Ranked-out waterscapes: an ethnography of resistance and exclusion in a U.S.-Mexico border *colonia*

Chilton Tippin[1]

University of Colorado, Boulder, USA

Abstract

In the U.S.-Mexico border region, an estimated 134,419 people live in United States *colonias* that lack access to water and/or sewer services. This article draws from ethnographic field research in one such Mexican-American community, where attempts by residents to move "decision-makers" to connect their community to water have for decades met a shifting resistance. Attention to water-infrastructure arguments at local, state, and federal levels reveals that this resistance ushers from bureaucracy and a deeply entrenched neoliberal logic. Access to basic water and sewer services is subordinated to strict ranking criteria, infrastructural rules and regulations, and funding metrics such as cost-per-connection. In response, residents have raised a counter-discourse, emphasizing their human dignity, needs, and basic rights to water. Thus, this article exposes a central tension in the political ecology of water: the neoliberal thinking that undergirds infrastructural violence in the "hydrosocial waterscape", and the strategies by which residents attempt to mobilize, to fight, and to push back.

Keywords: Infrastructural violence, hydrosocial waterscape, political ecology of water, *colonias*, U.S.-Mexico borderlands

Résumé

Dans la région frontalière entre les États-Unis et le Mexique, on estime que 134,419 personnes vivent dans des *colonias* américaines qui n'ont pas accès aux services d'eau et/ou d'égouts. Cet article s'appuie sur une recherche ethnographique de terrain dans une de ces communautés mexico-américaines, où les tentatives des résidents pour convaincre les « décideurs » de connecter leur communauté à l'eau se sont heurtées pendant des décennies à une résistance changeante. L'attention portée aux arguments relatifs aux infrastructures de l'eau aux niveaux local, étatique et fédéral révèle que cette résistance découle de la bureaucratie et d'une logique néolibérale profondément ancrée. L'accès aux services d'eau et d'égouts de base est subordonné à des critères de classement stricts, à des règles et réglementations en matière d'infrastructures et à des paramètres de financement tels que le coût par connexion. En réponse, les résidents ont soulevé un contre-discours, soulignant leur dignité humaine, leurs besoins et leurs droits fondamentaux à l'eau. Ainsi, cet article expose une tension centrale dans l'écologie politique de l'eau: la pensée néolibérale qui sous-tend la violence infrastructurelle dans le « paysage hydrosocial de l'eau », et les stratégies par lesquelles les résidents tentent de se mobiliser, de lutter et de repousser.

Mots-clés: Violence infrastructurelle, paysage aquatique hydrosocial, écologie politique de l'eau, *colonias*, zones frontalières entre les États-Unis et le Mexique

Resumen

Se estima que en la región fronteriza entre México y Estados Unidos, hay 134,419 habitantes en colonias que carecen de acceso al agua potable y/o servicio de drenaje. El presente artículo está basado en investigación etnográfica de campo en una de estas comunidades méxico-americanas, en donde los intentos de los residentes por cambiar a quienes toman las decisiones locales para tener acceso al agua, se han topado con una resistencia cambiante. La atención prestada a las discusiones relacionadas con la infraestructura hídrica a niveles local, estatal y federal, revela que dicha resistencia está guiada desde la burocracia y está profundamente arraigada a

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[1] Chilton Tippin is a PhD student in Anthropology at the University of Colorado, Boulder. Email: Chilton.Tippin "at" colorado.edu. Acknowledgements: I wish to thank the residents of Cochran Mobile Park and other West Texas *colonias* who invited me into their homes and taught me about their experiences with water. I am also grateful to the referees, and Drs. Josiah Heyman and William Hargrove for guiding me through this research. The research was supported by the National Institute of Food and Agriculture, U.S. Department of Agriculture, under award number 2015-68007-23130.

una lógica neoliberal. El acceso básico al agua y al drenaje, están subordinados a un estricto criterio de categorización, reglas de infraestructura y regulaciones, así como a la métrica de financiación, tal como el costo por conexión. Como respuesta, los residentes han planteado un contra discurso en el recalcan su dignidad humana, sus necesidades, y los derechos básicos al agua. Así, este artículo expone un conflicto central en la ecología política del agua: el pensamiento neoliberal que apuntala la violencia estructural en "espacios acuáticos hidrosociales", así como las estrategias con que los residentes intentan movilizarse, luchar y rechazar.

Palabras Claves: Violencia infraestructural, espacios acuáticos hidrosociales, ecología política del agua, colonias, frontera México-Estados Unidos

1. Introduction

Conflicts over water spring from multiple sources. They run through communities with divergent needs. They ripple across boundaries of state and scale. Water conflicts are people conflicts, power-laden and thus political (Robbins, 2012). They originate in histories of dominion and control, and they persist as the forces of industrialization and accumulation push and pull capital, labor, and resources across natural and political borders (Johnston, 2003; Swyngedouw, 1997). In this way, water struggles, especially those revolving around water security and/or water equity, connect the historical with the present, the local with the global (Gezon, 2005).

Nowhere in the U.S., perhaps, are these dynamic connections more widespread and salient than in areas known as *colonias*. In Spanish, the word *colonia* simply refers to a community or neighborhood. Along the U.S.-Mexico border, however, the term denotes low-income communities that lack critical infrastructure. Stretching from California to Texas, along some 2,000 miles (3,219 km) of the international boundary, an estimated 839,910 people live in about 2,177 *colonias* (Stewart *et al*., 2015). Notably, a community is designated a "*colonia*" on the basis of what it does not have: paved streets, electricity, drainage, and—importantly for the political-ecological analysis at hand—basic water and sewer services.

While *colonias* vary with respect to the extent of their infrastructural neglect, the most comprehensive count available tallies some 604 communities without water and sanitation services, places whose combined population amounts to at least 134,419 residents living in conditions of water insecurity (Stewart *et al*. 2015). What makes *colonias* so interesting from a political ecologist's perspective is that they are embedded in the nation with the world's largest economy. Indeed, scholars such as Jepson (2014) and Wescoat *et al*. (2007) have pointed out that *colonias*—among numerous other communities across diverse U.S. geographical regions—represent glaring exceptions to the myth of universal water access in the so-called global North.

Moreover, much human suffering and hardship stems from struggling daily to meet basic water requirements. Lacking water access in *colonias*, as elsewhere, impinges on time, produces stress (Jepson and Vandewalle, 2015; Sultana, 2011; Wutich and Ragsdale, 2008), negatively impacts household budgets (Hargrove *et al*., 2018), and contributes directly to poor health (Cardenas *et al*., 2010; Davidhizar and Bechtel, 2002; Hargrove *et al*., 2020). Thus, the continued re-production of *colonias*, especially those without adequate water and sanitation services, begs a question suffused with some of political ecology's chief preoccupations, those being the articulations of power and inequality, and the methods by which the poor attempt to mobilize, to fight, and to push back.

To get at these concerns, this study puts a political-ecological lens on infrastructure in the borderlands, with an ethnographic case study as its mechanism for entry. In what follows, I shed light on an ongoing water conflict between residents from one particular *colonia* and the politicians, agency staffers, county engineers, and water-utilities managers—collectively, "decision-makers"—tasked with carrying out water-infrastructure projects in the border region. I explore these conversations to reveal a set of societal assumptions that justifies and reproduces uneven water access. I trace the shape of this conversation by examining two key questions. First, how do residents who lack access to basic water services differ from decision-makers in their communication about the underlying causes of water insecurity? Second, what does this conflicting rhetoric tell us about the wider "hydrosocial waterscape" (Jepson and Vandewalle, 2015, p. 67) and the discursive re-production of communities who lack access to water and sewer services?

A critique of infrastructural violence in the U.S.-Mexico border region emerges from my analysis of these conversations. In his study of water systems and organizations in the borderlands, Walsh (2012) makes the case that "infrastructures" should be broadly conceived to encompass not only physical works, such as dams and irrigation ditches, but also institutions of water management. "Water infrastructures", in his conception, have evolved over centuries, responding to material histories of scarcity, conflict, and accumulation. Studies of infrastructure can therefore reveal how societies organize themselves over time, in the course of which decisions are made electing who accumulates water and power, and who is marginalized. "As such", write Rodgers and O'Neill (2012, p. 404), "infrastructure provides an ideal space for reflecting upon systemic forms of violence." Following these ideas, infrastructural violence is a form of "structural violence" that occurs as "violence exerted systemically—that is, indirectly—by everyone who belongs to a social order" (Farmer, 2004, p. 307).

This study contributes to this building body of knowledge by illuminating a discourse[2] of exclusion that simultaneously justifies and normalizes infrastructural violence. Ultimately, *colonias* residents experience the brunt of this violence exerted systemically. They experience it in the form of health maladies, building stress, impingements on time, and deepening economic strife—a collection of interrelated water burdens which I have referred to as the *household water insecurity nexus* (see Tippin, 2021). Fully aware of these injustices, *colonias* residents respond using the tools at their disposal. Yet their attempts to move "decision-makers" in the wider hydrosocial waterscape have for decades met a shifty, chimerical resistance, one rooted in the banal bureaucracies and logics of a deeply entrenched neoliberal regime. In the case study that follows, I describe residents' efforts to demand infrastructural justice of a hydrosocial waterscape that has systematically neglected them. But before getting into their story, the article lays out the political, ecological, and economic circumstances that gave way to the development of *colonias*. Establishing this context reveals a "tree with deep roots", as Robbins (2012, p. 26) eloquently termed it, showing how multiple generations of *colonias* residents have been caught up in historical circumstances and forces that are much larger than their ability to control.

2. The emergence of *colonias*: a historical-materialist perspective

Colonias are neither inevitable nor randomly occurring phenomena, but rather owe their emergence to labor and capital reproduction in a society largely structured by the market (Ward, 1999). Historically, *colonias* developed as people migrated to the border seeking employment in industries, such as farming, services, and factory work (Martinez, 2018). A succession of government programs fostered the border's rapid industrialization, including the Bracero Program (1941-1964), the Border Industrialization Program (1965), and the North American Free Trade Agreement (1994) (Martinez, 2018). These programs lured industries by facilitating the transborder flow of capital and goods, while attracting a large, low-paid labor force and rendering it always available (see Fernandez-Kelly, 1984).

In Texas, the "*colonias* phenomenon" (Ward, 1999, p. 3) is an outgrowth of this labor-industry-migration relationship in articulation with cheap land, speculative development practices, and the neoliberalization of border societies. Vast geographies furnished cheap land. Rural and semi-rural areas lacked model subdivision laws, regulations that, in city limits, required that developers provide basic infrastructure, like sewerage, water, drainage, streets, and electricity. In the absence of state protections and regulations, large numbers of migrants and low-income workers, unable to secure financing for housing, and with limited public housing options, sought affordable housing on the periphery. Recognizing this demand, developers bought large, inexpensive tracts of land, parceled the land into lots, and sold those unimproved lots to buyers who, owing to stagnant wages, wanted for better options (Ward, 1999; Fernandez-Kelly, 1984; Martinez, 2018).

In the mid-1980s, the proliferation of *colonias* prompted public outcry. The Texas Legislature responded by passing laws meant to halt the growth of *colonias*. The Texas Economically Distressed Areas Program, hereafter EDAP, was formed in 1989 to invest in public infrastructure for thousands of low-income areas that had developed along the border. Meanwhile, through community organizing and grassroots movements, *colonias* residents formed tightly-woven social networks. They drew upon these networks to develop their

[2] Here and throughout this article, I use the term discourse in its general sense to mean "written or spoken communication or debate." I do not attempt to engage in the formal social science method of "discourse tracing."

communities from within. As a result, many communities today enjoy paved streets, electricity, piped water, and other basic services (Stewart *et al*., 2015). As stated above, however, numerous *colonias*—especially those that are "small, remote, and isolated" (Hargrove *et al*., 2018)—still lack basic water and sewer infrastructure.

3. Examining relationships in the 'hydrosocial waterscape'

Water flows in the direction of power. This dictum, commonly referred to in a political-ecological framework, raises critical concerns about the structural conditions embedded in the "hydrosocial waterscape" (Jepson and Vandewalle, 2015, p. 67), a socio-natural assemblage that encompasses an array of intersecting phenomena, physical infrastructure being just one of the component parts. The hydrosocial waterscape includes geography, knowledge circuits, technological devices, organizations, institutional practices, laws, governance regimes, and built infrastructure, among other factors, all of which interact in complex ways to determine if and how clean water comes into the household or is properly treated as it leaves. Conceptualizing the hydrosocial waterscape in this way calls attention to the need for researchers, policymakers, and advocates to examine its relationships as they intersect, detach, interact, and diverge.

Jepson and Vandewalle (2015, p. 67) refer to this method as "the relational approach." In calling attention to water access as a process of relationships, as opposed to a static problem that can be "solved" or "fixed" with market and/or technological interventions, the relational perspective demands fuller consideration of the social forces that enable conditions of water security. Taking the relational perspective, researchers attend to broad, interlocking aspects of the hydrosocial cycle, including market forces and market assumptions, governance structures, entitlements and geography. They are alert to racial, gender, and cultural classifications, social relations of access, and even the "meanings of water and customary practices that are not easily captured by standardized metrics" (Jepson *et al*., 2017, p. 47). In this article, I build from this definition by tracing situated arguments and rationalizations themselves. Specifically, I explore relationships in the hydrosocial waterscape through an examination of disagreements surrounding a contested water-infrastructure project in one east El Paso County *colonia*. These disagreements illustrate certain discursive aspects of infrastructural violence as it manifests around contested water infrastructure projects in the U.S.-Mexico borderlands.

4. Infrastructural violence in neoliberal context

Infrastructural violence assumes a multiplicity of forms and divides in unexpected directions, interpellating everything from the landscape itself to individual subjectivities. Some consequences are more direct, if no less horrifying, than others. For instance, Yaffa Truelove (2011) describes how the absence of toilets and proper sewerage in Delhi, India has forced women to rise early in the morning and travel to nearby forests to relieve themselves. The women have taken to traveling in groups because several were harassed or sexually violated on their journeys to defecate or urinate in the woods. In relating this story and the women's fears and adaptations, Truelove traces a direct connection between the absences of adequate sewer infrastructure and embodied physical violence.

Infrastructural violence, however, materializes in subtle ways. In her study of implicit water infrastructures in post-apartheid Cape Town, Angela Storey notes that informal techniques and technologies often signal sites of infrastructural violence. "Infrastructural lacunae require residents to do significant daily work to access and manage water", Storey writes (2021, p. 80). "This includes water that is experienced and understood in many forms—as drinking water, wastewater, and flood water." Partitioning "types of water" within the household is a delicate, often precarious demand; if the wrong water is consumed, for instance, it can lead to illness or death. This is as true in informal South African settlements as it is in marginalized Texan *colonias*, where I observed low-income residents resorting to all manner of makeshift techniques and apparatus to meet their basic water requirements. Neglected by both the state and the market, places without adequate water infrastructure illustrate the messy politics of citizenship, legitimacy, and marginalization. Describing such dynamics in South Africa, Storey writes (2021, p. 81), "Efforts to measure and prove connectivity fit into a historically deep material politics in which infrastructural linkages have been central to desires for post-apartheid citizenship."

So it is that infrastructures themselves, whether water works or roads and bridges, condense a techno-politics of inequality into their physical distribution and materiality. Pulling focus on this aspect of materiality, Antina von Schnitzler (2008 and 2013) discusses how infrastructural violence inscribes sociopolitical subjectivities and galvanizes political engagement, especially in the context of neoliberal restructuring. Her work follows the deployment of pre-paid water meters in South Africa to explore the ways in which "infrastructure comes to mediate a diversity of competing ethical projects, political disagreements, and subterranean conflicts that often concern central political questions of civic virtue, basic needs, and the rights and obligations of citizenship" (2013, p. 673).

Infrastructure itself, in von Schnitzler's theorization, becomes the political terrain. The ethical disagreements embedded in civil discourse are scripted into the functioning of the infrastructural technology—in this case, the pre-paid meters. Violence is born of this inequitable arrangement between state, technology, and subject, since those with regular meters receive water and pay afterward, whereas those with pre-paid meters must either pay first or go without. In this way, neoliberalism imposes and then gradually normalizes a particular, coercive logic into infrastructural terrains, one that is eventually made to feel natural. "Most centrally", writes von Schnitzler, "neoliberal reforms entail the extension of a calculative rationality to spheres previously considered subject to non-economic, social logics" (von Schnitzler, 2008, p. 901). As we will see, these logics in the U.S.-Mexico-borderlands context bear the language of "cost recovery" and/or "cost-per-connection." They function by way of bureaucratic channels in which communities must "rank" to receive something so fundamental to life as water. And they are undergirded by the neoliberal political argumentation that less government is better government, that socio-environmental spending should be curtailed in favor of market fixes, and that struggling communities located at the ends of remote desert roads should be left to fend for themselves.

5. Situating the case study: Cochran Mobile Park

A highway leads east out of the West Texas town of Horizon City, past the strip malls, the high school, and the water utility, beyond the road called *Ascension*, and into a vast and open desert, a flat basin of sand and scrub and cacti. Several miles down this road, somewhere between the cities behind and the mountains ahead, a blue street sign reads "Buffalo." Hook a right on this road, driving south toward Mexico, and you will find yourself in the small community of Cochran Mobile Park.

Cochran feels like an improbable place. A community of 23 homes laid out on a four-street grid, the *colonia* clusters in a near-perfect square, like an island surrounded by a sea of desert. Of all Texas *colonias*, Cochran ranks 13th in terms of need for water services and public-health risk (Stewart *et al*., 2015). Life in this *colonia*, as residents told me, is tough, and much hardship extends from lacking basic water services.

Water problems almost never involve only water. In Cochran homes, most of which shelter multiple generations of Mexican and Mexican-American families (grandparents, working parents, and grandchildren), water burdens spill over into other life domains, influencing time, health, stress, and monthly budgets (Tippin, 2021). A 2016 income survey conducted by the County of El Paso revealed that all responding Cochran households were either "low income" (31%-50% of the median county family income) or "very low income" (30% or below of the median county family income). One family of four, for instance, reported an annual income of only US$24,000. Another family of 12 reported getting by on a yearly income of US$39,800 (County of El Paso, 2016).

Most residents meet their basic water requirements by paying a water-hauling company, which typically delivers 2,500 gallons (11,365 litres) for US$75. Those who don't pay to have their water delivered haul it themselves from nearby neighborhoods where friends or extended family have homes or businesses served by water utilities. The residents with whom I spoke did not drink hauled water, fearing contamination, but rather bought separate water, either bottled 24 packs or 5-gallon jugs (*garrafones*), thus incurring additional costs for pricey potable water. The net result of these unconventional water strategies was expensive water (the average monthly water bill was US$147), large amounts of time devoted to obtaining water (the aforementioned family of 12 spent 24 hours each week hauling water), added stress from fear that water sources might run dry or be cut off (old hauling trucks or water pumps breaking down or *la pipa* failing to answer phone calls for more

water), and risky strategies that could be harmful to residents' health (storing water in dirty tanks and/or reusing dirty laundry water twice to wash children's clothes) (for added detail see Tippin, 2021).

Figure 1: Informal water collection and distribution strategies observed in Cochran Mobile Park. Source: Chilton Tippin

Motivated by such realities, Cochran residents have been locked in a multi-generational struggle to gain access to piped water. These efforts concentrate on a water line operated by the Horizon Mutual Utility District, hereafter Horizon MUD, which terminates at a hydrant less than a quarter of a mile (400 m) from Cochran's western edge. Despite decades of attempts to attain funding, locate a fiscal sponsor, and motivate an agency and/or utility to connect them to this water pipe, Cochran residents remain without piped water access. The object of this study is to shed light on why this is the case through an analysis of arguments and rationales at three levels—the community level, the decision-maker level, and the state/federal level. In doing so, I reveal a discourse of resistance and exclusion, one that illuminates bureaucratic barriers to access and the ways residents contest those barriers. These obstacles materialize within an overarching neoliberal political ecology that continuously justifies the reproduction of so-called "no-win waterscapes" (Jepson, 2014, 108).

6. Methods

I undertook eight months of fieldwork (February-September, 2019) in West Texas *colonias*, during which time I conducted semi-structured interviews and administered household surveys. I gained access to Cochran Mobile Park through information obtained at the office of an El Paso County engineer, who offered a list of phone numbers for residents who lived there. I called the first name on the list, Antonio Flores, and asked

if I could visit his home for an interview about water.[3] *Señor* Flores invited me and colleagues from the University of Texas at El Paso to drive out to his home the next week. After our initial interview with *Señor* Flores, as we prepared to leave the neighborhood, we happened to notice a young man arriving at a nearby home. I approached him and explained that I was a researcher hoping to learn about water and sewer access in his community. This young man, Mario Meléndez, was keen to talk. Mario, 22 years old, professed a strong desire to connect his community to water. During a subsequent visit, he volunteered to go door-to-door with me. We attempted to speak with residents from all 23 homes in Cochran, but found that many had since moved away, leaving properties abandoned. Several residents declined to participate. In all, I spoke with residents at 11 households. Six of these residents were interviewed several times during multiple repeat visits.

During initial visits, I learned the community strongly desired an infrastructure project that would connect them to the water line terminating at the Horizon MUD fire hydrant. Armed with this information, I opened a fact-finding line of inquiry into the larger hydrosocial waterscape, speaking with representatives from the El Paso County Commissioners' Offices, the Environmental Protection Agency, the Lower Valley Water District, The Horizon MUD, the North American Development Bank, staffers from the offices of a state representative, and an El Paso County engineer. These organizations were chosen because each plays a role in water-infrastructure projects along the border, through either funding, representation, implementation, or any combination of the three—thus, I view them as representatives of integral institutions within the hydrosocial waterscape. These interviews were likewise semi-structured. I asked decision-makers about *colonias* generally and Cochran in particular, attempting to ascertain what were the barriers to providing the community access to piped water.

Methodological-theoretical framework

This ethnography explores arguments and rationales made by residents and decision-makers to reveal three key themes that illustrate how *colonias* are continually excluded from water services. First, I evaluate conversations within Cochran itself, showing how residents desire access to water, yet express a complex admixture of hope and resignation in their thinking on whether a project would ever come to fruition. This discourse emerged in a context of mobilization and neglect, demonstrating how, despite decades of effort on the part of Cochran residents, decision-makers in the larger "hydrosocial waterscape" continually ignored, deflected, and/or denied residents' requests for water services. I link these arguments to the notion of "pressure" theorized in the work of Nikhil Anand (2011), who argues that infrastructural neglect often occurs as a consequence of the inability of certain communities or classes of people to mobilize sufficient political pressure and/or physical pressure to secure access to reliable services like water and sewerage.

Second, I trace disagreements between Cochran residents and decision-makers by focusing on conflicting comments about the project itself. In this section, I put residents' comments about a potential water project in dialog with decision-makers' rationalizations for why they could not deliver such a project. These conversations revealed a theme of "institutional enclosure" (Jepson and Brown 2014: 1032), whereby institutional rigidity, norms, lists, and codes of compliance served to exclude residents from adequate water to meet their basic needs. Third, I turn attention to political comments, conversations, and institutional budget documents at the state and federal levels to demonstrate how funding for environmental-infrastructure projects along the U.S.-Mexico border is in steep decline. In this macro-level discourse, I elicited the third theme, that this decline in funding ushers from a neoliberal political-ecological hegemony, a symptom of which is infrastructural violence. By emphasizing small government, individual responsibility, reduced regulations, and stripped funding, neoliberal discourse—especially prevalent in conservative Texas—normalizes the gutting of social and environmental programs that would benefit the poor.

[3] All names in this study, whether decision-makers or Cochran residents, have been withheld or changed to protect identities, with the exception of State of Texas representatives, who made comments at a public forum. This decision to protect confidentiality was made in accordance with Institutional Review Board approval, granted for this research involving human subjects.

7. Between hope and resignation: discourse in Cochran community

When describing their struggle for water access, Cochran residents expressed a complex mix of sentiments, including hope, frustration, resignation, and resolve. On the one hand, residents remained steadfast in their expressions of desire for water access; 10 of 11 householders with whom I spoke emphasized aspirations to have their homes connected to conventional water infrastructure. On the other hand, several grudgingly admitted to a sentiment of acquiescence. These mixed feelings were voiced by Veronica Pérez during an interview at her home. "I don't understand why they won't bring us water", *Señora* Pérez remarked. She expressed concerns over the fact that many in her neighborhood relied on the water-hauling company. "In the future, what if something happens to (the water-hauling company)? We'd have to go on strike. We'd have to block the roads like they do in (Ciudad) Juárez, (Mexico)." However, as my conversation with *Señora* Pérez continued, she described how she and other residents had been trying for decades to achieve water access. Since these efforts had failed to materialize, the community had adapted. *Señora* Pérez had learned to live without water, and, in an expression indicative of resignation, she finally conceded, "No, I'm in my comfort zone. I'm okay with this."

What could induce someone to say they are "okay" without reliable access to life-giving water? What sorts of pressures might *Señora* Pérez and her neighbors be under? Akhil Anand—whose influential work examines infrastructural neglect among informal settlements in Mumbai, India—places analytical emphasis on the notion of "pressure" to explain which neighborhoods and households get access to water. Anand writes, in a sentence that belies the term's complexity, "You need *pressure* to make water flow" [emphasis added] (2011, p. 543). Here he references a rather capacious conception of the word, where pressure denotes not only that exertion which pushes water through physical infrastructures, like canals, mains, tubes, and pipes, but also that socio-economic force which compels politicians, engineers, and policy makers to act on a given water user's behalf. Accordingly, water infrastructure or the lack thereof has as much to say about the physical, environmental realities of the community in question as it does about the political power of any group involved in a movement to attain infrastructural access.

For their part, Cochran residents frequently described their deep dissatisfaction with lacking water access, a discontentment intermingled with resignation and varying degrees of hope, and they related their lack of access to their inability to generate sufficient political pressure. Antonio Flores, for instance, expressly stated that he still hoped for connection to water. When I asked him to share his view on what his neighbors thought about the subject, he explained, "They want the water, but their hopes are down. It's been more than 20 years." This complex mix of dissatisfaction, resignation, and hope often led to conversations in which residents described their abandonment, their relegation to the margins, and the ultimate unfairness of their water-insecure situations. In my field notes, I counted 33 references to abandonment made by residents. These took the tone of being left out, being forgotten, and/or being made to fend for themselves. Many times, residents described their community in relation to others around them. In the seemingly haphazard course of suburban development, nearby neighborhoods had received water or sewer access. Having slipped through the cracks, Cochran residents felt left behind. For instance, Mario Melendez explained that neighborhoods to the south, east, north, and west had been connected to water. "Why do they get water and not us?" he asked. Another resident, Margarita Hernández, grandmother in the household of 12, explained that the community was excluded despite years of participation in the processes that were supposed to deliver water:

> We had gotten some grants, but they were not given for this part, even though we went and supported them on all the meetings that they had. But the money all ended up over there. They were used in *La Coyotera*, *Agua Dulce*, and *Montana Vista* [nearby *colonias*]. But over here, they think that we're not that many people living here. So, they decided to use the money over there instead of over here. But we have fought for it. So, now, it's like, 'Well, what do we do now? Who do we talk to?'

Residents often expressed sentiments of being left behind in terms of dissatisfaction with local representatives and utility districts. For example, when I asked Rebecca Meléndez, Mario's aunt and neighbor,

what she thought about a series of 2016 meetings between community members and local decision-makers—meetings in which decision-makers had fanned hopes that a water project was in the pipeline—she rolled her eyes. "*Puro promesas*!" she exclaimed. "They said, 'Yes, we can bring water here.' But they never did it. We're still here without water." Another resident, Filomena Martínez, echoed this: "I knew they were having meetings. But nobody said anything after that. Nobody took an interest. You always hear, 'Who's going to put the water? Who's going to put the water?' But nobody ever does it." *Señor* Flores tried in the past to work with the city and county to get water. "They say we're not from Horizon", he complained. "They say we're not from the city. They say that we're nobodies." In much the same vein, Juan García equated representatives' claims that they would deliver water access with empty promises: "It was only for the elections", he said, "and then, after the elections, they never come back."

Exasperated comments about broken promises, self-serving politicians, and infrastructural abandonment signal the stark reality that Cochran—as a small, low-income community located beyond city limits—represents a weak political constituency. Residents have therefore found it impossible to constitute themselves as citizens deserving of basic water services. "It is through moral and political claims made as a population on the sensibilities of leaders and city officials that settlers get access to water", writes Anand (2011, p. 546). This, then, is a matter of pressure. Turning now to conversations with decision-makers, we can attempt to ascertain why such moral and political claims on the part of Cochran residents have achieved not a water project, but an infrastructural vacuum.

8. Exclusionary rationales: water discourse among regional decision-makers

While learning about Cochran residents' aspirations for water access, I soon realized that I would need to understand why Cochran had been for so long excluded from an infrastructure project. Indeed, several residents directly asked me to help them figure this out. Specifically, they wanted to know why the latest process they had initiated back in 2016 had faltered. Why were no updates given? What had been the fate of the plan to connect them to nearby water pipes? With these questions in mind, I scheduled a series of meetings and interviews with decision-makers. The conversations focused both on Cochran's particular situation and on general questions about *colonias* and water projects. By looking at the specifics of Cochran's situation alongside the larger *colonias*-and-water landscape, I was able to more fully interrogate the context of water insecurity in *colonias* embedded within the hydrosocial cycle.

Jepson and Brown (2014) describe the process by which communities are excluded from water access in the hydrosocial waterscape as "institutional enclosure", "the creation or repurposing of institutions to limit public participation in water governance" (p. 1033). Via institutional enclosure, labor and costs for acquiring acceptable water shift from "the body politic to the individual" (Jepson and Brown, 2014, p. 1041). Over time, and owing to "slippages in state accountability" (Jepson and Brown, 2014, p. 1041), individuals' political subjectivities reposition. Conditions set by the hydrosocial waterscape thus push residents into the water market, into being disciplined consumers of water—that is, people who purchase water from vending machines and/or water-hauling companies. Over time, they acquiesce in their fight to gain access to water from the "state", or the body politic, and come to accept their position as consumers (Jepson and Brown, 2014).

Perhaps unsurprisingly, the primary reason decision-makers gave for their inability to connect the community to water was the project's high cost and their organizations' tight budgets. All decision-makers with whom I spoke expressed a desire to connect the community to water. But these stated desires failed to translate into action in large part because of financial constraints. In an interview with a county engineer, I obtained estimates for the cost of a water project. To run the pipeline less than .25 miles (400 m) and branch it down each street, a consultant for the Horizon MUD had estimated the cost at US$1.6 million. This sum became interesting for several reasons. For one, Cochran residents contested the estimate. Additionally, these figures had not been provided to Cochran residents, who told me they were left in the dark following the 2016 meetings. When I explained the costs to residents in follow-up conversations in 2019, they were mystified and perplexed—in part because this had been their first time hearing this information, but also because the price seemed extremely high. Mario, for example, shook his head. "No", he said. "How could it be so much?" His

neighbor, *Señor* García, laughed at the estimate. "But it's only ⅛ mile!" he said. "Or less—200 yards, 150 yards! It's really close. This is not true, this. This is not true. Maybe if we were 10 miles. But we're not."

Several Cochran residents told me the county or utility districts should find ways to reduce the cost of the project. *Señor* García stated the residents themselves could help dig trenches. He expressed a willingness to help pay for a loan. He also mentioned plastic piping that could help reduce the costs. These comments revealed not only a disconnect between what residents thought of as a realistic cost for the project, but also a disjuncture in understanding the project's processes and procedures. Residents demanded flexibility to meet their basic water needs. They pointed to informal mechanisms that could reduce costs. Their need for water, in this estimation, outweighed requirements to do things "by the book." Decision-makers, meanwhile, described rigid rules and codes to which the project and the residents themselves would have to conform. In residents' eyes, these codes, rules, and regulations artificially drove up costs and arbitrarily kept the water project beyond reach. Yet decision-makers expressed being beholden to the process and its attendant set of procedures, environmental-impact statements, surveys, design mandates, and construction codes.

Conversing with the county engineer, for example, I discovered that tearing up and repaving roads accounted for about US$600,000 in the cost estimate, or about 37.5 percent of the total cost. Residents thought this was an absurd sum for a mostly unnecessary step in the process. They pointed out wide shoulders on either side of the roads. Engineers could design the project such that pipe could be laid alongside the road to cut out those costs. However, the county engineer claimed that redoing the road was required: "You have to 'loop the system,' running pipes around the whole subdivision, branching pipes down each street, and providing stub-outs for all the lots. This involves cutting the paved streets and repaving them; per code, they must be restored to the same or better condition." (As it would turn out, Cochran residents were right about the inflated costs of the project. In late October 2019, the Lower Valley Water District, another nearby utility, produced a new project-cost estimate. With creative engineering, avoiding tearing up roads, and performing design and construction work in-house, rather than with outside contractors, they reduced the project estimate by US$1.1 million.)

According to several decision-makers, costs were further prohibitive because the project would benefit relatively few people at great expense to local taxpayers. Every decision-maker with whom I spoke described the "cost-per-connection" metric, which is used to rank the priority of water projects. Since the project cost was set at US$1.6 million for Cochran and there were only 23 households on record, the cost-per-connection could run to between US$69,000 and US$74,000 per household. The same county engineer called this cost-per-connection "extremely high." Typically, the maximum cost-per-connection for grant funding was about US$25,000, and "US$30,000 is all but unheard of." Thus, this high cost-per-connection was the primary reason for the stalled effort to bring a project, according to the engineer. "We can't identify or secure funds to do such a thing", he said.

The issue of high costs-per-connection was repeated by an EPA engineer and the El Paso County commissioner who had been involved in the 2016 meetings at Cochran. The commissioner outlined a history of funding for water projects; these funds had covered most of the *colonias* in the county, except those that were small in population and distant from existing water infrastructure. Consequently, the "remaining *colonias* (without water services) are few and far between", he explained. Looking at a map of the county, he pointed to Cochran and said, "There aren't many connections here, and when you have sparse subdivisions, it creates issues."

If the county were to fund the project, it would pass costs to general ratepayers. The commissioner stated he was reluctant to raise the costs of water or taxes for all county residents when the project would benefit so few people. Consequently, Cochran residents found themselves in a Catch 22. The commissioner said he could only back a project if grant funds were obtained. "Problem is, grant funding is hard to come by when it's such a high cost-for-connection", he stated.

In this way, strict budgeting, a rigid institutional environment, and Cochran's small size continuously converged to rank the community out of water-project priority lists. We will return to the matter of costs below, elucidating its embeddedness in a neoliberal context. First, this matter of ranking warrants increased attention. For Cochran residents, their inability to rank in water-project priority lists was the direct cause of their exclusion

and consequent sentiments of abandonment. In my conversations with a staff member from the office of a state representative, I learned a *colonia* could be listed as "high priority" for Texas Water Development Board projects on the basis of five criteria. Conversely, by lacking any one of these criteria, a community would be kept off the list. To be prioritized, a community had to:

1) demonstrate that median household income was less than 75 percent of the median state household income;
2) have inadequate facilities to meet residents' minimal needs;
3) show that financial resources were inadequate to provide water supply or sewer services to satisfy minimal needs;
4) prove that the area was an established residential subdivision as of June 1, 2005; and
5) show that the area had a political-subdivision sponsor, such as a water utility or county government.

Cochran, the staffer explained, met all of these criteria, except the community lacked a political-subdivision sponsor. Existing as it did in a jurisdictional "donut hole", no utilities or governments were responsible for ensuring the community received water access.

The irony of this exclusion loop, this "donut hole" into which the community had been thrust, was not lost on Cochran residents. Frequently, they expressed confusion and disbelief when describing the essential conundrum of their circumstances. As Mario put it, "They say we're not from El Paso. We're not from Horizon. We're from the Lower Valley. Now, all the sudden, they say we're from El Paso. And so, we're like, 'Where are we from? Are we from Horizon? Are we from El Paso County?'"

On these terms, then—that the project cost too much money for too few people, that the agencies and organizations lacked funds, that Cochran existed in a jurisdictional "donut hole", and that Cochran could not "rank" on water-project-funding lists—institutions had closed-off Cochran to water projects. In evaluating this discourse, we see not only how Cochran residents themselves contested the strict ranking criteria, the emphasis on costs, and the institutional rigidity that continuously excluded them from basic water services, but also how arguments, or rationales, for not funding a project pivoted on matters of jurisdiction, geography, population, and economics.

9. Waning state and federal support: water discourse at state and federal levels

Although many local decision-makers expressed a personal desire to connect Cochran to water, they described being hamstrung by a growing shortfall in funding for environmental-infrastructure projects, especially those that would deliver water. For the third part of this analysis, I demonstrate a neoliberal political ecology at work in producing this funding shortfall. Neoliberalism refers to a "theory of political economic practices" (Harvey, 2007, p. 22) that places primacy on markets and commodification as the preferred engines for human development. In brief, neoliberalism holds that governments should provide an institutional framework for securing "private property rights, individual liberty, unencumbered markets, and free trade" (Harvey, 2007, p. 22). Beyond maintaining conditions conducive to these precepts, "the state should not venture" (Harvey, 2007, p. 23). Therefore, neoliberal political ecology is characterized by an ethos of individual responsibility, withdrawal of governmental regulations on industry, and a retreat of state funding in social and environmental programs (Harvey, 2007; Han, 2017).

Many decision-makers said their organizations faced diminishing budgets for water-infrastructure projects. In making these statements, it was clear that decision-makers thought of themselves as—or at the very least expressed themselves to be—allies in the quest to have all county residents connected to water. However, these expressions of support were often couched in a larger discourse of having their hands tied. For example, the commissioner qualified his reasons for why the county could not provide water services to all of its residents. "Problem is", he said, "funding across the board is in decline. We would need the state to allocate funding at the same level. But EDAP was zeroed out last year. That's funding we used for grants for *Montana Vista* (another El Paso County *colonia*). Even USDA project funding was slashed."

This statement about declining funding for water projects was echoed in some form or another by representatives from the EPA, the Lower Valley Water District, state representatives and their staff, and the Director of the North American Development Bank. Furthermore, these comments were corroborated by data on state and federal funding allocations for environmental infrastructure in the border region. Water projects in the borderlands have historically relied upon funding from several important programs and governmental institutions. These include the Texas Water Development Board, which oversees EDAP, and the Environmental Protection Agency, which channels funding through the North American Development Bank and its sister institution, the Border Environment Cooperation Commission. In particular, the North American Development Bank and Border Environment Cooperation Commission have administered federal funds through the Border Environment Infrastructure Fund, BEIF, and the Border Water Infrastructure Program, or BWIP. All three of these major water-infrastructure programs—EDAP, BEIF, and BWIP—saw major cutbacks in their funding since the post-NAFTA heyday of the late 1990s.

In the latter half of the 1990s, for example, Congress routinely allocated between US$100 million and US$150 million each year to border-environment infrastructure projects through the EPA. In contrast, yearly allocations remained below US$50 million since 2007 and sank to a low of US$15 million in 2018 (these figures are from my analysis of Congressional Budget Office documents, see Ramseur and Tiemann, 2018). During interviews, EPA staff acknowledged these cutbacks: "At the beginning of the program", explained an EPA engineer, "we were getting US$100 million. Then US$75 million. Then US$50 million. Then US$25 million. One year, it dropped to US$10 million." Most recently, in a move reflective of the Trump administration's larger efforts at disemboweling the EPA and other scientific institutions (see Plumer and Davenport, Dec. 2019, *New York Times*), the White House attempted to zero-out EPA funding for BWIP. Were it not for the efforts of senators from border states, particularly New Mexico and California, the program would not have received any funding at all.

Even so, a strong argument can be made that the US$15 million allocated amounts to a drop in the bucket when water projects are notoriously costly and that US$15 million is meant to cover water-infrastructure across the entire 4-state, 2,000-mile border area. Furthermore, border counties are characterized by poverty and highly dependent on state and federal funding to get costly projects off the ground. According to a recent (2017) Good Neighbor Environment Board report, if the 24 counties along the border were formed into a state, it would rank 51st, or "dead last", in terms of income and persons under 65 without health insurance. The same report outlined an array of environmental hardships faced by border populations, including air pollution, rising temperatures, drought, and health risks from water-related diseases. Without funding, already vulnerable populations on the border are left even more susceptible to environmental threats. As the North American Development Bank Director told me, "There's definitely a risk, and there continues to be a lot of needs out there, and there's still first-time [water] service needs. But there's also a lot of environmental vulnerability as well, with aged infrastructure and leaking sewer pipes and things like that." Even though funding has declined, she explained, "the needs don't stop."

Declines in funding for environmental-infrastructure projects have been accompanied by a restructuring of the BECC and NADB, sister institutions which worked hand-in-hand with frontline border communities to identify, design, fund, and engineer projects that would improve environmental conditions and, consequently, human health on the border. Working together, BECC and NADB were widely considered to be among the most comprehensive programs for offsetting the negative externalities associated with border industrialization (Mumme and Collins, 2014). To grasp their role, as well as the importance of their rise and decline in the context of border neoliberalization, a brief history is in order.

BECC and NADB were officially created as side agreements to NAFTA in 1994, but the binational, philosophical groundwork for the institutions was laid more than a decade before, under the La Paz Agreement of 1983. La Paz recognized that environmental issues in the borderlands—such as those affecting water, air quality, wildlife migrations, habitat integrity, and the like—tend to transcend the international boundary line (Ingram and Fiederlein, 1988). La Paz put forward a framework for bilateral collaboration on problems and projects affecting the borderlands—the first of its kind on the U.S.-Mexico border. The Agreement established a 100 km zone of inclusion on either side of the boundary. So long as projects were slated within the zone of

inclusion, La Paz permitted U.S. federal funds, resources, and employees to work on the Mexican side of the border, and *vice versa* (Mumme and Collins, 2014).

During NAFTA negotiations of the early 1990s, border communities and environmental groups connected the prospect for increased trade along the international border with an inevitable, associated increase in environmental pressures. These debates ultimately yielded BECC and NADB, "the most consequential of the NAFTA-generated institutions cooperating for environmental protection along the border" (Mumme and Collins, 2014, p. 312). From the outset, BECC and NADB focused on water and wastewater infrastructure. BECC mobilized boots on the ground. Engineers worked with border communities to coordinate and certify projects, and NADB provided funds for leveraging environmental projects of pressing need. It was recognized that projects to deliver clean water and sanitary living conditions to residents of the borderlands, millions of whom were U.S. citizens, would reduce the prevalence of illness and infectious disease (Gilbreath, 1992).

During their first five years of operations, BECC and NADB undertook five times more border wastewater projects than their predecessor, the International Boundary Water Commission, had done in its 60 years of existence (Carter and Ortolano, 2000). As of Dec. 2017, NADB had financed and certified 244 projects, 113 along the U.S. side of the border, and 144 along the Mexican side. Today, more than 12 million border residents have improved drinking water services, and wastewater-treatment capacity has increased by 316 million gallons, 1,436.5 million litres) per day (NADB Director, personal communication, May 2018). The positive health impacts of these water and sanitation projects are clear to see. In El Paso County, for instance, the incidence of Hepatitis A dropped from 60.8 cases per 100,000 residents in 1995, the year following the NAFTA side agreement, to 2.8 cases per 100,000 residents (Hargrove and Del Rio, 2017). Despite this track record of success, federal support for environmental projects began to wane. BEIF grant monies, for example, declined by 90 percent by 2007. Ten years later, BEIF put water and wastewater needs at US$160 million—funds which could leverage US$400 million for construction costs. Available funds, however, had sunk to US$15 million (North American Development BEIF Fact Sheet, 2017).

Alongside this major drawdown in funding was a restructuring of BECC and NADB. Most significantly, in November of 2017, BECC was collapsed into NADB. With BECC no longer in existence, the model for funding, according to both the EPA engineer and NADB official, has shifted as well. "What we're trying to do more and more of is trying to help communities be more independent of grants and to focus more on loans", according to the NADB official. "An SRF loan is like a mortgage. It's the best kind of loan you can have. It's long-term. It's pretty easy on your cash flows, and it can help your credit rating. So, we're trying to move that way." Additionally, the NADB official stated that the organization has expanded and refocused its portfolio. No longer does NADB place emphasis on funding water projects; rather, the bulk of the organization's lending is "most heavily spent in renewable energy", according to the NADB official. Why, when water projects have a proven positive impact on public health and needs for water projects currently outpace available funding, would NADB shift focus to renewable energy? The NADB official explained that it was a matter of cost, keeping the bank in good financial standing, and targeting the private sector with lending: "The loan programs in the Bank were much more competitive in those sectors, which is private-sector project-finance structuring. So, we're talking about projects earning enough money to pay back the debt. (For) water and wastewater—it's more tricky [stet]."

These statements underscore the logic of a neoliberal political ecology at work in the restructuring of border environmental institutions. First, though the merger of BECC and NADB was billed as an effort to "streamline" operations, it remains the case that one of the "most consequential" institutions for environmental-infrastructure projects has been effectively folded into another. The downsizing or removal of social and/or environmental public institutions is a hallmark of a political ecology of neoliberalism. Second, as NADB shifts from grants to loans, the financial burden for repaying financed debt, in many cases, transfers to the residents themselves. Third, the NADB official outlined a restructuring program whose stated goal was to move away from public-water projects and more toward funding private-enterprise renewable energy projects. In doing so, the NADB engages in a neoliberal transfer of wealth from a public institution to private enterprise. In these ways, the restructuring of BECC/NADB demonstrates the extent to which neoliberal thinking has influenced two major cross border environmental institutions.

Meanwhile, water-project financing at the state level bears similar neoliberal markings. State-sourced EDAP funding follows a similar downward trajectory to that of finances funneled through federal programs. Established in 1989 to provide first-time sewer and water services to "economically distressed" areas, the EDAP program directed US$740 million in bond funds for water and sewer projects over the course of nearly three decades. By 2018, however, the Texas Water Development Board had tapped out its bonding authority for all US$740 million, leaving the program's water-project coffers empty (Texas Senate Research Center, 2019). The Texas Water Development Board nonetheless calculated some US$71 million were still needed for ongoing construction costs. An additional US$360 million were needed for future projects to serve economically distressed communities without adequate water access (Texas Water Development Board Economically Distressed Areas Program FAQ, 2019).

In an effort to meet those needs, Texas lawmakers from El Paso County introduced an amendment to the state constitution that would grant the Texas Water Development Board authority to seek another US$200 million in bonds for EDAP. During an October 2019 presentation on the proposition, Texas Senator José Rodríguez described a situation in which legislators were wrangling over how much funding should flow into the cash-strapped EDAP program. "We were asking for US$400 million to fund the EDAP program", he said. "The 'powers that be' only wanted to give us US$50 million." Opponents of the proposition wanted it to fail, Sen. Rodríguez stated, because they were reluctant to raise taxes to fund water projects and favored "small government." Through negotiations, Sen. Rodriguez and others were able to increase the amount asked for on the ballot to US$200 million. Texas voters approved those funds in the November 2019 elections. However, as positive as this development was, US$200 million amounts to less than half of the more than US$430 million in estimated needs.

Considering comments made by state representatives alongside gutted environmental-infrastructure spending, one can discern the oppressive "invisible hand" of neoliberalism at work in the borderlands. In large part, this hand reveals itself through a neoliberal regime that favors limited government and abhors any form of restraint that might diminish a profitable niche or curtail a market. Instead, as Staudt (2017, p. 317) explains, "an ideology of individual responsibility prevails in the United States, and especially in Texas, relegating responsibility for health problems to individual behavior, not to public policy or business causes, thus burdening the impoverished."

At this final juncture, it is important to keep in view the fact that these high-level arguments, these decisions made at state and federal levels, manifest in material suffering in places like Cochran Mobile Park. As has been stated, decision-makers at the local level pointed to lack of funds as the primary impediment to the community receiving water services. Thus, a direct line can be drawn between a politics of small government and individual responsibility and the US$240 water bills, the embodied stress and pain, and the sentiments of resentment expressed by Cochran residents.

10. Conclusion

Given the importance of clean, reliable access to water and sewer services—held as basic human needs to which all people, irrespective of socioeconomic standing, have fundamental rights (Gleick, 1998)—these findings underscore an urgency for re-thinking the ways in which society organizes relationships within the hydrosocial waterscape. By viewing water and sewer access as a series of relationships, this article discerns the extent to which institutions, markets, populations, geography, and politics thread together into complex webs that ensnare communities in conditions of water insecurity. Power struggles over water-service projects manifest in the words, speeches, argumentation, and rationalizations made at community, local, regional, state, and federal levels. By paying attention to the content of the communication itself, political ecologists can illuminate threads connecting webs of power.

In Cochran Mobile Park, we find evidence for an infrastructural water vacuum, a place where—despite decades of protest—residents have been incapable of mounting sufficient political pressure to receive a water project. Building from the work of Anand (2011), Storey (2021), Jepson and Brown (2014), and von Schnitzler (2008, 2013), I have argued that the need to exert this particular type of political pressure is the socio-material fallout of a normalized neoliberal process. In order to constitute themselves as citizens worthy of water services,

Cochran residents are told they must surmount a set of insurmountable barriers. They must exist within a water-district jurisdiction, yet they are told repeatedly that they reside within a "donut hole." They are told that a water project is too costly just as state and federal lawmakers preside over budget cuts for key water infrastructure projects, thereby devaluing their existence as a constituency and their rights to clean, reliable water. They are promised by decision-makers that water will come soon, yet the project to bring it is set on an ever-receding horizon. These interrelationships between the hydrosocial waterscape and neoliberal abandonment help us discern the particular type of infrastructural violence experienced by many *colonias* in the U.S.-Mexico borderlands.

Findings presented here thus offer grounds for reconceptualizing relationships within the hydrosocial cycle, a reorientation that could occur at multiple scales. At the decision-maker level, new policies could flexibly adapt to the needs of *colonias* that lack basic services, placing emphasis on the concerns and desires of residents themselves, and focusing on water as a basic human right. Institutional rigidity arose time and again as a major barrier to water access in Cochran. This was evident in the water project's price tag, a cost contested by residents, but presented by decision-makers as inviolable. In the midst of this debate, a different water utility, the Lower Valley Water District, took an interest in the project and produced engineering plans that reduced the original project-cost estimate by about US$1.1 million. Cochran residents, in other words, were right all along. And yet the stark injustice is that it took more than 30 years for them to prove it. To this day, they still lack basic water services. In light of these facts, one can't help but wonder. How many more of the thousands of *colonias* households along the U.S.-Mexico border remain unserved because of similarly strict ranking criteria, artificially inflated project budgets, jurisdictional "donut holes", and so on? Adaptive policies that make water and sewer access the number-one priority, above arbitrary jurisdictions or engineering standards, could help bring more people out of water insecurity.

Lastly, these results show how low-income border populations in general have been neglected by an unjust neoliberal political economy that favors small government and big industry. *Colonias* proliferated in the first place as a consequence of the absence of regulations that would have required developers to include basic services in their development projects. The NAFTA side agreement discussed above attempted to address environmental issues with added binational institutional capacity and a burst of funding in the 1990s. Such funding was attached to an otherwise neoliberal trade agreement, resulting—paradoxically—in significant environmental infrastructure investment. These investments had positive, demonstrable impacts on public health (see Mumme and Collins, 2014; Hargrove and Del Rio, 2017). Even at inception, however, they fell short of what border states and communities said they needed to offset the adverse environmental and health impacts that would inevitably usher from escalating binational trade relations (Gilbreath, 1992).

Moreover, after several years of insufficient investment in environmental-infrastructure programs, funding for environmental projects has entered a prolonged period of decline, culminating in the Trump White House's attempts to zero-out funding for key water-infrastructure programs financed through the EPA. This governmental retreat from environmental-infrastructure funding, mirrored at state and federal levels, has occurred in inverse proportion to the rapid, intensive industrialization of the border, which continues unfolding to this day. Industrialization attracts growing populations and breeds dangerous environmental conditions, such as those evident in air pollution and water contamination. These conditions are felt most acutely by people along the border who cannot afford to insulate themselves from industrialization's "negative externalities." Many such vulnerable populations reside in *colonias* on either side of the political boundary. This article thus presents reasons for why this neoliberal political ecology should be reformed. To the extent that border processes of industrialization and migration condense vulnerable populations and environmental problems along the U.S.-Mexico boundary, there should, at the very least, be commensurate environmental programs and regulations to protect the shared air, land, water, and communities that collectively comprise "the borderlands."

Bibliography

Anand, N. (2011). Pressure: the polytechnics of water supply in Mumbai. *Cultural Anthropology,* 26(4), 542-563. https://doi.org/10.1111/j.1548-1360.2011.01111.x

Cardenas, V. M., Mena, K. D., Ortiz, M. O., Karri, S., Variyam, E., Behravesh, C. B., Snowden, K. Y., Flisser, A., Bristol, J. R., Mayberry, L. F., Ortega, Y. R., Fukuda, Y., Campos, A. & Graham, D.Y. (2010). Hyperendemic H. pylori and Tapeworm infections in a U.S.-Mexico border population. *Public Health Reports,* 125(3), 41-447. http://doi.org.10.1177/003335491012500313

Carter, N. & Ortolano, L. (2000). Working toward sustainable water and wastewater infrastructure in the US-Mexico border region: A perspective on BECC and NADBank. *International Journal of Water Resources Development,*16(4), 691-708. http://10.1080/713672541

Chatterjee, P. (2008). Democracy and economic transformation in India. *Economic and Political Weekly,* 43, 53-63

County of El Paso. (2016). TX CDBG survey questionnaire.

Davidhizar, R. & Bechtel, G. A. (2002). Health and quality of life within *colonias* settlements along the United States and Mexico border. *Public Health Nursing,* 16(4), 300-305.

Farmer P. (2004). An anthropology of structural violence. *Current Anthropology,* 45(3), 305–325. http://https://doi.org/10.1086/382250

Fernandez-Kelly, M. P. (1984). *For we are sold, I and my people: Women and industry in Mexico's frontier.* State University of New York Press.

Gezon, L. L. (2005). Finding the global in the local: Environmental struggles in northern Madagascar. In Paulson, S. and L.L. Gezon (Eds). *Political ecology across spaces, scales, and social groups* (pp. 135-153). Rutgers University Press.

Gilbreath, J. (1992). Financing environmental and infrastructure needs on the Texas-Mexico border: Will the Mexican-U.S. integrated border plan help? *Journal of Environment & Development,* 1(1), 151-175 https://doi.org/10.1177/107049659200100110

Gleick, P. (1998). The human right to water. *Water Policy,* 1: 487-503.

Good Neighbor Environment Board. (2017). *Environmental quality and border security: A 10-year retrospective.* [Accessed June 3, 2020]

Han, C. (2012). *Life in debt: Times of care and violence in neoliberal Chile.* University of California Press.

Hargrove, W. L. & Del Rio, M. (2017). Water matters: A retrospective health impact assessment (HIA) of water and sanitation infrastructure in Socorro and San Elizario, TX. [Accessed on June 10, 2020]. Report prepared for the Lower Valley Water District.

Hargrove, W.L., Del Rio, M., and Korc, M. (2018). Water matters: Water insecurity and inadequate sanitation in the U.S./Mexico border region. *Environmental Justice,* 11(6), 222-227 https://doi.org/10.1089/env.2018.0022

Hargrove, W.L., Holguin, N., Tippin, C.L., & Heyman, J. M. (2020). The soft path to water: A conservation-based approach to improved water access and sanitation for rural communities. *Journal of Soil and Water Conservation,* 75(2), 38A-44A. https://doi.org/10.2489/jswc.75.2.38A

Harvey, D. (2007). Neoliberalism as creative destruction. *The Annals of the American Academy of Political and Social Science,* 610(1), 22-44.

Ingram, H.M. & Fiederlein, S. L. (1988). Traversing boundaries: A public policy approach to the analysis of foreign policy. *The Western Political Quarterly,* 41(4), 725-745.

Jepson, W., Budds, J., Eichelberger, L., Harris, L., Norman, E., O'Reilly, K., …Young, S. (2017). Advancing human capabilities for water security: A relational approach. *Water Security*, 1, 46-52, https://doi.org/10.1016/j.wasec.2017.07.001

Jepson, W. and Brown, H.L. (2014). 'If no gasoline, no water': privatizing drinking water quality in South Texas colonias. *Environment and Planning,* 46, 1032–1048.

Jepson, W. (2014). Measuring 'no-win' waterscapes: Experience-based scales and classification approaches to assess household water security in *colonias* on the U.S.-Mexico border. *Geoforum,* 51, 107-120.

Jepson, W. and Vandewalle, E. (2015). Household water insecurity in the global north: A study of rural and periurban settlements on the Texas–Mexico border. *The Professional Geographer*, 68(1), 66-81 https://doi.org/10.1080/00330124.2015.1028324

Johnston, B.R. (2003). The political ecology of water: an introduction. *Capitalism Nature Socialism,* 14(3), 73-90.

Martinez, O.J. (2018). *Ciudad Juarez: Saga of a legendary border city.* University of Arizona Press.

Mumme, S. & Collins, K. (2014). The La Paz Agreement 30 years on. *Journal of Environment and Development,* 22(3), 303-330. https://doi.org/10.1177/1070496514528801

North American Development Bank. (2017 October). U.S-Mexico border water infrastructure program: Addressing critical water supply and sanitation needs.

Plumer, D. & C. Davenport. (2019). Science under attack: How Trump is sidelining researchers and their work. *New York Times*, December 28.

Ramseur J. L. & M. Tiemann. (2018). Water infrastructure financing: History of EPA appropriations. *Congressional Research Service*. [Accessed January 2019] https://fas.org/sgp/crs/misc/96-647.pdf

Robbins, P. (2012). *Political ecology: a critical introduction*. Wiley-Blackwell.

Rodgers, D. & B. O'Neill. (2012). Infrastructural violence: Introduction to the special issue. *Ethnography,* 12(4), 401-412. https://doi.org/10.1177/1466138111435738

Staudt, K. (2017). Neoliberal regimes, research methods, local activism: Border Steel, environmental injustice, and health in a Texas-Mexico border *colonia*. In Vélez-Ibáñez, C. and Heyman, J. M. (Eds.). *The U.S.-Mexico transborder region: Cultural dynamics and historical change.* University of Arizona Press.

Stewart, R., Neuman, A., Detwiler, B., Rounsavall, M., Brown, P., Gonzalez, R., Hunter, H., Pearson, M., Morales, O., Johnson, J., & Barnes, A. (2005). U.S.-Mexico border needs assessment and support project: Phase II assessment report. *Rural Communities Assistance Partnership.* Submitted to U.S. Department of Agriculture, Rural Development July 30, 2015

Storey, A.D. (2021). Implicit or illicit? Self-made infrastructure, household waters, and the materiality of belonging in Cape Town. *Water Alternatives,* 14(1), 79-96.

Sultana, F. (2011). Suffering for water, suffering from water: Emotional geographies of resource access, control and conflict. *Geoforum,* 42, 163–172.

Swyngedouw, E. (1997). Power, nature, and the city: the conquest of water and the political ecology of urbanization in Guayaquil, Ecuador: 1880–1990. *Environment and Planning, A* 29(2), 311-332. https://doi.org/10.1068/a290311

Texas Legislative Budget Board. (2016). Economically Distressed Areas Program: An issue brief from the legislative budget board staff. [Accessed on June 3, 2020] https://www.lbb.state.tx.us/Documents/Publications/Issue_Briefs/3120_EDAP_Funding.pdf

Texas Senate Research Center. (2019). EDAP bill analysis. [Accessed on June 3, 2020] https://capitol.texas.gov/tlodocs/86R/analysis/pdf/SJ00079F.pdf#navpanes=0

Texas Water Development Board. (2019, September 11). Economically Distressed Areas Program FAQ. [Accessed on June 5, 2020] http://www.twdb.texas.gov/financial/programs/edap/doc/EDAP_FAQ.pdf

Tippin, C. (2021). The household water insecurity nexus: Portraits of hardship and resilience in U.S.-Mexico border *colonias. Geoforum*, 124, 65-74. https://doi.org/10.1016/j.geoforum.2021.05.019

Truelove, Y. (2011). (Re-)Conceptualizing water inequality in Delhi, India through a feminist political ecology framework. *Geoforum,* 42, 143-152. htto://doi.org/10.1016/j.geoforum.2011.01.004

Von Schnitzler, A. (2008). Citizenship prepaid: Water, calculability, and techno-politics in South Africa. *Journal of Southern African Studies*, 34(4), 899-917, http://doi.org/0.1080/03057070802456821

Von Schnitzler, A. (2013). Traveling technologies: Infrastructure, ethical regimes, and the materiality of politics in South Africa. *Cultural Anthropology*, 28(4), 670–693. https://doi.org/10.1111/cuan.12032

Walsh, C. (2012). Water infrastructures in the U.S./Mexico borderlands. *Ecosphere,* 4(1), 8. http://doi.org/10.1890/ES12-00268.1

Ward, P. (1999). *Colonias and public policy in Texas and Mexico: Urbanization by stealth*. University of Texas Press.

Wescoat, J.L., L. Headington, and R. Theobold. (2007). Water and poverty in the United States. *Geoforum,* 38, 801–814.

Wutich, A. and K. Ragsdale. (2008). Water insecurity and emotional distress: Coping with supply, access, and seasonal variability of water in a Bolivian squatter settlement. *Social Science and Medicine,* 67(12), 2116-2125. https://doi.org/10.1016/j.socscimed.2008.09.042