



## Historical Analysis of Structural Racism and Water Access

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### 1. Background:

Water is essential for life. However, in the United States (US), more than half (54.5%) of all children and youths and a third (32.6%) of adults do not drink enough water.<sup>1, 2</sup> This is particularly concerning among communities of color. Black children are 1.34 times and Hispanic children are 1.23 times less likely to drink enough water each day when compared to white children.<sup>1</sup> This can impact overall health. Drinking water helps to protect muscles, joints, and tissues; improve the digestive system; and keep the body hydrated.<sup>3</sup> Dehydration can lead to constipation, kidney stones, and poor cognition, mood, and body heat regulation, and may increase mortality and morbidity among children and adults. When water is not readily available, people are more likely to increase their consumption of sugary drinks, like sports drinks, fruit-flavored drinks with added sugar, energy drinks and soda, which contain empty calories and are linked to chronic diseases such as heart disease and type 2 diabetes. It is estimated that 50,000 people living in the US die each year from heart disease and type 2 diabetes because of high sugary drink consumption.<sup>4</sup> Communities of color are more susceptible to increased consumption of sugary drinks and higher rates of chronic diseases in part because of discriminatory practices embedded in structural policies and programs that prevent them from accessing safe, affordable water. Additionally, federal funding, once the driving force behind water infrastructure development, has declined precipitously in recent decades, reducing the support available for communities to build and maintain water and wastewater systems.

Structural racism creates large disparities in access to quality, affordable water for communities of color in the US, particularly for Black, LatinX, and Indigenous populations. Structural racism refers to “the normalization and legitimization of an array of dynamics—historical, cultural, institutional and interpersonal—that routinely advantage white people while producing cumulative and chronic adverse outcomes for people of color.”<sup>5</sup> Nearly 40% of the US population still drinks water from unsafe systems, and communities of color face an increased risk of exposure to unsafe water.<sup>6</sup>

Race is the variable most strongly associated with access to complete plumbing. Black and LatinX households are twice as likely and Indigenous households are 19 times more likely to lack complete plumbing than their white counterparts.<sup>7</sup> These statistics hold true in both the aggregate and at the census tract level, with analysis showing that the larger the share of Indigenous, Black, LatinX or Pacific Islander residents living in a

census tract the higher percentage of homes that lack complete plumbing.<sup>7</sup> In rural areas in Puerto Rico, the lack of safe water and indoor plumbing goes back generations to communities that were built informally in remote areas away from the infrastructure grid.<sup>8</sup> Similarly, an estimated 48% of households on reservations do not have clean water or adequate sanitation.<sup>9</sup>

Several US policies and programs, such as fracking, a drilling method for extracting oil, natural gas, or water from deep underground, and redlining, the practice of concentrating Black and other people of color into certain neighborhoods, have contributed to disparities in water access and quality within communities of color. In this brief, we will examine the role structural racism plays in water access and quality to people of color in their communities and in their schools.

### 2. Water access and quality in communities

In communities, water utilities are provided either publicly or privately. Public water systems are typically not-for-profit entities managed by state or local governments, and water utility rates are set by a governing board. Privately-run water systems are often for-profit entities managed by investors or shareholders, who can set their own rates for water utilities. The practice of water privatization, or when a private company operates or purchases public water utilities, is often proposed as a solution to municipal budget problems or aging water systems. This practice has many consequences for a community's water access including higher cost for water, reduced public accountability, diminished service, job losses, and failing infrastructure.<sup>10, 11</sup>

#### *Water cost*

Higher water costs disproportionately impact low-income households and communities of color. In 2019, low-income households spent an average of 12.4% of their disposable income on basic monthly water and sewer service.<sup>12</sup> In addition, research from Michigan showed that communities of color pay higher average household water utility bills than communities with lower percentages of racial minorities.<sup>13</sup> Higher water costs are particularly acute in old industrial and economically distressed cities that have large numbers of low-income households and are also disproportionately Black.<sup>14</sup> These communities have declining populations that can no longer support the existing water infrastructure. As a result, utility companies have increased water rates to offset lost revenue from a declining population.<sup>15</sup> Communities with privately-run water systems are also more likely to see high water service costs. Water service costs a typical household 59% more if it comes from a privately-run utility, when compared to that from a local government utility.<sup>15</sup>

Higher water costs lead to increased water shutoffs and lien sales, which in turn increase home foreclosures and home evictions.<sup>16</sup> These consequences disproportionately impact people of color. Nearly every state and local government has a process to place a lien on a home for unpaid water bills. There is a clear

connection between the failure to pay a water bill and the loss of Black homeownership.<sup>16</sup>

### Water cleanliness, contamination, and quality

While water cost and infrastructure access have disparities by race and income, the quality of the water that is available is also not equal for all US residents. This next section will discuss the negative effects on water quality produced by agriculture and the natural resource industry.

#### *Agricultural runoff*

Agriculture impacts the water supply in a variety of ways. Nationwide, soil erosion, nutrient loss, and the runoff of pesticides and other contaminants from the vast agricultural land base across the US are the leading causes of poor water quality.<sup>17</sup> Nitrate and other water pollutants associated with agriculture disproportionately impact communities with lower incomes, lower rates of home ownership, and higher proportions of LatinX or non-white residents.<sup>18-21</sup> Rising incomes and urbanization are associated with increased water demand from industry, energy, and services, and to dietary changes, implying more demand for water-intensive foods (e.g., meat and dairy products). Rising competition for scarce water is driving tensions and conflicts among stakeholders, thereby exacerbating inequalities in access to water, especially for underrepresented populations, including the rural poor, women, and indigenous populations.<sup>22</sup>

Several policies and programs have contributed to the magnitude of this issue. First, the monitoring rules for most pesticides and other chemicals require only quarterly monitoring. Chemicals peak in streams shortly after they are applied to crops, therefore, would not be likely to detect an exceedance if the waters were tested before seasonal pesticide application.<sup>23</sup> Second, numerous food system policies and investments have contributed to increased nitrates through subsidies incentivizing production of row crops as well as increase meat production. The federal crop insurance program allows farmers to continue growing the same crops and using the same farming practices, even as weather patterns and soils are changing, regardless of crop yield. As a result, it keeps them from switching to drought-resistant crops ever increasing the amount of water needed for irrigation and increasing nitrogen application to maintain crop yields.<sup>24</sup> And finally, tribal consultation processes do not require federal or state action if there is a proven negative impact of a project on Indigenous people and tribal sovereignty. Although the US federal government generally asserts regulatory authority over reservation environments, tribes have found that federal agencies are often unable or unwilling to provide the desired level of environmental protection due to lack of capacity and other challenges.<sup>25</sup>

#### *Extractive industry pollution*

The extraction of natural resources through mining and energy projects contribute to a high level of water pollution. Oil and gas extraction is also found to have disproportionate impacts on people of color, especially Black people. An analysis of the Environmental Protection Agency's (EPA) Toxics Release Inventory found that oil refineries and petrochemical facilities are a main contributor to pollution of water, and that the toxic burden of these sectors falls disproportionately on low-income communities and people of color. Low-income communities and people of color are more likely to live in neighborhoods that are impacted by these extractive practices,<sup>26</sup> which is due in part to redlining. Redlining has played a significant role in exposing communities of color to excessive pollution. Historically, toxic dumping and the location of locally unwanted land uses (LULUs) have unduly burdened low-income communities and communities of color, especially Black, LatinX, and Indigenous communities. Author, Robert Bullard, found that Black people, even those who are affluent, are more likely to live closer to or in communities that have more water pollution than White families that make \$10,000 a year.<sup>27</sup> Regardless of the reforms made today, redlining still clusters communities of color into areas that are significantly impacted by economic inequality, lack of public services, and deteriorating air and water quality due to proximity to highways, industrial plants, and landfills.

Federal laws also allow for resource extraction that threaten Tribal water sources. Indigenous communities and their surrounding areas are often rich in natural resources. However, the development of resources in areas just off Tribal lands can contaminate their water supplies, especially in instances of inadequate Tribal consultation.<sup>28</sup> For example, in 2015, the Gold King Mine—located 100 miles outside Navajo Nation—spilled 3 million gallons of wastewater that spread to and contaminated the San Juan River, a water source of Navajo Nation. Mitigation efforts to address this continue today. It is also important to note that Tribal consultation processes do not require federal or state action if there is a proven negative impact of a project on indigenous people and tribal sovereignty.

### 3. Water access and quality in schools

Children spend most of their days in school, so it is important that the water they receive is clean and safe. The Healthy, Hunger-Free Kids Act requires all schools who participate in the National School Lunch Program to provide water during mealtimes in the area in which the meals are served,<sup>29</sup> and subsequent rulemaking also eliminated sugary beverages from elementary and middle schools in effort to turn children towards healthier beverages, such as water. In New York City and Boston, schools that implemented easy and safe access to drinking water saw improved health outcomes and decreased consumption of sugary beverages.<sup>30</sup> However, many school districts, particularly those in Black, LatinX, and Indigenous communities, do not have access to quality, affordable water.

### *Lead in school drinking water*

Schools are required to maintain the water delivery infrastructure on campus (i.e. fountains, refill stations), while the EPA ensures that the water leaving the utility is clean and safe.<sup>29</sup> The chance for lead and other contaminants can happen when water travels through aging infrastructure made of copper and lead. There is no safe level of lead consumption. Lead exposure can cause learning challenges and behavior and attention problems,<sup>31</sup> and lead to brain damage and lower IQ. Low-income children and children of color are most vulnerable to lead exposure<sup>32</sup> given the aging infrastructure around them in their schools, housing, and neighborhoods. While lead in water in schools can be a problem everywhere given the collective aging infrastructure and the lack of testing,<sup>33</sup> schools in low-income and communities of color are disproportionately impacted. School districts with large numbers of children of color, such as Detroit, Atlanta, Chicago, Newark, Baltimore, and Los Angeles – not to mention Flint, Michigan – have schools that have tested for dangerously high levels of lead.<sup>34</sup>

Currently, states and schools are not required to test for lead at their taps, and there is no centralization of that data.<sup>33</sup> In addition, schools do not have to comply with federal drinking water standards if their source is from a public water supplier. This means that for 89% of schools, there is no federal mandate to test for lead or other contaminants.<sup>35</sup> A 2019 study, which looked at 24 states and the District of Columbia that implemented initiatives for lead testing in school drinking water, found that only eight of those initiatives required mandatory testing and nearly half (44%) of the schools tested had at least one source of drinking water that tested high for lead.<sup>33</sup> The study also found that only about half the states provided funding for testing and that most states did not provide funding for remediation.<sup>33</sup> A 2018 nationwide survey by the Government Accountability Office (GAO) found that only 43% of school districts tested water for lead and of those, 37% had lead above levels deemed safe.<sup>36</sup> As of November 2021, 23 states now have voluntary testing and 18 states have mandatory testing.<sup>31</sup> This means that the vast majority children and parents do not know what the lead levels are in the drinking water in their schools.

While there is no current federal regulation that requires testing for lead in schools, proposed changes by the EPA to the Lead and Copper Rule would require schools to test at least five outlets beginning October 2024.<sup>31</sup> The rulemaking process also has a specific focus on prioritizing historically underserved communities.<sup>37</sup> Requiring testing in schools and prioritizing underserved communities would be a huge step forward, but there is no money in this federal rulemaking to help schools achieve this goal. The Bipartisan Infrastructure Law dedicates \$55 billion to expand access to drinking water, but only \$15 billion of this money is dedicated toward pipe remediation, which is only about one-third of the amount needed to update the water infrastructure across the country. Unfortunately, only 17% of this \$15 billion is dedicated to under resourced communities and none of this funding addresses testing and remediation in schools.

The longer the wait to fix the infrastructure, the worst – and more costly – the problem becomes.

#### 4. Perception of tap water

The perception of tap water is influenced by many factors including sensory qualities, knowledge of tap water testing results, and sociocultural beliefs about tap water. However, race, ethnicity, nativity, and socioeconomic status are also important factors in the perception of drinking water safety.<sup>38</sup> Distrust of tap water has risen in the United States over the last several years but has been most severe among Black and LatinX communities, especially following the drinking water crisis in Flint, Michigan in 2014.<sup>39</sup>

Households that perceive their drinking water supplies as unsafe are more likely to choose bottled water. Many households believe that bottled water is higher quality than tap water despite evidence showing that bottled water is less regulated and no safer on average than tap water.<sup>40</sup> This phenomenon largely impacts communities of color. African American, LatinX, and foreign-born households disproportionately avoid tap water and prefer bottled water. While perception of unsafe tap water is most prevalent among LatinX households, among the population perceiving their tap to be unsafe, Black households more commonly buy bottled water.<sup>40</sup>

The bottled water industry is contributing to this trend. Bottled water companies heavily target their marketing to lower-income groups, communities of color, and immigrant communities in the United States – especially LatinX women and children. For immigrants coming from countries with insufficient access to safe drinking water, industry positions bottled water as part of the immigrant “heritage.”<sup>41</sup>

Choosing alternatives to tap water such as bottled water impacts not only a household’s expenditures, but also their consumption of unhealthy alternatives. At the household level, purchasing bottled water leads to significant costs in terms of money (up to thousands of dollars per year), time, and overall utility.<sup>40</sup> Studies also show that when households perceive tap water to be unsafe, they are more likely to substitute sugary beverages for water choices.<sup>42</sup> Overall, the negative consequences of choosing alternatives to tap water disproportionately impact low-income, households of color.

#### 5. Emergent issues (e.g., climate change)

Communities of color are often the hardest hit by climate change challenges, especially water-related issues.<sup>43</sup> In neighborhoods with poorly constructed septic systems or sewers, extreme weather events (e.g., hurricanes, droughts, and extreme rainfall) cause these systems to back up and overflow impeding access to clean water and causing the water supply to be polluted by wastewater and other contaminants.<sup>8</sup> Tribal, rural, and farming communities face more serious water shortages than any other areas.<sup>44</sup> When water sources dry up during climate change-induced droughts,

families are left without their usual water source, and what little water they get can have a higher-than-usual concentration of contaminants.<sup>45</sup> Runoff from drought related wildfires can carry ash, charcoal, and debris to surface water contaminating the water supply and reduced stream and river flows caused by droughts can also lead to an increase concentration of contaminants in water. The US will likely experience cycles of increasingly extreme droughts and floods<sup>46</sup>, posing a more serious threat to communities of color where underfunded utilities are not prepared to adapt to changing climatic conditions.

## 6. Policy Recommendations

There are several feasible, cost-effective strategies to better understand, quantify, and decrease disparities in water access in communities of color. In the table below, we have identified policy recommendations to address water access and quality in communities and in schools at the local, state, and federal level.

<b>Policy Recommendations to Address Water Access and Quality</b>
<b>Communities</b>
<p>To decrease the excessive burden water privatization has on communities of color, we can consider the following policy recommendations:</p> <ul style="list-style-type: none"><li>• Federal investment with long-term public funding to prevent water shutoffs because of unaffordable water bills is needed. Funding should prioritize disadvantaged communities and communities with the greatest water affordability challenges. In addition, federal research initiatives, including on the benchmark for water affordability and the lasting effect of lien sales on communities of color, is needed.<sup>47</sup></li><li>• Local legislation to ban water lien sales and prevent the privatization of water systems would also be helpful. Communities can establish percentage-of-income billing for low-income households so that water bills are adjusted down to the level that a household can afford to pay. Finally, communities should recognize the human right to affordable, clean water.</li><li>• Water subsidy programs may also be a viable solution. Chile’s water aid program, for example, aims to ensure households don’t pay more than 3% of their income for a set quantity of water determined to meet essential needs.<sup>48</sup> A study of Chile’s water aid found that the program was well targeted to the households that needed the assistance, when compared to other water aid programs.</li></ul>
<p>To decrease the disproportionate burden that water pollution and decreased water access tied to the agricultural industry has particularly on Hispanic, Native Americans, and low-income households several policies should be considered:</p> <ul style="list-style-type: none"><li>• Increase funding for conservation through state and federal programming with targeting of high-impact lands to fund. Incentivize and support grassland conservation/reclamation, wetlands conservation/reclamation, floodplain restoration/reconnection/rehabilitation for pollution and erosion filtering, mitigation of pollutants, flood damage buffering, potentially paid for in part by penalties for polluting water sources.<sup>49</sup></li><li>• Rework crop insurance practices and valuations to drive more sustainable agriculture practices.<sup>50, 51</sup></li><li>• Establish meaningful tribal consultation processes, like Free, Prior, and Informed Consent regarding federal and state actions in which the impact of projects on water quality for drinking water, cultural practices, and traditional food sources are considered.<sup>52</sup> Existing environmental assessments should be adjusted to include traditional knowledge as meaningful components of the decisional making and reporting.<sup>53</sup></li></ul>

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- Establish a comprehensive national groundwater level network with uniform coverage of major aquifers, climate zones, or land uses. For many aquifers in the United States, the basic data needed for such assessments are not available, and hence our knowledge of the water budget for them is limited.<sup>54</sup>
- States that continue to adhere to the English rule should be encouraged to adopt a Reasonable Use or Correlative Rights approach to groundwater management. These approaches balance the individual rights of landowners with those of other users of the same aquifer. At the same time, these doctrines promote the most efficient use of a vital natural resource.<sup>55</sup>
- Establish a nationwide assessment of socioeconomic and racial/ethnic disparities of exposures to nitrate or other contaminants in US drinking water.
- Invest locally, statewide, and federally in water infrastructure (prioritizing disproportionately affected communities) including water treatment facilities and more robust testing, monitoring, investigation, enforcement, and reporting.
- Due to low enforcement rates of Safe Drinking Water Act violations, local and state ordinances could prohibit water pollution and establish penalties, like in [Dane County](#).

### Schools

To decrease dangerous levels of lead in water in schools and to ensure safe drinking water to children in schools:

- All schools should be required to regularly test and monitor their water and be provided with the funding to do so.
- Develop a centralized database to collect and share lead testing data.
- Provide funding to schools to remediate their infrastructure with replacing old fixtures with new ones.
- Provide technical assistance to schools to achieve these goals.
- Ensure that while schools are doing their due diligence that the local water infrastructure is also updated and modernized accordingly. While there is some federal money to update local water infrastructure, much more is needed to accomplish this goal.

## 7. Conclusion

Communities of color are negatively impacted by structural racism in water access and quality. Existing policies and programs contribute to disparity gaps in quality, affordable water within communities of color. This brief details the role structural racism plays in water access and water quality to people of color in their communities and within their schools as well as identifies possible policy solutions to address this burden.

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