



**BLACK WOMEN'S**  
HEALTH IMPERATIVE

# THE IMPACTS OF Water Infrastructure and Clean Water Access on Maternal Health



## ISSUE BRIEF AND FACT SHEET

### Background

Environmental injustice, particularly the proliferation of climate change and water discrimination, has a disproportionate impact on communities of color and low income communities in the United States and around the world.<sup>1</sup> Black, Indigenous, and other racial/ethnic minorities are more likely to die of environmental causes, and more than half of the people who live close to hazardous waste are people of color.<sup>2</sup> Among this already pervasive disparity, there exists an uneven distribution of both benefits and harms from the activities that lead to clean water scarcity. Race bears the strongest relationship to slow and ineffective enforcement of the federal drinking water law in communities across the nation.<sup>3</sup> In the United States, water service for more than 77 million people comes from water systems that violate health standards established by the Safe Water Drinking Act—a federal law that requires the Environmental Protection Agency (EPA) to identify and regulate contaminants.<sup>4</sup>

Considering the framework of reproductive justice—the right to have a child, to not have a child, and to raise children in a safe and healthy environment—America's clean water crisis poses a significant threat to the protection and maintenance of reproductive autonomy. Exposure to lead and other harmful contaminants in water can increase the risk of adverse pregnancy and birth outcomes, including (but not limited to) fertility problems, premature birth, low birth weight, and miscarriage.<sup>5</sup> Given the racial and socioeconomic factors that critically underpin exposure to lead in America, the cost is borne disproportionately by women of color and their families. Socioeconomic factors, such as poverty, education, housing-related residential segregation, discrimination in housing markets, and neighborhood disinvestment factors such as unit age, vacancy, and dilapidation, further exacerbate racial inequalities in lead exposure.<sup>6</sup>

The Black Women's Health Imperative (BWHI) recognizes that access to clean, potable water is critical to our daily lives. Providing access to clean water is an essential government service and a basic public health necessity fundamental to reproductive and environmental justice. We must work to alter both perspectives and structural approaches to mitigate and prevent further harm from environmental injustice and water discrimination on Black women and their families.

**About the Black Women's Health Imperative:** Established originally as the National Black Women's Health Project in 1983, the Black Women's Health Imperative is the first and only national non-profit organization created for and by Black women dedicated to improving the health and wellness of our nation's 21 million Black women and girls—physically, emotionally, and financially. Our core mission is advancing health equity, reproductive, and social justice for Black women, across the lifespan, through policy, advocacy, education, research, and leadership development. For more information, please visit [www.bwhi.org](http://www.bwhi.org).

## Issue

BIPOC and low-income communities of color are served a disproportionate amount of unsafe drinking water. According to an analysis of data from the Environmental Protection Agency (EPA), minority communities are 40% more likely to have drinking water from services that consistently violate federal regulations.<sup>7</sup> Of all factors studied, race has the strongest relationship to slow and inadequate enforcement of the Safe Water Drinking Act.<sup>8</sup> Additionally, higher-income areas generally enjoy high-quality infrastructure, while low-income areas have suffered decades of underinvestment and disinvestment.<sup>9</sup> This two-tiered system of socioeconomic status and racial ethnicity predetermining an individual's access to safe drinking water violates the American principles of equality and justice—and it has serious consequences for public health. In addition, unsafe drinking water creates grave concerns for Black mothers who are low income or live in communities of color.

The lives of Black mothers and babies are being put at risk by an unreliable supply of safe water. Lack of access to clean water and living in environments with dirty stagnant water are known to result in largely preventable water-related diseases that lead to severe impacts on maternal health and adverse pregnancy outcomes.<sup>10</sup> Drinking contaminated water during pregnancy can lead to an array of adverse effects including: fertility issues, reduced kidney function, metabolic syndrome, thyroid dysfunction, and adverse pregnancy outcomes for both mother and offspring (e.g., preterm delivery, stillbirth, hypertensive disorders of pregnancy, and low birth weight).<sup>11</sup> In fact, a 2014 systematic review found a significant association between poor water, sanitation and hygiene, and high maternal mortality rates.<sup>12,13</sup> Toxic water has deleterious effects on reproductive health.

### Common water contaminants that affect reproductive health and fertility include the following:

- **Lead:** a potent neurotoxin that impairs children's intellectual development and alters their behavior and ability to concentrate. Lead exposure also affects female reproduction by **impairing menstruation, reducing fertility potential, delaying conception time, altering hormonal production, constricting blood vessels and limiting blood circulation, affecting pregnancy and its outcome**, to name a few.<sup>14,15</sup>
- **Atrazine:** a hormone disruptor that can **delay puberty, alter the development and function of the breast and ovaries, damage testes, and cause prostate inflammation**.<sup>16</sup> It is commonly found in drinking water from cornfields and agricultural runoff.
- **Disinfection byproducts:** cancer-causing contaminants produced during the chlorination and disinfection process of water. Disinfection byproducts increase risk of problems during pregnancy and may harm fetal growth and development.<sup>17</sup>
- **Arsenic:** affects pregnancy outcomes, impairs infant **neurodevelopment, and increases risk of cancer**. Arsenic is commonly found in drinking water.<sup>18</sup>
- **Perchlorate:** affects maternal thyroid. Exposure during pregnancy affects **fetal brain development**.<sup>19</sup>

## Health Impacts of Clean Water Accessibility

The benefits of clean water are limitless. The availability and accessibility of clean water significantly influences maternal and child health. Water, sanitation, and hygiene play a crucial role in improving maternal health outcomes during pregnancy, delivery, and postpartum. Clean water has a physiological impact on the development of a normal pregnancy. Drinking clean water influences the amniotic fluid volume, improves fetal well-being, and removes toxic products. The combined benefits from having access to clean water, such as handwashing, food hygiene, and household hygiene, reduced infant diarrhea by more than one third. Improved drinking water sanitation and hygiene also lead directly to improved child growth<sup>20</sup> and reduce the risk of mothers experiencing complications or dying during pregnancy and delivering low-birth-weight babies.<sup>21</sup> Clean water is vital to the health of Black mothers, communities of color, and the well-being of society as a whole.

## The Public Health Challenge

We can improve maternal health by offering communities of color better access to clean affordable water, an obligation that is necessary to create a better life for Black women, and their families. Pregnant women, especially, need clean drinking water. Water safety mistakes are largely predictable and preventable. We must take steps to mitigate toxic water in communities of color.



Climate change has and will continue to add additional stressors to water systems in the United States, the harmful consequences of which will also primarily impact communities of color. Black and Latinx communities disproportionately live in low-lying flood zones and other vulnerability zones located near industrial facilities that manufacture chemicals, treat water or wastewater, produce bleach, generate electric power, refine petroleum, and produce pulp or paper.<sup>22</sup> For women of color—who already experience environmental racism and economic insecurity, along with gender and racial discrimination—the wear and tear of existing water systems induced by climate change will further compound these intersecting oppressions.

## Policy Solutions

To achieve clean drinking water, we must all work proactively and speak out for the policy solutions needed to fix our infrastructure problems. Now is our moment to act and we must demand change.

### Our policy recommendations are as follows:

- Increase infrastructure investment to replace lead pipes and reduce water contamination.
- Strengthen water standards regarding harmful toxins, such as lead and nitrates, and ensure that water standards are based on science and evidence.
- Enforce federal standards on toxins in water.
- Federal and state governments should regulate newly discovered water pollutants.
- Make polluters pay for clean-up of harmful chemicals.
- Ensure water affordability and end water shutoffs.
- Mandate disclosure of contaminants in water.
- Ensure government funding for health exams in disadvantaged communities.
- Provide free or discounted bottled water to exposed community members experiencing health issues due to lead poisoning and “forever chemicals.”
- Local water and energy companies should work closely with the community, which leads to widely disseminated information about water quality standards, water pollution, and local water infrastructure needs and updates.


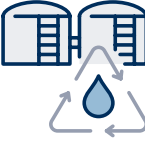

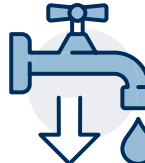
## How to Learn More

The Environmental Protection Agency (EPA) publishes information on water quality and drinking water systems. Find more resources regarding source water protection and information about water system characteristics, violations, and enforcement at: <https://www.epa.gov/ground-water-and-drinking-water/drinking-water-data-and-reports>.

## Report Concerns

Communities, citizen groups, and individuals can take an active role in protecting their drinking water sources from contamination. Report concerns about drinking water to the EPA at: <https://www.epa.gov/ground-water-and-drinking-water/forms/contact-us-about-ground-water-and-drinking-water>.

# Main Components of Community Water Infrastructure - [\(EPA\)](#)

	<p><b>Drinking-Water</b></p> <ul style="list-style-type: none"> <li>• Lands in source water areas</li> <li>• Reservoirs and storage</li> <li>• Treatment plants</li> <li>• Distribution systems</li> </ul>
	<p><b>Wastewater</b></p> <ul style="list-style-type: none"> <li>• Collection systems and pipes</li> <li>• Pump stations</li> <li>• Treatment plants</li> <li>• Septic systems</li> </ul>
	<p><b>Stormwater</b></p> <ul style="list-style-type: none"> <li>• Collection basins</li> <li>• Stormwater pipes</li> <li>• Green infrastructure approaches that infiltrate and manage water where it falls</li> <li>• Land management practices that keep runoff from adversely impacting surface water or groundwater</li> </ul>
	<p><b>How does lead get into drinking water?</b></p> <ul style="list-style-type: none"> <li>• Corroded plumbing materials that contain lead such as pipes, faucets, and fixtures.</li> <li>• Water with high acidity or low mineral content has a higher probability of causing corrosion.</li> <li>• Lead pipes are more likely to be found in older cities and homes built before 1986.<sup>23</sup></li> </ul>

**KEY POINTS:**

Drinking water systems that constantly violated the law for years were **40 percent more likely** to occur in places with higher percentages of residents who were people of color.<sup>26</sup> - [NRDC](#)

**Over 2,000,000 Americans live without basic access to safe drinking water and sanitation.** This includes: 1.4 million people who lack access to indoor plumbing.<sup>27</sup> - [US Water Alliance](#)

**The average water - network pipe is 45 years old**, and contain some cast-iron pipes that date back over 100 years.<sup>28</sup> - [McKinsey](#)

**Black children are twice as likely** as white children and **three times as likely** as Mexican American children to have elevated levels of lead in their blood.<sup>29</sup> - [BWHI](#)

## What is the Safe Drinking Water Act? - [CDC](#)

The Safe Drinking Water Act (SDWA) was **passed by Congress in 1974, with amendments added in 1986 and 1996, to protect our drinking water.** Under the SDWA, EPA sets the standards for drinking water quality and monitors states, local authorities, and water suppliers who enforce those standards.<sup>24</sup>

## What are PFAS? - [Clean Water Action](#)

PFAS stands for per- and poly-fluoroalkyl substances. Some PFAS remain in our bodies approximately 8 years. These products have been used for decades in man-made products resistant to grease, water, or stains, such as waterproof jackets and nonstick pans. However, [the durable chemical](#) can last thousands of years in the environment. These chemicals have potential long standing negative effects such as liver damage, high cholesterol, low birth rates, chronic kidney disease, and more.<sup>25</sup>

## References

- <sup>1</sup> Ranniger, G. (March 8, 2021). The father of environmental justice. Environmental Health News. <https://www.ehn.org/environmental-justice-2646185608/the-father-of-environmental-justice>
- <sup>2</sup> Newkirk, V. R. (February 10, 2018). Environmental racism is the new Jim Crow. *The Atlantic*. <https://www.theatlantic.com/video/index/529137/environmental-racism-is-the-new-jim-crow/>
- <sup>3</sup> National Resources Defense Council. (September 24, 2019). New drinking water report: Communities of color more likely to suffer drinking water violations for years. <https://www.nrdc.org/media/2019/190924>
- <sup>4</sup> National Partnership for Women and Families. (July 2020). Clean water and reproductive justice: Lack of access harms women of color. <https://www.nationalpartnership.org/our-work/repro/reports/clean-water-and-reproductive-health.html>
- <sup>5</sup> March of Dimes. (May 2016). Lead poisoning. <https://www.marchofdimes.org/lead-poisoning.aspx>
- <sup>6</sup> Sampson, R. J., & Winter, A. S. (August 2016). The racial ecology of lead poisoning: Toxic inequality in Chicago neighborhoods, 1996-2013. *Du Bois Review: Social Science Research on Race*, 13(2), 261-283.
- <sup>7</sup> Natural Resources Defense Council. (September 2019). New drinking water report: Communities of color more likely to suffer drinking water violations for years. <https://www.nrdc.org/media/2019/190924>
- <sup>8</sup> Fedinick, C.P. (September 24, 2019). Watered down justice: Communities of color and the SDWA. Natural Resources Defense Council. <https://www.nrdc.org/experts/kristi-pullen-fedinick/watered-down-justice-unequal-protection-communities-color>
- <sup>9</sup> Huang, C., & Taylor, R. (June 28, 2019). Any Federal Infrastructure Package Should Boost Investment in Low-Income Communities. Center on Budget and Policy Priorities. <https://www.cbpp.org/research/federal-budget/any-federal-infrastructure-package-should-boost-investment-in-low-income>
- <sup>10</sup> Kodindo, G. (August 24, 2011). WASH for mothers: Importance of clean water and sanitation during pregnancy. Maternal Health Task Force at the Harvard H.T. Chan School of Public Health Center for Excellence in Maternal and Child Health. <https://www.mhtf.org/2011/08/24/wash-for-mothers-importance-of-clean-water-and-sanitation-during-pregnancy/>
- <sup>11</sup> Blake, B. E., & Fenton, S. E. (2020). Early life exposure to per- and polyfluoroalkyl substances (PFAS) and latent health outcomes: A review including the placenta as a target tissue and a possible driver of peri- and postnatal effects. *Toxicology*, 443, 152565. <https://doi.org/10.1016/j.tox.2020.152565>
- <sup>12</sup> Benova, L., Cumming, O., & Campbell, O. M. R. (2014). Systematic review and meta-analysis: association between water and sanitation environment and maternal mortality. *Tropical Medicine & International Health*, 19(4), 368-387. <https://doi.org/10.1111/tmi.12275>
- <sup>13</sup> Hodin, S. (March 22, 2017). Giving birth without clean water. Maternal Health Task Force. <https://www.mhtf.org/2017/03/22/giving-birth-without-clean-water/>
- <sup>14</sup> Kumar S. (2018). Occupational and environmental exposure to lead and reproductive health impairment: An overview. *Indian Journal of Occupational and Environmental Medicine*, 22(3), 128-137. [https://doi.org/10.4103/ijoom.IJOEM\\_126\\_18](https://doi.org/10.4103/ijoom.IJOEM_126_18)
- <sup>15</sup> Environmental Working Group. (November 2019). Lead. <https://www.ewg.org/tapwater/reviewed-lead.php>
- <sup>16</sup> Environmental Working Group. (October 2019). Atrazine. <https://www.ewg.org/tapwater/reviewed-atrazine.php>
- <sup>17</sup> Environmental Working Group. (April 2020). Disinfection byproducts. <https://www.ewg.org/tapwater/reviewed-disinfection-byproducts.php>
- <sup>18</sup> Environmental Working Group. (October 2019). Arsenic. <https://www.ewg.org/tapwater/reviewed-arsenic.php>
- <sup>19</sup> Environmental Working Group. (October 2019). Perchlorate. <https://www.ewg.org/tapwater/reviewed-perchlorate.php>
- <sup>20</sup> The Partnership for Maternal Newborn and Child Health. (2014). *PMNCH knowledge summary #30: water, sanitation and hygiene—the impact on RMNCH\**. <https://cdn1.sph.harvard.edu/wp-content/uploads/sites/2413/2017/05/ks30.pdf>
- <sup>21</sup> Kodindo, G. (August 24, 2011). WASH for mothers: Importance of clean water and sanitation during pregnancy. Maternal Health Task Force at the Harvard H.T. Chan School of Public Health Center for Excellence in Maternal and Child Health. <https://www.mhtf.org/2011/08/24/wash-for-mothers-importance-of-clean-water-and-sanitation-during-pregnancy/>
- <sup>22</sup> Vulnerable Zone Determination. (April 8, 2022). US EPA. <https://www.epa.gov/rmp/vulnerable-zone-determination>
- <sup>23</sup> AP Source - (September 23, 2021). Things Local Officials Should Know about Sustainable Water Infrastructure. United States Environmental Protection Agency (EPA). <https://www.epa.gov/sustainable-water-infrastructure/things-local-officials-should-know-about-sustainable-water>
- <sup>24</sup> AP Source - (November 3, 2020). Drinking Water Standards and Regulations. Centers for Disease Control and Prevention (CDC). [https://www.cdc.gov/healthywater/drinking/public/regulations.html#:~:text=The%20Safe%20Drinking%20Water%20Act%20\(SDWA\)%20was%20passed%20by%20Congress,suppliers%20who%20enforce%20those%20standards](https://www.cdc.gov/healthywater/drinking/public/regulations.html#:~:text=The%20Safe%20Drinking%20Water%20Act%20(SDWA)%20was%20passed%20by%20Congress,suppliers%20who%20enforce%20those%20standards)
- <sup>25</sup> AP Source - Johnson, T. (August 2, 2018). Breaking Down Forever Chemicals - What are PFAs? Clean Water Action. <https://www.cleanwateraction.org/2018/08/02/breaking-down-forever-chemicals-%E2%80%93-what-are-pfas>
- <sup>26</sup> AP Source - (September 24, 2019). New Drinking Water Report: Communities of Color More Likely to Suffer Drinking Water Violations For Years. National Resources Defense Council (NRDC). <https://www.nrdc.org/media/2019/190924>
- <sup>27</sup> AP Source - (2019). Closing the Water Access Gap in the United States - A National Action Plan. US Water Alliance. [http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States\\_DIGITAL.pdf](http://uswateralliance.org/sites/uswateralliance.org/files/publications/Closing%20the%20Water%20Access%20Gap%20in%20the%20United%20States_DIGITAL.pdf)
- <sup>28</sup> AP Source - Bielenberg, A. Brody, S. Grass, A. Lavandier, H. Paniagua Rojas, A. (November 24, 2021). US Water Infrastructure - Making Funding Count. McKinsey & Company. <https://www.mckinsey.com/industries/electric-power-and-natural-gas/our-insights/us-water-infrastructure-making-funding-count#:~:text=The%20average%20US%20water%2Dnetwork,%2C%202021%2C%20infrastructure%20reportcard.org>
- <sup>29</sup> AP Source - (October 2020). National Health Policy Agenda 2020-2021. Black Women's Health Imperative (BWHI). [https://3hqwxl1mqiah5r73r2q7zll1-wpengine.netdna-ssl.com/wp-content/uploads/2021/01/BWHI\\_NHPA\\_2020-21.pdf](https://3hqwxl1mqiah5r73r2q7zll1-wpengine.netdna-ssl.com/wp-content/uploads/2021/01/BWHI_NHPA_2020-21.pdf)