


THE PROMISE OF FOG CAPTURE: Ground-Touching Clouds as a Material (Im)Possibility in Peru

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I met Alejandro a few weeks after arriving in Lima.¹ I was curious about a fog-capture project that had been implemented above his auto-constructed neighborhood by a small local NGO in whose office I was conducting fieldwork at the time. Alejandro and his mother, Rosa, had been among the project's beneficiaries, and Alejandro happened to manage a Facebook page created in connection with the initiative. For reasons unknown to me, the NGO director, Carlos, was reluctant to put me in touch with the residents. Nor did he seem keen on showing me the fog catchers. Hence I had taken matters in my own hands. Shortly on writing to him, Alejandro invited me up to their house in the Villa Fátima settlement, though only to let me know that most of the project had been abandoned. The fog catchers had not met the residents' expectations.

A young civil engineering student in his early twenties, Alejandro was about to leave for his mother's city of origin, Ayacucho, where he had been contracted as a consultant on a road-construction project. Despite having been born in Lima, Alejandro often emphasized his ties to the provinces (*la provincia*), connections, he complained, that many of their relatives in Lima had seemed to have forgotten. "Peru is not Lima. Peru is in all of the country's different corners," he said,

often expressing disillusionment with life in the capital. This resentment emerged starkly in his description of the now-abandoned fog-capture project.

During my twelve months of fieldwork on material engagements with fog in coastal Peru, conducted between July 2018 and July 2019, I visited Rosa and her family on a regular basis. In parallel, I conducted fieldwork at Carlos's office and among local fog oasis conservationists who were trying to tap into fog as a water source for ecosystem reforestation. These different engagements with ground-touching clouds were sometimes at odds with one another, stirring antagonism and suspicion (Ojani 2022). However, in this article, I limit most of my account to Rosa's family, showing how their story reflected broader processes of rural-urban migration and life at the Limeñan periphery while at the same time challenging broad-stroke analyses of failure.

Over multiple conversations, I learned that Carlos had approached the residents a few years earlier and that his proposal to install a low-cost alternative water-supply system had been met with open arms. In brief, fog catchers consist of large plastic nets situated perpendicular to the direction of the wind, filtering the regular inflow of coastal fog and funneling it into a water tank for later distribution (Figure 1). The residents had been thrilled about the prospect of reducing their dependency on private water vendors—and with the help of water captured from the atmosphere at that! Once the NGO had secured funding from a Dutch water foundation, they collaboratively helped install a series of fog catchers a ten-minute walk from Rosa's house.



Figure 1. Worn-out fog catchers above Villa Fátima, September 2018. Photo by Chakad Ojani.

One of the house's living room walls displayed several photos of family members with both Carlos and the Dutch funders, memorializing the excitement surrounding their collective efforts to set up the fog catchers. Still, the family's disappointment with the NGO director lingered. Leaning forward over my voice recorder in their living room, Alejandro explained that the NGO had installed fifty fog catchers, each estimated to produce around 300 liters of water per day during the winter season. "But this is a false number. It's not true. The climate [*el clima*] is not constant. To me, the average is way less." He pointed out that he had spent more time in situ than the NGO. Besides, Alejandro was only a small step away from obtaining his degree: he knew what he was talking about. "I live here. I'm not illiterate, I know how to do research." Having observed the process from up close, he could attest to the fact that Carlos had exaggerated the figures radically. In addition, he had failed to disclose that the water would be far from potable.

Assuring me of his authority on the matter by shifting to engineering parlance, Alejandro informed me that no prior investigation had been undertaken to examine the collected fog-water, despite Carlos having firmly insisted on the opposite, both to the residents and to the funders. The water was not only insufficient but it also contained various kinds of heavy metals. The project, Alejandro went on, "would not have failed [*ido al fracaso*] had the NGO first conducted a proper study."

This article centers on Alejandro's description of the fog-capture project in Villa Fátima in terms of failure. By accounting for the process whereby ground-touching clouds turned from a material possibility to material impossibility, I ask how failure, as "an empirical object rather than an established category" (Smith and Woodcraft 2020, 4), becomes a "site of emergence" (Smith and Woodcraft 2020, 2) that might be generative of relations and renewed expectations.

As I will show, in Villa Fátima, the fog-capture project failed to maintain a long-lasting grip on the atmosphere and ultimately came undone. Drawing on Andrea Ballesterio's (2019, 22) notion of "infrastructuralization," we could say that ground-touching clouds had refused to take on infrastructural properties and become the grounds for socio-material change in the ways promised by the NGO. Yet as fog slipped back into elusiveness, the fog catchers informed a set of other, interlinked processes of socio-material transformation. Not only were the materials picked apart and incorporated into various auto-construction endeavors but

the project also yielded mutated expectations about the potential acquisition of a new allotment for the family. In addition, the extensive attention from journalists captivated by fog capture's allure seemed to have worked in favor of the residents' attempts to position themselves advantageously in relation to state resources. In other words, if ground-touching clouds had refused their own infrastructuralization and turned into something of a material impossibility, then the project as such had presented a series of other, unanticipated opportunities.

The unfinished nature of the project in Villa Fátima will encourage an approach to failure that avoids two interrelated avenues: on the one hand, a pre-analytical decision about the location of failure, for instance, in a larger order or category whose characteristics become reflected but never challenged by the given ethnographic moment; on the other hand, a disposition characterized by suspicion toward the empirical, for in its quest for failure's ground, such an approach becomes obliged to treat failure as an established category incapable of instigating surprise.

This is not to say that the latter takes on failure are unproductive. On the contrary, they have proven remarkably helpful, especially for making sense of otherwise elusive, large-scale politico-economic structures. For example, [Dimitris Dalakoglou \(2017\)](#) notes how failure is an integral feature of our current political economy. Echoing [Joseph Schumpeter's \(1942\)](#) notion of creative destruction, Dalakoglou observes how the invention of capitalism is simultaneously "the invention of its systemic failures" ([Dalakoglou 2017](#), xiii). Arguably an inherent component of market logic ([Appadurai and Alexander 2020](#), 35), failure becomes the very means whereby capitalism repeatedly reflects, revises, and restarts without challenging underlying structures—a mode of operation exemplified in our increasing surroundedness by fragile stuff that keeps failing and falling apart ([Dalakoglou 2017](#), xiii).

In this connection, [Arjun Appadurai and Neta Alexander \(2020\)](#) direct our attention to how failure is deliberately built into various technological gadgets and, consequently, gives way to a fetishized ideal of improved infrastructure. Rather than an immanent feature of artifacts, failure is made to emerge strategically through a series of "judgement protocols" ([Appadurai and Alexander 2020](#), 2). These, the authors explain, produce "regimes of failure" ([Appadurai and Alexander 2020](#), 2), consisting of the histories that produce those judgements, the power that gives the authority to make them, the particular forms that such judgements must take to appear legitimate and plausible, and the infrastructures through which

they become mediated. Failure is contingent rather than absolute, but it is made to appear as inevitable so as to be capitalized on.

Thus we should treat occasions of failure with suspicion, carefully tracing them back to and explaining them with reference to a larger, dictating order. Everyday, small-scale failures are postulated as expressions of something systemic that, as the cultural theorist [Mark Fisher \(2009\)](#) noted, is itself intrinsically afflicted by dysfunction. Failure is understood to perpetually reproduce an apparatus whose characteristics have been defined prior to any situated ethnographic encounter.

But there are also other potential avenues. [Appadurai and Alexander \(2020\)](#) develop parts of their argument with recourse to the recent regard for breakdown, repair, and maintenance as productive objects of inquiry ([Carroll et al. 2017](#); [Graham and Thrift 2007](#); [Martínez and Lavolette 2019](#)). Much of this interest stems from the ethnography of infrastructure where, famously, occasions of breakdown have been shown to lay bare otherwise imperceptible relations ([Morita 2017](#)). Similar revelatory effects have surfaced in the anthropology of disasters. Numerous scholars have shown how disasters can reveal “the material, institutional, cultural and political consensuses configuring normality” ([Tironi 2014](#), 115; see also [Ullberg 2013](#); [Oliver-Smith 1986](#)), which is a point also mirrored in [Jack Halberstam’s \(2011\)](#) work on how failures to meet the expectations of normative society can become an ethics of resistance against heteronormativity. Here, too, failure exposes aspects of the social that usually remain backgrounded, thus rendering such failings ethico-political. Together, these various deliberations point to an alternative route that attends to the inventive nature of failure and breakdown (e.g., [Morita 2014](#)).

As we will see, what Alejandro spoke of in terms of failure revealed hitherto inconspicuous atmospheric relations and urban dynamics and became the grounds for renewed expectations. While capturing airborne pollutants and thus failing to meet the residents’ expectations about potable water, the fog catchers became productively integrated in a series of other auto-construction processes. Rather than predefining what the project’s failure was determined by and reproductive of, in this article I treat these unexpected outcomes as valuable ethnographic findings in their own right.

The disposition toward failure outlined here resonates with [Alberto Corsín Jiménez’s \(2017\)](#) understanding of improvised urbanization as a “method for the city,” encouraging a focus on the designs, methods, and relations “through which the city and its stories auto-construct one another” ([Corsín Jiménez 2017](#),

474). Similarly, in what follows, I treat the disappointing engagements with ground-touching clouds in Villa Fátima as by and of themselves productive—as a means through which the family became exposed to certain urban and atmospheric relations and, in turn, repurposed the materials intended for the fog catchers and articulated renewed expectations about the potential acquisition of a piece of land outside the current boundaries of their auto-constructed settlement. Failure, then, not as an end point that yielded more of the same, but as an unexpected method for “reading” and acting on the city (see Nielsen 2011, 352), as well as a moment at which the telos of the fog-capture project began folding into other, parallel rhythms of urban socio-material transformation (Harvey 2018, 82).

I begin by accounting for the urban sociopolitical configurations that directed Villa Fátima residents’ attention to fog as a catchable material possibility.

THE PROMISE OF FOG CAPTURE

I am awoken by a loud honk. It takes a moment for my body to adjust to the cold. The air is chillier up here in the hills than it is in the lower parts of the city. Last night’s mist that obscured our view has now vanished, leaving the rest of the Villa María del Triunfo district visible, even offering a glimpse of the sea somewhere in the distance. Once outside, I see the water truck (*aguatero*) standing behind the house. Rosa is pointing to the tank she wants the vendor to fill up next. He inserts a thick hose into one of the family’s three 1,000-liter tanks and waits for it to fill.

The family is charged twenty soles to fill up each tank. The price increases the higher up the hill you live. This is as far up as the human settlements (*asentamientos humanos*) currently reach along the side of this particular hill. The water is not only overpriced but the *aguateros* are not always reliable: several of my interlocutors in the district expressed anxiety about the quality of the water. Lima’s state-owned water and sewerage company, SEDAPAL, has a water-infrastructure project planned in the district. Rosa has previously taken me to the sealed-off area where one of the water reservoirs will eventually sit, a short walk from her house, but it will take at least another two years for the project to finally materialize. Until then, the family will have to keep relying on the water trucks, which only climb up the dirt roads if there are enough customers around.

The water truck is soon off to the neighbor next door. Rosa begins to prepare breakfast. Meanwhile, her husband, Hugo, asks me for a hand with a massive wooden reel, a leftover from Luz del Sur’s ongoing electricity-grid construction work. I have seen it standing in front of the house for the past few weeks, resting

against one of its exterior walls. Hugo wants to store it on their porch. The couple has recently modified the dimensions of their house to meet the criteria for erecting the new concrete electricity poles, now spiring up across the neighborhood. Having initially been too close to the poles, the family has remedied the problem by pushing back one of their house walls, decreasing the width of Alejandro's room by almost one meter. The roof no longer matches the wall, creating a gap in the ceiling, so they want to adjust it as soon as possible to prevent the fog from entering the house. The reel might come in handy.

The continuous tweaking and tinkering of auto-construction in Lima has been widely discussed (Degregori, Blondet, and Lynch 1986; Golte and Adams 1990; Lloyd 1980; Lobo 1982; Turner 1976). So, too, have the urban and infrastructural inequalities and race-class hierarchies that characterize life in the Peruvian capital more broadly (Cabrera et al. 2011; Gandolfo 2009; Greene 2016; Ioris 2015; Viatore and Scheuring 2020). These asymmetries are closely enmeshed with the city's long history of rural-urban migration (Calderón Cockburn 2016; Matos Mar 2011; Gyger 2019), but they can also be traced further back. Following modifications of already existing, pre-Hispanic irrigation ditches for the purpose of domestic use, the city's infrastructure supply began to develop in a restricted manner from early on after the city's foundation in 1535 (Cogorno 2015). Concentrated in areas where major governmental buildings already sat, fountains and running water were provided in accordance with the needs of the upper classes, and subsequent constructions of pipes and street drainage in post-independence Peru would follow a similar pattern (Aguirre and Walker 2017).

In tandem with the city's transformation into a center of industrial production, arable land in the provinces became increasingly inaccessible. As a consequence, during the first half of the twentieth century, Lima saw a gradual increase in newcomers from the country's provinces. In response to the urban concentration of the Peruvian population, the older, central parts of the capital gradually became less desirable for the city's affluent classes. Mansions, summer houses, and new residential areas began to appear in previously uninhabited, coastal areas. A growing real estate market simultaneously started to produce new sources of revenue, with properties in the city center subdivided and rented out to the city's poor.

After the destruction of many of these buildings in the 1940 earthquake, residents found themselves having to establish their own, self-constructed

neighborhoods in empty, previously unclaimed spaces. The earliest ones appeared adjacent to the city center, whereas several later neighborhoods emerged to the north, where state infrastructure was still absent and often unattainable. Examples include San Marín de Porres in 1950 and Comas in 1961, the same year that Villa María del Triunfo was established to the south, thus pushing the city's borders further back in a series of concentric circles. While this form of improvised urbanization had already begun in the 1920s, it intensified considerably during the second half of the twentieth century. With the escalation of the conflict between the Peruvian state and Shining Path (Sendero Luminoso), which began in and around the city of Ayacucho in the 1980s, migration to Lima again increased, and the capital eventually turned into a sprawling megacity with a metropolitan area that hosts more than 10 million inhabitants.

Rosa's struggle for infrastructure connectivity was closely intertwined with this history of rural-urban migration. As a then non-Spanish-speaking migrant who had fled the bloodshed in Ayacucho at the age of eleven, she had spent several years studying and working as a maid in some of the city's affluent districts, at which point she rented a room in the lower parts of Villa María del Triunfo together with her husband and two children. Eventually, the family heard of available land further up the hills. They quickly decided to occupy an allotment (*lote*) and began constructing their current house in what was to become Villa Fátima.

More than a decade later, the family had plenty left to do: water and electricity were not yet in place, and they were still waiting to obtain property titles. In the meantime, the house stood on state-owned land, and they could keep the allotment only as long as they inhabited it. The house featured a kitchen, living room, a small shop, and two bedrooms, one of which had been divided between Alejandro and his sister Laura by a curtain. The walls were made of a material resembling plywood. Modifying them to meet the criteria for activating the electricity grid therefore did not prove overwhelmingly demanding: it was taken care of over a single day when Hugo was off from the downtown bakery where he worked six long nights a week. The couple would eventually rebuild the house with solid materials (*material noble*), but this was something for the distant future (Figure 2).

Obtaining infrastructure connectivity takes time (see [Cabrera et al. 2011](#)), and Rosa's household now belongs to the large segment of the Limeñan population that still remains outside the city's water-infrastructure grid.² The geographer [Antonio Ioris \(2016, 128\)](#) has argued in this regard that contemporary discourses on water scarcity in Lima must take into account how such scarcity "is not a single



Figure 2. Rosa looking down over the district, February 2019. Photo by Chakad Ojani.

process caused by the shortage of resources.” Rather, it is “the outcome of present and past decisions and interventions that produce perverse consequences that affect some groups and locations more than others.” Yet the inability of governments to attend to these problems has long served as an excuse for reforms, loans, and projects that have produced uneven results and served as a powerful argument for pursuing utility privatization (Ioris 2016, 136; 2015, 97).

Alejandro’s disillusionment with life in the capital arose from the reality of brokered and contingent access to the city produced by this history. Urban asymmetries were present not least in the family’s exposure to the expensive and dubious water distributed to them by private vendors. Throughout our conversations, the absence of infrastructure often surfaced as a metonym of the family’s own marginality (Appel, Anand, and Gupta 2018, 11). Having recently been thrown out of a *mototaxi* and severely injuring her arm, Rosa could not but remain pressingly aware of the sometimes life-threatening consequences of living in the hills without paved roads. Bemoaning such absences, she was nevertheless always eager to show me their latest infrastructural developments—from Luz del Sur’s electricity grid to the area designated for SEDAPAL’s future water reservoir.

Infrastructure was a source of deep longing, a dream world of promise that the family members actively called on (Appel, Anand, and Gupta 2018, 28). In his discussion of “the promissory time of infrastructure,” Kregg Hetherington (2017, 40) notes how such aspirations emerge as an effect of how infrastructures, “as that which comes before something else,” are often imagined to lay “the conditions for

the emergence of another order.” They are the conditions of possibility for other social and material transformations. Indeed, once the electricity meter had finally been fitted outside their house, Rosa welcomed me with unusual joy. “It’s one of those systems that can power an entire supermarket!” she exclaimed, perhaps envisaging the future expansion of her shop.

Infrastructure is arguably a means through which states and extra-state actors produce and manage difference and exercise power over populations (Easterling 2014; Scott 1998). At the same time, ethnographers have shown how states come into being and reproduce themselves *through* the extension of roads and water pipes (Anand 2017; Harvey and Knox 2015). It is important to note that this sometimes happens in response to people’s appeals for “infrastructures to recognize, serve, and subjectify them” (Appel, Anand, and Gupta 2018, 23) and, in this connection, actors’ constitution of themselves as publics worthy of state care. For example, in Nikhil Anand’s (2018) account of water infrastructure in Mumbai, the (hydraulic) state is “extended through and because of strong *demands* for a particular kind of modern water, a particular kind of grid life that is demanded by settlers” (Anand 2018, 168; emphasis original).

Claims for infrastructure connectivity made by residents in Lima can be understood along these lines. However, it should also be noted that ethnographers working in Peru have theorized the state in terms of “absent-present” (Colloredo-Mansfeld, quoted in Rasmussen 2015, 94). Seemingly absent, the Peruvian state accomplishes certain work through the hopes and expectations it instills. If anthropologists fruitfully point to the ways in which infrastructures structure everyday temporalities, rhythms, and (im)mobilities (Dalakoglou and Harvey 2014; Fisch 2018), then Rosa’s struggle for access to water and electricity reveals how such temporalities may also be shaped by delays and promises about the prospects for future connectivity. These conditions of waiting open up spaces for other actors to broker and mediate residents’ relationships with the city. As Mattias Borg Rasmussen (2015, 94) suggests in his ethnography on water in rural Peru, the state “sometimes fails to accomplish what has been promised” and thereby paves the way for “other kinds of institutions [to] take on the task.”

We may mention the private water vendors as a case in point, but there are also other, non-governmental and corporate actors who occasionally step in as resource suppliers. For example, as a part of their Corporate Social Responsibility Program, a nearby cement factory actively provided building materials and trees for residents and local civil society associations in Villa María del Triunfo. They

sometimes also funded NGOs to carry out various social projects around the district, including one of Carlos's earliest fog-capture initiatives.

The project in Rosa's settlement should be understood against the background of these broader urban configurations. Along with her neighbors, Rosa had been in midst of trying to position herself favorably in relation to state resources when the NGO director had suddenly showed up. According to Rosa and Alejandro, it was their former community leader (*dirigente*) who had asked Carlos to come to Villa Fátima to evaluate the possibility of mitigating their dependency on the water trucks. By framing ground-touching clouds as a material possibility that could be tapped into with the help of fog catchers, Carlos attuned community members to a form of water that had always been abundant in the hills. He told them that they did not have to wait for the extension of the water-infrastructure grid. Apparently, they could begin collecting their water from the atmosphere straight away.

The hard collective work invested in the project, and the subsequent disappointments expressed to me by Alejandro and his mother, told of the hopes surrounding infrastructural transformation that Carlos's fog catchers had initially evoked among the family members.

A PROMISE IS A CLOUD

Lima is often described as the city where it never rains (*la ciudad donde nunca llueve*). Given its predominantly cloudy weather, it is likewise not uncommon to hear it being referred to as "gray Lima" (*Lima gris*). Sprawling over dry geographies, the capital is in fact one of the largest desert cities in the world. The notion of Lima's grayness stems partly from these arid conditions, but also from the ground-touching clouds that regularly roll in from the Pacific during winter (Figure 3).

Ever more actors have approached this airborne extension of the ocean as a potential water source. Over the course of my fieldwork with Carlos and his colleagues, I often heard the fog catchers being described as an unconventional technology (*tecnología no convencional*), able to effectively stand in for the absence of state infrastructure (Ojani 2021). Although, except for eye-catching media reports, what often remained of the various projects I encountered in Lima and other parts of coastal Peru was a strong sense of disappointment, not unlike that expressed by Rosa and her son. This held particularly true for the fog catchers meant to serve as alternative water-supply systems. Most of them had been taken down, left uncared for, or become deformed by strong winds.



Figure 3. The early-morning fog blanketing the city, May 2019. Photo by Chakad Ojani.

A somewhat ironic expression of what Alejandro described to me in terms of failure may be discerned in an art installation whose creator, Sandra, had been working with Carlos and the Villa Fátima community members around the time of the project's implementation. Over a coffee in upscale Miraflores, next to San Isidro where she lived, Sandra told me how she had long been wanting to work with fog, but never quite knowing how, given fog's quality as a very "immaterial material." Fog is very "ephemeral," she explained, "not like a piece of paper that you can fold, and it's not like metal that you can cut or use to create a sculpture. I wanted to work out a way of making fog palpable in a more concrete way." She went on to say that people usually tend to think of fog as something annoying. In contrast, Sandra wanted to "try to see the positive side of this fog and how it can be used for positive ends—to collect water for a community that did not have any."

Inspired by an Arabic proverb that she believed expressed the condition of many migrants living in the hills, Sandra's project consisted of nineteen letter-shaped fog catchers situated in a row above the Villa Fátima settlement, together forming the text "a promise is a cloud" (*una promesa es una nube*) (Figure 4).³ She explained that the Arabic and Limeñan contexts are equally characterized by aridity, and that rain therefore held particular significance for both. Yet the refrain had an additional layer of meaning in Lima: "Because, on the one hand, we have constant cloud during the second half of the year, which very rarely produces any rain. On the other hand, the people who are most affected by water scarcity in the

city are mainly migrants from other parts of the country, who have come to Lima in search of the promise of fulfilment that the city offers them. But akin to the rain [promised by the cloud], this promise seldom reaches concretization.”



Figure 4. *Una promesa es una nube* [A promise is a cloud], 2014. Art installation by Sandra Nakamura. Photo by Eduardo Hirose.

Like Alejandro and his mother, Sandra also hoped that the NGO-implemented project would reduce the residents’ reliance on the water trucks. However, when she returned to Villa Fátima some weeks later to document her work, she learned that “in reality, the water is not as clean as it could have been, because there are many particles in the air, a lot of contamination.” Sandra was surprised to see that the white mesh she had used for her letters had quickly blackened, rendering the nets mere “filters accumulating all this contamination.” Like Alejandro, she realized that the water was in no way appropriate for consumption, and that the cost for filtering it would far exceed the prices charged by the water trucks. What is more, the fog catchers required considerable maintenance so as not to degenerate, as they kept capturing sand and dust particles stirred up by the wind.

Hence the fog catchers gradually fell out of use, and by the time I was invited up to the area around Rosa’s garden (*chacra*) where the project had once been implemented, I found no more than six of them still standing. What remained of the rest were the numerous wooden poles, supported by massive concrete foundations and standing in the fog-bathed landscape, leaving passersby confounded as to their purpose and the story behind them.

If Sandra had been able to engage this “immaterial material” and thus rendered “fog palpable in a more concrete way,” as she phrased it, then maintaining

ground-touching clouds in this form proved more challenging. Drawing on [Bal-
lesterio's \(2019\)](#) account of infrastructural imaginings of aquifers in Sardinal, we may say that fog resisted “infrastructuralization.” Refusing separation from its atmospheric background, the fog instead brought aspects of that background and its otherwise suspended particles starkly into Sandra’s apprehension.

The fate of Sandra’s art project ultimately demonstrated the very condition that it had set out to comment on. The promises that Carlos had made about fog as a material possibility had failed to concretize, not unlike the city’s unmet promises of fulfillment that Sandra referred to with the refrain “a promise is a cloud.” Accordingly, as I listened to her account, it occurred to me that the fog catchers had themselves become something of a metonym for the condition that the installation had set out to communicate. When interpreted alongside the refrain, the abandoned fog catchers presented what Sandra had intended for her installation to merely allude to representationally: the clouds to which the unfulfilled promises of the city had guided the residents had themselves become a disappointment, thus rendering the blackened letters a material enactment of their own symbolic content.

In their introductory text on the material culture of failure, [Timothy Carroll, David Jeevendrampillai, and Aaron Parkhurst \(2017, 14; emphasis original\)](#) describe failure as a “moment of disconnect between what one *wants* or *expects* to occur . . . and that which actually occurs.” For Alejandro, the water did not only prove insufficient. Like Sandra, he also learned that it contained various kinds of heavy metals. His subsequent framing of the project in terms of failure signaled how the fog had become something other than what was expected. This was a “moment of breakage between the reality of the present and the anticipated future” ([Carroll et al. 2017, 2](#)), between the inequalities that had shaped Alejandro’s life in Lima and the changes that the fog had promised to bring about. “What *ought* to have happened [did] not come to pass” ([Carroll et al. 2017, 2; emphasis original](#)).

However, the “category error” ([Carroll et al. 2017, 16](#)) entailed by failure is characterized by more than mere reduction. Carroll, Jeevendrampillai, and Parkhurst also point to the productive aspects of such slippages: “Points of breakage,” the authors say, may reveal “crucial dynamics of social life” ([Carroll et al. 2017, 6; see also Smith and Woodcraft 2020](#)). As it turned out, Alejandro’s disillusionment with life in Lima partially stemmed from the urban configurations that the failure had thrown into relief. The disappointing episode with the fog

catchers had brought home to him the necessity of a politics that involved the state to a much higher degree than he understood to be the case at present. “NGOs are good,” he maintained, but then went on to explain that they do not have any considerable impact—not least because, akin to corrupt politicians, NGOs too take advantage of the state’s inefficiency. “Our laws have weaknesses, and this is detrimental to the entire country,” Alejandro continued, further explaining that “the fog catchers had been valued at 1,000 dollars each, but I know the issue very well, I have my plans, my project outline—fog catchers don’t cost 1,000 dollars each. They cost 200, 300 dollars, or less.”

In his assessment, the problem of corruption (*corrupción*) that the fog-capture project had surfaced applied to the scale of Peru more broadly, and it could only be remedied through stronger state presence: “There are many requirements that the state demands that you meet. There are many things you cannot do because they contradict the Peruvian law. If you want to do something with regards to fog catchers, it’s precisely that of creating a law.” Alejandro believed that with the proper legal framework in place, initiatives such as Carlos’s would become more accountable, because they would have to substantiate viability before implementing their projects.⁴ NGOs would be prevented from making false promises to their beneficiaries without facing repercussions.

Alejandro’s account invites a distinction between what [Carroll et al. \(2017, 5\)](#) call “material failure” and “the materiality of failure.” Contrary to what some insist is a redundant separation between materials and materiality (e.g., [Ingold 2011](#)), here we are encouraged to hold on to both terms. Famously, for [Tim Ingold \(2011\)](#), an approach to things in terms of materiality implies reflection from a distance. In contrast, his insistence on materials finds support in the way it provides non-hylomorphic leeway to engage things in a more hands-on manner. Instead of treating things as surfaces available for cultural representation, materials address the “stuff” that everything is made of. [Ingold \(2011, 31\)](#) suggests that we close the gap between the two terms—not because he deems interpretation irrelevant, but because as much as materials figure in the context of humans, the opposite equally holds true: “These contexts, far from lying on disparate levels of being, respectively social and natural, are established as overlapping regions of the same world.”

Whereas Ingold maps the materiality-materials distinction onto a more deep-running separation between representation and world, this is not so much the case for Carroll and colleagues. For the latter authors, the separation captures the way failure stretches into and out from domains that may be understood to stand outside a given material object. The authors highlight a difference between

“some *thing* that goes wrong” (Carroll et al. 2017, 5; emphasis original), on the one hand, and situations in which a category error “does not rest on, or in, the material thing” itself (Carroll et al. 2017, 6), on the other. Regarding the latter, they write: “When infrastructures fail, when democracy fails, the ‘things’ that fail are not artefacts in the strictest sense of a unique item of material culture. Nonetheless, failures of state are no less inscribed in material forms. In this way, social failures can be investigated through careful attention to the materials involved, and their social implications—in other words, the *materiality of failure*” (Carroll 2017, 6; emphasis original).

Alejandro’s accusations of malpractice and comments about law and corruption spoke of a wider socio-material reality that the fog catchers had helped render visible and potentially reconfigure (see Ojani 2021; Bonelli and González Gálvez 2018). It was by articulating his concerns about the quality of the relations by which this reality was held together, and thus the *materiality* of failure, that Alejandro made sense of the fog catchers’ material failure.

Yet as I continued to return to Villa Fátima, I gradually learned that the project had also been productive in other ways. If ground-touching clouds as an alternative to the water trucks now came across as something of an impossibility, other possibilities had nevertheless arisen from the ruins of the largely abandoned project. Moving away from my foregoing discussion on what the fog catchers had been intended to be, below I turn to what they were in the process of becoming. Though failing to deliver on its promises, the fog-capture project undid its own singularity by seeping into a set of other concerns.

UNDOING THE PROJECT

I knock on the window to Rosa’s shop one Thursday morning. No one is home. It is Hugo’s day off, and Rosa has kindly asked for an extra pair of hands for her garden. Road construction works in the district have delayed my arrival, and it seems that the couple has already left. I soon glimpse them moving about further up the hill.

To my surprise, Hugo is in the middle of disassembling the family’s three remaining fog catchers, which Rosa up until now has been using to irrigate her plants. In full swing with a crowbar, her husband cracks the concrete supporting each pole. It is tremendously hard work. These are among the sturdiest fog catchers I have come across during my fieldwork. One pole has already been pulled out, leaving five more to go. Lending Hugo a hand with the remaining ones, I ask why they are taking the fog catchers down. Rosa explains that community members

are planning for a road to eventually run through parts of her *chacra* and that they have had to modify its borders. Besides, an increasing number of residents are dividing up the remaining parts of the hill between themselves, and so the family is now planning to store the fog catchers inside the garden to prevent the components from being lost to someone else.

At first I assume that we will eventually reinstall the fog catchers inside Rosa's *chacra*, but when Hugo discusses cutting down one of the poles, I realize that they intend to save the materials for altogether different ends. Rosa points to a shack inside a neighbor's adjacent garden. I notice how one of the fog-catcher components has been repurposed into a rain gutter, attached along the lower edge of the roof. She would like to construct something similar. Hugo believes that the wood is still good enough, and so we continue smashing the concrete until lunch time.

Over lunch, Rosa recounts how, in tandem with the implementation of the fog catchers, the residents had formed a second association responsible for the management of this new piece of land, situated outside the boundaries of their settlement. They divided the terrain into a series of smaller allotments in accordance with the number of residents who had expressed an interest in small-scale agricultural activities. The fog catchers were then situated in rows above these garden allotments, so that the water could travel down through thin plastic tubes to slowly fill up a number of 2,500-liter water tanks. With this water, they irrigated a wide array of fruits and vegetables, which Rosa proudly pointed out to me one by one whenever I stopped by. Unable to provide potable water, the fog catchers served this second purpose when combined with water from the water trucks, at least for a few years.

But as time passed, an increasing number of the poles were cut down, remade into fences, and reallocated in accordance with the borders of the designated allotments (Figure 5). Most of the water tanks had already been distributed between the residents and were now standing outside their houses. Indeed, on successfully having taken the fog catchers down, Rosa pondered how to justify her continued use of the accompanying water tank without having to give it up to someone else. She still needed it for her *chacra*, but would have it filled up by the water trucks. The issue was resolved through the later, makeshift reinstallation of what remained of one of the fog catchers, this time inside her garden.

While Rosa lamented how the project had gradually come undone, she was also clear about the importance of taking possession of the land as quickly as possible. "You have to take possession [*Hay que posesionarse*]," she asserted, and informed



Figure 5. A number of the poles, cut down and repurposed as fences around one of the allotments above Villa Fátima, March 2019. Photo by Chakad Ojani.

me about multiple attempts by other groups to appropriate pieces of land within the area where the residents had their garden plots. Confrontations had occasionally turned violent, and Rosa recalled how, at one point, she had even unsuccessfully reached out to Carlos for help. “These are land traffickers [*traficantes*],” she explained. They appropriate land and claim property titles from the state, only to then go on and sell the allotments. They are not interested in actually living in the hills, but only wish to make profit. In contrast, the house that Rosa wants to build on her *chacra* will be intended for Alejandro.

Still, in later conversations, Hugo speculated that the terrain would be easier to sell once water and electricity were in place, as the family was also considering to do with another allotment they had recently purchased opposite their current house. The prospects of doing so were promising: people’s attention was frequently drawn to ads about available allotments pinned onto walls around Villa María del Triunfo. As I traveled in minibuses between my various field sites, I occasionally found myself eavesdropping on conversations about available land plots in this or that part of the district. Although prices increased with property titles in place, their absence did not seem to impede buyers from tapping into the opportunity.

If fog had turned into something of a material impossibility, then a series of new possibilities arose in the aftermath of fog’s unsuccessful infrastructuralization. These possibilities were not linked to the project as such, but emerged from the

conditions it had serendipitously created. Penny Harvey (2018, 81) has noted how notions of the “project” are imbued with a “telos of process and progress.” The time of infrastructural promise is one of a “forward movement, of accelerated transition from the past to the future” (Harvey 2018, 87), which also reflected the hopes about change that the family had invested in the fog catchers but then realized they were incapable of delivering. Fittingly, Harvey further explains that the promises imbued in a project mutate over time and fold into dimensions of life never integral to how a given project was once conceived. While infrastructures often harbor a specific telos, they may also be said to be always “‘out of time’ with themselves,” meaning that they “fold together many histories and rhythms of material and social transformation, some of which are foreseen, many of which are not” (Harvey 2018, 82). If the fog catchers as an alternative micro-infrastructure had failed to constitute the conditions of possibility for the changes that Alejandro and his mother had once envisaged, they nevertheless became creatively enfolded in a set of parallel rhythms of socio-material transformation.⁵

Another form of transformation surfaced in Alejandro’s resentments over how Carlos was now using footage from Villa Fátima to obtain funding for other fog-capture initiatives. Despite the disappointments left in its wake, the NGO was still receiving attention from both national and international journalists for the presumably successful project implemented in Villa Fátima. When seen from the perspective of the NGO, the fog-capture project must therefore be interpreted not as a failure, but an extraordinary success. As Cymene Howe (2019, 4) suggests, failure is not clear-cut, but a matter of vantage point. However short-lived, the project had helped instill in audiences the image of an atmosphere abounding with water. Hence the project had served to attract relatively large sums of money, which the NGO was now using to introduce similar imaginaries elsewhere (see Ojani 2021). For the NGO, then, the project was not merely a means to accomplish a clearly delimited goal, but perhaps first and foremost a way of sustaining itself and making a living.

The public attention that the fog catchers attracted may likewise be understood as an effective means through which the residents now ensured their position as worthy recipients of state-induced infrastructure. While explicitly opposed by Alejandro and his mother, in a conversation their former community leader told me that his neighbors had taken the fog catchers down because their presumed effectiveness as a water-supply system impeded such positioning. Carlos echoed this theory. Even so, the extensive media coverage in fact seemed to have served the opposite end by putting pressure on authorities to speed up this process of

infrastructure provisioning. Sandra's installation also featured in many newspaper articles, thus extending residents' concerns about state absence to audiences beyond the district.

The understanding of state absence that Alejandro expressed to me had become amplified by what he described in terms of the project's failure. As such, failure was a "moment of invention" that, by throwing him "suddenly, and forcefully, into the present," impelled him to try to figure out who or what had done wrong (Carroll et al. 2017, 15). Yet invention had started earlier, for as Carroll and colleagues write, part of failure's inventive nature lies in the very moral accusation of failure itself: "The accusation of failure is itself a kind of invention that marks a situation or thing as not being in accord with expectations" (Carroll et al. 2017, 15). But when tentatively slipping in a query on this particular project during a conversation with Carlos, I learned that accusations went both ways. Perhaps aware of my friendship with Alejandro and his parents, the NGO director quickly blamed the family for the project's abrupt dissolution. According to him, collaborating with the residents had become impossible because of Alejandro's attempts to direct media attention to himself. Supposedly unable to handle how Carlos had been put in the spotlight, Alejandro had begun spreading false rumors about the NGO.

Mutual accusations of malpractice abounded. The fog catchers' gradual integration into a set of other processes nonetheless points to how the project's grounds of expectation had shifted to eventually undo its own singularity (Harvey 2018, 80). If failure contains ideas about what should have happened but never did, then the project's failure to constitute a foundation for the changes that Alejandro had sought likewise led to a shift of directionality. The project was an unfinished process of potentiality that implied not only destroyed but also renewed expectations (Harvey 2018, 99).

CONCLUSION

I introduced this article by offering an understanding of failure as a generative moment. I contrasted this with a tendency to treat occasions of failure as peepholes into larger orders, instead positing the project's failure as a means whereby certain aspects of the city were rendered visible to the Villa Fátima residents. Rather than an alternative water-supply system, fog capture became an unintended heuristic for laying bare a set of atmospheric and urban (dis)connections, a sort of a "perceptual system" (Simone 2006, 359) for reading and theorizing the city in terms of state absence.

At the same time, fog capture also served as a method for informal urbanization (see also [Corsín Jiménez 2017](#), 457). While ground-touching clouds refused infrastructuralization and escaped back into elusiveness, the fog catchers presented a series of opportunities for other forms of materialization. As we saw, the unfulfilled promises about infrastructural change, and the project's subsequent dissolution, eventually became the grounds for renewed expectations about the potential acquisition of a piece of land for the residents. By disseminating residents' concerns to a wider audience, the fog catchers even helped draw the state in as infrastructure supplier—an unexpected and somewhat contradictory outcome that, as I have shown elsewhere ([Ojani 2021](#)), characterized the NGO's activities more broadly.

If I justified my approach by abstaining from an analysis of failure for discerning a larger, dictating politico-economic order, by way of conclusion I wish to suggest that we close the gap between these two approaches by attending to the configurations that emerge *from* failure: in this case widespread, local sentiments about state absence and the ongoing processes of auto-construction by which fog capture became at once co-opted *and* creatively informed. Beyond an end point that gave more of the same, the project's dissolution redirected its telos toward other rhythms of urban socio-material transformation.

Against this backdrop, I further propose that we treat failure with care. As a powerful analytic, failure acts contingently in the world and should be allowed to appear ethnographically whenever it does so ([Smith and Woodcraft 2020](#)). This is not to say that we should refrain from addressing the various “regimes of failure” ([Appadurai and Alexander 2020](#), 2) by which such judgments and events are mediated and made ubiquitous. Indeed, we saw attempts to gain interpretative control in the disagreements that cropped up around the nature and location of the project's failure. This also does not entail succumbing to the Beckett-inspired “fail again, fail better” axiomatic emblematic of contemporary startup culture ([Smith and Woodcraft 2020](#), 3). What I have in mind is an awareness of the regimes and nuances that anthropologists themselves risk reinforcing and overlooking when overly suspicious of the empirical. Can we treat emic invocations of failure in the same way we use the limits of ethnographic practice to experimentally interrogate our own anthropological presumptions and categories ([Candea 2013](#))?

[Hirokazu Miyazaki and Annelise Riles \(2007\)](#) provide generative insights in their account on the shared sense of failure and subsequent abandonment of economic knowledge among derivatives traders in Japanese financial markets. By observing how these actors admit to have failed to understand markets and retrospectively describe their projects as “complete, closed, and in the past” ([Miyazaki](#)

and Riles 2007, 325), the authors prompt us to question a social study of finance that simply sets out to fill in knowledge gaps with new sociotechnical facts. Such an approach does not align with the way these traders themselves respond to failure as end point. Importantly, Miyazaki and Riles (2007, 328) then use this observation to argue for an anthropology that treats ethnographic failures not as a passage point toward new but self-consciously limited beginnings, for example by pointing to “emergent complexities” and “assemblages and indeterminacies.” Their proposition is that we instead respond to expert knowledge and try to “know the endpoint in a sustained way” (Miyazaki and Riles 2007, 328).

The fog-capture project in Villa Fátima parallels some of Miyazaki and Riles’s remarks. The project’s failure became a means whereby the city momentarily exposed itself and was given new forms of expression, exemplified by Alejandro’s analyses and Sandra’s art installation. For Alejandro, the failure turned into a mode of reckoning and a comparative heuristic vis-à-vis modes of state knowledge or fog-capture projects elsewhere. As such, it was not reflective of the future-oriented capitalist mantra “fail again, fail better,” but rather a moment through which certain urban configurations were suddenly made perceptible and could be creatively acted on.

ABSTRACT

This article centers on an NGO-induced fog-capture project in Lima, Peru. While presented by the NGO as an alternative water-supply system for residents lacking state infrastructure, the fog catchers ultimately failed to live up to promises about potable water. Yet as fog turned into a material impossibility, the project’s failure yielded a series of new possibilities and expectations, for instance about the potential acquisition of a piece of land. The fog catchers creatively informed other, ongoing processes of improvised urbanization, meaning that the failure became not an end point but a site of emergence whereby the temporality of the fog-capture project folded into parallel rhythms of socio-material transformation. In conclusion, I suggest that the failure be understood not as simply dictated by a larger politico-economic order but as a generative moment through which certain urban configurations became momentarily exposed and could be productively acted on. [atmosphere; failure; informal urbanization; infrastructure; Lima; state; water]

RESUMEN

Este artículo se centra en un proyecto de captura de niebla inducido por una ONG en Lima, Perú. Si bien, la ONG presentó el proyecto como un sistema alternativo de suministro de agua para los residentes que carecen de infraestructura estatal, los atrapanieblas finalmente no cumplieron las promesas sobre el agua potable. Sin

embargo, a medida que la niebla se convirtió en una imposibilidad material, el fracaso del proyecto generó una serie de nuevas posibilidades y expectativas, por ejemplo, la adquisición de un terreno. Los atrapanieblas informaron creativamente sobre otros procesos en curso como parte de la urbanización improvisada, lo que significó que la falla no se convirtió en un punto final sino en un sitio de emergencia mediante el cual la temporalidad del proyecto de captura de niebla se desplegó en ritmos paralelos de transformación sociomaterial. En conclusión, sugiero que el fracaso se entienda no simplemente dictada por un orden político-económico más amplio, sino como un momento generativo, a través de la cual, ciertas configuraciones urbanas quedaron momentáneamente expuestas y se pudo actuar productivamente sobre ellas. [atmósfera; fracaso; urbanización informal; infraestructura; Lima; estado; agua]

NOTES

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1. When possible, neighborhoods and individuals mentioned in this article have been pseudonymized.
2. In 2019, about 1.5 million inhabitants lived without access to Lima's water utility network. See <https://peru.oxfam.org/qué-hacemos-ayuda-humanitaria/entre-7-y-8-millones-de-peruanos-no-tienen-acceso-agua-potable> (accessed October 9, 2021).
3. The Arabic proverb has a second half: "A promise is a cloud; fulfillment is the rain."
4. Javier Ávila Molero (2000) describes the broader processes of marketization that discourage Peruvian NGOs from conducting proper investigations.
5. See Ojani 2023 for a different set of environmental infrastructural transformations set into motion by fog catchers in the Villa María del Triunfo district.

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