

EPA's Role in Addressing the Urgent Water Infrastructure Needs of Environmental Justice Communities

August 2018

National Environmental Justice Advisory Council

*A Federal Advisory Committee to the
U.S. Environmental Protection Agency*

ACKNOWLEDGEMENTS

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DISCLAIMER

This report of recommendations has been written as part of the activities of the NEJAC, a public advisory committee providing independent advice and recommendations on the issue of environmental justice to the Administrator and other officials of the EPA. In addition, the materials, opinions, findings, recommendations, and conclusions expressed herein, and in any study or other source referenced herein, should not be construed as adopted or endorsed by any organization with which any Work Group member is affiliated. This report has not been reviewed for approval by the EPA, and hence, its contents and recommendations do not necessarily represent the views and the policies of the Agency, nor of other agencies in the Executive Branch of the Federal government.

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III

March 1, 2019

The National Environmental Justice Advisory Council is pleased to submit the report titled *EPA's Role in Addressing the Urgent Water Infrastructure Needs of Environmental Justice Communities*. The NEJAC developed this report in response to the Agency's charge from October 2016. The EPA requested that the NEJAC provide recommendations to identify tools and best practices to assist communities with environmental justice concerns in developing water system technical, financial and managerial capacity, and to address funding and financing needs for infrastructure planning, design and construction. Specifically, the NEJAC was requested to identify:

1. Priority Needs Identification

- a. What does the NEJAC understand to be the most significant challenges for communities in providing for safe and clean water?
- b. What can the EPA do, in collaboration with states and other stakeholders, to help gather data on water infrastructure needs/challenges for communities?
- c. What insights and examples can the NEJAC offer to states and the EPA to help identify communities of concern and inform priority-setting processes for providing assistance, including consideration of communities that face public health risks from regulated or unregulated contaminants suspected to be present in drinking water?

2. Tools for Community Capacity Building

- a. What best practices and tools would the NEJAC recommend to assist communities with the development of water system technical, managerial and financial capacity; and can the NEJAC provide examples of how these practices and tools have been used effectively?
- b. Can the NEJAC offer models or templates that provide for public input into the practices and tools?
- c. Are there certain practices and tools that are especially well-matched to particular types of communities in the categories of concern?
- d. Can the NEJAC provide examples of innovations that have helped communities develop water system capacity?

3. Community Engagement and Education

- a. What approaches and best practices would the NEJAC recommend to support meaningful community engagement and input to help inform funding priorities for state revolving fund programs?
- b. What steps can states, the EPA and other stakeholders take to encourage these communities to participate in local planning processes for determining

- 1) their priority infrastructure funding needs; 2) their infrastructure pre-development needs and 3) their needs for technical assistance and training to develop water system capacity?
- c. What can states, the EPA and other stakeholders do to help educate communities where water and wastewater infrastructure issues exist?
- d. Are there ways that states, the EPA and other stakeholders could more broadly help educate communities about water and wastewater infrastructure issues?

4. Water System Partnerships

- a. In the NEJAC's experience, what are the barriers to water system partnerships and how can they be overcome?
- b. What can the EPA, working with states, communities and other stakeholders, do to inform and encourage communities to identify partnership opportunities and enter into sustainable partnerships?
- c. What can the EPA, states and other stakeholders do to increase collaboration within the water sector?
- d. How could the EPA and states work with drinking water and wastewater utility associations, colleges and universities, and research institutions to bring them into the conversation?

In response, the NEJAC's Water Infrastructure Work Group provided research, community-based information, and examples about the most significant challenges experienced by many communities. The NEJAC offers eight goals to achieve access to clean, affordable water and sanitation for all communities. Each goal corresponds to the charge questions:

- *Governments treat water as a human right*
- *Request Congress to allocate more funding to help communities with infrastructure building, oversight and public health protection.*
- *Promote affordable water and wastewater rates.*
- *Prioritize issues in EJ communities.*
- *Involve EJ communities meaningfully in infrastructure decisions.*
- *Build community capacity in water systems.*
- *Support innovative technologies.*
- *Be accountable and rebuild public confidence and trust in regulations.*

Additional details and explanations of our recommendations for achieving these goals are included in the attached report. The EPA should continue to create opportunities to address water infrastructure challenges and build capacity for environmental justice communities, which can greatly enhance the Agency's efforts for protecting human health and the environment. Thank you for this opportunity to provide recommendations. We look forward to hearing the Agency's response.

Sincerely,

A handwritten signature in black ink, appearing to read 'Richard Moore', with a long horizontal flourish extending to the right.

Richard Moore
Chair

Attachment

cc: NEJAC Members
Henry Darwin, Acting Deputy Administrator
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Matthew Tejada, Director for the Office of Environmental Justice
Karen L. Martin, Designated Federal Officer and NEJAC Program Manager

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EXECUTIVE SUMMARY

Ensuring that all Americans have affordable, reliable, and sustainable access to safe drinking water and appropriate wastewater treatment and disposal is a defining problem of the 21st century. Providing access to clean, affordable water requires extensive infrastructure, collective protections, and government regulations. Congress enacted the Clean Water Act (1972) and the



NEJAC recommends EPA work to achieve these eight goals:

1. Governments treat water as a human right;
2. Request Congress to allocate more funding to help communities with infrastructure building, oversight and public health protection;
3. Promote affordable water and wastewater rates;
4. Prioritize issues in EJ communities;
5. Involve EJ communities meaningfully in infrastructure decision-making;
6. Build community capacity in water systems;
7. Support innovative technologies;
8. Be accountable and rebuild public confidence and trust

Safe Drinking Water Act (1974), which provide the legal foundation to safeguard public health, protect the environment, and provide access to safe and clean water across the country. The Environmental Protection Agency develops standards and regulations and implements programs to ensure that state and local regulators and utilities understand their responsibilities and have the tools to treat water and sewage to deliver potable water to millions of residents.

However, water infrastructure demands, costs, and complexity mean many Americans do not have access to clean, affordable water, and sanitation. American public water systems and communities of all sizes are grappling with the need for water infrastructure maintenance or improvements to ensure clean, safe, accessible, and affordable drinking water and treatment of wastewater. Rising rates are making basic water and wastewater service unaffordable for low-income consumers across the country. People are faced with choosing between paying their rent or paying their water and sewerage bills. Aging infrastructure, deferred maintenance, changes in regulations, limitations on water resources, and outside stressors increase the complexity and cost of ensuring access to the basic public health needs of safe drinking water and adequate wastewater treatment.

On October 4, 2016, EPA charged National Environmental Justice Advisory Council to advising the agency on water infrastructure and

capacity for environmental justice communities. See Appendix C for a copy of the charge. EPA identified three specific types of communities of concern:

1. Small (less than 10,000 population), low-income communities;
2. Economically-stressed communities, including unincorporated areas; and

3. Low-income households located within a drinking water or wastewater utility service area where the community as a whole is not economically stressed. This group includes both individual houses scattered around a community and a subset of a community where all, or most, of the houses in that area are low-income (“pockets of poverty”).

NEJAC addresses the charge questions by providing research, community-based information, and examples about the most significant challenges experienced by many communities. NEJAC offers eight goals to achieve environmental justice in providing clean, affordable water and sanitation to all Americans. Each goal corresponds to the charge questions:

1. **Governments treat water as a human right.** (All Charges).
2. **Request Congress to allocate more funding to help communities with infrastructure building, oversight and public health protection.** (Charge 1.a).
3. **Promote affordable water and wastewater rates.** (Charge 1.a, 1.b, 1.c)
4. **Prioritize issues in EJ communities.** (Charge 1.b, 1.c)
5. **Involve EJ communities meaningfully in infrastructure decisions.** (Charges 3, 4)
6. **Build community capacity in water systems.** (Charges 2, 3, 4)
7. **Support innovative technologies.** (Charges 1.c, 2.d, 4)
8. **Be accountable and rebuild public confidence and trust in regulations.** (All Charges)

While many stakeholders will play a role in achieving these goals, our recommendations here focus specifically on what EPA can do to make this vision a reality. **We recognize that EPA currently lacks the resources to carry out fully our recommendations. For this reason, our primary recommendation calls for the EPA to build a coalition of federal, state, local, and community stakeholders to work collectively on these recommendations. The top priority should be to secure more funding from Congress for clean water infrastructure investments and programs, then allocate them first to environmental justice communities. We believe many of the recommendations outlined here can be acted upon today and such actions should not be delayed.**

Among the priorities that the EPA can do to achieve clean, safe, accessible and affordable drinking water and sanitation services for all Americans are:

- Urge Congress to appropriate more federal funding for water infrastructure grants and loans, prioritizing environmental justice communities;
- Encourage water utilities to diversify funding mechanisms for water infrastructure design and improvement;
- Target meaningful outreach in environmental justice communities;
- Develop policies and protocols with state water quality regulators to ensure that a “Flint crisis” never happens again;
- Conduct detailed infrastructure assessments, especially in vulnerable environmental justice communities;
- Establish a household action level for lead in drinking water;

- Identify inadequate enforcement of the Clean Water Act, Safe Drinking Water Act, and the Lead and Copper Rule where states and local regulators fail to do so;
- Work with federal and state agencies after a disaster to provide immediate potable water in larger quantities to meet emergency needs and maintain public health;
- Encourage and support efforts to build local water system capacity including training operators and sharing best practices; and
- Work directly with residents in environmental justice communities to educate communities about water infrastructure issues.

EPA has the organizational capacity, technological expertise, and legal authority to address these challenges and implement solutions. The agency is well-situated to help local operators and state regulators meet water infrastructure needs.

Within this report, NEJAC highlights specific examples of vulnerable communities where residents across U.S. states, territories and Indigenous Nations do not have access to clean, safe drinking water and proper sanitation. EPA continues to serve an important and vital role in enforcement, training and dissemination of information to public and private stakeholders. These eight goals and accompanying recommendations will help EPA lead states and communities toward a safer, cleaner future. The research and recommendations in this document attempt to convey the depth and breadth of water infrastructure needs and concerns across communities, but they are by no means exhaustive. The complexity of the nation’s water infrastructure needs will require vigilant communication and information to reduce and prevent wide-scale contamination, costs and harm. Through NEJAC’s work, we are resolved to share with the EPA relevant data and to bring visibility to the environmental justice needs and solutions of residents in cities, states and indigenous lands.

Finally, it should be noted at the outset that this document, by the nature of the charge from EPA and the limitations of the format, addresses only a portion of the very complex web of issues associated with water. The following are subject areas either not addressed or not completely addressed here that have profound impacts on environmental justice communities and are thus worthy of full consideration as one or more separate future charges to the NEJAC:

- The legacy of redlining as it intersects with water quality issues. Specifically, the historical and current discrimination that has seen people of color pushed to the ‘least desirable land’ be that land subject to flooding or drought, unincorporated areas and poor rural communities excluded from water rights, or low income communities without the resources to maintain their water infrastructure.
- Historical water access rights; or low prioritization of uses in areas of scarcity such as in California and other western state where residential, industrial, commercial and agricultural users all must draw from tightly rationed and controlled watersheds crossing multiple jurisdictions.
- A more detailed look at how water access, water infrastructure, and water rights/uses intersects with issues of tribal sovereignty.

- Regional differences in water needs, infrastructure, and stressors. For example, in the Western continental US priority issues may be on drought, recycling, conservation costs, and desalinization, while the Southeast U.S. and the Mississippi River watershed may focus more on water quality, flooding control, storm water management, and wastewater treatment.
- Rate setting and incentives and how they impact communities. Specific questions here may also vary by region as to who sets rates, how they are determined and adjusted, how or if specific sectors are allocated incentives or allowances, how “reasonable usage” levels are determined, and what assistance is in place to help residential customers control costs.
- A deeper dive into issues of system maintenance and agency governance including such topics as the criteria and evaluation process for deciding if smaller systems/ rural communities are to integrate or can be integrated into larger systems, and what voice those communities will have in governance. How can this be done in a way that doesn’t burden either those joining larger systems or those already in larger, better maintained systems that take on those ‘less advantaged’?
- An exploration of the Water/Energy Nexus. Many communities, particularly rural communities, need to make extensive use of pumps to move water for farming and household use. Older equipment makes this inefficient and thus very expensive while also contributing to pollution burdens either regionally (electric pumps drawing power from the grid) or locally (diesel pumps).

Goal 1: GOVERNMENTS TREAT WATER AS A HUMAN RIGHT

Water is essential to human life. But in the United States today, a community’s drinking water quality and wastewater disposal depends heavily on that community’s wealth, racial demographics, and access to political capital. Our nation’s children cannot live long, healthy, productive lives without consistent and reliable access to clean water and sanitation. As a member of the United Nations and a world leader, the United States should be treating water like any other public good, such as education and police protection—all our residents deserve clean water. Instead, we treat water as a commodity to be bought and sold by those who can afford it. We treat water like an amenity, instead of a vital necessity. Providing water and sewage only to those who can afford to live in an area with an expensive functioning infrastructure sends the message to neglected communities that their access to clean water and sanitation is a luxury. Those who suffer greatest from this reasoning are the most vulnerable, including those who are low-income, communities of color, those with disabilities, children, and the elderly.¹

The World Health Organization firmly states, “Water safety and quality are fundamental to human development and well-being. Providing access to safe water is one of the most effective instruments in promoting health and reducing poverty.”² In fact, in 2010, the United Nations General Assembly passed Assembly Resolution 64/292, formally recognizing the position that clean water and sanitation is a human right. Sadly, the people of Detroit, Michigan can attest that the United States does not follow this Resolution. In 2014, two United Nations Special Rapporteurs visited Detroit in the aftermath of massive water shut-offs by the city due to low-income residents’ inability to pay increasingly unaffordable water and sewage bills. Thousands of residents no longer had running water and proper sanitation in their homes. Most of these residents are African American and other people of color. The UN representatives considered the city’s draconian actions to be a serious violation of human rights, and they urgently called for Detroit’s municipal government to restore basic water and sanitation to the city’s most vulnerable.³

Water Should Be:

Safe – without pathogens, and carcinogens

Sufficient – at least 13 to 26 gallons per person, daily – although U.S. consumption is typically 3-4 times more.

Acceptable – clear, free from bad smells and tastes

Accessible – to people of all demographics, geographies and territories

Affordable – cost less than 3% of household income

Source: *United Nations General Comment No. 15. The right to water. UN Committee on Economic, Social and Cultural Rights, November 2002.*

¹ Consumer Federation of America, *The Campaign For Safe And Affordable Drinking Water. Are You More Vulnerable To Drinking Water Contaminants? Available At <https://Consumerfed.Org/Pdfs/Vulnpop.Pdf>*

² World Health Organization, *Water Sanitation Hygiene, http://www.who.int/water_sanitation_health/water-quality/en/.*

³ UN News Centre, *In Detroit, city-backed water shut-offs ‘contrary to human rights,’ say UN experts, <http://www.un.org/apps/news/story.asp?NewsID=49127#.WgIGSo9Szcs>.*

Several U.S. universities have established human rights clinics and environmental law schools to study international covenants and agreements alongside federal and state legislation and local policies regarding basic needs and utilities. Nearly all scholars agree that U.S. courts do not recognize or reference international human rights protocols, and Congress has not ratified United Nations' human rights treaties on water and sanitation. But federal laws do promote particular aspects of water rights and sanitation through provisions in the Clean Water Act (1972), Safe Drinking Water Act (1974) and Resource Conservation and Recovery Act (1976). Sharmila Murthy's research on a constitutive commitment to water offers, "American history, culture, and law demonstrate how access to water for drinking, hygiene, and sanitation could be protected under the right to life".⁴

Water is not a luxury. Every person needs safe water to drink, bathe, cook, and clean and every community needs a working wastewater system to prevent the spread of disease, bacteria and parasites. When poor communities are denied access to clean, safe, affordable water and sanitation (specifically low-income communities and communities of color), they are put at a high risk for waterborne diseases and pathogens (such as cholera, typhoid, legionella, and polio);⁵ and, particularly in First Nations, organ failure (e.g., kidney and heart) from uranium mining contamination in water, soil and air. Moreover, inadequate aging infrastructure puts residents at risk for exposure to heavy metals and contaminants (including lead and arsenic), or dangerous bacteria from sewage overflows.⁶ Exposure to these pathogens can lead to a public health crisis. Lack of residential water service has a cascade effect: without running water into the home, the living quarters are deemed uninhabitable and children may be removed by social services. In several cities such as Baltimore and Philadelphia water bills may be placed on property taxes leading to home foreclosures, empty neighborhoods and broken communities.

Recommendations. To address the inherent unfairness of unequal access to clean, safe, affordable water and sanitation infrastructure, NEJAC strongly recommends EPA take several steps to treat water as a human right:

Change the Culture.

EPA should promote stakeholder education across the nation to promote water as a human right. Specifically, EPA must publicly and unequivocally acknowledge water and sanitation inequities in communities of all sizes, and the consequences that arise when they are denied or not available to vulnerable peoples. It is a disturbing reality that not everyone in this country has the same level of access to clean, safe, affordable water and sanitation. This requires shifting our

⁴ *A New Constitutive Commitment to Water*, Boston College Journal of Law and Social Justice, vol. 36, p. 159 (2016), [Suffolk University Law School Research Paper No. 15-37](#).

https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2669380

⁵ World Health Organization, *Drinking Water*, <http://www.who.int/mediacentre/factsheets/fs391/en/>

⁶ Center for Water Policy, University of Wisconsin-Milwaukee, *Water Main Breaks Expose Public to Waterborne Disease Risk*, <http://home.freshwater.uwm.edu/mcLellanlab/files/2013/06/6-21Water-main-breaks-expose-public-to-waterborne-disease-risk.pdf>.

nation's priorities and practices. Treating water as a human right prioritizes the human needs behind significant, long-term investments in water infrastructure. EPA should take the lead on promoting a national public dialogue on the importance of water as a human right for all communities, not just those who can afford it. Internally, EPA should stress this philosophy at each and every level of the agency as it works with communities to protect human and environmental health.

Change the Policy.

EPA should encourage internal as well as external policy shifts in establishing universal rights to water and sanitation. EPA can urge the consideration and implementation of legal protections at the state and local level to prevent water shut-offs for vulnerable populations, and should stress the importance of consistent access to clean water and sanitation as a human right. The agency can leverage federal funding or examine other ways to encourage water utilities to remove financial incentives for high volume users that will shift proportional rates to those same users, thereby, promoting more equitable standards and reducing costs for lower water using customers and potentially low income customers.

Enforce the Safe Drinking Water Act and Promote Municipal Water Rights Policies.

EPA should quickly and efficiently enforce the required laws governing drinking water and sewage in low-income communities regarding human health protections. EPA should directly respond to inadequate state and local compliance, especially where vulnerable communities experience repeated problems. The agency has an obligation and the legal authority to ensure a community's access to clean water and sanitation. When communities are exposed to contaminated water, EPA should treat that exposure as a violation of human rights, and use the full power of the agency to work quickly and decisively to rectify those violations.

Successes: Several states around the country are ensuring access to clean water and adequate wastewater infrastructure for all. EPA can promote and support these initiatives by drawing national attention to these efforts, and encouraging other states to follow suit. Examples include:

 **Boston, Massachusetts “Right to Service” Policy:** Boston protects senior citizens and the people with disabilities from water shut-offs and ensures the city's most vulnerable residents will not be at risk from inability to pay their water bill. Eligibility is based on financial hardship.

 **California's Human Right to Water Bill:** California became the first in the nation to pass a law that explicitly recognizes the human right to clean water. The law also prioritizes domestic drinking water for human consumption over commercial water use. It directs the relevant state agencies to consider this law when implementing policies.

💧 **State of Hawai'i Water Code.** Hawai'i State Water Code recognizes that the waters of the State are held for the benefit of the citizens of the States. It is declared that the people of the State are beneficiaries and have a right to have the waters protected for their use.

NEJAC believes that the role and responsibilities of the Environmental Protection Agency provide a critical juncture for assessing, implementing and enforcing the human rights to water and sanitation as issues of environmental justice. In conjunction with other federal departments to advance and redress civil rights, housing, indigenous, health and human services, migrant and environmental concerns, the “EPA has been taking a more active role in working with various federal agencies to identify and address the environmental and public health issues raised by NGOs, community-based organizations, tribal governments and other interested parties in relation to the U.S. government’s international human right obligations and commitments”.⁷ This Council strongly encourages the EPA to continue its involvement with human rights treaty bodies and mechanisms while engaging with U.S. civil society groups to treat water and sanitation as human rights.

Goal 2: REQUEST CONGRESS TO ALLOCATE MORE FUNDING TO HELP COMMUNITIES WITH INFRASTRUCTURE BUILDING AND PUBLIC HEALTH PROTECTION.

Across the United States, communities are struggling to keep clean, safe water flowing to the tap and to safely dispose of wastewater. These struggles are directly tied to the fact that we, as a nation, have not made significant investments in our water infrastructure since the 1970s when Congress passed the Clean Water Act and the Safe Drinking Water Act. Over the last few decades, Congress has slashed federal funding that helps states pay for water infrastructure maintenance and upgrades.⁸ Faced with a myriad of other pressing issues, water utilities and states are failing to set aside enough money for drinking water infrastructure, sewer repairs, and upgrades. The lack of available federal funds for infrastructure means municipalities have deferred upgrades, which in turn has increased the risk of water line breaks and sewage overflows. Deferring critical maintenance increases the risk of catastrophic failure of water infrastructure for millions of Americans.

When deferring maintenance results in infrastructure failures, the utility will have to raise water rates to pay for required maintenance, repairs, and replacement. But those increased water rates are making basic water and wastewater service unaffordable for low-income communities across

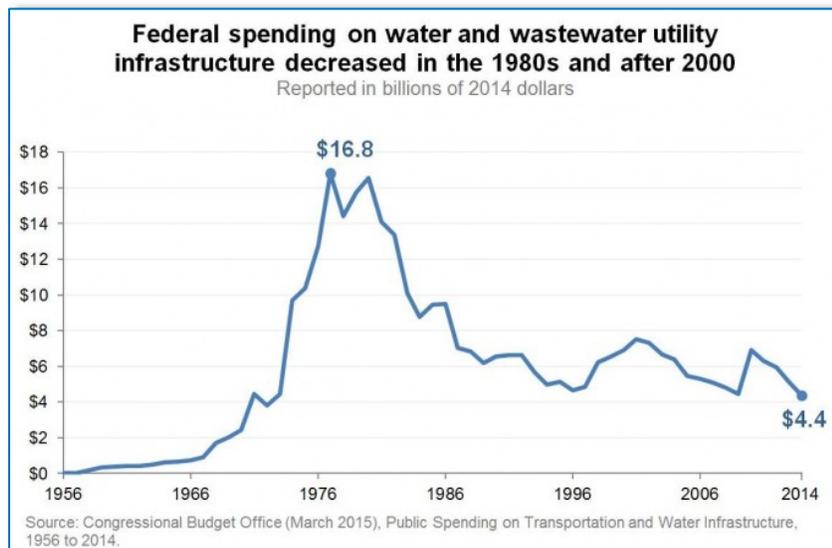
⁷ *EPA's Role in Promoting International Human Rights, Rights of Indigenous Peoples, and Environmental Justice*, <https://www.epa.gov/environmentaljustice/epas-role-promoting-international-human-rights-rights-indigenous-peoples-and>

⁸Value of Water Campaign, *The Economic Benefits of Investing in Water Infrastructure* (2017)

the country.⁹ Small, unincorporated communities, orphaned systems, and those serving vulnerable, impoverished populations require urgent attention. These communities do not have adequate resources to repair and replace infrastructure, or to build new systems.¹⁰ Some rural communities have not had working septic systems despite decades of pleas for help.¹¹

Nearly every community across the U.S. needs sufficient funding, along with well-trained staff, to provide safe drinking water and manage sewage. Doing so helps protect public health and the environment. Yet, EPA has documented enormous national needs for investment in water infrastructure. National reports have documented long-time problems with lead service lines in communities such as Washington, D.C. and in New Jersey that have had significant consequences.¹²

The agency's most recent nationwide surveys of local governments and utilities conservatively estimated **approximately \$473 billion needs to be invested within the next twenty years** to bring our nation's infrastructure up to environmental and public health standards.¹³ Strangely, this number is down from the estimated \$660 billion 20-year



investment need estimated in 2012, despite new concerns about lead in drinking water and other drinking water threats.¹⁴

⁹ Brett Walton, *Price of Water 2015: Up 6 Percent in 30 Major U.S. Cities; 41 Percent Rise Since 2010*, Circleofblue.Org (Apr. 22, 2015) <http://www.circleofblue.org/2015/world/price-of-water-2015-up-6-percent-in-30-major-u-s-cities-41-percent-rise-since-2010/> (last visited Dec. 15, 2017).

¹⁰ Jon Davis, *Aging infrastructure, lead pipes, nitrate runoff and funding among challenges vexing Midwest's drinking water systems*, (Mar. 2016) CSG MIDWEST.ORG, <http://www.csamidwest.org/policyresearch/0316-drinking-water.aspx> (last visited Dec. 15, 2017).

¹¹ See Appendix B, Case Studies: Lowndes, Alabama.

¹² Darryl Fears, *It's not just Flint. Lead taints water across the U.S., EPA records show*. Washington Post (March 17, 2016). https://www.washingtonpost.com/news/energy-environment/wp/2016/03/17/its-not-just-flint-lead-taints-water-across-the-u-s-the-epa-says/?utm_term=.9e6dabc8840b

¹³ EPA, *Drinking Water Infrastructure Needs Survey and Assessment, Sixth Report to Congress* (March 2018) available at <https://www.epa.gov/drinkingwatersrf/epas-6th-drinking-water-infrastructure-needs-survey-and-assessment>.

¹⁴ EPA, *Drinking Water Infrastructure Needs Survey and Assessment, Fifth Report to Congress* (Apr. 2013), available at <https://www.epa.gov/sites/production/files/2015-07/documents/epa816r13006.pdf>; EPA, *Clean Watersheds Needs Survey, Report to Congress*, available at <https://www.epa.gov/cwns/clean-watersheds-needs-survey-cwns-2012-report-and-data>

The American Water Works Association, estimates it will cost over \$1 trillion over the next 25 years to upgrade existing drinking water systems and expand them to meet our growing population.¹⁵ In 2010, EPA estimated the cost of capital investments required to maintain and upgrade nation-wide drinking-water and wastewater treatment systems at \$91 billion but only \$36 billion was funded, leaving a capital funding gap of nearly \$55 billion.¹⁶ For 2017, EPA allotted just over \$2 billion in loans for the Clean Water and Drinking Water State Revolving Funds.¹⁷

These federal loans can be leveraged through the sale of tax-exempt bonds to generate additional funds that can be loaned to municipalities for eligible drinking water systems. While the state revolving loan funds are an asset to communities, some water utilities do not receive funding because they have poor credit or are considered a bond risk and/or they do not rank high on the Integrated Priority Ranking System compared to others who are applying. For example, a water utility that requires pipe replacement will rank much lower on the list than one who is in violation of a health-based standard. The Federal Rural Development Authority strongly suggests that states award parties that are able to repay the money back to the Fund. This pressure puts states in a bind to award funding to a party when most likely they will fold on their bond and/or funding, even though those communities might have the greatest need for financial support.

Lack of expertise compounds the problem. Small communities typically do not have well-paid, well-trained staff to run their wastewater systems. Competition can be strong for water and wastewater professionals, especially those with considerable experience and higher-level certifications. Small and economically disadvantaged communities are most in need of expert operators and managers, but frequently are least able to pay a full-time salary. These systems often rely too heavily on unpaid volunteers or part-time operators with limited technical knowledge, obscuring the system's true operating costs. Programs like the Rural Water Utilities' Circuit Rider program provides technical support for rural water operations experiencing day-to-day financial, operational, or management challenges. Rural water system officials may request assistance from the Rural Utilities Service, or Rural Utilities Service staff may request assistance on behalf of the system.

Additionally, many medium and large system operators are anticipating a significant loss of skilled, senior operators with many in transition for retirement; and too few trainees in position to serve as a next generation of water and wastewater professionals. A lack of expertise and infrastructure management at all levels can lead to a costly and devastating public health crisis. For example, one cause of the Flint Water Crisis was Michigan Department of Environmental Quality (MDEQ) budget cuts and staffing changes.¹⁸

¹⁵ American Water Works Association, "Buried No Longer: Confronting America's Water Infrastructure Challenges," <https://www.awwa.org/Portals/0/files/legreg/documents/BuriedNoLonger.pdf>

¹⁶ American Society of Civil Engineers, "Failure to Act" (2011) http://www.asce.org/uploadedFiles/Issues_and_Advocacy/Our_Initiatives/Infrastructure/Content_Pieces/failure-to-act-water-wastewater-report.pdf

¹⁷ EPA, <https://www.epa.gov/cwsrf/clean-water-state-revolving-fund-cwsrf-allotments-federal-funds-states>; <https://www.epa.gov/drinkingwatersrf/annual-allotment-federal-funds-states-tribes-and-territories>

¹⁸ *Signs of trouble at MDEQ, years before Flint water crisis.* (10 Feb 2016). MLIVE.COM, http://www.mlive.com/politics/index.ssf/2016/02/signs_of_trouble_at_mdeq_years.html

In Puerto Rico, Hurricane Maria decimated the island's drinking water infrastructure for more than nine months leaving over 3.5 million residents without adequate potable water and sanitation. This U.S. territory resembles many rural regions on the mainland with small water systems that serve fewer than 10,000 people that oftentimes are locally owned and operated. Puerto Rico has approximately 300 of these small water utilities and the residents who operate them also lost their homes adding to the difficulty of rebuilding operations.¹⁹

Water-related public health problems require attention. Our nation's leading public health organizations, including the Centers for Disease Control and Prevention and the American Public Health Association, recognize lack of access to safe and clean water -- either due to a non-existent or inadequate system or because water service has been shut off -- as a serious public health concern.²⁰

Water shutoffs have become a common practice among water system operators to induce payment from delinquent customers. But this collections strategy fails to recognize or address the household and public health problems that are created when residents cannot properly hydrate, prepare meals or manage their personal hygiene for work or school. In Michigan, public health officials and the Department of Health and Human Services (DHHS) have issued daily alerts about Hepatitis A since its outbreak in August 2016.²¹ This highly contagious virus is fecal to oral transmitted and can be transferred by eating contaminated food or water. Vaccination and frequently hand washing are recommended to prevent the spread of Hepatitis A yet there continues to be an elevated number of cases. Fears about its multi-county and long-standing occurrence have led to travel advisories by several U.S. state and Canadian travel bureaus.

Another cause for public health concern among older water systems is the anticipated end of life expectancy among many lead service lines and galvanized pipes across the country. Thousands of miles of water lines have reached their expiration for safety and strength as public officials and system operators grapple with how and when to remove and pay for much needed replacements. New and emerging Superfund clean-up sites overseen by the EPA add further imperative to protect surface and ground water supplies.

¹⁹ *Puerto Rico teenagers take post-Maria water safety into their own hands* (Mar 26, 2018).

<https://grist.org/article/puerto-rico-teenagers-take-post-maria-water-safety-into-their-own-hands/>

²⁰ EPA, *National Enforcement Initiative: Keeping Raw Sewage and Contaminated Storm water Out of Our Nation's Waters*, <https://www.epa.gov/enforcement/national-enforcement-initiative-keeping-raw-sewage-and-contaminated-stormwater-out-our> (last visited Dec. 15, 2017); Centers for Disease Control and Prevention CDC, *Hygiene Challenges and Resources in Lower Income Countries*, ("The greatest... challenge[] [to good hygiene] is the lack of clean water. [W]orldwide, there are 1.6 million deaths per year attributed to diseases spread through unsafe water, poor sanitation, and lack of hygiene") https://www.cdc.gov/healthywater/hygiene/ldc/hygiene_challenges.html; APHA, *APHA applauds EPA's Clean Water Act rule* (May 27, 2015) ("Our nation relies on clean water for basic survival... When that water is polluted, Americans are at risk of exposure to a number of harmful contaminants."), <https://www.apha.org/news-and-media/news-releases/apha-news-releases/2015/epa-announces-clean-water-rule>

²¹ *Michigan Hepatitis A Outbreak* https://www.michigan.gov/mdhhs/0,5885,7-339-71550_2955_2976_82305_82310-447907--,00.html

Recommendations.

- 💧 **EPA should bring together federal, state and local government, non-profit, and community stakeholders to request Congress to significantly increase its appropriations for water infrastructure investments and programs.**

Since 1987, states have provided nearly \$160 billion to support local communities' infrastructure investment through the federally-provided Safe Drinking Water Revolving Funds, primarily in the form of low-interest loans.²² The current state of infrastructure neglect and the risk of catastrophic failure in multiple states will require greater funding to keep up with the dire need for repair and replacement. Congress has appropriated less and less money (adjusted for inflation) to fund water infrastructure over the past several decades. A large, sustained investment into the Revolving Funds would allow communities to prioritize their infrastructure for upgrades, and stop the practice of deferring maintenance. One expert suggests Congress increase combined federal funding for the Revolving Funds to a conservative \$6 billion annually, to adequately address the national need.²³ The FY2018 budget includes \$2.3 billion for the Clean Water and Safe Drinking Water Revolving Funds and \$20 million for the new Water Infrastructure Finance and Innovation Act (WIFIA).²⁴ While we recognize that Congress appropriates funding for the Clean Water and Safe Drinking Water Revolving Funds, we urge the EPA Administrator to ask for increased funding for these programs and WIFIA in the coming years.

Additionally, the need for infrastructure repairs, replacements and small systems support for commonwealths like Puerto Rico, as well as indigenous territories, should not be de-prioritized or funded differently than states simply due to the formers' political status or sovereign rights. Federal infrastructure investments historically and inevitably cross state and territorial

State Initiatives:

Minnesota

In 2008, Minnesota voters passed the Clean Water, Land and Legacy Amendment to the State Constitution. The Legacy Amendment solidifies the state's commitment to environmental protection, while also raising funds for environmental and water quality initiatives. The Amendment increases the sales tax by 3/8th of 1% through 2034. The fund is split into four categories, and 33% is allocated specifically for clean water. The state must use 5% of that fund on drinking water projects.

Missouri

In the state of Missouri, cities can impose special assessments and programs such as Neighborhood Improvement Districts or Community Improvement Districts that impose singular assessments such as special sales taxes or property tax levies to fund water infrastructure projects for Community or Neighborhood Improvement Districts, or they can utilize tax increment financing.

²² See <https://www.epa.gov/cwsrf> and <https://www.epa.gov/drinkingwatersrf/how-drinking-water-state-revolving-fund-works#tab-1>.

²³ Testimony of Lawrence M. Levine, Senior Attorney, Natural Resources Defense Council, U.S. House of Rep. Sept. 26, 2017.

²⁴ FY2018 EPA Budget in Brief. <https://www.epa.gov/sites/production/files/2017-05/documents/fy-2018-budget-in-brief.pdf>

boundaries in promotion of progress and safety for all communities. (See Appendix C case study for more detail.)

💧 EPA should encourage states to prioritize and provide grants or loan forgiveness to environmental justice communities.

EPA should work with states and local governments to creatively build a funding portfolio for water infrastructure, specifically for communities of color and low-income communities. In distressed and neglected communities, repaying a loan is a significant barrier and burden. To generate revenue to repay the loan, utilities often raise rates. For low-income and fixed-income individuals and families, a rate increase is a big deal to their monthly bottom line. Additionally, small, unincorporated communities typically will not qualify for these infrastructure loans because they cannot pay them back. Grants would allow the community to make desperately-needed improvements without passing the costs onto residents. EPA's Water Finance Clearinghouse is one place communities may identify grant opportunities, but these communities will need EPA's assistance in applying for grants and accessing other forms of matching funds.

Disproportionately impacted regions like Flint and Puerto Rico must be given infrastructure replacement and repair priority when entire communities are contaminated, devastated and in dire need of emergency relief, especially after prolonged periods of suffering. (Appendix A outlines an instrumental six-month program by Rural Community Assistance Corporation's Water Boards Leadership Institute for community capacity development.)

💧 EPA should support capacity building and apprentice programs by prioritizing grants for training and retaining water infrastructure professionals in environmental justice communities.

When a community has an expert at the helm of their water system, that expert can ensure the community understands and complies with water quality standards. EPA can help environmental justice communities by offering funds specifically earmarked to fund positions and training for professional infrastructure jobs within the system. These funds would facilitate hiring qualified operators and engineers to proactively identify, prioritize and plan for water infrastructure repairs and upgrades; and compensate small system volunteers. EPA should also encourage sponsorships within these communities, partnering with professional associations, apprentice programs and Historically Black Colleges and Universities to sponsor water infrastructure job training and engineering programs. These programs should aim to educate local residents, who will be encouraged to stay and work in their community.

Goal 3: PROMOTE AFFORDABLE WATER AND WASTEWASTE RATES

Every household should have access to running water and sanitation services at an affordable price. However, water and wastewater service bills are rising drastically as utilities try to keep these systems functioning. In many parts of the country, rates are increasing faster than the inflation rate. These rate increases often become unsustainable for low-income utility customers. The EPA should seek goal standards toward the fundamental right to drinking water and sanitation in the United States.²⁵ As reported by the National League of Cities: A new federalism is emerging as one in which cities lead the nation's most critical challenges, and can be seen prominently in the funding and managing of our infrastructure systems.²⁶ Among U.S. jurisdictions that regulate quality and guarantee physical access as a statutory or regulatory right, we find state and local officials often do not acknowledge rate affordability issues or how poverty and racial discrimination impact access to clean water and sanitation.²⁷ While some utilities and municipalities are proactive in assisting low-income ratepayers, there is no federal water infrastructure customer affordability framework, unlike other utilities such as electricity.

Water assistance and affordability authorization.

Energy utilities are mostly regulated through a state-level public utility commission or public service commission that approves rate increases and a utility's rate of return. While privately owned water utilities are regulated in much the same way, these types of utilities are a minority of systems. Most have some type of public ownership and with the exception of Wisconsin, few states directly regulate the rates of these types of systems. Some of these entities have created a form of customer payment assistance or budget billing for customers struggling to make monthly payments on water and sewage bills. There is no express authority for public funding of customer assistance or affordability programs for such. Water utilities oftentimes dismiss affordability programs

Communities Need Assistance

In EPA's recent review of 795 water and wastewater utilities, 71 percent surveyed offered no customer assistance program. Moreover, of the customer assistance programs identified, about half offered only short-term relief for customers facing temporary financial hardship, or "flexible" payment terms to customers in arrears.

See EPA, Drinking Water and Wastewater Utility Customer Assistance Programs, (April 2016).

²⁵ See, e.g., Martha Davis Let Justice Roll Down: A Case Study of the Legal Infrastructure for Water Equality and Affordability, 23 Geo. J. Poverty Law & Pol'y 355, 357 (2016); The existing federal framework on the right to water primarily consists of two statutes, the 1972 Clean Water Act and the 1974 Safe Drinking Water Act. Neither recognizes a right to safe drinking water. See Clean Water Act, 33 U.S.C. § 1251 (2012); Safe Drinking Water Act, 42 U.S.C. § 300f (2012).

²⁶ National League of Cities, "Paying for local infrastructure in a new era of federalism: A state-by-state analysis." 2016. https://www.nlc.org/sites/default/files/2016-12/NLC_2016_Infrastructure_Report.pdf

²⁷ See, e.g., Juliet Christian-Smith Et Al., A Twenty-First Century Us Water Policy 52-53, 57-60 (2012).

because they do not know if they can legally implement an income-based affordability program or, in the case of municipalities if the elected leaders will support their efforts to subsidize low income residents with their utility costs.

Furthermore, utility operator and EPA discussions of “affordability” primarily focus on “affordability of federal water mandates,” namely, water utilities delaying the necessary system upgrades required to meet pollution and water quality laws and regulations.²⁸ Currently, there is no federal law, program or funding specifically earmarked for keeping water and sewage rates affordable for those who are of limited means.²⁹ The EPA uses a residential indicator based on a community’s median household income (MHI) to determine affordability when evaluating wastewater and stormwater compliance measures, not whether the cost of services is actually affordable to low-income households.³⁰ This percent of MHI affordability metric only looks at overall affordability, not the affordability at an individual household level. A recent National Academy of Public Administration report found that the EPA’s 1997 guidelines should be updated to better account for the burden on poor households and costly infrastructure projects for federal clean water compliance. This type of affordability consideration will require new metrics and rate designs.

Addressing affordable water rates and billing for low-income customers has become a contested topic among system operators, investors, officials and other rate-payers who challenge the EPA’s affordability guidance concept.³¹ Unlike assistance programs that work on the assumption of providing temporary relief to residents who are experiencing short-term difficulty paying utility bills, affordability programs recognize long-term payment problems among low-income customers, along with on-going debt collection efforts, that subject the customer and water system operators to additional costs and burdens.

Moreover, a new 2018 study of residential water shutoffs by public systems across the U.S. revealed that more than half a million households were disconnected for unpaid bills in 2016.³² The report noted that poor cities and urban areas with large populations of people of color had the highest number of shutoffs. Among the cities with the highest rates of residential disconnection (i.e., at least 10 percent of the residents,) were in Tulsa, Oklahoma; Springdale, Arkansas; New Orleans, Louisiana; and Detroit, Michigan. With these critical findings among environmental justice communities, NEJAC strongly urges EPA to provide resources and

²⁸ See EPA Policies Concerning Integrated Planning and Affordability of Water Infrastructure; <https://fas.org/sgp/crs/misc/R44223.pdf>; EPA Water Infrastructure and Resiliency Finance Center, <https://www.epa.gov/waterfinancecenter/financial-technical-assistance-and-tools-water-infrastructure#affordability>

²⁹ UNC Env. Finance Center, *Navigating Legal Pathways to Rate-Funded Customer Assistance Programs: A Guide for Water and Wastewater Utilities* (2017), available at <https://efc.sog.unc.edu/sites/www.unc.edu/files/Pathways%20to%20Rate-Funded%20CAPs.pdf>

³⁰ NATIONAL CONSUMER LAW CENTER, *Review and Recommendations for Implementing Water and Wastewater Affordability Programs in the United States* 7 (March 2014); EPA, *Combined Sewer Overflows-Guidance for Financial Capability Assessment and Schedule Development*, (Feb. 1997) available at www3.epa.gov/npdes/pubs/csofc.pdf.

³¹ *Flawed Analysis Muddies the Water on Water Affordability*

<https://www.nrdc.org/experts/ed-osann/flawed-analysis-muddies-water-water-affordability>

³² Report: More than 500,000 households had water cut off. (October 24, 2018). APNews.com <https://www.apnews.com/3374e977ec01412da0fbf8a023db248c>

guidance to local utilities on how to ensure all people have access to water for sanitation and basic household needs at an affordable price.

Detroit, Michigan

In 2014, the Detroit Water and Sewerage Department began shutting off residential water service to customers who were behind in their bills of at least \$150, or 60 days. Over 100,000 people were affected in approximately 33,000 homes, particularly in low-income households with children, elderly persons and people with chronic illness. In late 2015, residential water shutoffs averaged 2,000 per week, while overdue commercial accounts were not affected. United Nations' rapporteurs visited Detroit in October 2014 and spoke with residents and local officials whose water bills were also transferred onto homeowner property taxes as liens. The U.N. issued a statement that if water is shut off to people unable to pay, it is a violation of basic human rights. Further, water bill debt that leads to potential homelessness, is a human rights violation too. See Appendix B—Case Study: Detroit, Michigan.

Water bills as property tax liens. When low-income families cannot pay their rising water bills, they may face serious, life-altering consequences. Cities like Detroit and Baltimore have answered residents' struggles to pay their water bills with widespread residential shutoffs.³³ In Baltimore, where water bills are often included in the rent, failure to pay can lead to eviction. For homeowners, an unpaid water bill of only \$750 can result in a lien placed on the owner's property taxes, leading to foreclosure proceedings.³⁴

In places like Flint and Baltimore, families are having their homes foreclosed on them because they can't pay their water bill. These houses are then condemned, leading to deserted neighborhoods and blight. The rate base of the utility continues to decrease, leading to more deferred maintenance and even higher rate increases as the utility struggles to keep operations solvent. Many of these households without running water are forced to resort to the

costly and unsustainable "fix" of using bottled water to wash, cook and clean.³⁵ Moreover, unaffordable water bills perpetuate poverty and other measures of household instability. Sadly, parents who can't pay their water bill may also lose custody of their children. Child services can remove a child from a home without running water. Now a parent must grapple with Child Protective Services and the court system to get their children back, all because they couldn't pay their water bill. Shutting off water creates a ripple effect of disastrous long-term consequences, further burdening a community's already-overwhelmed social services.

Man-made and natural disasters require urgent potable water responses. The Flint water crisis has been documented many-time over and has demonstrated the unremarkable and devastating ability of human error and financial decision-making (in the case of the

³³ In the spring of 2014 the Detroit Water and Sewerage Department's begin shutting off water to 3000 indigent families per week. E.g., Widespread Water Shut-offs in US City of Detroit Prompt Outcry from UN Rights Experts, UN NEWS CENTRE (Oct. 15, 2015), <http://www.un.org/apps/news/story.asp?NewsID=48129#.ViBMn3guJJZ>. Baltimore officials have sent disconnection notices to 25,000 delinquent water customers, giving them 10 days to pay overdue bills of larger than \$250, or face the loss of water service (Mar. 28,2015) <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-water-bills-20150326-story.html>

³⁴ Cassie Owens, "Philly City Council Helps With Water Shutoffs and Blight Prevention," NEXTCITY.ORG (June 25, 2015), <https://nextcity.org/daily/entry/philadelphia-water-bills-low-income-payment-plans>.

³⁵ Cynthia Boyd, *Why do poor kids drink more bottled water?* MINNPOST.COM (June 15, 2011), <https://www.minnpost.com/community-sketchbook/2011/06/why-do-poor-kids-drink-more-bottled-water> (last visited Dec. 15, 2017).

Governor-appointed Emergency Manager) to cause city-wide drinking water contamination. In the four years since government officials switched from the Detroit Water and Sewerage Department to the untested Flint River, nearly all residents have been affected by the health, housing and financial consequences of that decision and attempted cover-up. In actuality, the Flint water crisis began as a result of unaffordable water and sewage bills from a city unable to withstand the financial impact on municipal services. The crisis was exacerbated by criminal activity that has resulted in felony indictments and misdemeanor charges against 15 Flint, State of Michigan, MDEQ, MDHHS leadership and staff, along with a lack of state regulatory action. Flint residents still await resolve through the full replacement of the city's lead service lines while experiencing the slow process of long-term health improvements.

In Puerto Rico and Flint, deep financial crises, Wall Street bond debt, poor water infrastructure and egregious decision-making led to a series of disasters that created devastating human suffering on the island and in Michigan. Again, in both cases, the federal government was called upon to address the immediate and widespread humanitarian crises that couldn't be met by local or state/commonwealth governments. The contamination and poisoning of drinking water sources on this scale demonstrated the lack of preparation and wherewithal of state and federal emergency relief agencies to provide clean, potable water on large scales and ensure adequate sanitation for public health.

NEJAC is greatly concerned with the apparent lack of capacity of state and federal governments to provide immediate public relief for man-made and natural disasters that impact drinking water and wastewater systems. Additionally, we find increasing inequality in accessing affordable potable water and basic sanitation in low-income, indigenous, tribal and commonwealth communities, especially of color. Government authorities and private companies have not addressed water and sewerage like other utilities, such as electricity, natural gas or telephone service, leading vulnerable communities to lack access to clean, safe, affordable water and sanitation. The lack of consistent federal and state funding contributes to a growing problem of deferred maintenance, system operation problems and premature asset failure. Increasing costs for supply, operations, treatment, and maintenance are largely passed onto customers of the water or wastewater utility. While we find that residential customers are subjected to shutoffs, it appears that corporate customers are not subject to similar disconnections and may dispute their bills with utility officials, leading to rate-payer inequities and unstable utility operations over the long term.³⁶

Recommendations. EPA can adopt several policies to help states and utilities keep water affordable, adequately address the serious problem of entire American communities denied their human right to clean, safe water and sanitation, and ensure immediate relief during disasters

 **EPA should strongly condemn the practice of utilities and municipalities shutting off water to vulnerable low-income residents**

³⁶ Joel Kurth, *Detroit hits residents on water shut-offs as businesses slide*, THEDETROITNEWS.COM, (Mar. 31, 2016) <http://www.detroitnews.com/story/news/local/detroit-city/2016/03/31/detroit-water-shutoffs/82497496/> (last visited Dec. 15, 2017).

and encourage water utilities to implement effective customer affordability programs.

EPA should strongly encourage utilities to find ways to avoid shutting off water to homes. EPA should encourage utilities to stop service disconnection such as: use one or more ways provide emergency assistance through grant allocators; promote residential rates based on low incomes; address long-term water and wastewater infrastructure costs to residential users; and include water and wastewater in low income energy assistance grants to states. Customer assistance programs can assist people going through temporary tough times (such as a death, job loss, divorce, or even domestic violence) by subsidizing or capping water and sewer bills for low-income homeowners and multi-family housing owners, as well as avoid shutting off water to homes and particularly to protect public health. Customer assistance programs also provide other forms of targeted assistance, such as direct installation of appliances and fixtures that save water and lower costs. Utilities and municipalities should also consider cross-agency connection, where other social service applications are also connected to the same application as water assistance (information packets on SNAP benefits, fuel assistance, etc., should include an application for water assistance). EPA should encourage water utilities, advocates, and operators to read and understand the latest report from the American Water Works Association, *Thinking Outside the Bill: A Utility Manager's Guide to Assisting Low-Income Water Customers*.

But for customers experiencing consistent water-sewage unaffordability, water utility managers, owners, elected leaders, board members, and associated municipalities should create low income-based affordability programs. Such programs support the stability of water systems and customers by reducing the burden of debt collections and inconsistent payments. Moreover, water affordability programs are based on cost-effectiveness vs. cost-benefit analyses that prioritize customer payment success with long-term system benefits. This approach is more successful than cost-benefit designs that seek to determine short-term return. The City of Philadelphia adopted its water affordability program as a cost-benefit model to reduce homeowner foreclosures from water bill liens. In the one-year since its implementation, they report measurable success in the number of enrollments, and reduction in shutoffs and foreclosures.

💧 EPA should encourage municipalities and utilities to adopt equitable rate structures.

EPA should encourage states and utilities to adopt equitable rate structures that raise revenue with greater equity among users. Examples include seasonal or tiered rates for water, volume-based pricing for wastewater, and stormwater charges based on the burden a customer places on the public storm sewer system. Investor-owned drinking water utilities are subject to rate regulation by state public utility or public service commissions or boards, which can use their authority to drive the use of these equitable rate structures. The majority of drinking water utilities and nearly all wastewater and stormwater utilities are not subject to rate regulation by the states. Again, EPA should encourage federal and state policies to promote and provide incentives to adopt these equitable rate structures, which allow communities to generate revenues

needed for water infrastructure investment without unduly burdening low-income households. Another option may be the “Lifeline Rate” for all low-income communities where customers pay a subsidized rate for a fixed amount of water expected to cover that customer’s basic water needs. When water use exceeds the initial fixed amount of water (i.e., the lifeline block), the rate increases (known as a minimum bill, low-income rate structure, single tariff, or water budget). Any and all options should be done in consultation with local community stakeholders, especially EJ residents

EPA should update its affordability measures based on low income affordability ratios

In line with current determinants of household affordability to pay water and sewerage costs, NEJAC recommends the EPA update its 1997 water affordability guidelines. A 233-page report by NAPA made 21 recommendations -- four of which call for improvements on the EPA’s affordability calculations. We agree with the panel’s recommendation for other metrics than percentage of median household income (MHI). This change can help unmask the impact of poverty rates and income distribution among many utilities and allow for flexible approaches to affordability. One such metric that may better define household affordability is the Affordability Ratio. EPA should examine this, and other metrics, to provide a clearer picture of household level affordability of both capital projects and day to day operations. The Affordability Ratio³⁷ is defined as:

$$\text{Affordability Ratio} = (\text{Cost of Basic Water} + \text{Sewer Service}) / (\text{Household Income} - \text{Essential Costs})$$

Without these additional metrics, utility providers may contend that they meet MHI thresholds for affordability without truly addressing the inability of low-income customers to meet their

Success: Philadelphia Water Department



The Philadelphia Water Department implemented the Tiered Assistance Program in July 2017. A fixed-amount water affordability bill is based on household income. Residents do not need to be behind on their water bill to apply, and it is a one-size-fits-all application that covers applying for all social service relief programs. The city is collecting more revenue through this program than before, because people can afford the bill amount. Program administrators are working with community advocates to help residents apply for the program and reduce the nearly 40% of residents who are unable to pay water, sewer and storm water bills. In a further nod to their leadership on this groundbreaking path for water affordability, Philadelphia officials added their program is premised on water as a human right.

³⁷ Measuring Water and Sewer Utility Affordability. http://mannyteodoro.com/wp-content/uploads/2017/08/MTeodoro_Affordability-Method-Working-Paper-Aug2017.pdf

basic needs and pay their bills. Additionally, this approach allows for consideration of “working poor” households that may not qualify for income-based assistance programs.

💧 EPA should urge states to require companies who bottle water in a state to contribute to help ensure all state residents have access to affordable, clean water.

In Michigan, Nestlé Waters North America and MDEQ have been publicly criticized for executing permits that allow the corporate giant to pay merely \$200 each year per plant to extract millions of gallons of Michigan water for bottling. In the past decade, Nestlé has withdrawn nearly 3.4 billion gallons of water from Michigan aquifers that was bottled and sold at huge profit.³⁷ Water legislation and environmental protections have not kept up with growing commodification and consumer demands from heavy water extractions.³⁸ In contrast tens of thousands of Detroit and Flint residents are having their drinking water turned off for unpaid bills of \$150. Michigan should not give away Michigan water to corporations who then sell it back to Michigan residents who can't afford their water bills or who don't have safe water to drink in their homes. A corporate excise tax on groundwater usage would ensure a viable source of funding for improvement projects similar to a gas tax for road improvements. An excise tax is fair, constitutional, and within the states' power to levy. States are losing out on millions of potential funding for infrastructure by allowing this kind of corporate welfare.

Goal 4: PRIORITIZE ISSUES IN ENVIRONMENTAL JUSTICE COMMUNITIES.

Water Infrastructure in the U.S.
By the numbers

- ▶ 156,000 – public water systems
- ▶ 700,000 – miles of water and sewer piping
- ▶ 78 years – median age of water systems
- ▶ 240,000 – water main break per year
- ▶ 1.7 trillion – gallons of water lost annually due to broken and/or leaky pipes
- ▶ 44% – amount of America's water infrastructure that will be considered “poor, very poor, or life elapsed” in 15 years

Source: www.energyandcapital.com

Municipal governments, states, tribes, and federal agencies are not adequately identifying, prioritizing, or addressing water issues in environmental justice communities (*see* Appendix B for Case Studies). Water systems across the United States and territories range in immense complexity--from single wells directly serving a handful of families to major municipal water systems servicing millions across multiple jurisdictions.

le Water infrastructure systems are widely variable, making it nearly impossible to

³⁸ Garret Ellison, *Nestlé bottled water plant upgrade driving more groundwater extraction*, MLIVE.COM, http://www.mlive.com/news/index.ssf/2016/10/nestle_groundwater_pumping_exp.html

craft a one-size-fits-all legislative, regulatory, or programmatic solution to even common problems. Utilities can be publicly or privately owned or operated, governed in multiple ways, be stand alone or regional entities, and can face different types of regulations depending on the size, complexity of treatment, location, and governance structure. All factors contribute to the difficulty of finding and prioritizing small, economically distressed communities.

NEJAC sees broad challenges facing communities in providing safe, clean, and affordable drinking water and wastewater collection and treatment. These can be grouped into four categories: variety, cost/complexity, stressors, and engagement. Each challenge contributes to the variety and complexity of solutions that are required to address infrastructure upgrades and replacements. Broadly speaking, the following spectrums could be used to describe water systems and the communities they serve:

Size and Economics: Larger water systems are likely to have more existing resources than smaller ones for providing safe and clean water to their community. However, larger systems also mean larger and more complex distribution systems with more opportunities for problems. Additionally, the populations served by water systems are in flux. A small community could experience rapid expansion placing demands on an undersized system, or a large community could experience a shrinking population that reduces income from ratepayers for a system that cannot be easily downsized. Smaller or shrinking communities under financial strain are also more likely to lack sufficient properly trained staff.

Challenges – Population Decline

Ranger, Texas

The population of Ranger, Texas declined from its peak of approximately of 30,000 to its current 2,500. Oversized water pipelines lead to stagnant water within the infrastructure. The decline in population resulted in a huge financial burden for the utility because there are not enough residents to pay for the maintenance of the water supply.

Ownership and regulation: Public and private ownership each call for different interventions/assistance which can be further complicated by individual situations such as public/private partnerships, contracts between communities for water services, or communities operating under a receivership. Communities that rely on individual private wells or hauled water present yet another set of challenges. For example, private water wells may not be able to meet testing and quality standards required of public water sources.

Source and Setting: Water sources (groundwater, groundwater under the direct influence of surface water, springs, and surface water) present different types of challenges. Each is at risk for different kinds of external contaminants and requires different safeguarding resources. Urban, suburban, rural, and water systems on tribal lands can vary greatly from one another in terms of the physical infrastructure, difficulty/cost of maintenance, and organizational structures governing their operation. For example, working with a small-town

board to make changes to water system operations may be quite different than dealing with a major metropolitan water authority.

Recommendations.

💧 EPA should filter its current data and tools through an environmental justice lens to identify water issues in environmental justice communities.

EPA needs to help environmental justice communities proactively address the looming public health crisis of neighborhoods without clean water and sanitation. Problems are more likely to be fixed when they are visible and quantified. EPA should use and interpret already-available data to focus efforts on environmental justice communities. EPA conducts several surveys and studies about water infrastructure and low-income customer assistance programs including the *Drinking Water Infrastructure Needs Survey and Assessment*,³⁹ the *Clean Watersheds Needs Survey*, and the *Drinking Water and Wastewater Utility Customer Assistance Programs Report*. EPA should analyze where the information gaps are in its voluntary surveys, and work with the Regional Offices to fill those gaps. EPA should also direct the Regional Offices to survey and take specific note of low-income households (pockets of poverty) within communities that are not economically distressed. The methodology for voluntary surveys should be specifically focused on mapping needs for environmental justice communities, as well as separated to show urban vs. rural vs. suburban locations. The needs of these types of systems can be quite different. Expanding a review into these categories can offer the EPA insights into additional differences and concerns.

💧 EPA should encourage municipalities and other water utilities to use the Health Impact Assessment Framework.

To help plan and inform priorities for funding as well as to provide decision-making guidance to optimize potential health benefits of proposed water infrastructure projects or policies, EPA should direct municipalities and other water utilities to utilize the Health Impact Assessment approach. A Health Impact Assessment comprehensively reviews any project from the point of view of human health. Optimal results are yielded from this approach when it is conducted as a decision-making tool before a project or policy is implemented. EPA has a Health Impact Assessment Resource and Tool Compilation website.⁴⁰ This tool should be widely disseminated to municipal planners by Regional Offices. Communities should categorize the scope, assessment, recommendations, reporting, evaluation and monitoring to focus the lens of infrastructure projects on human health, not just economic considerations. This framework can be used effectively as a method of data generation, to help assess how a proposed project or

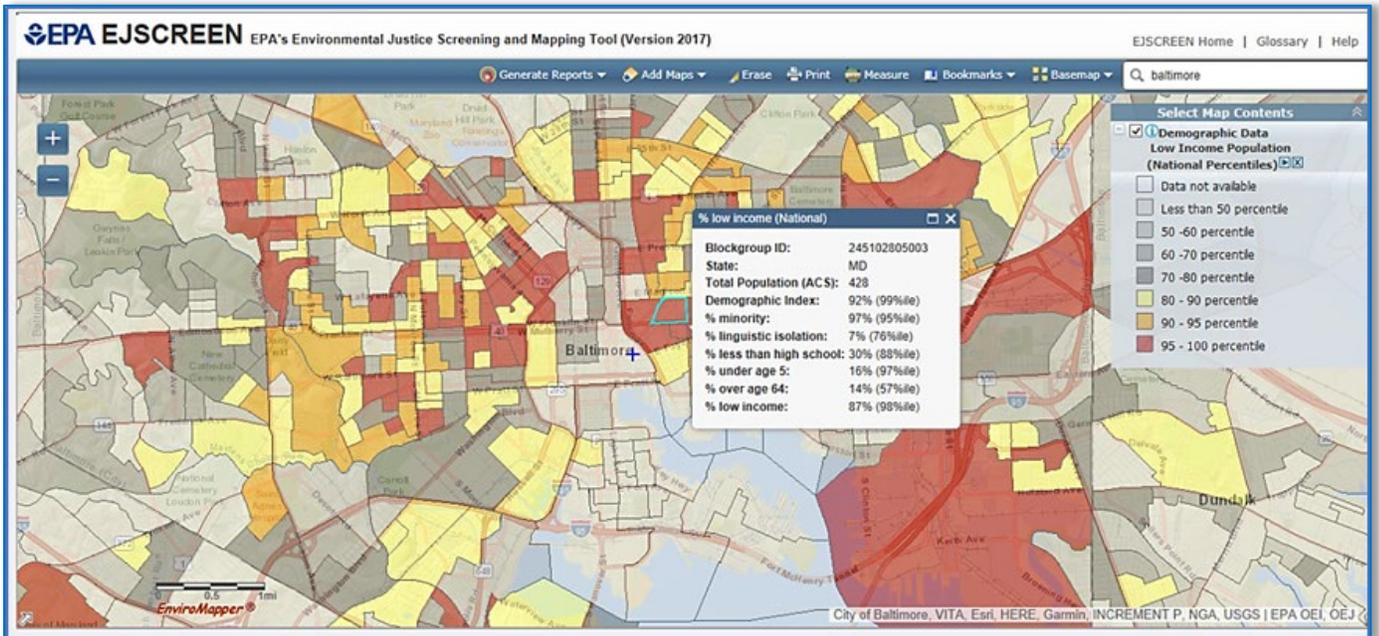
³⁹ *Drinking Water Infrastructure Needs Survey and Assessment*, Fifth Report to Congress, April 2013, <https://www.epa.gov/sites/production/files/2015-07/documents/epa816r13006.pdf>

⁴⁰ <https://www.epa.gov/healthresearch/health-impact-assessment-hia-resource-and-tool-compilation>.

policy will affect the health of a population, to determine whether or not vulnerable populations are more likely to be impacted, as well as provide meaningful input for grants and other funding applications.

EPA should include drinking water issues in EJSCREEN.

EPA's online tool EJSCREEN does not include data on drinking water. Adding this information to EJSCREEN would help educate and engage the public at large about water quality issues.



Screenshot of EPA's online EJ mapping tool, EJSCREEN. <https://www.epa.gov/ejscreen>

Goal 5: INVOLVE ENVIRONMENTAL JUSTICE COMMUNITIES MEANINGFULLY IN INFRASTRUCTURE DECISIONS.

Municipalities and governmental agencies, as well as other types of water utilities, often struggle to meaningfully engage neglected and disadvantaged communities on wastewater and drinking water issues. These communities are deeply distrustful of water system operators and decision makers because the state and federal government often fail to enforce laws requiring clean water in their communities, along with the governments' repeated failures to meaningfully involve these communities in decisions that greatly affect their day-to-day lives.

High rates of personnel turn-overs in federal and state agencies stymy community engagement and result in many managerial and operational inconsistencies. This negatively affects the ability of the community to meaningfully contribute to an infrastructure project. Communities that work with state entities overseeing water systems seeking water project funding often see the requirements repeatedly change due to new staff at the agencies, or new criteria. These personnel

changes then require the community to engage in completely different approaches to secure funding or comply with requirements. A community cannot meaningfully contribute to solving its problems if it does not have the right information, or lacks the ability to process and use that information in an effective way.

Recommendations. By supporting local community initiatives led and developed by local community leaders, EPA can help municipalities and other types of water utilities meaningfully engage communities. This includes developing a process of reviewing and considering the results of community-driven citizen science⁴¹ monitoring data in water and wastewater infrastructure decision-making.

💧 EPA should facilitate local and regional partnerships as a strategy of meaningfully engaging with the community.

NEJAC has examined several examples of efforts to meaningfully engage EJ communities, reflecting a broad spectrum of community types: large and small, urban and rural, including an array of different demographic and economic characteristics. Consistent themes for success are:

- 💧 Deliberate, consistent community engagement;
- 💧 Transparency in decision-making;
- 💧 Open back-and-forth communications; and
- 💧 Collaboration between planners, agency regulators, and the community.

Developing an approach to respect and foster these collaborative themes is the key to successful, meaningful community involvement. All four of these elements must be present in any community engagement initiative. Using these themes builds trust and respect between stakeholders, encourages mutual gain, and creates strong partnerships for future productive problem-solving processes.

The above paradigm focuses on community involvement in *both* the planning and decision-making process, not just when the project needs voter approval. EJ communities often do not feel empowered to engage, because few planners take the time to really listen and understand their unique concerns before imposing solutions. When government officials and planners come into the community, the residents' reaction is often, "What are they going to do to me now?" Persistent distrust of government and regulatory agencies will derail any community engagement project. Engaging with the community early during the planning stage will allow community members to participate, not just spectate. It will also require planners to translate complicated technical information into a layperson's language, and engage in more organization and community outreach with advocacy groups and local government support. (*See Appendix B, Case Study: San Diego for an example of a very successful community engagement campaign*).

⁴¹ Citation for term, citizen science: <https://www.epa.gov/citizen-science>

Success: Federal Water Infrastructure Project Results from Church Rock Navajo Declaring Rights to Clean Water for Drinking and Irrigation

Church Rock, Navajo

Access to safe, clean drinking water across the reservation is one of the most difficult problems to manage. For many years, Indigenous residents in the Navajo communities of Red Water Pond worked uranium mines on the hillsides of the reservation before much was known – or reported – about how dangerous and deadly uranium extraction is to people and the surrounding environment. Navajo and Jicarilla Apache reservations and the City of Gallup have experienced inadequate and long-term problems with water supplies for people living off the San Juan River. In 2017, a federal infrastructure project was announced for Navajo-Gallop to increase the supply of clean drinking water. Many new pipelines, pumping stations and storage tanks are being built and the project is scheduled for completion in March 2020.

These partnerships can and should include water and wastewater utility associations, colleges and universities, and research institutions. Strategies to involve these groups include:

- Organizing a panel presentation or a series of short workshops at water and wastewater conferences to explain the need for and benefits of local partnerships and highlighting places where partnerships have been successful. Industry conferences like the Virginia Water Environment Association’s “Water Jam,” provide a unique opportunity to speak to hundreds of water and waste water utility professionals and their associations.
- Often colleges and universities are already connecting with local communities, often on a pro bono basis, to provide water quality testing, research, and expert testimony. In places where communities lack access to such resources within the community, EPA could help connect colleges and universities to communities in need. For example, the environmental law clinic at Duke University is assisting the community in Lowndes County, Alabama with legal and policy needs related to their sewage issues, while also inviting engineering students to visit to help solve the problem. EPA could sponsor EJ Hackathons, bringing together engineers, scientists, and innovators together along with impacted communities to connect the communities with services and to pursue creative solutions. EPA could also maintain a website with a list of research needs from impacted communities.
- EPA and the States can act as directors to harness much energy and knowledge towards promoting safe, clean water and solve problems. Specifically, EPA and the States can promote silo breaking by:
 - Convening and working with external entities as convener, and creating platforms for discussions. Communities need to have a voice and advocacy.

- Identifying common goals; what’s the benefit to all parties involved including federal, state, and local entities.
- Developing a practical roadmap that outlines preliminary recommendations and priorities. Communities need to be able to understand the pathways to gaining technical assistance, funding, and agency support.
- Promoting the use of college and Universities venues for hosting meetings and trainings.
- Identifying educational, social and scientific research needs (and potential funding sources) to colleges and universities.
- Providing service learning opportunities (e.g. class projects and internships) for college and university students.
- Co-develop policies that best support water infrastructure.

EPA and local water authorities should change their public input processes to meaningfully involve impacted communities.

Often federal, state and local government agencies develop a public input process because it is required (by law or policy). They create the process and then ask, “How do I get people to come to my meetings?” When there is low public turnout in the process, often the conclusion is “no one cares about the issue.” Instead, EPA should take the lead to fundamentally change how public processes are developed to ensure that public input, especially from impacted communities, is central to how the public process is developed. Further, the public process must provide an opportunity for participants to shape the outcome in order to make it worthwhile to participate. Where a state agency has a public outreach process that does not meaningfully involve impacted communities, EPA should teach the state agency how to improve its processes.

Regional EJ and Capacity Development Coordinators can work with municipal planners to meet with residents at a church, coffee shop or local community facility, and ask community members to talk about their concerns, answer questions and get feedback. This outward-facing approach will help planning officials and EPA obtain useful, actionable input from communities that face government neglect and discrimination. This can also minimize resistance and achieve broader acceptance of capacity-building efforts in historically neglected communities.

EPA should encourage Regional Offices to make frequent and personal contact within EJ communities.

Increased contact with vulnerable communities can serve several goals.

Identify and prioritize funding needs: By increasing outreach in communities that are extremely isolated, have very low-income base, have historic environmental justice issues, or are considered “orphan systems.” An orphan system is one in which there is no identifiable operator of record or owner. Someone may be taking care of the system so water is running, but they are not legally responsible. Increased contact with vulnerable communities can help EPA and the

states better identify and prioritize needs for state revolving funds or other funding support. EPA could ask each Region to estimate the number of orphaned systems and the locations, if known, of these systems, as well as the population served. Identifying the scope of this problem will orient EPA and the states regarding what potential solutions may exist to help address these types of systems. This data can then be integrated into EJSCREEN to help states prioritize infrastructure funding.

Build partnerships for technical support. Repeatedly and consistently engaging vulnerable EJ communities and contacting water associations to encourage sharing information with city and county officials can foster necessary technical relationships and support for healthy infrastructure. Federal and state agency staff should make frequent on-site visits to communities with inadequate water and wastewater facilities. The purpose of such visits would not be to inspect or regulate, but rather to answer questions, promote funding programs, and, most importantly, to observe how systems are run and where the potential for problems lie.

Better serve Tribes. EPA's Office of Water should collaborate with each of the EPA tribal coordinators as well as Indian Health Service to determine which tribal water systems face the greatest needs in terms of water infrastructure, including funding sources, and public health compliance and infrastructure decay. EPA should work with each state enforcement agency to identify the number of communities who are facing serious infrastructure or compliance issues (including deterioration, neglect, contamination) that are in close proximity to, or within the service area of, a larger compliant and more efficient utility. EPA could explore ways to incentivize the larger utility to support the struggling systems.

EPA and states should provide education grants for technical associations to educate local residents and utilities about drinking water and wastewater infrastructure solutions.

Technical associations are well-positioned to educate communities about infrastructure problems and solutions. Options to fund this program include directing more grants from the Environmental Education unit, establishing a new education initiative through the Office of Water modeled off the Urban Waters Program, and directing other entities to provide funding opportunities in rural communities (such as the US Department of Agriculture).

To best encourage and support partnerships, EPA should serve as a helpful resource, reaching out to offer support and providing information.

EPA has an important role in a partnership effort, but it is not to prescribe outcomes, set expectations, or establish terms and conditions. EPA should refrain from leading, or otherwise directly initiating, collaborations at the local level. Instead, EPA should facilitate and serve as

subject matter experts on the technical, managerial, and financial aspects relevant to the specific project. Communities should plan and lead their own efforts, with EPA helping to provide information, training, and access to funding. NEJAC also recommends that EPA should be available to advise state and regional partners on how to proceed on any infrastructure build-out, renovation, or significant policy change affecting water. The agency should also bring utilities within a regional area together and provide the platform to network and collectively identify solutions. (See Appendix B--Case Study: Sandbranch, Texas, for a successful EPA/Regional Partnership).

Goal 6: BUILD COMMUNITY CAPACITY.

Currently, many communities find it difficult to interface with EPA and state agencies because they lack the capacity to engage, plan and execute infrastructure projects. EPA often attempts to communicate with communities via unfamiliar, overly-technical language. People do not want to participate in discussions about confusing, overwhelming topics where they have no power to affect change. Communities are frustrated when agencies offer solutions that do not work, or quickly fail because they are not tailored to the needs and available capacity of the community to implement. For instance, offering a funding application is useless if a community doesn't have the right expert to fill out the application correctly. People feel ignored and potentially insulted when agency personnel are inconsistently engaged, such as coming in during or after a crisis, then leaving once the media attention has died down but before the problems are adequately addressed.

Recommendations.

EPA should encourage water utilities to use best practices by offering trainings and supporting existing successful training programs like the Water Boards Leadership Institute.

EPA should stress to water utilities the benefits of technical, managerial and financial best practices for the development of all new water infrastructure projects. The Water Boards Leadership Institute by Rural Community Assistance Corporation is one example of best practices in building community leadership for clean water. See Appendix A. EPA should also encourage groups to document and share Best Practices that worked in their community with other water operators and managers, municipalities, and other types of local governments, to replicate success in similar environments. Partnerships with non-profits, water associations, and universities, as well as encouraging attendance at water industry conferences, can help local governments and utility operators learn best practices. A Best Practice is:

-  **Relevant:** In line with the context and meets target groups' real needs;
-  **Replicable:** Cost is reasonable within the context and documented, educational material and expertise are available to replicate it;

- 💧 **Innovative:** Offers a certain degree of innovation, either because it “created” new approaches, or because it applies what is planned in policies or strategies not often applied or not applied at all;
- 💧 **Sustainable:** The results achieved remain after the action is completed, and a mechanism is in place so that results can further be replicated.

💧 **EPA should encourage communities to share Lessons Learned.**

After a water infrastructure project is completed, documentation and analysis of the process of implementation is vital for long-term success. EPA should encourage a thorough documented review of project implementation by all stakeholders in order to determine what worked and what did not, and to refine Best Practices.

💧 **EPA should consider supporting partnerships where efficiently run water utilities acquire failing systems.**

Where a water utility system is failing, it may benefit by partnership with or acquisition by a “Good Samaritan” system. In this way, communities may benefit from water utility partnerships. However, partnerships with successful systems or bringing in an outside company to run a municipal sewage system can be fraught with problems. While a municipal water or waste water system is run for a public benefit, a corporate-run system is driven to maximize profits. Many communities faced with their municipal systems turning over operations to private companies have expressed concerns.

💧 **EPA should help EJ communities secure funding to support capacity building and to ensure water infrastructure projects are viable in the long term.**

Almost all capacity issues can be either addressed or improved with increased funding. EPA should follow the recommendations listed in Goal 2 above to help struggling communities access more funding to build local capacity to provide clean drinking water and sanitation.

💧 **EPA should encourage Regional Offices to facilitate partnerships.**

EPA alone will not be able to assist all underserved communities in addressing their drinking water and sanitation issues. EPA should follow the recommendations listed in Goal 5 above to foster partnerships as a way to build local capacity.

💧 **EPA should design and implement EJ training modules to bring together stakeholders.**

EPA should require Regional Administrators to hold *annual* regional community engagement trainings with each Regional Office’s EJ coordinator, state EJ coordinator, local water utility owners and operators, citizen advocates, municipal planners, and public health professionals. Support regional partnerships with paid professionals to address problems of understaffed water systems. One solution could be to contract work with retired public water system employees through virtual training.

EPA should facilitate EJ communities to engage in more effective emergency response planning for water.

EPA should encourage communities to develop contingency plans for large-scale water contamination, including alternative potable water sources. EPA should coordinate with the Federal Emergency Management Agency to help communities prepare for water crises after a natural or manmade disaster. EPA should distribute *Planning for an Emergency Drinking Water Supply*⁴² to municipalities, planning boards, other local governments, and utilities. EPA should coordinate with FEMA to help provide contaminated water crisis alternatives besides bottled water, and in larger quantities to meet emergency needs. Communities struggle with contaminated tap water often turn to bottled water, which is expensive and negatively impacts the environment.⁴³ Millions of disposable water bottles leftover in Flint during and after the water crisis demonstrate the need for available federal potable water resources and training to meet large-scale drinking water needs of residents. It is impractical, inefficient and costly to provide and rely for extended periods of time upon bottled water for daily needs. Potable tanker trucks with pipe and spigot apparatuses, centrally located within the community, are one alternative to bottled water.

EPA should design and implement effective quarterly outreach trainings for all Regions’ EJ and Capacity Development Coordinators.

EJ and Capacity Development coordinators within each Region are vital for capacity building success, but not all coordinators have the same level of training or commitment. EPA should implement targeted, frequent training (at least one training every three months) to show the agency’s commitment to community engagement, as well as ensure all agency personnel understand how to effectively—and consistently—engage communities. EPA should instruct Coordinators to reach out and act as facilitators of projects, not as leaders. Community members should be the leaders of these initiatives. Written materials about the importance of community involvement in all aspects of decisions around public water infrastructure should make specific

⁴² Planning for an Emergency Drinking Water Supply. (June 2011) EPA Office of Research and Development. National Homeland Security Research Center. https://www.epa.gov/sites/production/files/2015-03/documents/planning_for_an_emergency_drinking_water_supply.pdf

⁴³ <http://www.bottlemania.net/index.html>

reference to the “meaningful involvement” portion of EPA’s definition of Environmental Justice. EPA should take advantage of the agency personnel who are experts in their field by fostering mentorship between senior and junior staff. Senior EJ and Capacity Development Coordinators should lead frequent and consistent outreach training for all Coordinator staff. Training should focus on these subjects:

- 💧 **Establishing Equal Partnerships.** Coordinators must emphasize the two-way flow of information, leadership, decision-making, and benefits. The most important characteristic of EPA-community partnerships is that information and feedback should flow in both directions. This approach to partnerships can prevent communities from feeling victimized, patronized or steam-rolled.
- 💧 **Building Trust by Focusing on Community Input.** Coordinators must listen directly to people who will be impacted by an agency decision, before that decision is made. Active listening builds trust and fosters more productive collaboration. Give communities a chance to tell their stories.
- 💧 **Leading Citizen Training Programs.** Coordinators should provide accessible technical trainings and resources so that citizens can understand the basic science behind their water systems, as well as the regulatory agencies’ processes and responsibilities. Programs should focus on water contamination awareness, risks and prevention, as well as how to navigate state and federal bureaucracy when action is needed. Templates for communities to initiate these programs should be made available on EPA’s Water Infrastructure and Resiliency Finance Center website.
- 💧 **Supporting Healthy Volunteer Culture.** Coordinators should promote thorough training and support for community volunteers, defend against burnout, and help groups avoid overburdening citizens. Volunteers are not trained professionals and should not be tasked with handling infrastructure failure. They are, however, vital for education and outreach efforts. Help groups create realistic goals and pathways to achieve success.
- 💧 **Making Initial Direct Contact.** Coordinators should meet citizens in open, accessible spaces like coffee shops, town halls, and libraries. EPA should provide translation services, if necessary. The primary purposes of initial meetings are to listen and empathize, not to regulate or inspect. EPA should use various social media platforms to promote meetings and engagement, but not as a replacement for face-to-face contact.
- 💧 **Incentivizing Widespread Participation.** Coordinators should find unique, culturally-specific ways to increase the number of community members who recognize themselves as stakeholders. They should reach out to existing organizations and networks, such as faith-based groups, grade schools, institutions of higher learning, nonprofits, advocacy groups, and local businesses. Consider appropriating funding in the

form of small community grants to help communities to set up institutions to facilitate participation and technical understanding about water use and infrastructure, such as neighborhood planning boards, citizen water councils, and citizen scientist programs. Work to build partnerships with professional organizations to provide technical assistance (appropriate examples include the Water Environment Federation, Air and Waste Management Association, American Public Health Association, National Environmental Health Association, American Planning Association, American Water Works Association, and American Society of Civil Engineers).

 **Responding Before and After a Water Emergency.** Local Regional Offices can help communities respond to a crisis. EPA should instruct Regional Office staff to coordinate with the Federal Emergency Management Agency and local and state governments after a disaster, when water hazards are imminent and life-threatening, as well as after the initial threat has been managed.

 **EPA should direct the Regional Offices to conduct an aggressive campaign of *significant, sustained outreach* by each Region's EJ coordinator to local municipal governments about water infrastructure.**

EPA regions should ensure that EJ coordinators have the resources they need to meet and work regularly alongside environmental injustice communities. Regional directors should encourage local governments to promote the community's active participation in water and sewerage infrastructure decision-making processes, and ensure equitable representation within local decision-making entities.

 **EPA should update and expand its web-based engagement tools to consider and incorporate environmental justice issues.**

EPA current web tools are not designed to consider environmental justice issues or to engage vulnerable communities. EPA’s Water Finance Clearinghouse online database currently has an “affordability” filter in its Special Topics section of its Resources database. This existing resource could be redesigned to contain more helpful information about the connection between EJ communities and their unique water infrastructure needs. The Clearinghouse can be expanded to include an EJ community database as a Special Topic filter in its Resources Section. The Clearinghouse can link to outside community roadmaps so that people know what their options are when they face situations such as water shut-offs, sewage failures and other crises. This would empower citizens to reach out when they need help by eliminating barriers to connecting with the appropriate agency officials, giving citizens clear information about how their options and the consequences of each, and creating agency accountability. The Clearinghouse should provide translated copies of each resource or an accompanying supplement to each document to guide readers who are newer to the English language, or solicit bilingual users to create and add these materials.

Contamination Nationwide

In 2013, EPA commissioned a study to sample fifty large wastewater treatment plants nationwide and discovered at least “twenty-five different active pharmaceutical ingredients in the waste stream, including pain-relief medicines like oxycodone, blood thinners like warfarin, high blood pressure medication and beta blockers like hydrochlorothiazide, atenolol and metoprolol, and over-the-counter drugs like Tylenol and ibuprofen.”

M.S. Kostich et al., Concentrations of Prioritized Pharmaceuticals in Effluents from 50 Large Wastewater Treatment Plants in the U.S. and Implications for Risk Estimation, 184 Env. Pollution 354 (2014)

The Clearinghouse can also consolidate funding applications for EPA assistance. The various sources of funding and applications should coordinate to eliminate duplicate information. The applications should be organized in a cohesive manner, reflected in the community roadmap, and rewritten to be as clear as possible. Along with each application should be a timeline for each subsequent processing step, and a rolling list of funding applicants so that people can see where they stand in line to receive funds. The Clearinghouse can serve as a resource to foster partnerships, such as lists of types of partnerships and definitions of each party’s roles and contributions to the partnership. Removing the uncertainty of who should handle which task, who has what information, and who is the contact person for which third party decreases the risk of communication falling through the cracks and people losing momentum, or failing to follow-through with someone asking for help. In the long term, EPA can also facilitate a community water infrastructure mapping project, linked to the Clearinghouse. These databases can be shared with EPA’s EJSCREEN tool to provide a way for EJ communities to interface with their water systems. EPA also has C-FERST (Community-Focused Exposure and Risk Screening Tool), an environmental and public health online mapping tool. C-FERST and EJSCREEN should be integrated to allow for more comprehensive community mapping with an emphasis on environmental justice and water infrastructure.

EPA should assist communities in providing job training opportunities to ensure communities have access to qualified professionals to operate and maintain water systems.

Many communities are facing an imminent work force shortage as one-third of utility operators across the country are eligible for retirement.⁴⁴ To ensure that communities have qualified professionals to operate and maintain their water systems, EPA should support job training opportunities, especially in environmental justice communities. Intentionally expanding opportunities for more diverse populations to enter the water workforce, will move the water industry toward being more reflective of the communities it serves.⁴⁵ The U.S. Water Alliance’s Report, “An Equitable Water Future,” includes many examples of how to develop a workforce that can better serve our communities. Recommendations include:

- Build a water career pipeline for youths and adults;
- Use pro-active, inclusive hiring requirements for construction and non-construction careers; and
- Align workforce training programs with employer needs at a regional level.

Goal 7: SUPPORT TECHNOLOGICAL INNOVATION.

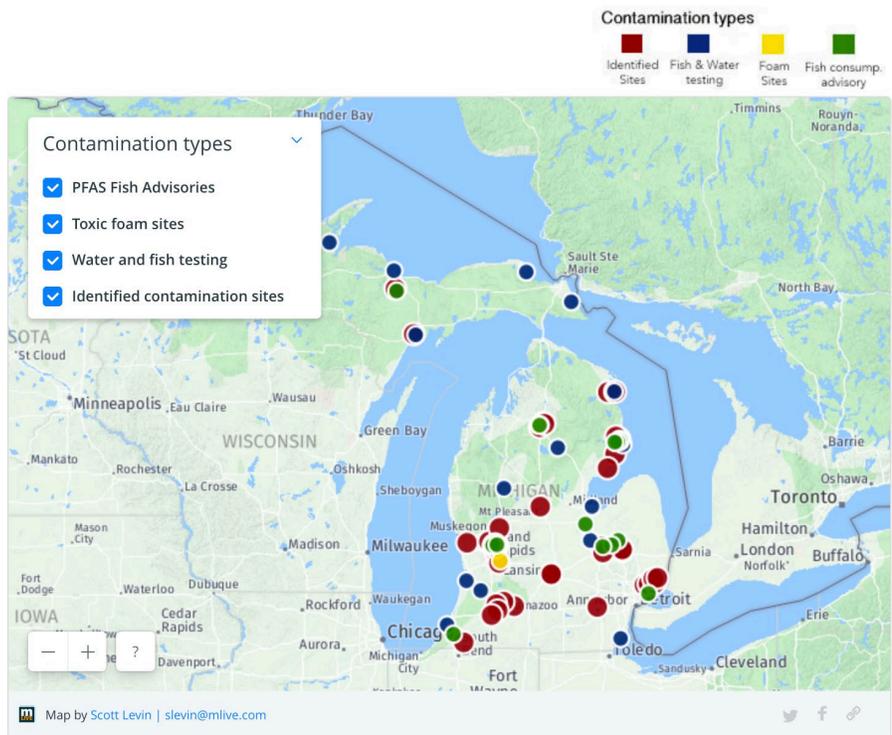
Drinking water supplies are being contaminated by regulated and unregulated pollution from industrial and waste sources, including landfill leachate, hazardous waste, industrial process water, fracking, leaking storage tanks, and human waste.⁴⁶ Many industrial chemicals are unregulated, meaning there are no standards set for what level of exposure is safe, nor or utilities

⁴⁴ “National Economic & Labor Impacts of the Water Utility Sector: Executive Report” Water Research Foundation and Water Environment Research Foundation, September 2014, <http://www.waterrf.org/publicreportlibrary/4566a.pdf>.

⁴⁵ U.S. Water Alliance, “An Equitable Water Future,” June 2017

⁴⁶ KD Beer, et. al., *Surveillance for waterborne disease outbreaks associated with drinking water — United States, 2011–2012*. MMWR Morb Mortal Wkly Rep. 2015; 64(31):842-848. <https://www.cdc.gov/healthywater/surveillance/pdf/mm6431.pdf>

required to test for them in our drinking water. Pharmaceuticals ingested by people or livestock and then returned to our waters through our sewage systems or runoff end up in rivers and lakes, ground water resources, and soils.⁴⁷ The U.S. Geological Survey conducted a comprehensive stream study nearly two decades ago throughout the United States and found at least one of ninety-five organic wastewater contaminants, such as "antibiotics, other prescription drugs, nonprescription drugs, steroids, [and] reproductive hormones," in eighty percent of stream samples.⁴⁸



Perfluorinated chemicals, or “PFCs” are unregulated at the federal level, even though they cause cancer and other illnesses.⁴⁹ PFCs, like PFOA (Perfluorooctanoic acid, also known as C8) and PFOS (Perfluorooctanesulfonic acid) make carpeting, upholstery, and clothing stain- and water-resistant, make cookware “non-stick.” PFCs are stable in the environment and do not biodegrade. PFCs bio-accumulate up the food chain, and will remain in the human body for years after exposure resulting in increased risk for cancer, liver damage and other serious health ailments

Methyl tertiary butyl ether (MTBE, a gasoline additive) has been detected in groundwater (including drinking water sources) throughout the country, yet federal health-based regulatory enforcement standards do not exist.⁵⁰ Most recently in Michigan, these ‘zombie chemicals’ as they’re called by residents in Oscoda who experience the invisible PFC substances that slowly affect them, have caused great alarm.

⁴⁷ Gabriel Eckstein, *Drugs On Tap: Managing Pharmaceuticals In Our Nation's Waters*, 23 N.Y.U. Env. L.J. 37, 42 (2015).

⁴⁸ Dana W. Kolpin et al., *Pharmaceuticals, Hormones, and Other Organic Wastewater Contaminants in U.S. Streams, 1999-2000: A National Reconnaissance*, 35 *Envtl. Sci. & Tech.* 1202, 1203 (2002).

⁴⁹ National Institute of Environmental Health Sciences, *Perfluorinated Chemicals*, (PFCs) https://www.niehs.nih.gov/health/materials/perfluorinated_chemicals_508.pdf.

⁵⁰ EPA Archive, Methyl Tertiary Butyl Ether; <https://archive.epa.gov/mtbe/web/html/water.html>; 2012 Edition of the Drinking Water Standards and Health Advisories; <https://www.epa.gov/sites/production/files/2015-09/documents/dwstandards2012.pdf>.

There are more than 30 sites in 15 communities across Michigan with confirmed contamination of soil, groundwater or surface water. PFC contamination in two Kalamazoo counties in July 2018 called for more than 3,100 residents to stop drinking and cooking with municipal water when the chemicals were discovered at 20 times the federal health advisory limit.

Recommendations.

EPA should establish a Household Action Level for lead and copper in drinking water, and support innovative local and state efforts for lead exposure prevention and lead service line replacement.

We agree with and support the EPA's National Drinking Water Advisory Council's 2015 recommendation calling for the establishment of a household action level for consumers.⁵¹ This would trigger a system of notifications to consumers when levels greater than 0.015mg/L of lead and 1.3mg/L of copper (the maximum contaminant level rule for public water systems) are detected in tap water. Without a household action level, individual households with high lead levels may be missed because the system as a whole is in compliance. Consumers may be confused and not understand that children and vulnerable people, especially in low income and communities of color, are at risk of lead contamination.

In June 2018, the Governor of Michigan established the strictest lead and copper rule in the U.S. It requires the removal of approximately 450,000 lead service lines in the state by 2040 at a rate of 5% annually. The new rule also calls for a reduction in the Action Level of lead from 15ppb to 12ppb by 2025, and bans partial lead service lines (except for emergency repairs). The executive order also creates a statewide drinking water advisory council as well as local advisory councils to engage the public in water system decision-making.

EPA should promote the Michigan plan and contact every state's funding agency to determine what programs are being used to address lead pipes, and share program effectiveness throughout each Region. Lead vulnerable communities include Sebring, OH, Buffalo, NY, Chicago, IL, Springfield, MA, Philadelphia, PA, and Lewiston, ME.⁵² In addition, EPA should identify creative public and private sector solutions for the replacement of lead pipes due to the implementation of a household action level, including recycling and repurposing. While there may be programs offering low interest rate loans, many homeowners in EJ communities cannot afford any loan at all. EPA can offer grant programs developed and offered for this type of customer.

⁵¹ EPA, *National Drinking Water Advisory Council Letter of Recommendations to EPA Administrator*. (Dec. 15, 2015) <https://www.epa.gov/sites/production/files/2016-01/documents/ndwacrecommtoadmin121515.pdf>

⁵² *At least 33 US cities used water testing 'cheats' over lead concerns*, THE GUARDIAN. (June 2, 2016), <https://www.theguardian.com/environment/2016/jun/02/lead-water-testing-cheats-chicago-boston-philadelphia>

Until the lead and copper rules are updated, we believe there are educational opportunities that can help to reduce the risk within individual households.⁵³ In particular, EPA should focus education and outreach efforts on schools and day care facilities that may have potential lead exposure within their drinking water systems.

EPA should develop legally-enforceable limits to protect people from PFOA and PFOS exposure.

EPA has established health advisory levels for PFOA and PFOS at 70 parts per trillion. EPA's health advisories are non-enforceable and non-regulatory and provide technical information to states agencies and other public health officials on health effects, analytical methodologies, and treatment technologies associated with drinking water contamination. This means that the health advisories fail to protect communities from harmful exposure. After residents in North Bennington were poisoned by PFOA exposure, Vermont set a permanent drinking water standard for PFOA and PFOS at 20 parts per trillion. To best protect people from PFOA and PFOS exposure, EPA should set a maximum contaminant level of 20 parts per trillion for PFOA and PFOS in drinking water.

EPA should address threats from agricultural runoff pollution.

Agricultural runoff and waste products such as nitrates from fertilizers, pesticides, or animal waste can directly contaminate source water with chemicals and pathogens. These can also promote algae blooms of surface waters. Groundwater is no safer as increasing levels of agrobusiness waste products are being found in groundwater as well as surface water sources.⁵⁴ A first step would be to require concentrated animal feeding operations to monitor pharmaceuticals in its discharges.

EPA should support potable reuse projects that use advanced tertiary treatment like UV and membrane filtration to address contaminants of emerging concern.

Many toxic, unregulated contaminants in our water could be virtually eliminated through use of advanced tertiary treatment like ultraviolet light and reverse osmosis membrane filtration. Projects in California (Orange County and San Diego) demonstrate that advanced tertiary treatment can treat wastewater to better than drinking water standards, while also eliminating toxics, pharmaceuticals, and pathogens. EPA should work with stakeholders to provide a

⁵³ The EPA has a document titled, "Lead and Copper Rule: Public Education & Other Public Information Requirements for Community Water Systems" that can be used to educate individuals on ways to reduce household risks associated with drinking water.

⁵⁴ The Politics of Drinking Water. <https://www.theatlantic.com/technology/archive/2014/12/the-politics-of-drinking-water/384081/>

regulatory pathway to encouraging new technologies to super-treat wastewater, addressing water quality and water supply concerns.

💧 EPA should award innovation grants to utilities in EJ communities with limited capacity.

EPA should target utilities communities with high income inequality and large numbers of low-income households for financial grants targeted towards water usage and preventing contamination. Innovation grants drive public and private sector innovation in resource conservation, and have been successfully employed by other government agencies such as the National Resource Conservation Service, under authorization from the Farm Bill.⁵⁵

💧 EPA should target low-income homeowners and rental communities for water saving devices.

EPA should award local grants to community-wide efforts that incentivize solving wasteful use and inefficient practices. These grants should be provided to homeowners, landlords, and apartment managers to implement water saving devices. The renter would be able to enjoy a lower utility bill and the landlord would have an increasingly marketable apartment.



Utilities can also subsidize water efficiency measures by providing limited financial assistance for leak repairs, and offering rebates for WaterSense-certified fixtures, toilets, and appliances. Examples of technological solutions include: composting toilets, greywater systems, and low-flow shower heads and toilets. Use of these fixtures can alleviate the challenges associated with high water tables and poorly-drained soils, by limiting the demands that the septic places on the leach fields. In many areas, utilities already offer rebates and vouchers that can lower the price of these water-saving devices. We should be rewarding everyone, including utilities, for using less water.

💧 EPA should help communities expand wastewater treatment and reuse by offering financial assistance for reuse technology.

Wastewater can be a valuable resource in places where the population is growing, and water supplies are limited. In addition to easing the strain on limited fresh water supplies, the reuse of wastewater can improve the quality of streams and lakes in EJ communities by reducing the effluent discharges they receive. Wastewater may be reclaimed and reused for landscape irrigation, groundwater recharge, or recreational purposes. See APPENDIX B--Case Study: San

⁵⁵ On June 8, 2017, the NRCS announced that the agency will award more than \$22.6 million to 33 projects nationwide through its Conservation Innovation Grant (CIG) program in 2017. The 2017 CIG awards bring the total NRCS investment to nearly \$286.7 million for 711 projects since 2004. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/national/programs/financial/cig/>

Diego for an excellent example of a city-wide water reuse campaign, supported and endorsed by EPA.

Goal 8: EPA WILL BE ACCOUNTABLE AND REBUILD PUBLIC CONFIDENCE AND TRUST.

As a result of historic governmental neglect and lack of accountability for failing to adhere to EPA's statutory mandate of protecting human health and the environment, EJ communities, especially, feel victimized and then subsequently ignored by the EPA. This neglect erodes any trust communities may have had in EPA's ability to help them solve water infrastructure problems. No trust means communities will not approach EPA for help. EPA has an incredible wealth of technical and managerial knowledge to offer communities suffering from water infrastructure challenges. Communities cannot possibly hope to solve these challenges without EPA's, expertise, guidance and statutory authority.

But EPA has not been responsive enough. The widespread lead poisoning in Flint, Michigan should never have happened (See APPENDIX B—Case Study: Flint, Michigan). The people of Flint sounded the alarm to state agencies about lead in their water in June of 2014, but no one listened. Government officials declared a state of emergency over a year later in October of 2015, after hundreds of people were continuously exposed to lead *for months*. Former EPA Administrator Gina McCarthy admitted in her testimony before Congress that EPA failed to intervene soon enough in Flint, before the lead contamination spiraled out of control.⁵⁶ A public crisis occurred on EPA's watch, and EPA's failure to act quickly only reinforced EJ communities' deep distrust of federal, state, and local government agencies. Likewise, the pervasive water shutoffs in Detroit, Michigan and Baltimore, Maryland created a public health crisis, and denied these communities their right to clean, safe water and sanitation.

EPA has the power to step in sooner. When the agency hesitates to take action in the face of serious public health concerns, EJ communities rightfully feel as though no one cares. Rebuilding trust will require a concerted, focused effort on listening to community members, engaging with community members, and acting before a problem becomes a catastrophe.

Recommendations. To be accountable to EJ communities, EPA needs to be willing to engage, be responsive to EJ communities' needs, and follow through with enforcement.

💧 EPA should listen and quickly respond to communities when they speak out about contamination concerns.

⁵⁶ Hearing before the committee on oversight and government reform, H.R. 114-142 (March 17, 2016) <https://www.gpo.gov/fdsys/pkg/CHRG-114hhrg25714/pdf/CHRG-114hhrg25714.pdf>.

EPA needs to be more responsive to communities when they ask for help about environmental issues. EPA should instruct each Regional Administrator to examine, improve, streamline, and document the quick responses to community concerns within each Region. EPA has the structural capacity to meaningfully engage with community's concerns, as there are EJ and Capacity Development Coordinators in every region. When people do not feel heard, they have no reason to support public officials' work. But as EPA's work in Sandbranch, Texas shows (see APPENDIX B--Case Study: Sandbranch, Texas), when EPA chooses to step in and respond to community concerns, outcomes can be positive. EPA should ensure that all personnel working with EJ communities are well-trained in community organizing and engagement, and are focused on listening to community concerns. EJ and Capacity Development Coordinators can take the initiative to push forward planning for water infrastructure projects, facilitate positive community/government interaction, and change how neglected communities see the agency.

EPA should enforce regulatory compliance within EJ communities.

One of the best ways for EPA to regain trust in EJ communities is to act quickly when public safety is at risk. EPA should use its regulatory and oversight ability to intervene sooner and more forcefully on state and local compliance and execution problems. For EPA to fulfill its statutory mandate to protect people and the environment, it is important for EPA to enforce compliance without prioritizing potential political backlash from corporations or powerful interest groups. EPA should consider the public health of the water and wastewater system users as paramount. When community members are rightfully concerned that their children are being poisoned, EPA can and should step in and take responsibility to prevent a public health crisis. Acting quickly to address dangerous noncompliance will show EJ communities that EPA is doing its job to protect everyone, not just those in certain communities.

If there is confusion or miscommunication between state and federal actors, EPA needs to respond immediately to clarify information and streamline communications. EPA needs to be present in a community after a contamination event, working alongside other disaster organizations (such as the Red Cross and FEMA) to address the community's needs for clean water and sanitation. By being present, EPA demonstrates that the agency is willing and able to engage, and that engagement will help instill trust and faith in EPA.

EPA should step in sooner when states and local government fail to protect communities from contaminated water and sewage issues.

EPA should move much more quickly when a Regional Office has questions or concerns about a delegated agency's ability to protect a community's water supply. In Flint, Michigan, the Regional Office received conflicting or incorrect information about the water from the Michigan Department of Environmental Quality, leading to life-threatening delays. EPA should be more insistent and request answers when the public is saying one thing, and the delegated state agency is saying another. Recent news of failures in North Carolina by the state's environmental quality

agency that is responsible for ensuring safe water quality further demonstrates on-going concerns with the EPA's regulatory responsibilities.⁵⁷

To reinforce EPA's authority to act, NEJAC asks EPA to review a set of legal analyses from the Environmental Law Clinic at the University of California at Berkeley on *U.S. EPA's Obligation and Authority to Ensure Access to Affordable Drinking Water under the Clean Water Act and Safe Drinking Water Act*,⁵⁸ and *EPA's Emergency Authority Under §1431 of the SDWA*.⁵⁹ Both reiterate the agency's authority and responsibility to ensure states, municipalities, and other water utilities are complying with their duties under the law. EPA Regional Administrators need to aggressively follow up when there is clearly a problem with data and information, and hold delegated agencies accountable when there are concerns that the agency is not performing its statutory duties under federal law.

Additionally, we find that some states (such as North Dakota, Wyoming and West Virginia), are often lax with industry regulations, as evidenced by weak public support for environmental regulation costs.⁶⁰ In particular, fracking in many communities across the nation is a growing concern that we should pay close attention to, especially in communities that are directly impacted. We suggest the EPA investigate this issue to support states and communities in their own regulatory efforts.

EPA should help educate the communities about risks to their water.

EPA should expand its water contamination education and prevention outreach to help communities better understand risks to drinking water sources from inadequately treated water, oil spills and leaks, and fracking and injection. Fracking and injection have the potential to cause groundwater contamination, particularly in cases where the chemical nature of the fracking water is unknown. NEJAC believes EPA should share scientific data and reports with communities where fracking is taking place.⁶¹ On water treatment, we suggest EPA add to its lead and copper testing procedures an examination of bacterial levels for vulnerable communities. EPA should update and share the report *Safe Drinking Water Act: Consumer Confidence Reports*.⁶² EPA

⁵⁷ Sara Ganim. *For 10 years, a chemical not EPA approved was in their drinking water*. CNN (November 13, 2018). <https://www-m.cnn.com/2018/11/11/health/denmark-sc-water-chemical-not-epa-approved/>

⁵⁸ *U.S. EPA's Authority and Obligation to Ensure Access to Affordable Water Under the Clean Water Act and Safe Drinking Water Act*. (22 February 2017). UC Berkeley Environmental Law Clinic. Available at http://www.ushrnetwork.org/sites/ushrnetwork.org/files/ucb_elc_epa_advocacy_memo_feb_22_to_nchrtws.pdf

⁵⁹ *EPA's Emergency Authority Under §1431 of the Safe Drinking Water Act* (5 October 2016). UC Berkeley Environmental Law Clinic. Available at http://www.ushrnetwork.org/sites/ushrnetwork.org/files/appendix_1_ucb_elc_emergency_powers_memo.pdf

⁶⁰ Public support for environmental regulations varies by state (25 February 2016). <http://www.pewresearch.org/fact-tank/2016/02/25/public-support-for-environmental-regulations-varies-bystate/>

⁶¹ In California, a study is underway to understand the potential health risks to consumers from oil refinery "produced water" that is recycled for crop irrigation. Frequently Asked Questions about Recycled Oil Field Water for Crop Irrigation. (5 Apr 2016) *California Water Boards* http://www.waterboards.ca.gov/publications_forms/publications/factsheets/docs/prod_water_for_crop_irrigation.pdf

⁶² *Safe Drinking Water Act: Consumer Confidence Reports* available at <https://www.epa.gov/ccr>

should aggressively step up review of lead issues in homes and schools to achieve better community education and direct assistance. EPA should thoroughly distribute “Lead in Service Lines” posters and perhaps even develop dynamic new media by holding a national contest to develop a new poster, or even a social media application.⁶³ The current poster is too wordy, lacks colorful graphics, and does not effectively engage the viewer. Educating the community about known hazards helps the community prioritize its efforts, as well as ensure they are prepared to plan for and implement solutions.⁶⁴

EPA should conduct performance evaluations of Regional Administrators on their commitment to EJ communities.

Not all Regions have the same or comparable level of commitment to environmental justice. By assessing and comparing the environmental justice programs in each Region, EPA can put pressure on lagging regions to step up and help the most vulnerable communities across the country.

APPENDIX A **WATER BOARDS LEADERSHIP INSTITUTE FOR RURAL COMMUNITIES**

The RCAC (Rural Community Assistance Corporation) Water Boards Leadership Institute is a 6-month program that offers an extremely unique opportunity for utility decision makers and staff members of small rural utilities within a particular region. RCAC focuses on enhancing system management, project planning, local networks, and leadership development. The program offers tools, techniques, and a forum to develop skills that enable the participants to become effective leaders in their communities and their region. It encourages strong leaders to participate and become models for emerging leaders, both young and old.

The program is participant-centered and structured to allow participants to work on the planning, development, and implementation process of a local project with opportunities to

⁶³ Public Education Posters on Lead Service Lines. <https://www.epa.gov/dwreginfo/public-education-posters-lead-service-lines>

⁶⁴ As the EPA conducts education and prevention outreach to help communities better understand risks to drinking water sources, communities should also be made aware that some risks, such as uranium, are naturally occurring.

network. Leadership is about building trust. Trust is one of the main ingredients to implement partnerships. At the Leadership Institute, leaders begin to build trust and communication with each other. Below is an Outline of the Leadership Program offered in the Central Valley of California.

PROGRAM OUTLINE

Small water systems throughout the country have volunteer board members governing their public water system. According to the Fair Political Practices Board and the State Attorney General in California, all new and existing board members are required to get two hours of ethics training every other year.

MODULE 1: Leadership: Leadership Types, Community History and Telling Your Story/Advocating Effectively	
Day 1: Learning Objectives:	<ul style="list-style-type: none"> • Learn about one another; • Understand how embracing differences enriches leadership experiences; • Examine the meaning of leadership and civic or community leadership; • Expand understanding basics communication theory and active listening skills.
Day 1: Training Topics	<p><i>Let's Get to Know Each Other Better</i></p> <ul style="list-style-type: none"> • Leadership Models, Definitions, and Characteristics; • Leadership Styles; • Civic and Community Leadership; • What Is “Effective” and “Ineffective” Communication? What are we going to practice back in our utilities?
Day 2: Learning Objectives	<ul style="list-style-type: none"> • Explore different personality types and how this may impact actions or decision-making; • Examine how individual differences affect group work; • Open discussion on community’s economic and demographic situation; • Articulation of some community culture components; • Introduce a positive community history; • Examine useful community development patterns; • Explore storytelling methods and techniques and personally apply them; • Articulate your community’s 8 forms of wealth.
Day 2: Training Topics	<p><i>Who Are YOU? What Personality Inventories Say – MBTI Community Development Overview:</i></p> <ul style="list-style-type: none"> • Know About Where You Live; • Community History Timeline; • Understanding Community Culture; • OREO model of Communication and Advocacy: Opinion, Reason, Evidence, Opinion (restated); • What are we going to practice back in our utilities?
MODULE 2: Board Development: Your Board, Roles and Responsibilities, Setting the Vision,	

Community Development	
Learning Objectives	<ul style="list-style-type: none"> • Board Basics: Learn about the job of a Board and individual Directors; • Making good use of everyone’s time at Board meetings; • Understanding the power of policy and why we use it; • Identify regional water challenges and see what our communities have in common; • Experience in listing community assets by category; • Understand Integrated Regional Water Management (IRWM) statewide, regionally and how it impacts your community including funding opportunities.
Training Topics	<p><i>Roles and Responsibilities. Management is not the same as Governing</i></p> <ul style="list-style-type: none"> • Asset based Community Development (ABCD) model; • IRWM Plans; • Putting the program to work.
MODULE 3: Leadership: Understanding Conflict & Building Community Communication	
Learning Objectives	<ul style="list-style-type: none"> • Understand conflict and how it can impact a situation; • Experience a conflict mode instrument to better understand our approaches to conflict; • Reflect on conflict transformation basics; • Explore “Rapid Results” methods for gaining community understanding and support; • Gain experience using consensus voting techniques.
Training Topics	<p><i>Active Listening to Prevent Conflict</i></p> <ul style="list-style-type: none"> • Ragged Start Opener – Community Partnerships; • TKI Conflict Response Modes; • Conflict Transformation Styles; • Keirseley Temperaments based on MBTI Using Rapid Appraisal Methodology • Fist to five technique for voting and other techniques that may work for your board; • What tools from this program am I already using?
MODULE 4: Board Development: SGMA (Sustainable groundwater Management Act); Communicating with legislators and funders	
Learning Objectives	<ul style="list-style-type: none"> • Basic understanding of the Sustainable Groundwater Management Act and its requirements, effects and demands on small community water systems; • Basic communication skills and strategies when working with legislators and regulators/primacy agencies and communication with funding agencies.
Training	<p><i>SGMA basics, timelines, determine each community’s local GSA Training on</i></p>

Topics	<p><i>advocacy and legislative communication skills</i></p> <ul style="list-style-type: none"> • Project Funding. Funding agency communication, requirements, understanding; the funding process and why the requirements. And how do you prepare to ask for funding and to receive funding; • How are these tools working for me?
MODULE 5: Leadership: Organization, Planning and Resource Development	
Learning Objectives	<ul style="list-style-type: none"> • Understand and Use SWOT Analysis to make good regional and community decisions; • Explore leveraging strengths and turning weaknesses into resources; • Understand the concept of stakeholders; • Learn the components and importance of annual, short term and project planning; • Managerial and regional collaboration strategies; • Review budgeting basics; • Identify diverse community fundraising opportunities; • Preparing for and selling rate increases to customers.
Training Topics:	<p><i>Organization and Planning: annual, long term and project planning</i></p> <ul style="list-style-type: none"> • Regional and individual SWOT analyses; • Community Stakeholders. Project Stakeholders; • Budgeting and fundraising locally —rate studies and rate setting; • Collaboration and communication—towering tribute; • Community Case Studies – Participants share putting the institute into practice.
MODULE 6: Board Development: Effective and Transparent Meetings, Board strengths, Board recruitment. Change Management. Graduation.	
Learning Objectives	<ul style="list-style-type: none"> • Understand generational change and how it applies; • Understand and evaluate best practices for having effective meetings; • Learn what makes strong boards; • Prepare to recruit new volunteers to the board; • Examine tools that ensure organizational sustainability; • Celebrate graduation from the Institute.
Training Topics	<ul style="list-style-type: none"> • Robert’s Rules of Order; • The Brown Act—CA open meeting rules; • Meeting agenda development and dealing with time management and problem behavior Assessing board experience, health and how to build a strong board, assess board training needs Strategies and planning for board recruitment—how to avoid STP; • A review of all the 6 months and a plan for continue practicing the tools we learned; • The Institute offers a class reunion and graduate seminar. Each class chooses its own topic.

APPENDIX B

CASE STUDIES - CHALLENGES

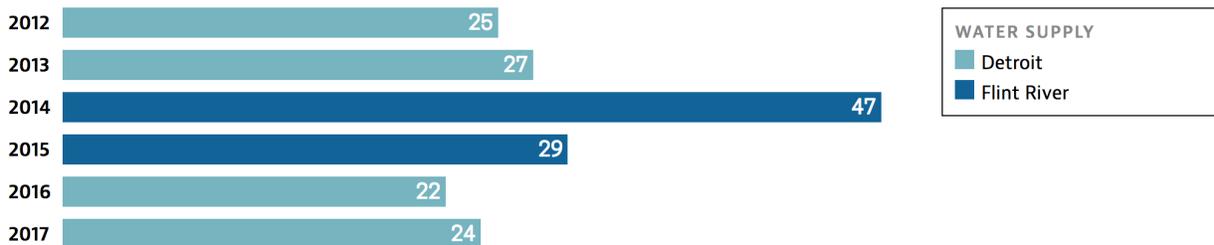
1. Flint, Michigan: Cost-cutting government officials poisoned an entire city and a whole generation of children

Problem:

The Flint, Michigan water crisis has brought to the national forefront the urgent and dire need for an evaluation of community water systems across the country. Nowhere have the dangers of public health, individual health and large-scale infrastructure replacement problems been more visible and documented than in Flint, Michigan. In April of 2014, the city of Flint and state-appointed Emergency Managers switched from Detroit water to Flint River water to reduce costs from the Great Lakes Water Authority. Soon after the untested switch residents began to voice concerns about problems with their drinking water. It came out of the tap brown, and people were getting rashes, headaches and other health ailments. The improperly-treated water from the Flint water plant caused old, decaying pipes to leach dangerous levels of lead into drinking water, poisoning everyone, including children. Later that year in October, the General Motors plant in Flint stopped using the city's water due to corrosion concerns on its engine parts. This well-documented crisis has identified federal, state and local government failures to address residents' concerns for more than a year until October 2015, when Flint officials finally switched back to Detroit water.

More than four and half years later, Flint is still replacing lead service lines through federal and state assistance to pay for the costly and laborious full replacement of pipes throughout the city. In many places, water is still unsafe to drink and wary residents continue to rely heavily upon bottled water. Flint residents reporting on-going health problems since bathing and laundry water are unfiltered. Many residents believe the EPA was too hasty in declaring that lead and copper test samples were below action levels without examining other bacterial and chemical contaminants they believe have continue to affect their health and weakened immune systems.

Pneumonia Deaths in Flint, May–October of Each Year



Source: Electronic Death Record System at the Genesee County Clerk Register Office

The negligent decision by city officials not to treat the water supply to prevent pipe corrosion precipitated a public health crisis, and more than tripled the rates of the infectious bacterial disease Shigellosis in 2016.⁶⁵ Legionella bacteria was discovered in tap water at a local hospital and in many households - up to 1,000 times higher than normal tap water. These bacteria caused a Legionnaires' outbreak that killed 12 people,⁶⁶ and is correlated with higher pneumonia and deaths in a 2018 report.⁶⁷

Flint is certainly not the only city with lead concerns; the nation has many high-risk communities with lead pipe contamination. In July 2017, NEJAC sent a letter to the Administrator outlining several matters of concern, along with several recommendations that include local resident feedback about ongoing water contamination concerns, health problems and ongoing tap water fears. A much-anticipated February 2017 report by the Michigan Civil Right Commission concluded that the causes and effects of this national problem are largely due to environmental racism, emergency mismanagement, poor quality of housing and the struggling economy.⁶⁸ A recent USA Today in-depth report⁶⁹ found high lead levels in nearly 2,000 water systems across all 50 states. Many of these communities have lived with lead contaminated water for many years with little to no public notification and/or plans of action.

Solutions:

NEJAC strongly recommends that the EPA should issue a follow up report of its efforts to address these types of public water system problems. Ultimately, the assessment and scrutiny should help other system operators avoid the damaging financial decisions that led to this multi-year disaster for affected residents and community public health.

Additionally, EPA should focus on these Flint and other lead-affected community priorities:⁷⁰

 Re-examine bacterial levels for vulnerable communities as part of its on-going lead and copper testing.

 Declare Flint an emergency disaster area to allow for additional health and human service benefits that residents need.

⁶⁵ *Flint residents too scared of the water to wash. That's making them sick.* (4 Oct 2016) https://www.washingtonpost.com/news/morning-mix/wp/2016/10/04/flint-residents-too-scared-of-the-water-to-wash-its-making-them-sick/?utm_term=.351e4ee71167.

⁶⁶ *CDC finds first genetic link between Legionnaires' outbreak, Flint water.* (Feb. 16, 2016). MLive.com http://www.mlive.com/news/flint/index.ssf/2017/02/cdc_finds_first_genetic_link_b.html

⁶⁷ *Flint Water Crisis Deaths Likely Surpass Official Toll.* (July 24, 2018). PBS.org <https://www.pbs.org/wgbh/frontline/article/flint-water-crisis-deaths-likely-surpass-official-toll/>

⁶⁸ *MCRC Flint Water Crisis Report and Hearing Information.* (2016) Michigan Civil Rights Commission. http://www.michigan.gov/mdcr/0,4613,7-138-47782_77964---,00.html

⁶⁹ Young, A. and M. Nichols (2016, March 11). *Beyond Flint: Excessive lead levels found in almost 2,000 water systems across all 50 states.* USAToday.com, <http://www.usatoday.com/story/news/2016/03/11/nearly-2000-water-systems-fail-lead-tests/81220466/>.

⁷⁰ NEJAC also recommends that EPA review our letter on Flint and implement recommendations from that letter.

- 💧 Ensure utilities use and residents know about incident reports to identify at-risk communities and share public data on state environmental test results online. Flint lead-test reports serve as a good example.⁷¹
- 💧 Review service line replacement in communities with large water infrastructure repairs and/or construction projects. Ensure that full line replacement addresses lead contamination concerns and not does contribute to worse affordability problems.
- 💧 Assess low income communities under emergency financial management and/or bankruptcy where clean and affordable public water may be at-risk. Analyses of the Flint water crisis can show how expedient and bottom-line financial decisions are made at the expense of sound operations, policies and public health. Other cities to watch out for include: Detroit, MI; Highland Park, MI; Jackson, MS; and Fresno, CA.⁷²
- 💧 Monitor municipal water shutoff policies that are predicated on financial solvency concerns and affordability problems in poverty-stricken communities, including public health risks due to water service denial based on ability to pay. Flint’s residential water crisis originated in unaffordable water bills. EPA needs to investigate other alternatives, such as a national-level affordability program or direct grants to water utilities.
- 💧 Investigate the mistakes and lack of accountability by state water regulators such as MDEQ and implement steps to safeguard against more water safety and public health crises.

2. Sandbranch, Texas: A poor community suffers without access to water or wastewater infrastructure

Problem:

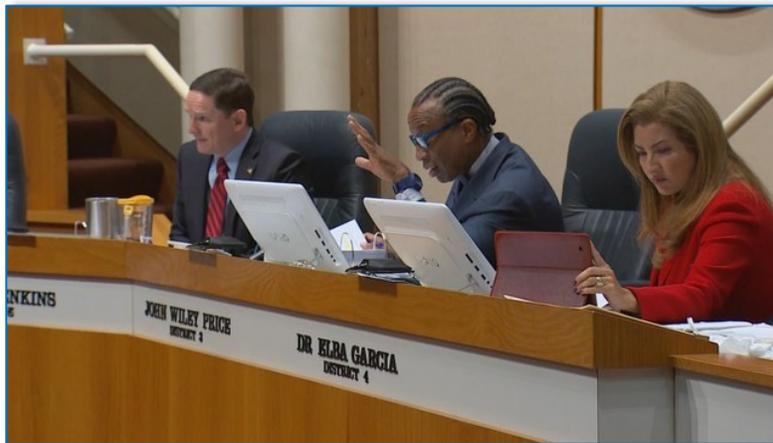
The town of Sandbranch, Texas is a textbook example of institutional neglect of an environmental justice community. But it is also a success story in the making. Sandbranch is a small, unincorporated town with an orphaned water system, never connected to the nearby Dallas system. The wastewater treatment plant for Dallas sits just a few miles outside of Sandbranch. Dallas refuses to annex Sandbranch, and the town has little political capital or cooperation with neighboring county or city governments to bring clean water and sanitation to this forgotten community. Founded in 1878 by freed slaves, the town has not had running water or adequate sanitation for over 30 years. The primarily black residents live on a floodplain and in poverty, without adequate sanitation or water supplies, and rely upon donated bottled water for daily water access.

⁷¹ Flint Residential Testing Report - results collected through July 5, 2016. https://www.michigan.gov/documents/flintwater/Test_Results_Flint_Sorted_by_Lead_Concentration_513930_7.pdf

⁷² Welch, William M. (2013, May 15). *These California Cities Could Be Next in Bankruptcy*. USA Today.com, <http://www.usatoday.com/story/news/nation/2013/05/15/ten-california-cities-in-distress/2076217/>

Solutions:

Community leaders recently revived efforts to obtain help from EPA. EPA turned its attention to the struggling town, and facilitated a plan of action. Over the last year, EPA Region 6's EJ Coordinator has brought together community members and governmental agencies to address the town's historical water infrastructure problem. Decision-makers from the Federal Emergency Management Agency, US Department of Agriculture, Texas Commission on Environmental Quality, as well as local county officials are working with Sandbranch residents to help the community obtain vital funding to install a wastewater and drinking water system. EPA Region 6 helped the community identify the problems and work with federal, state and local agencies to generate workable solutions.



Commissioners in Sandbranch discussing challenges.

See: <http://www.wfaa.com/news/local/southern-dallas/dallas-officials-discuss-sandbranch-water-crisis/30733997>

Successful outcomes include:

- 💧 The Sandbranch community organized and formed a water supplying corporation and received a grant to conduct the preliminary engineering assessment from USDA-Rural Development;
- 💧 The community created a strategy for what they would like to see;
- 💧 A decommissioned wastewater treatment package plant that was a safety hazard to the community was taken down by the City of Dallas;
- 💧 The Dallas County established an office to provide coordinated assistance to all unincorporated areas in the City of Dallas;
- 💧 More than 300 volunteers have participated in community clean-up efforts;
- 💧 The community received a grant from the Texas Blue Bonnet Program to remove scrap tires from the community.

The community continues to work with USDA-RD to obtain 75% of the total cost for water and wastewater infrastructure services, while other local, state and federal partners will assist within their respective areas. If the community is successful in securing the USDA-RD grant, there will be a need for an additional 25% loan or grant. The Sandbranch working group will need to tackle the issue of housing—due to the community’s level of poverty the housing in Sandbranch is problematic. Current dwellings may not pass code inspections or take in the new plumbing. Nevertheless, due to the Sandbranch community’s drive and perseverance, as well as EPA Region 6’s prioritizing the town and facilitating the working group, Sandbranch is that much closer to having a safe, workable sanitation and drinking water system.

3. Lowndes County, Alabama: Saturated soils and no municipal sewage systems lead to sewage pooling in residential yards

Problem:

Effective sewage treatment is a rarity in Lowndes County, Alabama. As one of the poorest counties in the U.S., many residents are unable to afford proper septic systems. Residents concoct their own sewer line using PVC piping and run the pipes from the toilets in their homes - - oftentimes, stretching off some 30 feet above ground – until they reach a small ditch. During heavy rainstorms, puddles of raw sewage flood residents’ yards and flow into their homes during frequent heavy rainstorms making people sick. Although the Alabama Department of Health requires personal septic systems for each household, only 80% of people in the area have them. This does not work in areas such as the Black Belt, a region named for its dark, poorly drained soils. A high water table and frequent, high-volume rain events⁷³ typify this area. The leach pipes are below the water table after a rainstorm, preventing sewage inside the tank and pipes from draining properly. These personal systems are tank-and-leach fields.



An official inspects a broken septic tank in White Hall, Alabama. Residents don't have access to a municipal sanitation system and can't afford to replace crumbling septic tanks on their properties.

Dave Martin / The Associated Press <http://www.wglt.org/post/lack-adequate-sanitation-affects-poor-across-globe-and-us#stream/0>

⁷³ The county gets 54 inches of rain per year on average, significantly more than the national average of 39 inches per year. <http://www.bestplaces.net/climate/county/alabama/lowndes>

Raw human waste either pools in open pits in homeowners' yards, or flows back up the pipes to flood sinks, toilets and bathtubs.

Open pits of sewage expose people to disease, creating a major public health threat. Lowndes County and others facing similar sewage crisis have high rates of hookworm and other parasites, as well as nausea and diarrhea. Additionally, mosquitos thrive in these sewage pools, creating an infestation with precursor conditions ominously similar to Zika and related outbreaks.⁷⁴ Increasingly frequent severe weather events, like hurricanes and tropical storms, aggravate both the sewage and mosquito problems. During a 2017 visit by the United Nations Special Rapporteur on extreme poverty and human rights, Lowndes County residents demonstrated the extremely poor sanitation conditions often affecting people in developing nations. They revealed that a recent study found nearly one-third of tested residents were found positive for hookworm in stool samples. "When the trenches overflow, the soil becomes contaminated with waste. Anyone walking outside barefoot, or even with bare ankles, risks hookworm infection — that's because the worms are expert at latching on to passers-by⁷⁵. Ingesting contaminated food can be another means of transmission.

Household sewer systems are estimated to cost between \$10,000 to \$30,000.⁷⁶ But in a county where the median income is \$29,714⁷⁷ people face serious financial strain to afford the tank and leach field, let alone to pay for nearly constant repairs. Adding to the financial and emotional strain of living with a broken septic system, the Alabama Department of Health issues fines and even arrest warrants when families cannot afford the thousands of dollars to install or fix their systems. This is an area with a history of neglect, where 25% of the population lives below the poverty line, and often people simply cannot afford to comply. Many people in the county did not have running water until the 1990's. Governmental racism towards the predominantly-black population enabled the neglect of adequate public infrastructure.

Those who can afford the hassle and expense of relocating to a city away from the rural county often leave, creating resource flight. This flight further depletes the town's financial base. But many families have lived here for generations, and thoroughly enjoy their rural community. Lowndes County deserves a long-term solution that addresses the current system's household and public health crises, and long-term environmental problems, without creating new hazards in the process.

⁷⁴ <https://blogs.cdc.gov/publichealthmatters/2016/03/zikaandwater/>

⁷⁵ The U.N. Looks At Extreme Poverty In The U.S., From Alabama To California. (December 12, 2017). NPR.org <https://www.npr.org/sections/goatsandsoda/2017/12/12/570217635/the-u-n-looks-at-extreme-poverty-in-the-u-s-from-alabama-to-california>

⁷⁶ Catherine Flowers, Opinion: A County Where the Sewer is Your Lawn. May 22, 2018. New York Times. <https://www.nytimes.com/2018/05/22/opinion/alabama-poverty-sewers.html>

⁷⁷ <http://www.encyclopediaofalabama.org/article/h-1349>

Solutions:

Existing technology does not work with these soils. Now, community members are seeking new ways to finally and effectively address a longstanding issue. In 2008, Catherine Flowers, of the Alabama Center for Rural Enterprise, received an EPA grant to study on the problem. Flowers hired locals to canvassers who went door-to-door, hearing firsthand from people with both municipal and personal sewage treatment. Residents shared common frustrations and endured common atrocities: their septic systems do not function as promised, and they are being exposed to raw human waste. The survey concluded that the region needs new technology that actually works with its native soil type. People experienced the same problems regardless of whether they had a personal or municipal septic system—the technology does not exist to treat sewage in rural Southeastern towns that cannot afford to install municipal piped systems. Leach fields are simply incompatible in their current form with poorly drained soils and a high-water table.

To fully address this widespread problem of sewage treatment across the Black Belt in rural counties like Lowndes, the **EPA must develop (or support the development) of infrastructure and technology that meet the soil and climate demands of the area.** To do so effectively, the EPA should consider seven things:

1. Recognize that the current technology does not work, no matter how well-funded.
2. Engage with residents who are directly impacted rather than the managing entities stuck in a failing cycle by administering surveys and communicating directly with the impacted populations.
3. Factor in climate change to the current paradigm and how increasingly severe storm events will increase the capacity demands
4. Set up research challenges at the public and private sector to generate more effective solutions than mound systems or switching to municipal management.
5. Decentralize the oversight: the Alabama Department of Public Health issues permits and installs systems, facilitates repairs, and reports violations. Neither the managing entity nor the engineers it hires have incentive to create a truly functioning system if they benefit from the constant need for repairs
6. Encourage the Census Bureau to collect information on people's septic systems.
7. Consider combining innovative technology that would reduce the amount of sewage to be treated, and then treat it with a waterless system.

4. Baltimore, Maryland: Failing sewage system + thousands of residential water shut offs

Problem:

Millions of gallons of sewage back up into toilets, bathtubs and sinks, floods basements, roads and waterways, and overflows into the Baltimore Harbor. Meanwhile, residents pay hundreds of dollars a month to finance long overdue sewage repairs for an undersized system. And thousands of residents who cannot afford to pay their water bill are having their water shut off and may even lose their homes.

Between 2010 and 2012, over 7,000,000 gallons of raw sewage spilled into Baltimore's streams and harbor.⁷⁸ The Baltimore Sun runs frequent articles describing weekend sewage overflows in the tens of thousands of gallons, which the city often fails to address for several days.⁷⁹ After large rainstorms, basements flood with sewage, which destroys personal property and creates a health hazard. In 2015, the Baltimore Department of Public Works received 5,000 reports of sewage basement floods.⁸⁰



Sewer overflow in Baltimore.

Source: <http://wypr.org/post/what-s-behind-baltimore-s-failure-comply-federal-sewage-consent-decree>

Residents of Baltimore, pay around \$200 every three months for combined sewer and water bills, which is a 330% increase from the year 2000.⁸¹ Households living on less than \$25,000 a year (about a third of all city households) pay around 3.6% of their income for water and sewer, higher than the 3% maximum recommended by the United Nations.⁸² Some residents face staggering bills, like one resident facing a \$6,000 water bill because of a substantial leak he could not afford to fix.⁸³ The Baltimore Department of Public Works shut off water service to about 1,400 accounts in 2016 and 8,000 in 2015. While city officials said many of the properties were vacant, if a bill falls behind

by only \$250 for two consecutive billing periods, homeowners can be eligible for shutoff.⁸⁴ The

⁷⁸ Baltimore City's Sewer System Consent Decree Fact Sheet

⁷⁹ <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-sewage-updates-20160823-story.html>

⁸⁰ <https://www.citylab.com/solutions/2016/05/baltimore-basement-sewage-backup/484427/>

⁸¹ Scott Tong, Baltimore Sewers: Time Bombs buried under the streets. The Marketplace. February 25, 2015

⁸² <https://www.baltimorebrew.com/2016/10/27/baltimores-high-water-rates-violate-u-n-standards-advocates-say/>

⁸³ Insurmountable bills lead to water shutoffs in Baltimore. <http://www.wbaltv.com/article/insurmountable-bills-lead-to-water-shutoffs-in-baltimore/8775838>.

⁸⁴ *Id.*

City decided not to shut off water to any commercial properties, even though they owe the biggest amounts.⁸⁵

Baltimore delayed maintenance of their aging sewer system for more than 100 years after they first built it in 1909. EPA and Maryland brought suit to enforce compliance with the Clean Water Act, and settled in 2002 with the City of Baltimore to “end the years of chronic discharges of millions of gallons of raw sewage into city streets and local waterways.”⁸⁶ The city spent \$867.4 million during the first 14 years after the consent decree and expects to spend in total more than 2 billion dollars to fix the system. Costs for repairs, which the city should have been factoring into the past 100 years of water bills, now fall exclusively on post-settlement customers.

One reason that rates are so high is that Baltimore has a growing need for emergency and long-term maintenance, but also a shrinking funding base.⁸⁷ The 2016 Census estimates the population to be 614,664 in the city of Baltimore, down from 733,826 in 1920.⁸⁸

Solutions:

The settlement decree gave Baltimore 14 years to completely overhaul the sewage system, and the city has requested a delay. New compliance is scheduled for 2033. The city could not stick to the schedule because it did not have the resources to fix emergencies, while also spending time and money catching up on the more preventative maintenance schedule. However, the adage “better late than never” holds true and gives comfort to the city as it works together with EPA to once again have a sewage treatment system and waterways that citizens can point to with pride.

Additional solutions include:

1. Notify residents within 24 hours of sewage discharges;
2. Assist residents whose homes sewage overflows impact;
3. Prove that sewage repair work is creating actual water quality improvements;
4. Give taxpayers yearly reports on spending & progress;
5. Ensure that Baltimore’s neighborhood streams, rivers, and Harbor will be safe for public recreation.⁸⁹

Another key takeaway is that delaying maintenance made this problem a lot worse. While raising rates is never a favorable political move in the short term, failing to keep up with repairs causes severe and cascading problems down the line. EPA should work with cities who are behind schedule to bring them up to date long before the pipes start bursting.

⁸⁵ City shuts off water to delinquent residents; hits Baltimore Co. homes hardest <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-md-ci-water-shutoffs-20150515-story.html>

⁸⁶ City of Baltimore, Maryland, Sewer Overflows Settlement, <https://www.epa.gov/enforcement/city-baltimore-maryland-sewer-overflows-settlement> last accessed Nov. 20, 2017

⁸⁷ <http://www.baltimoresun.com/news/maryland/baltimore-city/bs-bz-baltimore-population-loss-jumps-20170322-story.html>

⁸⁸ Baltimore, Maryland Population History 1840 – 2016 Available at <https://www.biggestuscities.com/city/baltimore-maryland>, last accessed Nov. 20, 2017

⁸⁹ <http://www.cleanwateraction.org/2016/08/08/6-million-gallons-sewage-baltimores-waterways>

Baltimore should implement a program like Philadelphia’s Tiered Assistance Program, where a water bill is based on household income. Residents do not need to be behind on their water bill to apply, and it is a one-size-fits-all application that covers applying for all social service relief programs. Also, the city should not target residents for shut-off before shutting off commercial properties with large outstanding water bills.

5. Detroit, Michigan: Unaffordable water rates lead to widespread residential water shut-offs

Problem:

In 2014, under the direction of local officials determined to convince wary partners to join the nascent Great Lakes Water Authority, the Detroit Water and Sewerage Department (DWSD) began massive shut-offs of residential water service to customers behind in their bills of at least \$150, or over 60 days late.⁹⁰ Over 100,000 residents were affected particularly in low-income households of color with children, elderly persons, and people with disabilities or chronic illness. Residential water shutoffs averaged 2,000 per week while overdue commercial accounts were not affected.⁹¹ The city gave residents no notice of the imminent shutoffs and poverty law attorneys levied due process and civil rights complaints in bankruptcy court. Compounding the shutoffs was DWSD’s reputation for poor asset management (e.g., broken, leaking pipes), grossly miscalculated customer bills, and nonexistent customer service.⁹² Over the next three years, more than one in six households in Detroit were cut off, totaling about 86,000 households that experienced some period without running water and proper sanitation.⁹³

Detroit’s water bill averages \$75 a month—more than twice the national average, doubling in the past decade.⁹⁴ This rate is completely unaffordable to low-income residents. The city has one of the worst rates of poverty in the country: Approximately 40% of the city’s population lives below the federal poverty level, and 85% of Detroit residents are African-American. Disconnecting water service leads to long-term consequences on family health and stability. For instance,



*Detroit residents protest mass water shutoffs.
Photo: MWRO.org*

⁹⁰ <https://www.theguardian.com/us-news/2017/jul/20/detroit-water-shutoffs-marian-kramer-bill-wylie-kellermann>

⁹¹ <http://www.detroitnews.com/story/news/local/detroit-city/2016/03/31/detroit-water-shutoffs/82497496/>

⁹² <http://www.bridgemi.com/detroit-journalism-cooperative/detroit-cites-progress-water-shutoffs-actually-rose-last-year>

⁹³ <https://www.theguardian.com/us-news/2017/jul/20/detroit-water-shutoffs-marian-kramer-bill-wylie-kellermann>

⁹⁴ <http://www.bridgemi.com/detroit-journalism-cooperative/detroit-cites-progress-water-shutoffs-actually-rose-last-year>

under state law children can be taken out of homes by Child Protective Services for failure to have running water.⁹⁵

In an effort to bring greater action and media visibility to this crisis, grassroots groups invited two United Nations' Special Rapporteurs (S.R.) to visit and meet with Detroit residents on human rights violations. In October 2014, the S.R.'s on water, sanitation and housing accepted the invitation and met with residents and local officials. In an ensuing press conference, the U.N. issued a statement that if water is shut off to people unable to pay, it is a violation of basic human rights.⁹⁶

Detroit advocacy groups have raised serious public health concerns due to increased rates of preventable food and waterborne illnesses associated with lack of sanitation (particularly Shigellosis, Campylobacter and Norovirus).⁹⁷ Shutting off the water and sanitation led to more than triple the rates of the infectious bacterial disease Shigellosis in 2016.⁹⁸ Low-income communities of color are especially vulnerable to shutoffs, as reported in several cities: Boston,⁹⁹ Baltimore,¹⁰⁰ Philadelphia, and Clinton, Iowa¹⁰¹ and Porterville, California.¹⁰²

Solutions:

The City of Detroit faces a public health crisis, in part, due to lack of adequate residential sanitation from water shutoffs that further burdens a struggling population and poses bacterial threats among food service workers. Public health officials should declare a moratorium on water shutoffs to protect community health and promote water safety solutions. We support long-time calls from the people of Detroit for a low income-based water affordability program. Current forms of budgeted payment assistance are limited and unsustainable with most participants defaulting within 60 days,

⁹⁵ <http://www.mchr.org/2015/03/congressional-briefing-on-water-in-detroit-and-us-stories-of-shutoffs-and-possible-solutions/>

⁹⁶ In Detroit, city-backed water shut-offs 'contrary to human rights,' say UN experts (20 October 2014). UN News Centre. <https://www.un.org/apps/news/story.asp?NewsID=49127#.WNjvK461tE4>

⁹⁷ Weekly Disease Report for the Week Ending Feb 4th, 2017 (MMWR Week 5): Reported Cases of All Reportable Conditions. http://www.michigan.gov/documents/mdch/Current_

⁹⁸ Flint residents too scared of the water to wash. That's making them sick. (4 Oct 2016) https://www.washingtonpost.com/news/morning-mix/wp/2016/10/04/flint-residents-too-scared-of-the-water-to-wash-its-making-them-sick/?utm_term=.351e4ee71167

⁹⁹ The Color of Water: A Report on the Human Right to Water in the City of Boston. (7 Jul 2014). Massachusetts Global Action.

¹⁰⁰ Baltimore Residents Protest Water Shutoffs Planned For 23,000 Homes: This spring the city's water department will send shutoff notices to nearly 23,000 residences. Despite the threat to public health, water shutoffs happen every year in cities across the country. (16 Apr 2015) Buzz Feed News. https://www.buzzfeed.com/azeenghorayshi/baltimore-residents-protest-water-shutoffs-planned-for-23000?utm_term=.rmQrLnLY1#.dl1jYzYEK

¹⁰¹ Task force begins water shut-off discussions. (22 Jul 2015). Clinton Herald. http://www.clintonherald.com/news/local_news/task-force-begins-water-shut-off-discussions/article_11fe6b45-1450-5843-82c9-6e168d88d2df.html

¹⁰² California's Drought Is About Economic Inequality: Racial disparities and political dysfunction are at the heart of the state's water crisis. (8 Oct 2015). Mother Jones. <http://www.motherjones.com/environment/2015/10/san-joaquin-valley-communities-no-running-water-drought>

Advocacy groups, along with city council members and congressional staff, designed and proposed in 2005 a workable water payment plan based on income. The city adopted the plan in 2006, was never implemented, and the \$5 million establishment fund was redirected for other city debt. We support renewed efforts for Detroit water affordability are occurring on the heels of Philadelphia's successful program to create the nation's first water affordability plan based on income; and encourage the EPA to look into public health threats from water shutoff policies that also threaten water infrastructure and system operations.

NEJAC strongly supports grassroots groups' call for low-income water and sewerage affordability based on a household's ability to pay. This long-standing plight on Detroit environmental justice communities should be resolved with the utmost urgency and priority by the EPA.

6. Puerto Rico and the Need for natural Disaster Management of Emergency Water and Sewage

Problem:

When the devastating Hurricane Maria struck the island on September 20, 2017, it flooded much of the island with more than two feet of water. It soon became evident that local and federal authorities were not prepared to deal with a natural disaster on this level and far from the mainland. Ninety days after the storm, FEMA reported that 86% of the island's residents had access to potable water. Yet nearly 76,000 residents relied on potentially contaminated drinking water from a variety of sources that the Puerto Rico Aqueducts and Sewers Authority (PRASA) does not monitor, such as well water. Another report indicated, "There has been a significant uptick in waterborne illnesses and even reports of death due to leptospirosis, a fatal disease caused by contact with contaminated water."¹⁰³ Local government agencies continued to issue warnings asking people coming in contact with streams, rivers and beaches to take precautions against raw sewage contamination.

A year after the devastating hurricane, a research letter published in the Journal of American Medical Association Network reported that while the official death toll is listed as 64 residents, more accurate estimates suggest the toll as high as 4,645 deaths. Among the revised figure are fatalities brought about from infectious disease outbreaks and a lack of water service, and inadequate access to other utilities.¹⁰⁴ These public health casualties are cause for great alarm as they demonstrate a failure of adequate planning and disaster relief in the wake of a major hurricane upon poverty-stricken, U.S. shores.

¹⁰³ Byrd, Ayana. "EPA Cautions There Is Raw Sewage in Some Water Sources in Puerto Rico", *Colorlines*, January 8, 2018. <https://www.colorlines.com/articles/epa-cautions-there-raw-sewage-some-water-sources-puerto-rico>

¹⁰⁴ Santos-Lozada, Alexis R., PhD; Howard, Jeffrey T, PhD. October 9, 2018. "Use of Death Counts From Vital Statistics to Calculate Excess Deaths in Puerto Rico Following Hurricane Maria." <https://jamanetwork.com/journals/jama/article-abstract/2696479>

Ultimately, what was revealed through the hurricane relief efforts were Puerto Rico's long-term water issues. Since the 1980s health department and water authorities have discovered high amounts of industrial contaminants and other chemicals in Dorado wells and groundwater. The growing contamination was so bad that the EPA proposed putting the water system on a list of Superfund clean up sites. To address much-needed sewage-waste management, PRASA agreed in a 2015 settlement with the EPA to construct a \$120 million sewage system for the surrounding communities of Martín Peña Canal. This impoverished region near popular tourist zones has struggled for several decades with inadequate treatment of raw sewage and other contaminants.¹⁰⁵

More than any other U.S. state or territory, Puerto Rico's antiquated system of pumping stations, treatment systems and pipes have received the most violations of drinking water safety. In 2017 it was estimated that nearly 70% of the populations receives potable water from sources that violate federal drinking water standards.¹⁰⁶ The infrastructure divestment, recession and bankruptcy – coupled with staggering poverty and unemployment – underscored the wide-scale consequences of poorly managed and inadequate water and sewage systems.

A month after the hurricane hit, it was discovered that water utility workers opened one of the contaminated wells and began distributing the water to desperate residents. Water system contamination and infrastructure erosion were exacerbated with the storm; and the natural filtration karst aquifers were jeopardized as poisonous substances made their way into groundwater from flooded regions. A former battery plant in Arecibo that became a Superfund site in the summer of 2017 was washed over with floodwater during Hurricane Maria. Nearby residents still complain of unsafe water and do not believe what PRASA officials report.



*Evaluating a water source in the wake of Hurricane Maria.
Photo credit: EPA*

In an internal report, Federal Emergency Management Agency officials acknowledged their failure to properly prepare for the advancing hurricane. Among the negligence were poorly

¹⁰⁵ EPA "Reference News Release: Puerto Rico Aqueduct and Sewer Authority to Upgrade Sewage Infrastructure; Sewage Pollution in Martín Peña Canal, San Juan Bay, Condado Lagoon, and Atlantic Ocean will be Reduced." Release date September 15, 2015. <https://www.epa.gov/enforcement/reference-news-release-puerto-rico-aqueduct-and-sewer-authority-upgrade-sewage>

¹⁰⁶ Laskow, Sarah. March 5, 2018. "The Hidden Problems With Puerto Rico's Water Supply." <https://www.atlasobscura.com/articles/puerto-rico-hurricane-water-contamination>

supplied provisions of water and tracking mechanisms to ensure proper delivery.¹⁰⁷ About 20,000 pallets of bottled water were discovered in September 2018 on a Ceiba, Puerto Rico airport tarmac. Federal and local officials were unable to determine when the massive shipment arrived. When residents tried to make use of the water they found it tasted and smelled bad after sitting in the sun for too long.¹⁰⁸ Even now Puerto Rican residents in mountainside communities like Villalba are struggling to survive with tap water that comes and goes from faucets and make shift showers with pails of cold water.

Comparisons have been made between the water plights of Puerto Ricans and the on-going hardship of Flint, Michigan residents. Similar to residents of the lead-contaminated Great Lakes city, officials telling island residents that the water is safe to drink is typically met with frustration and distrust. Vulnerable Puerto Rican households continue to spend significant money on bottled water purchases despite assurances from EPA and local authorities about water safety. And mirroring Flint again, many residents – as estimated 20% of Puerto Ricans in this region – have left their homes due to unreliable water supplies.¹⁰⁹

Solutions:

In our assessment, Puerto Rico and other U.S. sites need well-designed and executed plans for potable water needs when water contamination, inaccessibility and inadequate supplies are jeopardized during natural catastrophes. The problems continue well beyond the immediate crisis. Since the 2017 hurricane, 50% of Puerto Ricans households reported they could not get enough water to drink. As of this summer, approximately 53% of people said they worry about household water quality. PRASA estimates that as of August less than 1% of households experienced water service interruption but that figure does not include many isolated and rural communities that subsist on natural springs, mountain springs or their own wells.¹¹⁰

NEJAC supports FEMA’s revised preparation and disaster relief plan to prepare for Puerto Rico hurricanes. Among them are improved planning, training, coordination and technical assistance; better commodity stockpiling and distribution of water, generators, meals and other emergency provisions; and shelters and communication systems.

The Water Affordability, Transparency, Equity and Reliability (WATER) Act (H.R. 1673) was introduced in the House of Representatives in March of 2017 to provide nearly \$35 billion annually to modernize U.S. publicly-owned water systems. This federal assistance (in the form

¹⁰⁷ Sullivan, Laura. July 13, 2008. “FEMA Report Acknowledges Failures In Puerto Rico Disaster Response.” <https://www.npr.org/2018/07/13/628861808/fema-report-acknowledges-failures-in-puerto-rico-disaster-response>

¹⁰⁸ Dobuzinskis, Alex. September 12, 2018. “Thousands of pallets of water bottles unused in Puerto Rico after hurricane.” <https://www.reuters.com/article/us-usa-disaster-water/thousands-of-pallets-of-water-bottles-unused-in-puerto-rico-after-hurricane-idUSKCN1LT0A4>

¹⁰⁹ Milman, Oliver. August 8, 2018. “Another Flint? Why Puerto Ricans no longer trust water after the hurricane.” <https://www.theguardian.com/us-news/2018/aug/08/puerto-rico-hurricane-maria-water-quality>

¹¹⁰ Schmidt, Samantha. September 12, 2018. “Water is everything.” https://www.washingtonpost.com/news/national/wp/2018/09/12/feature/water-is-everything-but-for-many-in-puerto-rico-it-is-still-scarce/?utm_term=.8fd449d538b6

of a trust fund) will help communities address failing service lines, and reduce the need for high service rate increases that make it difficult for low-income households to afford water and sewer service. It will also provide resources to assist schools with water infrastructure testing and replacement; upgrade household septic tanks and drainage fields; and raise the amount for Drinking Water State Revolving Fund grants. As of late 2017, the bill has not been sent to committee.

Additionally, potable water should continue to be provided long-term to residents until water and sanitation infrastructure has completed and public health concerns have been adequately addressed. Federal Drinking Water State Revolving Funds loans should be highly prioritized to Puerto Rican water and sewerage operators with a goal toward full loan forgiveness and no additional costs passed onto low-income, vulnerable customers.

APPENDIX C

CASE STUDIES - EMERGING SUCCESSES

1. Church Rock Navajo: Federal Water Infrastructure Project Results from Declaring Rights to Clean Water for Drinking and Irrigation

Problem:

Access to safe, clean drinking water across the reservation is one of the most difficult problems to manage. For many years, Indigenous residents in the Navajo communities of Red Water Pond worked uranium mines on the hillsides of the reservation before much was known – or reported – about how dangerous and deadly uranium extraction is to people and the surrounding environment. The mines have been long-closed but the toxic waste that piled up has had long-term consequences. Red Water Pond Road is now considered one of the largest uranium-contaminated areas in the U.S., according to the EPA.¹¹¹ When cleanup efforts began to remove thousands of tons of contaminated soil, residents in this region were told they would be relocated temporarily for safety.

Decades ago large and active uranium mines on the Navajo Nation were operated by United Nuclear Corporation and extracted approximately 3.5 million tons of ore. Among these mines near Gallop, New Mexico, was the Northeast Church Rock Mine (NECR). Several Navajo chapters and indigenous communities located south of and adjacent to the mines – including Pinedale, Church Rock and Red Water Pond Road – were deeply impacted by uranium-contamination in their soil, air and water. They have pressed for years to get extensive cleanup, health testing, environmental-impact assessments, research and analysis and funding to restore livability in this ancestral region. Church Rock Mine is identified by the EPA as having the highest priority for cleanup out of more than 500 other abandoned uranium mines on the Navajo Nation.¹¹²



Red Water Pond Road. Photo credit EPA

¹¹¹ Frosch, Dan. “Amid Toxic Waste, a Navajo Village Could Lose Its Land,” <https://www.nytimes.com/2014/02/20/us/nestled-amid-toxic-waste-a-navajo-village-faces-losing-its-land-forever.html>

¹¹² EPA Northeast Church Rock Mine Site Update. March 2017.

<https://www.epa.gov/sites/production/files/2017-05/documents/factsheet-north-east-church-rock-mine.pdf>

Solutions:

The Church Rock Chapter of the Navajo Nation sponsored a report on the 2003-2007 monitoring project of uranium to assess residential environmental conditions and long-term impacts of uranium development in the region. Among the findings was that water quality in 17 unregulated sources such as wells and springs was not sufficient for human drinking. A second one reported that “Two wells were shut down and abandoned because of unsafe water quality during the course of the Project, and a “no human use” advisory was placed on another water source because of uranium levels exceeding the federal drinking water standard by more than two times.” In related soil contamination affecting crops and livestock grazing, “Surface gamma radiation rates and uranium concentrations in soils near residences in the Red Water Pond area of Study Area A-1 were many times higher than background, indicating a potential health emergency for residents of the area.”¹¹³

Among the report’s 13 recommendations were:

1. The Federal Government should fund a clean-up program targeting abandoned uranium mines that produced uranium for the Government’s nuclear weapons program.
2. The Federal Government should fund a clean-up program targeting abandoned uranium mines that produced uranium for the Government’s nuclear weapons program.
3. The Lime Ridge Well (16-4-10, also known as the Pinetree Well) should be taken out of service because of unsafe uranium levels, and a replacement water source identified and developed.
4. A capped water well located in the Red Water Pond Road residential area 3 should be accessed by the Navajo Nation and evaluated for public water supply use.
5. USEPA’s soil removal around five homes in the Red Water Pond Road community north of the NECR Mine should take into account the CRUMP uranium-in-soil findings.

In 2015 residents of the Navajo Red Water Pond met with the EPA Office of Environmental Justice to discuss on-going health problems from uranium contamination of their drinking water source. One member also testified at the Inter-American Commission on Human Rights in Washington, DC on the reservation’s history of uranium mining, contaminated water and radiation health effects experienced by many former mine workers,¹¹⁴ including kidney failure.

Navajo and Jicarilla Apache reservations and the City of Gallop have experienced inadequate and long-term problems with water supplies for people living off the San Juan River. In 2017, a federal construction project was announced for Navajo-Gallop to increase the supply of clean drinking water. Many new pipelines, pumping stations and storage tanks are being built and the project is scheduled for completion in March 2020. The infrastructure project is expected later to

¹¹³ “Report of the Church Rock Uranium Monitoring Project 2003-2007,” May 2007.
<http://www.sric.org/uranium/docs/CRUMPREportSummary.pdf>

¹¹⁴ Yurth, Cindy. November 5, 2015. “Red Water Pond resident testifies at international hearing.”
<https://navajotimes.com/reznews/red-water-pond-resident-testifies-at-international-hearing/>

provide water to more communities, including Buffalo Springs, Mexican Springs, Naschitti and Tohatchi.¹¹⁵

NEJAC is highly concerned with decades of water and soil uranium contamination in documented cases in the Navajo Nation and among the Lakota – the latter whom which source their water from the Ogallala aquifer, “considered the largest, underground freshwater source in the world, covering eight states from South Dakota to Texas.”¹¹⁶ This history appears to be closely tied to generations of high levels of kidney disease among this community. The 2003-2007 study recommendations continue to require action and deserve priority consideration by the EPA. We are encouraged by the EPA’s Community Involvement Plan for the Northeast Church Rock and Kerr-McGee Quivira mine sites that lays out Superfund clean up and assessment for the people most impacted in communities near the mines.¹¹⁷ Yet as residents have testified, clean up choices often result in Indigenous people being asked to decide between relocating away from the toxic sites and ancestral lands, or stay in contaminated housing with unsafe water sources and toxic soil. We ask the EPA to prioritize Indigenous Superfund Sites and expedite the construction of new water and sewage systems on first nations and adjoining cities to reduce the dire health impacts on generations of residents.

2. San Diego, California: Effective partnerships, superb public outreach, and technological innovation lead to water supply and sewage solutions

Problem:

The city of San Diego, California has extremely limited local fresh water and sewage infrastructure resources. For the past several decades, San Diego has been struggling to provide clean, safe water and sanitation to millions of residents while grappling with drought, inadequate technology, and rising costs. San Diego faces a massive sewage infrastructure problem with the continued operation of the city’s aging and inadequate Point Loma Sewage Treatment Facility. An EPA-issued waiver from Clean Water Act requirements means the Point Loma facility is the only one of its kind left in the nation that does not meet federal clean-water standards. It would cost the city nearly \$2 billion to upgrade the plant, so San Diego instead discharges hundreds of thousands of gallons of partially-treated sewage directly into the ocean annually.

In addition, San Diego has a water supply issue. On average, 85% of the city’s drinking water supply is imported from the Colorado River and Northern California. In the past, obtaining water from these sources was a reliable option, but environmental stresses, court-ordered pumping

¹¹⁵ <https://www.doi.gov/pressreleases/interior-announces-62-million-construction-contract-navajo-gallup-water-supply-project>

¹¹⁶ Suree Towfighnia and Waging Non Violence, *Water First! Lakota women and ranchers lead charge to close toxic mine*, *Ecologist* (October 13, 2015). <https://theecologist.org/2015/oct/13/water-first-lakota-women-and-ranchers-lead-charge-close-toxic-uranium-mine>

¹¹⁷ “Community Involvement Plan for the Northeast Church Rock and Kerr-McGee Quivira Mine Sites.” 2016. <https://www.epa.gov/sites/production/files/2017-05/documents/factsheet-necr-quivira-cip.pdf>

restrictions in Northern California, and a historic drought have reduced the amount of deliverable water. The city’s reliance on imported water makes San Diego vulnerable to supply shortages and price increases. The city needs new sources of water that are under local control. Additionally, with the region’s population projected to reach 3.9 million people by 2030, demands will increase and strain limited outside water supplies.

Twenty-five years ago, city officials recognized the unsustainability of the Point Loma plant, as well as importing water, and attempted to implement a technology to recycle wastewater into clean, safe drinking water. But the initial sewage-to-drinking-water system campaign failed to convince citizens that recycled water would be safe to drink. The campaign faced strong opposition. There were accusations of discrimination and environmental injustice, stemming from a proposal that the recycled water be sent to less affluent communities. There was also fear of contamination, and the “yuck” factor (the concept of “toilet to tap” evoked strong disgust). The project faced tremendous opposition and public disapproval due to poor messaging--that those who were low-income and people of color would be receiving the recycled water. So, the city scrapped the original sewage-to-drinking-water proposal—until now.



What is Pure Water San Diego?

- 20 year program to provide a safe, reliable and local drinking water supply for San Diego
- Uses proven water purification technology and is environmentally sustainable
- Is a cost-effective solution, eliminating the need for expensive upgrades to the Point Loma Wastewater Treatment Plant




*Point Loma and Pure Water San Diego: An Integrated Water and Wastewater Solution. Industrial Environmental Association Water Committee. Slide Player, September 11, 2014.
<https://slideplayer.com/slide/8648287/>*

Solutions:

San Diego determined that fending off environmental lawsuits and spending millions of dollars to upgrade the outdated Point Loma facility was short-sighted and ineffective. The city wanted to revisit the sewage-to-drinking water concept, but this time, they would do it right. The communications, marketing, and public outreach component of the savvy-branded “Pure Water San Diego” project has won national awards.

In an extraordinary effort to build a public information campaign that would pave the way for acceptance of water recycling, the city also joined forces with the powerful Water Reliability Coalition—a large group of nonprofits, citizen organizations, schools, unions, trade and professional associations that wholeheartedly support Pure Water San Diego. The San Diego Water Board, California’s State Water Resources Control Board Division of Drinking Water Programs also support Pure Water. Due to a massive city-

wide (and award-winning) marketing and educational campaign, over 70% of the city’s residents are now in support of the project. The city made a tremendous effort to educate the population and avoid any suggestion that the recycled water would only be for low-income, communities of color. Recycled water is safe for everyone and everyone will be using it, as the recycled water will be piped and mixed into the city’s San Vicente Reservoir. It is a long-term solution for San Diego—by using technology to recycle the city’s wastewater into drinking water, it will potentially divert hundreds of millions of gallons of wastewater away from the Point Loma facility (and the ocean), as well as localize the city’s water supply. They will no longer have to rely on imported water.

This project demonstrates the power of diverse coalitions, innovative technology, community engagement, and long-term planning to solve both drinking water and wastewater infrastructure issues for the present and the future.

Consultants working on the project made these recommendations to build public support:¹¹⁸

1. **Start with research:** Who are your audiences? What do they think? What do they understand?
2. **Get the language right:** Do not assume your audiences know anything about potable water or how their water supply is maintained for their benefit.
3. **Talk tech, but do it briefly and simply:** Photographs, graphics, and simplified descriptions have been proved to aide communication success.
4. **Build alliances:** A coalition of supporters can create a powerful bandwagon that can attract members of their own circles of influence.
5. **Query your team’s attitudes:** When identifying stakeholders and audiences, make sure your own employees are at the top of the list. Find out what they think or what they need to know.
6. **Promote two-way communication but manage expectations:** Invite input where it can be used, but set realistic expectations for how input will be incorporated.
7. **Develop a message platform:** The ultimate goal is for people to see potable reuse as an acceptable alternative because they have been well informed in a transparent way.
8. **Use graphics and videos:** Given the complexity of reuse projects, clear graphics are critical to help customers visualize a project and understand technical aspects.
9. **Establish a news bureau:** Get ready for media relations and develop a rapid response plan to address misinformation or misunderstanding.
10. **Use social media judiciously:** It can be helpful, and can be dangerous. Understand its power and be strategic.
11. **Touring is believing:** Solid graphics are great; hands on experiences are even more powerful. Where demonstration or touring is possible – make plans early.

¹¹⁸ <http://www.katzandassociates.com/2017/08/11-outreach-strategies-for-potable-reuse/> See also “Getting to Yes, Public Outreach for Potable Reuse: Bring the Public to a New Level of Acceptance.” Sara M. Katz and Patricia A. Tennyson, Journal AWWA, November 2015.

3. Philadelphia Successfully Implements the First Income-Based Water Affordability Program in the U.S.

Problem:

As described in earlier sections of this report, water affordability for low-income households is emerging as a critical concern among many water rights advocates to ensure household well being, family intactness and public health vitality. The denial of residential water service to customers too poor to pay water and sewerage rates is both a matter of public and private concern as local officials and families must contend with the consequences.

Solutions:

These issues were among the concerns raised by members Philadelphia's City Council in 2015 when it unanimously pioneered and passed the Tiered Assistance Program (TAP). The initiative proactively helps residents who are struggling with water bill payments to receive help before they get into arrears. Rather than bills based on usage, qualified low-income customers are billed on a percentage of household income and size. Water conservation and free leak detection tests are additional components of the program to help keep down consumption levels.

Ensuring water and sewage affordability for the city's residents is part of a plan to secure multiple community and system benefits. Low-income customers below 150% of the poverty line who pay what they can afford help minimize the costs paid to collection efforts and offer consistency in anticipated water system revenue for operations and infrastructure expenses. Providing customers with affordable bills also reduces (and hopefully prevents) water bills liens on residential property taxes leading to foreclosures.

Another critical component of Philadelphia's development, implementation and assessment of TAP is the consumer protection assistance offered by local legal aid attorneys to research and analyze Philadelphia Water Department requests for rate increases. The independent rate board selected a Community Legal Services attorney as a public advocate to represent customers' interest in water rate proceedings offering another level of counsel on behalf of low-income ratepayers.¹¹⁹

NEJAC finds that creating equitable water and sewerage pricing for the most vulnerable households is bound to become a necessary trend as more cities grapple with systems costs and consumer constraints. The Philadelphia TAP concept, including rate board consumer advocates, can be a model program for other cities with similar water affordability challenges.

¹¹⁹ Rinde, Meir. "After months of wrangling, a boost in city water rates will take effect in September." July 23, 2018. <https://why.org/articles/after-months-of-wrangling-a-boost-in-city-water-rates-will-take-effect-in-september/>

4. Rogers-Eubanks Neighborhood, North Carolina: A community secures a plan for clean drinking water after decades of landfill pollution

Problem:

The Orange County Municipal Landfill was built in the Rogers-Eubanks neighborhood in 1972, with promises from then-Mayor Howard Lee that he would provide water and sewer services, pave the local road, and put a recreation center on the landfill when it was closed.¹²⁰ The community never saw those improvements. And instead of closing the landfill, the County expanded the landfill in 1982 and added a liner, then expanded the landfill again and added a transfer station in 2007.

Solutions:

Local activists, fed up with government inaction and sick of the landfill's harmful impacts on the community, began investigating its effects, finding raw sewage seeping from yards, elevated levels of fecal and *E. coli* contamination in local water sources and toxic chemicals in the air.¹²¹ These results brought investigators from the Orange County Department of Health, who concluded that less than half of all septic systems were failing, drinking water sources were contaminated with fecal bacteria, and nine out of eleven wells tested failed to meet health standards. Working with Congressional leaders, county commissioners, and state leaders over the past two years has resulted in a solution to provide these residents with safe drinking water by 2019.

5. Georgia Rural Community Assistance Project: Addressing legacy and naturally occurring contamination by providing technical assistance to help communities achieve clean water

Problem:

Tennille, Georgia's drinking water is contaminated with dry-cleaning fluid from a closed manufacturing facility. A Georgia Department of Natural Resources Environmental Protection Division consent order requires the city to remove the chemical contamination, implementing corrections to all other deficiencies, and submitting a cleanup report. The Georgia Rural Community Assistance Project (RCAP) team has begun discussions to assist the city with a corrective plan and will keep in contact with the state agency throughout the project cycle.

Solutions:

To date, activities by the Georgia RCAP staff have included a site visit and meeting in Tennille with the project engineer and mayor and the revision and approval of the city's water purchase agreement with the neighboring city of Sandersville. The new agreement will allow the city to

¹²⁰ https://sites.duke.edu/docst110s_01_s2011_sb211/rogers-eubanks/the-orange-county-landfill/

¹²¹ <https://www.newyorker.com/news/news-desk/fighting-environmental-racism-in-north-carolina>

pay for any increased amount water purchased from Sandersville at the cost of production for a period of up to two years. The agreement was approved by both cities and signed in October 2016. The Georgia Technical Assistance Provider and engineer met with the city officials again in early December 2016 to go over the results of well tests and make a determination on how to best implement a long term plan of corrective action to resolve the compliance order from the state. The city may have to close the wells affected permanently but discussions continue.

Problem:

Cairo, Georgia suffers from naturally high levels of arsenic in its drinking water caused by a strip of land that bisects the state known as the Gulf Trough, which is essentially an ancient shoreline. The Georgia Department of Natural Resources Environmental Protection Division issued Cairo a Safe Drinking Water Act compliance order on October 4, 2016 because the city's drinking water exceeded the maximum contaminant level for arsenic. The state immediately referred the problem to Georgia RCAP, whose program staff met with the mayor and consulting engineer to discuss the problem. Georgia RCAP completed a fiscal analysis for the city to determine their capacity for additional long-term debt during the outset of the project.

Solutions:

To address the issue of naturally occurring arsenic, the state required the city to build a new water treatment facility that includes arsenic filtration, by March 31, 2017. The city must also notify the public of its results on a quarterly basis and needed to come into compliance with the arsenic limits by 2018. Georgia RCAP will provide technical assistance to city employees to train them how to operate the new filtration system.

APPENDIX D

EPA's Charge Questions to NEJAC

1. Priority Needs Identification

- a. What does the NEJAC understand to be the most significant challenges for communities in providing for safe and clean water?
- b. What can the EPA do, in collaboration with states and other stakeholders, to help gather data on water infrastructure needs/challenges for communities?
- c. What insights and examples can the NEJAC offer to states and the EPA to help identify communities of concern and inform priority-setting processes for providing assistance, including consideration of communities that face public health risks from regulated or unregulated contaminants suspected to be present in drinking water?

2. Tools for Community Capacity Building

- a. What best practices and tools would the NEJAC recommend to assist communities with the development of water system technical, managerial and financial capacity; and can the NEJAC provide examples of how these practices and tools have been used effectively?
- b. Can the NEJAC offer models or templates that provide for public input into the practices and tools?
- c. Are there certain practices and tools that are especially well matched to particular types of communities in the categories of concern?
- d. Can the NEJAC provide examples of innovations that have helped communities develop water system capacity?

3. Community Engagement and Education

- a. What approaches and best practices would the NEJAC recommend to support meaningful community engagement and input to help inform funding priorities for state revolving fund programs?
- b. What steps can states, the EPA and other stakeholders take to encourage these communities to participate in local planning processes for determining 1) their priority infrastructure funding needs; 2) their infrastructure pre-development needs and 3) their needs for technical assistance and training to develop water system capacity?
- c. What can states, the EPA and other stakeholders do to help educate communities where water and wastewater infrastructure issues exist?
- d. Are there ways that states, the EPA and other stakeholders could more broadly help educate communities about water and wastewater infrastructure issues?

4. Water System Partnerships

- a. In the NEJAC's experience, what are the barriers to water system partnerships and how can they be overcome?
- b. What can the EPA, working with states, communities and other stakeholders, do to inform and encourage communities to identify partnership opportunities and enter into sustainable partnerships?
- c. What can the EPA, states and other stakeholders do to increase collaboration within the water sector?

- d. How could the EPA and states work with drinking water and wastewater utility associations, colleges and universities, and research institutions to bring them into the conversation?