Mobilizing Health Metrics for the Human Right to Water in Flint and Detroit, Michigan

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Abstract

The ongoing water crises in Detroit and Flint, Michigan, offer dramatic cases of retrogression in realizing the human right to water—particularly striking in a region that enjoys access to one-fifth of the world's freshwater and a country that has historically enjoyed near-universal access to water and sanitation. Efforts to secure safe, sufficient, affordable, acceptable, and accessible water in these cities reveal a troubling inability to protect the human right to water through legal measures. Compounding the challenge is the lack of reliable government data on the scope and impacts of the water crises—a void that residents have organized to fill. Activists have engaged a number of citizen-led research projects to demonstrate the health impacts of unsafe and unaffordable water. This paper discusses the process and potential of such projects to advance the substance of the human right to water in the United States, considering their effects within and outside the law. These research efforts have significant methodological and legal constraints with respect to widespread water insecurity, exposing a serious vulnerability in communities' ability to protect drinking water and public health in the United States through legal means. However, drawing on Amartya Sen's theory of human rights, I elaborate the extra-juridical powers of human rights, emphasizing their power to galvanize action and articulate ethical demands. Citizen science is a powerful mode of engaging residents in the articulation—and quantification—of those human rights demands, as I demonstrate with local cases.

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Introduction

Water is a non-substitutable resource that is vital for biological, economic, and social life. As such, the human right to water and sanitation represents one of the most fundamental human rights claims in international law, though its interpretations and implementation strategies differ across the globe. In the United States, citizens enjoy near-universal connection to safe drinking water but have no legal right to receive water. The ongoing water crises in Detroit and Flint, Michigan offer dramatic cases of retrogression in realizing the human right to water, and reveal a troubling inability to secure safe, sufficient, affordable, acceptable, and accessible water through legal appeals. These retrogressions raise the need to examine the practices in place for ensuring water for all.

Michigan, like many states in the industrial American Midwest, has suffered serious economic devastation since the 1980s, with the decline of the automobile industry and the rise of globalization. Though the water crises in Flint and Detroit appear in different forms, they emerge from shared economic history and political decision-making. Just 70 miles apart, Detroit and Flint have become epicenters in the ongoing struggle for the human right to water in the United States, though unfortunately they represent wider challenges to water security. As of January 2019, more than 70 public drinking water systems in Michigan alone have higher levels of lead than Flint.[1] Moreover, experts estimate that the percentage of US households unable to afford water could top 35% by 2020—a threefold increase in five years.[2] The contamination of Flint's water system and the mass water shutoffs exercised in Detroit both represent violations of the human right to water, a framework that residents have embraced in their legal and organizing strategies.[3]

Residents of both cities have turned to community-led health research to demonstrate the severity of these violations and advocate for the fulfillment of the human right to water. I address how these health-based strategies might work to realize water security around and within the normative global framework of the human right to water and existing US laws governing drinking water and public health.[4] I ask: Is there a role for health claims in advancing the international human right to water given a national legal context that does not recognize this right as such?

This question has reverberations for impacted communities across the country, and requires a layered consideration of how human rights claims, and the evidence used to support them, operate in and outside the law. Indeed, human rights, as Amartya Sen has consistently argued, are ethical as well as legal demands, and achieving them requires more than making new laws.[5] Realizing the human right to water demands the substantive fulfillment of the right and not just its recognition in name. Here, that may involve making new data.

This paper draws on ethnographic data gathered during eight months of fieldwork over two years in Detroit and Flint, Michigan, from March 2015 to February 2017. I describe how residents' use of community-based health research supports their human right to water. Citizen science offers supporting evidence of violations, concretizing the ethical stakes for community members and observers alike. It also empowers residents to hold the state accountable from the "bottom up"—not only to the letter of its own laws, but to the ethical standard that the human right to water demands.

Although the right to health and the right to water are highly interrelated in human rights law, health claims have limited purchase on securing safe and affordable water in the United States. I illustrate this as a function of methodological limitations, as well as legal and political constraints. By making the consequences of water denial salient in quantifiable terms, this research may support specific *retroactive* legal recourse, as many residents hope. I suggest that although this legal recourse does not prevent violations of the human right to water, pursuing damages through injury law may provide a financial deterrent to compel states to extend drinking water protections. I conclude by arguing that residents' use of health evidence and human rights claims exceeds this narrow legal space by encouraging recognition and action as Amartya Sen's writings suggest, drawing upon a

"social ethics" that exceeds the juridical instrumentality of the human right to water.

The right to water in the United States: A principle without a prescription

It was not until 2010 that the United Nations (UN) established the human right to water and sanitation, despite the centrality of water to the realization of all human rights, and to sustaining life itself.[6] Previously, the human right to water was encompassed within two rights outlined by the International Bill of Human Rights: the right to life and the right to health. The right to life requires states to support "appropriate means of subsistence," ensuring a bare minimum quantity and quality of water as necessary to survival. Under the right to health, defined as the obligation to promote and protect the "highest attainable standard of health," the right to water could be interpreted more expansively, raising safety standards and including water for domestic and hygienic use.[7] This was further clarified in General Comment 15, a non-binding statement affirming the relationship of a right to water to existing economic, social, and cultural human rights, and outlining its dimensions: "The human right to water entitles everyone to sufficient, safe, acceptable, physically accessible and affordable water for personal and domestic uses." These five normative criteria each have specific standards established by the UN and World Health Organization (WHO).

With the passage of resolution 64/292 in 2010, the UN established a binding framework that clarified the specific obligations of states and entitlements of all persons with respect to water and sanitation as an independent human right.[8] The framework also created an international mechanism of accountability for states that violate the human right to water. In practice, the ability of the UN Human Rights Council to compel states to comply with their human rights obligations varies widely. Delivering water and sanitation is an intensive infrastructural project, and many nations struggle to synchronize the political, economic, and social capital needed to respect, protect, and fulfill those obligations.[9]

The human rights framework allows for the "progressive realization" of the right to water, although some fear this may serve as a loophole that developing nations can use to evade making material gains in securing water for all.[10] The corollary to progressive realization is the principle of "non-retrogression," which prohibits nations from moving backwards in their realization of the human right to water. Detroit's mass disconnections offer one of the most striking examples of retrogression in the right to water. Caterina de Albuquerque, UN Special Rapporteur on the right to safe drinking water and sanitation, visited Detroit in 2014 and found the shutoffs to be in violation of the human right to water. She stated:

> *I've been to rich countries like Japan and Slovenia where basically 99 percent of population have access to water, and I've been to poor countries where half the population doesn't have access to water … but this large-scale retrogression or backwards steps is new for me.*[11]

The United States abstained from voting on UN Resolution 64/292 and has not ratified the International Covenant on Economic Social and Cultural Rights (ICESCR), from which the human right to water and sanitation is derived, thus refusing to be legally bound by the terms of the human right to water.

Domestically, the United States does not recognize a right to water for its citizens or residents. No such right exists in the US Constitution, nor is it justiciable in the courts.[12] Though there are several local and federal civil rights statutes under which water terminations could be challenged, the standards of proof are very high, requiring that a demonstration of discriminatory intent or impacts rests on "a tight causal connection between *statistical proof* of racially disparate impacts and the government policies."[13] Citing the situation in Detroit, legal scholar Sharmila Murthy has argued that the fundamental necessity of water to "life, liberty and the pursuit of happiness" justifies that access to water be considered what legal scholar Cass Sunstein calls a "constitutive commitment," worthy of constitutional protections through legislation.[14] Only California has passed a law affirming

the human right to water, in 2012.[15] Two others, Massachusetts and Pennsylvania, mention the right to water in their state constitutions.[16] In Michigan, no such legal provisions exist, leaving drinking water rights in abeyance as state-appointed officials orchestrate fundamental changes to the provision of water and wastewater services.

Only one of the five aspects of the human right to water—safety—is protected under US law. The United States has two primary federal regulations in place to protect residents (and wildlife) from contaminated water—the 1972 Federal Water Pollution Control Act (amended in 1977 and renamed the Clean Water Act) and the 1974 Safe Drinking Water Act. The Clean Water Act is designed to limit pollution of the nation's waters by regulating discharges, setting wastewater treatment standards, overseeing permits and licensing, and monitoring water quality compliance.[17] The Safe Drinking Water Act regulates drinking water quality for all public water systems in the United States, with the lead and copper rule issued pursuant to the SDWA in 1991.[18]

Notably, these laws protect water access through 'negative' rights—freedom *from* toxic exposure to harmful contaminants—but does not commit the United States or any state or local government to any 'positive' right *to* safe water. However, they remain the strongest legal protections for drinking water in the US, in large part because they are quantifiable and have justiciable legal avenues for redress. This enforcement is dependent on consistent regulation and good data—state responsibilities that were betrayed to disastrous effect in Michigan.

These legal architectures matter a great deal in the story of Detroit and Flint's water crises, and they also go some way toward explaining why communities organized themselves to support their human rights-based claims with quantitative metrics. Residents have protested excessive pollution, rising rates, and other limitations on water access for years through electoral and legislative means to minimal effect. Instead, the appeal to human rights operates as a powerful "idiom of social justice mobilization," to borrow anthropologist Sarah Willen's term, which places these crises strategically in global perspective.[19] By situating denials of safe and affordable water within international human rights, Michiganders seek to elevate the moral force of their appeal above the constraints of local politics or domestic law. They tie their struggles to a global paradigm that views water as a central imperative of economic development, gender equity, and health.

Amartya Sen has argued that, despite the strong synergy relating human rights to law, human rights are incompletely, if not mistakenly, understood as legal instruments. Human rights claims, he argues, "are best seen as articulations of social ethics" that produce effects through extra-legal routes as well as legal ones. For example, human rights may activate a "recognition route" that points out denials of fundamental human freedoms and galvanizes concerted organization to resist them.[20] In Michigan, the UN's declaration of the Detroit shutoffs as a violation of human rights has galvanized a swell of organized responses, including community-based health research.

From water security to water crisis

In 2015, a WHO/UNICEF joint report estimated that 99% of US residents have access to safely managed drinking water and 89.5% have access to safely managed sanitation.[21] Yet threats to this water security are emerging across the United States, disproportionately affecting poor, minority, and rural communities. Many factors threaten US water security, including aging infrastructure, dwindling federal financing (from 78% of municipal sewer infrastructure in 1978 to just 5% today), increased private bottling of public groundwater, emerging contaminants from hydraulic fracturing, climate change-related water disasters, southern drought, and demographic changes, to name a few.[22]

The Detroit Water and Sewerage Department (DWSD) has been particularly imperiled since the city declared bankruptcy in 2013. The financial and political restructuring of DWSD—which serves 40% of Michigan's population across 126 municipalities (nearly 4 million people)—has had serious

ripple effects on water security in the region. Rather than renew its contract with DWSD, the city of Flint, under a state-appointed emergency manager, began to source the city's water from the Flint River in 2014—but refused to budget for safe treatment. The result is the continued exposure of Flint residents to dangerous levels of lead and other harmful contaminants, as well as at least 12 deaths from one of the largest *Legionella* outbreaks in US history.[23] UN rapporteurs have rightly pointed out that there are potential violations here not only of the right to water, but also of the rights to housing, life, and the integrity of the family.[24]

In Detroit, meanwhile, DWSD aggressively escalated residential shutoffs for nonpayment in an effort to recoup nearly $90 million in debt—without initially pursuing commercial accounts for back payments. In 2015 alone, 23,883 households—an estimated 64,000 people—lost water service in Detroit.[25] Though the disconnections were deemed a violation of the international human right to water by the UN and a public health crisis by National Nurses United, it has not been deemed a justiciable violation in the US legal context.[26] The practice continues today.

Globally, one of the major barriers to implementation of the human right to water has been the lack of reliable and effective monitoring data.[27] Having better data is correlated with better access to water.[28] Locally, data issues have ranged from overt manipulations of scientific evidence to withholding of records or failure to commission health impact assessments of these dramatic changes. This is particularly problematic in the US context where scientific certainty is used as a legal barrier to relief and redress, as opposed to the European Union's "precautionary principle" in which "scientific uncertainty" is a trigger for study and regulation on the part of nation-states.[29] In their human rights review, UN rapporteurs chided Detroit for this failing, noting that "the city has no data on how many people have been and are living without tap water, let alone information on age, disabilities, chronic illness, race or income level of the affected population."[30] In the following section, I focus on those projects that sought to generate data in the absence of credible, public information about the water crises in spite of foreclosed legal protections of the right to water.

Data from the ground up: Citizens study the water crises

Each of the five criteria of the human right to water was violated following the restructuring of water services in Detroit and Flint under emergency management, as residents repeatedly attest. Their anecdotal accounts structure local knowledge and practice about the water but are often met with official denials.[31] In this section, I recount some of the community-based research projects organized to quantitatively demonstrate the health impacts of these human rights violations. These "citizen science" projects are pursued alongside many modalities of protest and persuasion in the effort to achieve the human right to water, but I focus on the unique role of health research, as a scholar and activist engaged in this aspect of the work.

Use of community-based participatory research (CBPR) in Flint has by now widely demonstrated the power of quantification to validate the anecdotal claims of residents affected by poor water quality. In the early months of the water crisis, several open-source databases were created for residents to upload results of their blood tests or water lead levels. Partnership with academic researchers allowed these investigations to be conducted systematically and backed the findings with institutional credibility.[32] Two studies in particular garnered immense attention: a water quality study of Flint households initiated by Dr. Marc Edwards of Virginia Tech and Flint resident Lee Ann Walters, and a retrospective cohort study examining blood lead levels among Hurley Hospital pediatric patients by Dr. Mona Hannah-Attisha. Within weeks of the results emerging, a state of emergency was declared to address water rights violations that had been dismissed for more than two years.

Subsequent investigations in Flint have revealed that the Michigan Department of Environ-

mental Quality (MDEQ) was deliberately skewing the results of routine measurements in order to keep the city's water below the federal "action level" for lead.[33] These subtle, covert alterations enabled the state to ignore the health risks posed by Flint's drinking water for over two years, and raise serious questions about the reliability of data produced by those responsible for fulfilling the human right to water. At least 33 cities across 17 states have used the same water testing "cheats" to evade regulations.[34] Despite much attention, the water in Flint is still suspected to be unsafe, and no generalized protections have been implemented, aside from a slight lowering of the "action threshold" for lead at the state level.

Edwards has become one of many vocal critics of the politics of data production about water safety, arguing that the "top-down research model" is inherently dangerous to scientific integrity and public life when the funder—the government—is also responsible for the outcomes.[35] Instead, CBPR works outside of, or adjacent to, the state in order to produce data from the "bottom up," at some distance from the party responsible for water delivery. CBPR engages people as subjects, not just objects, of health studies and directs resources and attention to the priorities of community concern.[36] At its best, CBPR engages locals throughout the entire research process and includes an equitable distribution of credit and reward between institution- and community-based researchers. At its worst, CBPR siphons local expertise and energies, misrepresents community interests, or creates additional burdens. As media pressures have intensified, Edwards himself has become a charged figure in ongoing debates among scholars and practitioners about the complex power dynamics of citizen science.

With state science proving absent or suspect due to "top-down" political manipulation, nonetheless citizen science projects offer a powerful means of articulating the human right to water, showing the empirical stakes of the ethical demand. I now turn to Detroit, where I engaged in CBPR projects directed by a grassroots organization called We the People of Detroit.

In 2015, We the People of Detroit convened activists, professors, students, and volunteers into a Community Research Collective (CRC) to document the political and racial implications of the water shutoffs. The collective emerged as a response to the withdrawal of transparency and accountability on the part of the state, as Dr. Gloria House expresses: "Detroit community activists recognize that the water crisis and the other destabilizing policies…are leading to the erasure of our communities," she writes, "…but when we assert that reality, our perceptions are viewed by many as extremist. For that reason, we have sought data with which to measure our perceptions."[37] Recognizing the power of research to legitimate local claims, organizers have relied on citizen science to make their human rights claims visible: "[I]t's not about *if* our human rights are being violated," said one activist, "but about how much!"[38]

At a meeting with the Detroit Health Department, the director told our group that while the department did not have the money, nor the political clout, to investigate the health impacts of water shutoffs in the city, it would offer support if the community could "bring us the data."[39] The director made clear that "data" in this context meant quantitative, statistically significant findings based on a random sample—typically very expensive and time-consuming criteria.

To perform a city-wide survey of health needs in the wake of water shutoffs, our research collective adapted the methodology of a Centers for Disease Control and Prevention (CDC) toolkit called the Community Assessment for Public Health Emergency Response (CASPER).[40] Because the toolkit was designed for use in disaster settings, it outlines a rapid and inexpensive survey method that is nonetheless statistically representative and reliable. We assembled more than 40 volunteers over a 15-month period to canvass randomly selected city blocks. Our study documented several cases of health issues stemming from water disconnections, but we did not have the statistical power to extrapolate widely from these. We found what researchers worldwide know: that the nature of water insecurity

is multi-dimensional and, in many respects, resists quantification.[41] Moreover, the study was limited by the constraints of a random sampling method in a high-vacancy city, and the structure of cyclical, intermittent disconnections.[42]

Still, the research achieved important symbolic, social, and statistical objectives. Residents' adaptation of this toolkit symbolized the ethical stakes of what many consider a "man-made disaster," as well as their disbelief in public officials organizing a sufficient response to this public health emergency. The research project also became an organizing tool for social advocacy, as volunteers spread the word about the slate of advocacy efforts to support the human right to water. Statistically, although it could not sufficiently demonstrate causality, the research nonetheless established representative assessment of significant health vulnerabilities across the city. In doing so, it offered empirical support for recommendations advocating for the right to water as a matter of policy, not law. This includes the Wayne County Population Health Authority's call for a moratorium on water shutoffs for medically vulnerable groups, a call in accordance with international human rights principles of non-discrimination and protection of marginalized groups.[43] Based on our CASPER study, we estimated that 80% of Detroit households would be exempt from shutoffs if such a moratorium were implemented.[44] These striking findings were shared with the city council, the mayor's office, DWSD, and other state agencies, to no effect. One activist, a nurse herself, reported anecdotally that the mayor laughed off the findings, chuckling that if the vulnerable were exempted, there would be no one left to disconnect.[45]

In another study, the CRC partnered with the Global Health Institute at Henry Ford Hospital to conduct a geographic assessment of the impacts of shutoffs on water-related illnesses. With Henry Ford's internal patient data and a roster of DWSD shutoffs received through Freedom of Information Act (FOIA) disclosures, the team was able to show a significant, bidirectional relationship between water shutoffs and health impacts at a block by block level. Between January 2015 and February 2016, patients who were diagnosed with a water-associated illness were 1.42 times more likely to have lived on a block that had experienced a water shutoff. Those who lived on blocks that experienced a shutoff were 1.55 times more likely to have been diagnosed with a water-related illness.[46] The results of the study were to be shared at a press conference that was abruptly cancelled, leaving some to speculate that the mayor's office may have pressured the hospital to downplay the findings, emphasizing that causation could not be proven.[47] We the People of Detroit nevertheless printed a summary flyer that was distributed to residents, discussed in "listening sessions" and shared at both academic and activist meetings. This data was later cited in journalism, philanthropy, and nonprofit reports on the water shutoffs, lending empirical validation and message amplification to residents' human rights claims. The institutional suppression of these findings also reflects on their power to tie the moral force of human rights claims to scientific evidence that can pressure governments to act, even if their current policies are legal.

Metrics in court: Pursuing legal strategies for water security

Several lawsuits have been filed regarding the water crises in Flint and Detroit, providing some preliminary insight into the potential for using health impact data to legally secure water for all.

A major challenge for ensuring the right to water through health metrics is that only some of the normative principles are readily available to existing mechanisms of quantification and thus accountability—as our experience with the CASPER well demonstrates. This structure proves especially difficult where the human right to water is concerned because the impact of water insecurity is often better understood at the household or family level rather than the individual, rights-claiming person.[48] Moreover, the nature of the harms of water insecurity are often diffuse as they entail complex tradeoffs between health, money, digni-

ty, and time that may not manifest as measurable effects.[49] These methodological limitations inform the legal limitations of the role of health in securing the human right to water in Detroit and Flint.

The public health data generated from Detroit's community-based participatory research projects has not yet been tried in court, but an earlier ruling relating to the Detroit water shutoffs suggests that such data may not have legal purchase given that there are no constitutional rights protecting water. In 2014, residents filed an adversarial complaint during the then-ongoing bankruptcy proceedings, *Lyda et al. v. City of Detroit et al.*, seeking an injunction to halt the shutoffs, restore water service and compel DWSD to implement an affordability plan.[50] The city argued that official health department records failed to show that the water shutoffs were having a negative impact on public health. Arguably, there is a way in which the city of Detroit leveraged the absence of data in order to defend mass disconnections. The court, however, dismissed this argument, finding that "health department record compilations do not appear to be designed to measure the consequences of significant water service terminations in the City."[51] Yet even presuming irreparable harm to public health, the court held that "there is no constitutional or fundamental right either to affordable water service or to an affordable payment plan for account arrearages."[52]

By contrast, the suits underway regarding the Flint water crisis may find some traction because of the data quantifying the levels of toxicity in Flint's water and correlating this to measurable increases in blood lead levels. In January 2016, Flint residents filed two class action suits seeking damages resulting from the city's water contamination.[53] Among the legal charges levied is that the defendants violated substantive due process through an invasion of the fundamental right to bodily integrity. The scope of legal redress available to residents remains to be seen, but experts consider it unlikely that these tort cases will succeed, as the law requires a demonstration of "present, physical injury." Although the data is able to correlate the poor-quality water to lead exposure, it is difficult to definitively tie this to injuries, as the physiological and psychological effects of lead emerge differently over the life course. This makes it difficult to substantiate in court, even though lead is known to be a potent, irreversible toxin.

The limitations of US law, the diffuse impacts of water insecurity, and the pressure to produce representative, scientific evidence of "present"—particularly with overt government failures to do so—constrain the ability to advocate for safe and affordable water in Michigan, and to realize the ideals of the human right to water. And yet this has not deterred local efforts to collect such data or demand their human rights. In so doing, they echo Sen's contention that human rights should not be bound by what is achievable under current conditions; instead, they express "the need to work towards changing the prevailing circumstances to make the unrealized rights realizable, and ultimately, realized."[54]

Conclusion

In the United States, recent demographic, financial, and infrastructural challenges threaten the water security of residents in many cities, despite having previously met international standards. The contamination of Flint's water system and the mass water shutoffs exercised in Detroit represent dramatic violations of the human right to water precipitated by political and financial restructuring of water services. These are unprecedented retrogressions in the human right to water, and they may only be harbingers of more to come.

I have shown here that the United States' refusal to ratify the international human right to water, alongside the weak status of socioeconomic rights in the United States, constrains the legal route to securing the human right to water and sanitation for all. I have also shown that quantification studies may be limited methodologically in their ability to capture the complex scope of consequences stemming from violations of the human right to water. However, health evidence may still play a unique role in protecting the human right to water, most significantly by supporting ethical demands, poli-

cy recommendations, and local organizing efforts with robust, reliable data. The possibility of recovering from government malfeasance in drinking water provision is slim, though Flint residents' recourse to injury law may have an outside chance of deterring governments from taking such gross public health risks with respect to water provision. Despite this, health claims retain powerful political potential beyond the law when tied to human rights claims, which seek more than legal redress.

When asked about how to design research that can support a legal challenge to the city's water shutoffs, the CEO of We the People of Detroit was skeptical regarding the pursuit of legal protections: "Seems to me legal routes are the last resort because they usually take the longest and deal with the least," she cautioned. "What we're trying to do is build people power with statistical power… The goal is to inform, educate and empower the people who are most marginalized to live a full life."[55] The statement speaks to the ethical demand being made by residents not only to the human right to water as a matter of substance—achieving safe, sufficient, affordable, accessible, and acceptable water for all—but also as a matter of practice, enhancing the power and dignity of people in the process. CBPR, like human rights, works within and outside the law. Indeed, in this political and juridical environment, it may be more effective in the court of public opinion than in the court of law.

Human rights have demonstrated impact as more-than-legal tools. The amplification of human rights testimonies in media and film has helped foster a culture of respect for human rights the world over.[56] The slim literature specifically examining health litigation of human rights violations suggests that court decisions seldom set or interrupt state policy.[57] Rather, litigation inserts the language of rights into political discussions.[58] This literature suggests that even 'successful' litigation effects social change only when supported by protests, boycotts, and public campaigns.[59]

As ethical demands, human rights do not only affirm universal and already established values, Sen argues, but actively assert a claim to freedoms that can be achieved through coordinated action of responsible actors. What is universal about these claims, then, is not (only) that they invoke shared values, but that they compel all who share responsibility in securing that value into action. To this effect, Sen also asserts that human rights claims should expect to survive "open and informed scrutiny" in the public sphere. With the ethnographic evidence presented here, I have suggested that community-based health research empowers human rights claims by helping them stand up to public scrutiny in a political environment that has otherwise erased the evidentiary basis of continued denials of safe and affordable water in Michigan. While acknowledging the methodological and legal limitations of employing health metrics to secure water in the United States, I hope at the same time to have shown here that the power and possibility of community-based research in advancing the human right to water is not only real but also vital.

References

1. R. Fonger, "71 Michigan water systems now have higher lead levels than Flint," *MLive* (October 30, 2017). Available at https://www.mlive.com/news/flint/2017/10/71_michigan_water_systems_had.html.

2. EA. Mack, S. Wrase, "A burgeoning crisis? A nationwide assessment of the geography of water affordability in the United States," *PloS one* 12/1 (2017): e0169488.

3. S. Howell, M. Doan, A. Harbin, "Detroit to Flint and back again: Solidarity forever," *Critical Sociology* 45/1 (2019), pp. 63-83.

4. See M. Barlow, "Our right to water: a people's guide to implementing the United Nations' recognition of the right to water and sanitation," The Council of Canadians (2011). Available at http://www.right2water.eu/sites/water/files/righttowater-0611.pdf.

5. A. Sen, "Elements of a theory of human rights," *Philosophy and Public Affairs* 32/4 (2004), pp. 315-356.

6. UN Committee on Economic, Social and Cultural Rights, General Comment No.15 20/01/03 (29th session, Nov. 2002) The Right to Water (Arts 11 and 12 of the Covenant), E/C.12/2002/11 (hereafter referred to as GC15), Adopted Tuesday 26 Nov. 2002.

7. E. Bluemel, "The implications of formulating a human right to water," Ecology LQ 31 (2004), pp. 957-1005.

8. G.A. Res. 64/292, U.N. Doc. A/RES/64/292 (August 3, 2010); G.A. Res 64/PV.108, U.N. Doc. A/RES/64/PV.108 (July 28, 2010); Press Release, General Assembly, General Assembly Adopts Resolution Recognizing Access to Clean

Water, Sanitation as Human Right, By Recorded Vote of 122 in Favour, None Against, 41 Abstentions, U.N. Press Release GA/10967 (28 July 2010).

9. C. De Albuquerque, "Realizing the Human Right to Water and Sanitation: A Handbook by the UN Special Rapporteur," United Nations (2014).

10. C. Acey, "Hybrid governance and the human right to water," *Berkeley Planning Journal* 28/1 (2016), pp. 10-39.

11. L. Gottsendier, "UN officials 'shocked' by Detroit's mass water shutoffs," *Al Jazeera America* (October 20, 2014). Available at http://america.aljazeera.com/articles/2014/10/20/detroit-water-un.html.

12. E. Thor, "The human right to water in the United States: Why so dangerous?" *Global Business and Development Law Journal*, 26 (2013), pp. 315-341.

13. M. Davis, "Let justice roll down: a case study of the legal infrastructure for water equality and affordability," *Georgetown Journal on Poverty Law and Policy,* XXIII/3 (2016), pp. 355-393.

14. S. Murthy, "A new constitutive commitment to water," *Boston College Journal of Law & Social Justice* 36/159 (2016), pp. 159-233.

15. AB 685, ch. 524, 2012 Cal. Stat. 91 (Codified at Cal. Water Code § 106.3.

16. *See* Constitution of the Commonwealth of Massachusetts, art. XCVII. And Constitution of the Pennsylvania, Art. 1, sec. 27.

17. U.S.C. § 1251 *et seq.*

18. U.S.C. § 300f.

19. S. Willen, "Do 'ilegal' im/migrants have a right to health? Engaging ethical theory as social practice at a Tel Aviv open clinic," Medical Anthropology Quarterly 25/3, pp. 303-330.

20. A. Sen, "Human rights and the limits of law," *Cardozo Law Review* 27 (2005), pp. 2913-2927.

21. World Health Organization and UNICEF. 2015. "Progress on drinking water, sanitation and hygiene: 2015 update and MGD assessment," *WHO Press* (Geneva).

22. Food and Water Watch, "The State of Public Water in the United States," Food and Water Watch (Washington DC, 2016), pp. 1-20.

23. D. O. Schwake, E. Garner, O. Strom, et al. "*Legionella* DNA markers in tap water coincident with a spike in Legionnaires' disease in Flint, MI," *Environmental Science and Technology Letters* 3/9 (2016), pp. 311-315.

24. United Nations Office of the High Commissioner for Human Rights. 2016. "Flint: 'Not just about water, but human rights' – UN experts remind ahead of President Obama's visit (GENEVA, 3 May 2016)." Available at http://www.ohchr.org/EN/NewsEvents/Pages/DisplayNews.aspx?NewsID=19917&LangID=E.

25. K. Fried, "As Flint Residents Drank Poisoned Water, 20,000+ Detroit Households Lost Water Service Last Year," Food and Water Watch (2016). Available at https://www.foodandwaterwatch.org/news/flint-residents-drank-poisoned-water-20000-detroit-households-lost-water-service-last-year.

26. National Nurses United, "Nurses, activists cite public health emergency in Detroit water shutoffs," *National Nurses United* (July 17, 2014). Available at http://www.nationalnursesunited.org/press/entry/nurses-activists-cite-public-health-emergency-in-detroit-water-shutoffs/.

27. M. Langford and I. Winkler, "Quantifying water and sanitation in development cooperation: power or perversity?" Social Science Research Network (June 6, 2013). http://papers.ssrn.com/abstract=2278656.

28. Ibid.

29. T. Aven, "On different types of uncertainties in the context of the precautionary principle," *Risk Anal.* 31(2011), pp. 1515-1525.

30. UNHCR (see note 24).

31. H. L. Spiertz, "Water rights and legal pluralism: some basics of an anthropological approach," (presentation at Crossing Boundaries, the Seventh Biennial Conference of the International Association for the Study of Common Property, Vancouver, BC, Canada, June 10-14, 1998). Available at https://dlc.dlib.indiana.edu/dlc/handle/10535/1298.

32. A. Krings, D. Kornberg, and E. Lane, "Organizing under austerity: how residents' concerns became the Flint water crisis," *Critical Sociology* 00/0 (2018).

33. A.M. Barry-Jester, "What went wrong in Flint?" *Five Thirty Eight* (January 26, 2016). Available at https://fivethirtyeight.com/features/what-went-wrong-in-flint-water-crisis-michigan/.

34. O. Milman and J. Glena, "At least 33 US cities used water testing 'cheats' over lead concerns," *The Guardian* (June 2, 2016). Available at https://www.theguardian.com/environment/2016/jun/02/lead-water-testing-cheats-chicago-boston-philadelphia.

35. M Edwards and A Pruden, "The Flint water crisis: overturning the research paradigm to advance science and defend public welfare," *Environmental Science and Technology* 50 (2016), pp. 8935-8936.

36. N. Wallerstein and B. Duran, "The theoretical, historical and practice roots of CBPR," in M. Minkler and N. Wallerstein, eds, *Community-Based Participatory Research for Health: From Process to Outcomes* (San Francisco: John Wiley & Sons, 2008), pp. 25-46.

37. We the People of Detroit Community Research Collective, *Mapping the Water Crisis: The Dismantling of African-American Neighborhoods in Detroit* (2016) Detroit, MI: Creative Commons.

38. Author's fieldnotes, June 2016.

39. Author's fieldnotes, July 2015.

40. Centers for Disease Control and Prevention (CDC), Community Assessment for Public Health Emergency Response (CASPER) Toolkit: Second edition. Atlanta (GA):

CDC; 2012.

41. E. Stevenson et al, "Water insecurity in 3 dimensions: An anthropological perspective on water and women's psychosocial distress in Ethiopia," *Social Science and Medicine* 75 (2012), pp. 392-400.

42. We the People of Detroit, forthcoming.

43. E Cantu, "Access to Water Service in Detroit Continues to be a Population Health Issue," *Authority Health* (August 23, 2016).

44. We the People of Detroit, forthcoming.

45. Author's fieldnotes.

46. A. Plum, K. Moxley, B. Zervos, "The impact of geographical water shutoffs on the diagnosis of potentially water-associated illness, with the role of social vulnerability examined," in press.

47. M. Kovac, "Did the Detroit Mayor's office suppress damaging water shutoffs study?," *Truthout* (July 15, 2017).

48. K. Bakker, "Commons vs commodities: debating the human right to water," in F. Sultana and A. Loftus, eds. *The Right to Water: Politics, Governance and Social Struggles* (Abingdon: Earthscan, 2012).

49. I Ray, "Women, water and development," Annual Review of Environmental Resources 32 (2007), pp. 421-449.

50. *Lyda et al. v. City of Detroit* at 5–6, No. 13-53846 (Bankr. E.D. Mich. Sept. 29, 2014).

51. Ibid.

52. *Lyda et al. v City of Detroit* (see note 65).

53. Melissa Mays, et al. v. Gov. Rick Snyder, et al., No. N/A, Mich. Clms., and Melissa Mays, et al. v. City of Flint, et al., No. 16-N/A. Mich. Cir., Genesee Co.

54. A. Sen, "Human rights and the limits of law," *Cardozo Law Review* 27 (2005): 2913-2927.

55. Author's fieldnotes.

56. M. McLagan, "Human rights, testimony and transnational publicity," in M. Feher, ed. *Governmental Politics* (New York: Zone Books, 2007).

57. S. Gloppen and M.J. Roseman, "Can litigation bring justice to health?" In A.E. Yamin and S. Gloppen, eds *Litigating Health Rights: Can Courts Bring More Justice to Health?* (Cambridge: Harvard University Press, 2011).

58. V. Gauri & D.M. Brinks, "Introduction: the elements of legalization and the triangular shape of social and economic rights." In *Courting social justice: Judicial enforcement of social and economic rights in the developing world* (Cambridge: Cambridge University Press, 2008).

59. C. Coleman & L. Rubinowitz, "Social movements and social-change litigation: synergy in the Montgomery bus protest," *Law and Social Inquiry* 30/4 (2005), pp. 663-737.