continue to put themselves at higher risk in order to survive; today, more than ever, these risks are a matter of life and death.

Emergencies, whether in the Mexico City water grid or in the flows of everyday life, surface the contingency of normality, the constant work it requires, and possibilities for change. SACMEX workers are constrained by the demands of senior engineers and officials, the materialities of water and infrastructure, and the conditions in which they work. Still, they can find ways of repairing breakdowns that do not imply a return to a previous order but that instead fashion a new one. I think of the many times when, pressured by impatient neighbors, they found improvised solutions that not only restored water flow but sometimes also increased it or made it more reliable. On their own, these fixes cannot override the profound inequalities that exist in Mexico City, nor do they imply that all forms of repair labor are transformative. However, they do show that other approaches to sustaining infrastructure are possible, often prefiguring potential future configurations.

This last point relates maintenance and repair to the potentialities of worlds yet to come. As mentioned above, research has shown that maintenance is not necessarily liberating or emancipatory, and can instead reproduce unequal, unjust, and unsustainable relations (e.g., Barnes 2017). However, forms of working in and through infrastructure can also prefigure more hopeful futures (see Silver 2014). Here, distinguishing between the possibilities of maintenance and those of repair might open particular ways of thinking otherwise. If maintenance presupposes the return to a previous order, could repair entail not only the fashioning of normality as an ongoing process but also the reparation of past injustices and present inequalities? Can we think of repair as more than the fixing of infrastructures through adaptive practices and instead imagine it as a process of incremental change, driven by an ethics of care and life? To do so would imply a change not only in how we research repair but also in how we value, recognize, and practice it.

Author Bio

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Preview Image

Courtesy of [Gilbert Mercier](#).

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